EFFECTIVENESS OF LOAN RESCHEDULING ON PERFORMANCE OF COMMERCIAL BANKS IN BANGLADESH

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Dedication

To

My Paternal Uncle Late Hashmat Ali

And

My Father Late Mohammad Abdul Baten Sarker

DECLARATION

I hereby declare that the thesis, which is titled "**Effectiveness of loan rescheduling on performance of commercial banks in Bangladesh"**and submitted to the University of Dhaka, Bangladesh for the degree of Doctor ofBusiness Administration (DBA), is based on my own research work carried out under the supervision of Dr. ShakilaYasmin, Professor, Institute of Business Administration, University of Dhaka.

The material embodied in this thesis is original and has not been submitted in part or fullfor any other degree, diploma or title recognition of any university.

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CERTIFICATE

This is to certify that the thesis, which is titled "**Effectiveness of loan rescheduling on performance of commercial banks in Bangladesh"**, is hereby submitted by Mohammad Ebadul Islam, DBA candidate, Institute of BusinessAdministration, University of Dhaka, in fulfillment of the requirements of the degreeof Doctor of Business Administration (DBA).

It is also certified that the research work embodied in this thesis is original and carried out byhim under my supervision. No part of the work has been submitted for any other degree.

He is permitted to submit the thesis.

Dr. ShakilaYasmin
Professor
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ABBREVIATIONS AND ACRONYMS

ACF	Autocorrelation Coefficient Function
ADB	Asian Development Bank
ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criterion
AMC	Asset Management Company
AR	Autoregressive
ARA	ArthaRinAdalat
ARCH	Autoregressive Conditional Heteroscedasticity
ARDL	Autoregressive Distributed Lag
ARIMA	Autoregressive Integrated Moving Average Model
ARMA	Autoregressive Moving Average
BB	Bangladesh Bank
BCD	Banking Control Division
BDT	Bangladeshi Taka
BL	Bad/Loss
BRPD	Banking Regulation and Policy Department
CAMEL	Capital Adequacy, Asset Quality, Management, Earnings and Liquidity
CAR	Capital Adequacy Ratio
CDRC	Corporate Debt Restructuring Committee
CIB	Credit Information Bureau
CHAMC	China Asset Management Corporation
CL	Continuous Loan
CL	Classified Loans
CPB	Conventional Private Banks
CRG	Credit Risk Grading
DEA	Data Envelopment Analysis

DF	Doubtful
DFI	Development Financial Institution
DL	Demand Loan
DL	Distributed Lag
ECM	Error Correction Model
ECT	Error Correction Term
EIR	Expenditure Income Ratio
EU	European Union
FBP	Foreign Bill Purchase
FCB	Foreign Commercial Banks
FGD	Focused Group Discussions
FL	Forced Loan
FinSac	Financial Sector Advisory Centre
FSR	Financial Stability Report
FSRP	Financial Sector Reforms Program
FTL	Fixed Term Loan
GARCH	Generalized Autoregressive Conditional Heteroscedasticity
GDP	Gross Domestic Products
HQIC	Hannan-Quinn Information Criterion
IB	Islamic Banks
IBP	Inland Bill Purchase
IBRA	Indonesian Bank Restructuring Agency
ICRRS	Internal Credit Risk Rating Score
IMF	International Monetary Fund
IRF	Impulse Response Function
KAMCO	Korea Asset Management Corporation
KDIC	Korea Deposit Insurance Corporation
LDR	Liquidity Ratio

LR	Loan to Deposit Ratio
MA	Moving Average
MCQ	Multiple Choice Questions
MLE	Maximum Likelihood Estimation
MSE	Medium Size Enterprises
NAMC	National Asset Management Company
NARC	National Asset Reconstruction Company Ltd
NBFI	Non-Bank Financial Institutions
NIM	Net Interest Margin
NOC	No Objection Certificate
NPA	Non-Performing Assets
NPL	Non-Performing Loans
OLS	Ordinary Least Square
OM	Operating Margin
PACF	Partial Autocorrelation Coefficient Function
PCB	Private Commercial Banks
PP	Phillips-Perron
RCC	Resolution and Collection Corporation
RCDR	Regulator-Initiated Corporate Debt Restructuring
RMG	Ready-Made Garments
ROA	Return on Asset
ROAA	Return on Average Assets
ROE	Return on Equity
RSD	Rescheduled Loans
RTC	Resolution Trust Corporation
RWA	Risk-Weighted Asset
SAMC	Short-Term Agricultural and Micro-Credit
SBC/BIC	Schwarz Bayesian Criterion

SCB	State-Owned Commercial Banks
SDR	Strategic Debt Restructuring
SMA	Special Mention Accounts
SME	Small and Medium Enterprises
SOB	State-Owned Banks
SS	Sub-Standard
TAMC	Thai Asset Management Corporation
TCL	Total Classified Loans
TL	Total Loans
UK	United Kingdom
UKAR	United Kingdom Asset Resolution Limited
USA	United States of America
VAR	Vector Autoregressive
VDF	Variance Decomposition Function
VECM	Vector Error Correction Model
WB	World Bank

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ABSTRACT

A competitive banking system is a crucial element in fostering a sound financial system that supports economic development. It promotes efficiency, innovation, and accountability while facilitating the allocation of capital to productive uses. A sound financial system is required for economic development and a competitive banking system is the prerequisite for ensuring the efficiency of the financial system (Wilson, 2014). The highest task of the financial process is to utilize public savings through allocation in different sectors of the economy which is known as the process of capital formation in the economy (Mittal and Suneja, 2017). Commercial banks are integral part to the functioning of the modern financial system and play a significant role in supporting economic activities by facilitating the efficient allocation of capital and providing essential financial services to individuals and businesses. Commercial banks often offer a wide range of financial services beyond basic deposit and lending functions. These services may include wealth management, investment advisory, foreign exchange, trade finance, and many more, depending on the specific bank and its capabilities. Sehrish et al. (2012) emphasized that the banking system is a significant element for decision-making for prospective investors, savers, potential borrowers, and policymakers.

Like any economy, the banking sector of Bangladesh has been reached today with significant changes in policies and activities from its independence in 1971. The banks of this sector play a vital role in the economic development of the country. However, the question of Non-Performing Loans (NPL) has become the headache of the banking sector. The recent literature and practical experience show the worse situation of NPLs and their impact on credit growth in the context of Bangladesh's banking sector. These imply the importance of policy considerations, risk management strategies, and regulatory measures to address and mitigate the challenges associated with the terrible condition of the NPLs problem. The government of Bangladesh has adopted a significant number of strategies to manage NPLs.

The loan rescheduling is a commonly practiced policy to reduce the NPLs. Successful rescheduling can contribute to the improvement of asset quality of the banks allowing the bank to avoid adverse classification of the disbursed loans. The implication of the loan rescheduling on bank performance involves consideration of various financial and operational aspects with the expectation of research to find out the real productiveness of the banking sector.

The broad objective of this study is to evaluate the effectiveness of loan rescheduling on performance of commercial banks in Bangladesh with four specific objectives i) to analyze elaborately the loan rescheduling process adopted by the banks and its trend; ii) to investigate the short and long-run impact of the rescheduled loan on performance; iii) to track the rescheduling loan to determine their ultimate recovery rate; and iv) to identify whether any differences among type-wise banks in their loan recovery through rescheduling.

A mixed-methods approach combining both qualitative and quantitative methodologies has been used through descriptive statistics, dynamic models like Vector Autoregressive (VAR) and Vector Error Correction Model (VECM) integrating time series data, and case studies from both the primary and secondary sources of data. The experts' opinion has been investigated to validate the outcomes of the analysis through semi-structured questionnaires.

There has been a continuous increase in the number or proportion of non-performing loans and rescheduled loans in the banking sector of Bangladesh over the specified period from 1997 to 2021. The results of the VECM and VAR model suggest that rescheduled loans have a long-run expected impact only on asset quality but a negative impact on earnings. Additionally, capital adequacy, management efficiency, and liquidity do not have a long-run impact on rescheduled loans but interestingly all of the performance indicators; both individually and collectively have a short-run impact on rescheduled loans.

By systematically analysing the recovery data for accounts rescheduled first-time in 2016 and tracking their outcomes until 2019, it is observed that smaller accounts, particularly those with loan sizes less than 1 million, have a higher repayment performance compared to larger accounts.

Comparing the percentage of accounts classified with the percentage of unrecovered amounts implies that a relatively small number of larger loans contribute to a significant portion of unrecovered amounts, and the concentration of classified accounts in the more than a billion categories highlights potential risk concentration in larger loans. The accounts that are regular through second and third-time rescheduling have a real income reduction which is associated with a decrease in risk-weighted assets, earnings, management efficiency, and liquidity validating the VECM/VAR model results.

From the semi-structured questionnaire of 60 experts, 42% of them, the largest group believe that loan rescheduling has no positive impact on bank performance but 38% of experts believe in a positive impact whereas 20% of experts believe that a partial positive impact provides a nuanced perspective. The majority of the experts believe that loan rescheduling reduces productivity which leads to skill loss emphasizing the potential negative impact on the efficiency and skills of the banking sector. The alignment among the negativist perspective and the outcomes of the dynamic model and case study, particularly regarding the non-impact of rescheduling on risk-weighted assets, management efficiency, and liquidity, validated the consistency of the findings.
This research not only enriches previous research in several ways but also paves the way for future investigations in related areas contributing to the advancement of knowledge in the field and providing practical insights for industry practitioners and policymakers. Combining multiple methodologies, this research contributes to the academic literature by offering a comprehensive analysis of the effectiveness of loan rescheduling. This can be valuable for researchers interested in similar topics by overcoming the limitations of the data and other factors. The research outcomes can serve as practical guidance for commercial banks. Policy-makers can bring into play the insights to get rid of impurity strategies of distressed loan management and improve overall financial performance. Strategies for supervision of the impact of rescheduling on various financial metrics may need to be refined based on the observed outcomes. By exploring alternative strategies, researchers can expand a deeper perspective of the complexities close to rescheduled loans and efforts towards developing solutions that promote financial strength and sustainable lending practices in the banking sector.

CHAPTER ONE: INTRODUCTION

Banks, the financial intermediaries serve as mediators by facilitating the flow of funds between savers and borrowers, which is crucial in ensuring efficient capital allocation in the economy in the procedure of expediting investments, supporting businesses, and fostering economic growth. In the background of this study, the role of the baking business is briefly discussed. It also deliberates the banking system of Bangladesh in consort with the basic problem of the banking system in Bangladesh. It is perceived that the non-performing loan is one of the most pressing problems in the banking system of Bangladesh. The policy, trend, and type-wise banks' non-performing loan status of the commercial banks of Bangladesh are scrutinized in this chapter. The loan rescheduling is considered the ultimate and auspicious way of contending with the non-performing loans. The problem statement with research gap analysis has been revealed. Based on the problem statement and research gap analysis; the research questions, rationale, objectives, scope, and limitations of the study have been covered in this chapter. Lastly, the outline of this research in a figure has been drawn for demonstration of the overall feature of this research.

1.1 Background of the Study

Banks are financial mediators that create a bridge between the depositors and investors. Banks' productivity is determined by the commitment of the bank to the borrowers and lenders. The essence of bank production is characterized by the ability to manage risks. Hughes and Mester (1993) argue that these abilities are interrelated elements of bank output by influencing the managerial capability in financial service production pragmatically and efficiently. The banking system creates the fund flow through borrowing and lending and other related activities in the process of real production, trading, and foreign trade transactions. It fosters economic growth in consumption and production by mobilizing people's savings for investment purposes. The banking system can be considered the heart of the economic structure and the process can be considered the blood circulation in the economic system (Mankiw, 2020).

The main function of the heart is to accumulate and circulate blood in the whole body. Similarly, the main function of banks is to collect deposits and disburse the loan where the loan can be termed as an incentive for new production. The main functions of the banking system are to safeguard cash, manage finances through record keeping and budgeting, facilitate financial transactions, borrow loans, invest money, establish a credit history, facilitate foreign trade and transactions, maintain safe custody of valuable assets, etc. Commercial banks serve individuals, institutions, and businesses as public business institutions. Banks are regulated by a set of federal and/or state laws depending on how they are organized and the services they provide, and the regulatory environment for banks is subject to ongoing changes and updates in response to evolving financial industry practices and challenges (Sheriff, 2019; Akiki, 2022; Tawah, 2022).

Both classical and modern theories of economic growth recognize that savings are essential for capital accumulation and investment, which are key drivers of economic expansion. The banking sector plays a crucial role in connecting savers with entrepreneurs and businesses in need of capital, thereby contributing to the growth and development of an economy. Moreover, as economies evolve and become more complex, the financial intermediation role of banks has become increasingly important in facilitating the efficient allocation of resources and supporting innovation and progress. Muniswamy (2018) argues that the foremost activity of commercial banks in economic improvement reposes on their role as financial intermediaries. This article shows that commercial banks create the flow of investment capital throughout the marketplace, and the chief mechanism of capital allocation in the economy is accomplished through the lending process. Thus, savings, a vital catalyst for capital formation and economic growth serve as the cornerstone of the financial system. They enable individuals and businesses to plan for the future, provide funds for investments, and support the overall stability along with development of an economy.

The effective allocation of savings through financial intermediaries like banks is essential for harnessing the potential of these funds for productive purposes (Rose, 1986). The banks look after their customer savins offering interest and offer loans to business along with mortages to homebuyer. The methods of payments are also confirmed and executed by the banks. Therefore, the banking sector does business as a portfolio manager through risk-taking.

Apparently, in the process of the financial sector, banks put more focus on development. A good banking system is a prerequisite for the development of any economy and this banking system ensures effective use of resources, facilitating efficient allocation which accesses capital by individuals, firms, and projects for undertaking different social and physical infrastructure projects, creating jobs, and increasing productivity (Dey, 2019). Alternatively, down-sizing in banks' balance sheets in the course of the crisis has become an alarming situation and therefore cost of equity finance has risen (Wehinger, 2012). Wehinger (2012) opined that banks' return on equity will be significantly condensed because of funding difficulties.

Banks can play a significant role in developing capital formation through distributing physical resources into desired channels (Afroj, 2022). Effective, efficient, and disciplined commercial banks play an important and active role in the economic development of a country and are used as a catalyst for rapid growth in the various sectors of the economy (Saini and Sindhu, 2014). Commercial banks are supportive of credit flow and employment generation in rural areas can have significant implications for the development of the economy through increased access to capital, rural entrepreneurship, agricultural development, poverty alleviation, skill development, and financial inclusion and so on (Wilson, 2014).

Barkley and Helander (1985) analyzed the importance of commercial bank loans in non-metropolitan economic development and insisted that commercial banks' role would be greatest through the initiation of export activity and fulfillment of credit needs of the non-basic sector. The study recommended that banks may be more willing to undertake employment-generating investments. In this study also referred a strong relationship among the loan volume, per capita income, employment generation, economic development, local economic development with commercial banks.

Racheal and Uju (2018) analyzed that the significance of commercial banks in supporting small and medium size enterprises (SMEs) and interpreted that commercial banks have contributed immensely to the development of SMEs through their loans and advances. They recommended collective effort between SMEs and banks so that SMEs can survive in the market.

Matthew and Laryea (2012) mentioned that both banks and capital markets are essential components of any economy, their relative significance can vary between developing and developed economies. Developing economies often rely heavily on banks for financing and economic growth, while developed economies place a greater emphasis on capital markets to support economic diversification and reduce systemic risk. However, the balance between these two financial intermediaries can evolve over time as economies develop and financial systems mature. Afolabi et al. (2017) stated that a high-tech accessible banking system can be a catalyst for successful operations within the economic and financial system by improving efficiency, expanding accessibility, reducing costs, enhancing security, and fostering innovation. It empowers individuals and businesses to manage their finances more effectively and participate in the modern financial landscape.

1.2 The Banking Sector of Bangladesh

Saha and Chowdhury (2000) examined and evaluated the scenario of the contribution of commercial banks in the economy of Bangladesh using different performance indicators like business expansion, utilization of savings, sectorial and regional circulation of credits, etc. According to their opinions, commercial banks function as the most important factor in the financial system through savings mobilization and mediation of funds between savers and business organizations with a significant player in the economic development of a nation. Commercial banks transfer the funds from one region to another for efficient utilization which paves the way for the development of backward regions. These also provide finance to set up and run the industries, agricultural development, and other sectors of the economy. Islam and Shafiuddin (2020) and Shahid et al. (2022) mentioned that in the present time, banks introduced a number of products in the present time; for instance - consumer products, credit cards, debit cards, merchant banking, leasing, loan syndication, saving deposit schemes, insurance-linked deposit schemes, and so on.

Bangladesh Bank (BB), the central bank of Bangladesh, was established in 1972 by presidential order No. 127 of 1972, and the eastern branches of all banks of Pakistan became commercial banks.

After the emergence of the BB, it took various measures like credit policy and expansion, deposit mobilization, prioritizing sector of expansion, and branch allocation throughout the country. All the commercial banks became state-owned except a few foreign banks but they inherited the poor banking system in terms of liquidity, personnel, deposits, advances, and banking network at the time of liberation. Due to the problem in the previous banking system, the standard of customer services could not be fulfilled, and irregularities in loans became a burning question for the banking sector. In this consideration, the government decided to establish private commercial banks as well as the privatization of the state-owned commercial banks gradually in the decade of 1980s.

A number of specialized scheduled and non-scheduled banks, as well as development financial institutions were also been established. At the same time, non-bank financial institutions (NBFI) were also licensed. Therefore, the banking sector operation has been diversified to accelerate the banking service to boost the economy. During the 1990s the third-generation bank and in the 2010s the fourth-generation banks were licensed. As per Bangladesh Bank Annual Report 2021-2022, there are 61 commercial banks in Bangladesh comprising 6 State-owned Commercial Banks (SCB), 3 Development Financial Institutions (DFI), 43 Private Commercial Banks (PCB) including 9 Islamic Banks (IB), and 9 Foreign Commercial Banks (FCB). These banks play a vital role in the economic development of the country.

From the annual reports of Bangladesh Bank, it is observed that total assets, total deposits, and total loans in 1997 were Tk.872 billion, Tk.778 billion, and Tk.412 billion. After 24 years, the total assets, total deposits, and total loans have risen to Tk.20429 billion, Tk.15181 billion, and Tk.12522 billion. These data is observed that total assets, total deposits, and total loans have been accelerating in a remarkable number. Table 1.1 shows the data of the total asset, total deposits, and and total loans, for the period of 1997-2021.

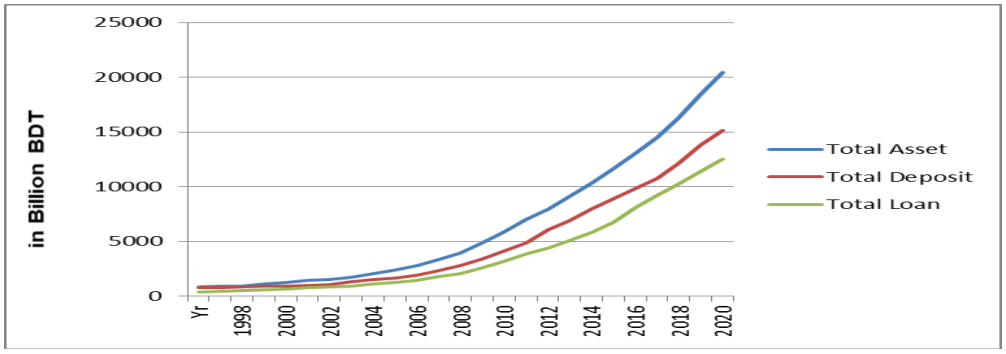
Table 1.1: Total Assets, Deposits and Loans of the Banking Sector in Bangladesh

(In Billion BDT)

Year	Total Asset	Total Deposit	Total Loan
1997	872	778	412
1998	909	819	468
1999	947	863	532
2000	1101	908	605
2001	1280	956	687
2002	1453	1024	768
2003	1514	1074	847
2004	1726	1326	951
2005	2043	1554	1117
2006	2406	1687	1292
2007	2774	1952	1466
2008	3314	2316	1816
2009	3966	2793	2090
2010	4855	3379	2574
2011	5868	4116	3213
2012	7031	4864	3859
2013	8000	6105	4438
2014	9143	6931	5076
2015	10315	7940	5799
2016	11627	8934	6739
2017	13059	9874	8106
2018	14572	10798	9246
2019	16298	12145	10259
2020	18406	13798	11387
2021	20429	15181	12522

Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

From the above data, the line Figure has been plotted which has been depicted in Figure 1.1 showing the trend of the total asset, total deposits, and total loans for the period of 1997-2021. All the lines are positively increasing inferring that over the period total assets, total deposits, total loans, and total non-performing loans are increasing. The uprising trends of the banking sector shows the importance of the fact of banking of Bangladesh.



Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

Figure 1.1: Total Asset, Total Deposit, and Total Loan of the Banking Sector in Bangladesh

1.3 The Non-Performing Loans Status in Bangladesh

Banks' income increases through the sound lending loan. The lending function comprises the origination, funding, monitoring, and servicing of loans. Loans are deemed as assets of a bank. To maintain assets to standard quality, various prudential regulations from various angles are issued by the central bank such as- loan classification criteria, provisioning requirements, income recognition, write-off policy, risk diversification, directed lending, debt restructuring, etc. For many years, the Bangladeshi banking sector has been burdened with the crisis of accumulation of huge NPLs. All types of commercial banks in Bangladesh are facing the problem of an overwhelming amount of NPLs.

The loan classification system was introduced in 1989 and several changes have occurred from time to time. Since 1989, Bangladesh has followed both "overdue criteria" and "qualitative criteria" to deem a loan classified or unclassified. According to overdue criteria, as suggested by BB, bank managers usually divide all loans into four categories (continuous loan, demand loan, term loan, and short-term agricultural credit/microcredit), and then observe the periods elapsed for repayments. All the regular and normal overdue loans are catagorised as unclassified (UC) but all troubled loans are then classified as substandard (SS), doubtful (DF), and bad/losses (BL) to comply with international norms of loan. The special mention account (SMA) classification was introduced in Bangladesh at the beginning of the year 2006.

Further, to keep the management up to date about the status of loans, bank managers review the loan quality quarterly. Presently, the banking sector of Bangladesh follows a rule of six months overdue for deeming a loan non-performing. The rate of general provision on classified loans follows norms of 5%, 20%, 50%, and 100% against special mention accounts, substandard, doubtful, and bad/loss loans respectively. The basic losses for the NPL are-

a) The banks have to pay interest on the deposit but no income is generated for NPLs;
b) The interest income for the defaulted loan has to be preserved as suspense until the loan is recovered or becomes a regular loan;
c) The banks should have to preserve more provisions for NPLs; etc.

The presently effective classification and provision criteria as per BRPD Circular no 14/2012, 19/2012 and 03/2019 on classification and provision reserve conditions are given in Table 1.2 (Relevant policies are depicted at Appendix IV).

Table 1.2: Loan Classification and Provision Criteria

Category of Loan	**Loan Classification**	**Base for Provision***
Continuous and Demand Loan	**UC:** Overdue less than 6 months **SMA:** Overdue more than 2 months but less than 3 months **SS:** Overdue more than 3 months but less than 9 months **DF:** Overdue more than 9 months but less than 12 months **BL:** Overdue more than 12 months	UC:0.25% (SME) UC:1% (Off-Balance sheet items) UC:1% (Other than SME, Consumer Financing, Merchant Banks loans, SMA) UC:1% (Housing Finance) UC:2% (Merchant Banks loans) UC:2% (Credit Cards under consumer financing) UC:5% (Consumer Financing, SMA) SS: 20% DF: 50% BL:100%
Term Loan	**UC:** Installment overdue less than 6 months **SMA:** Installment overdue more than 2 months less than 3 months **SS:** Installment overdue more than 6 months less than 9 months **DF:** Installment overdue more than 9 months less than 12 months **BL:** Installment overdue more than 12 months	
Short-Term Agricultural and Micro-credit	**UC:** Overdue less than 12 months **SS:** Overdue less than 12 months **DF:** Overdue less than 36 months **BL:** Overdue more than 60 months	UC: 1% SS: 5% DF: 5% BL:100%
*Provision will be calculated after deduction of the interest suspense and eligible securities.		

Therefore, Provision= Classified Loan-(Interest Suspense- Eligible Securities).
The eligible securities will be considered as:

- ✓ Liened deposit:100%
- ✓ Liened govt. bond/sanchaypatra: 100%
- ✓ Govt. or Bangladesh Bank Guarantee: 100%
- ✓ Present market value of the reserved gold or gold ornaments at bank: 100%
- ✓ Bank controlled marketable goods (pledge): 50%
- ✓ Market value of the mortgaged land/building: 50%
- ✓ Average market value or face value whichever is less, of the share traded in stock market: 50%

** As per the qualitative judgment, any continuous, demand or term loan can be classified at any time if any uncertainty or doubt arises in respect of recovery of the loan, and the classification status will be done like this:

SMA: The loan was not made in compliance with the bank's internal policy or failure to maintain adequate and enforceable securities or poor control over collateral or below-average/declining profitability, barely acceptable liquidity, problems in strategy, etc.

SS: Recurrent overdrawn, low account turnover or competitive difficulties or very low profitability or weak management or cash flow less than repayment principal or conflict in corporate interest, or primary sources of repayment are insufficient to service the debt or without adequate documentation of the obligor's net worth, profitability, liquidity, and cash flow, etc.

DF: The loan was permanently overdrawn including location in an industry with poor aggregate earnings or loss of markets or serious competitive problems or failure of key products or operational losses or illiquidity or the necessity to sell assets to meet operating expenses or cash flow less than required interest payment or very poor management or non-cooperative/hostile management or doubts about true ownership or complete absence of faith in financial statements, etc.

BL: The obligor seeks new loans to finance operational losses or location in an industry that is disappearing or location in the bottom quartile of its industry in terms of profitability or technological obsolescence or very high losses or assets sales at a loss to meet operational expenses, cash flow less than production costs or no repayment source except liquidation or presence of money laundering or fraud or embezzlement or other criminal activity or no further support by owners, etc.

*** A portion of SS loans have to be treated as defaulted as per section 5(GaGa) of the Banking Companies Act, 1991; otherwise, the DF loans have to be treated as defaulted loans.

Source: BRPD Circular no 14/2012 dated 14.06.2012and its subsequent amendments

As per policy, the NPL terminate yield income for the bank and any income accrued from such asset shall not be treated as income until it is realized. NPL reduces banks' profitability as banks cannot earn appropriate interest income from their classified loans. NPL reduces loanable funds by stopping recycling.

The NPL harm loan recovery as well as profitability. Banks are required to put unrealized mark-up interest to the Suspense Account on NPLs. International best practices require that banks not only cease the accrual of interest on a loan once it becomes non-performing but also require interest income recognized. Banks need to set aside a portion of their income as loan loss reserves to make up bad debt. A NPL is a zero-yield asset with erosion of the capital. Despite wide-ranging reform measures initiated in the banking sector, the problem of non-performing assets assumed a central place in issues relating to the banking sector.

All those adverse impacts of NPL on the financial health of the banks such as low profitability and low capital base are reflected in the banking sector of Bangladesh. Islam et al. (1999) stated that the high accumulation of non-performing loans started from the independence of the country when the banks were nationalized. Noor (2018) analyzed the classified loans and the recovery status of SCBs and found that these banks are suffering tremendously from the independence of Bangladesh. For the higher NPLs, the maintained provisions are also increasing over the period. Consequently, the risk weighted assets, income-expenditure ratio, profitability, liquidity and other performance indicators are also adversely affected.

From the annual reports of Bangladesh Bank, it is observed that the total NPLs and maintained provisions were in 1997 were Tk.173 billion, and Tk.47 billion. After 24 years, the total NPLs and maintained provisions have risen to Tk.1033 billion, and Tk.667 billion in 2021. Table 1.3 shows the data of NPLs and maintained provisions for the period of 2001-2021.

Table 1.3: Total Non-Performing Loans and Maintained Provisions

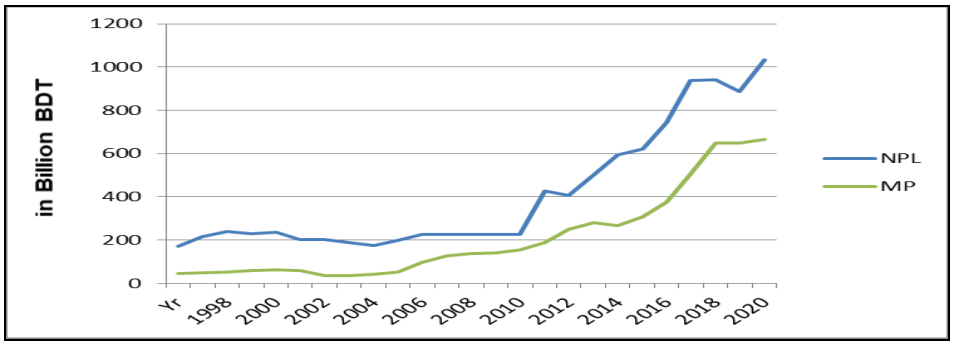
(In Billion BDT)

Year	Total Non-Performing Loans	Total Maintained Provisions
1997	173	47
1998	214	50
1999	239	51
2000	229	58
2001	236	61
2002	203	60
2003	203	37
2004	187	36
2005	175	43
2006	200	53

Year	Total Non-Performing Loans	Total Maintained Provisions
2007	226	97
2008	225	126
2009	225	138
2010	227	142
2011	226	153
2012	427	189
2013	406	250
2014	502	282
2015	594	266
2016	622	307
2017	743	375
2018	939	504
2019	943	647
2020	888	647
2021	1033	667

Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

From the above data, the line Figure has been plotted which has been depicted in Figure 1.2 showing the trend of the total non-performing loans and maintained provisions for the period of 1997-2021. All the lines are positively increasing inferring that over the period total non-performing loans and maintained provisions are increasing. The uprising trends of the banking sector shows the alarming situations of the banking of Bangladesh.



Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

Figure 1.2: Total NPL and Maintained Provisions of the Banking Sector in Bangladesh

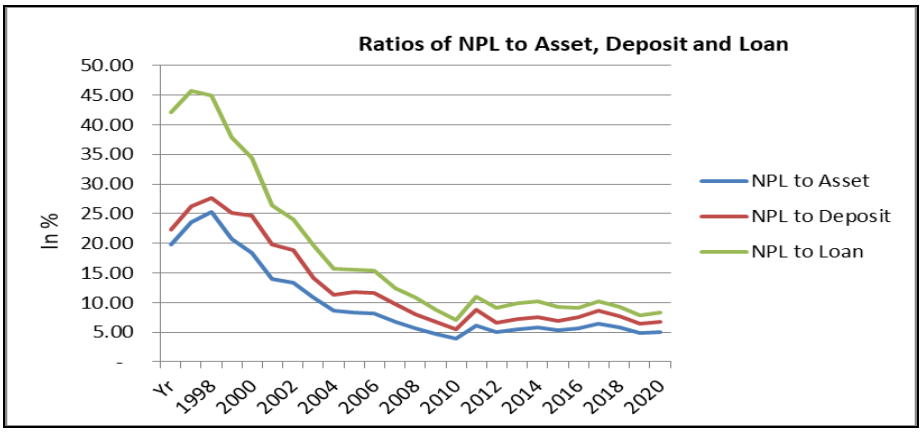
From the annual reports of Bangladesh Bank, it is observed that the ratios of NPL to total assets, NPL to total deposits and NPL to total loans were 19.87%, 22.28% and 42.08%. After 24 years, the ratios of NPL to total assets, NPL to total deposits and NPL to total loans has become 5.69%, 7.52% and 9.17%. Table 1.4 shows the data of the ratios for the period of 1997-2021.

Table 1.4: NPL to Total Assets, NPL to Total Deposits, and NPL to Total Loans of Banking Sector in Bangladesh

Year	NPL to Total Assets	NPL to Total Deposits	NPL to Total Loans
1997	19.87%	22.28%	42.08%
1998	23.59%	26.18%	45.79%
1999	25.22%	27.68%	44.93%
2000	20.76%	25.16%	37.80%
2001	18.44%	24.69%	34.35%
2002	13.97%	19.82%	26.43%
2003	13.41%	18.90%	23.97%
2004	10.83%	14.10%	19.66%
2005	8.57%	11.26%	15.67%
2006	8.31%	11.86%	15.48%
2007	8.15%	11.58%	15.42%
2008	6.79%	9.72%	12.39%
2009	5.67%	8.06%	10.77%
2010	4.68%	6.72%	8.82%
2011	3.85%	5.49%	7.03%
2012	6.07%	8.78%	11.07%
2013	5.08%	6.65%	9.15%
2014	5.49%	7.24%	9.89%
2015	5.76%	7.48%	10.24%
2016	5.35%	6.96%	9.23%
2017	5.69%	7.52%	9.17%
2018	6.44%	8.70%	10.16%
2019	5.79%	7.76%	9.19%
2020	4.82%	6.44%	7.80%
2021	5.06%	6.80%	8.25%

Source: Authors own calculations from Bangladesh Bank Annual Report 2000-2001 to 2021-2022

From the above data, the line Figure has been plotted which has been depicted in Figure 1.3 showing the trend of the ratios of NPL to total assets, NPL to total deposits and NPL to total loans for the Period of 2001-2021. All the lines are decreasing but steady after 2010. From the lines, it is clear that the ratio of the NPL to total loans lies above of all the lines which are state of affairs of the banking of Bangladesh.



Source: Authors own calculations from Bangladesh Bank Annual Report 2000-2001 to 2021-2022

Figure 1.3: Ratios of the NPL to Total Asset, Total Deposit, and Total Loan of the Banking Sector in Bangladesh

Table 1.5 shows the type-wise non-performing loans of the banking sector in Bangladesh from 1997 to 2021.

Table 1.5: Type Wise Banking Sector Non-Performing Loan

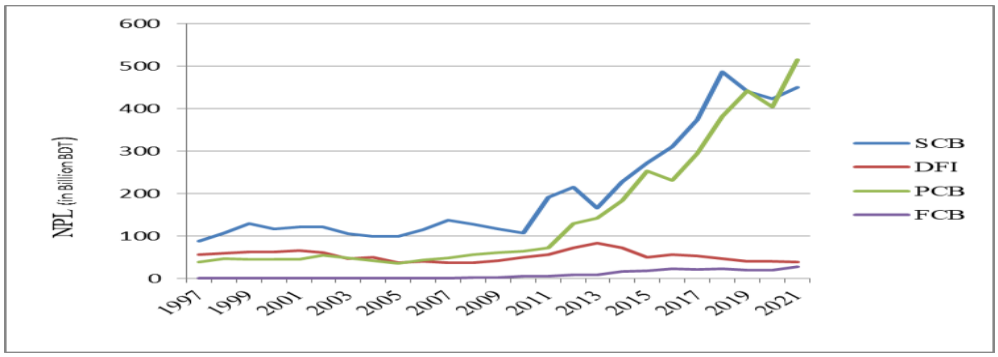
(In Billion BDT)

Year	NPL				NPL to total loan			
	SCB	DFI	PCB	FCB	SCB	DFI	PCB	FCB
1997	89.05	55.99	39.47	0.93	36.57%	62.72%	31.42%	3.58%
1998	107.55	59.12	46.43	1.25	40.38%	66.70%	32.72%	4.14%
1999	128.92	63.33	45.25	1.28	45.62%	65.02%	22.01%	3.80%
2000	117.30	63.70	46.20	1.30	38.56%	62.56%	22.01%	3.38%
2001	122.30	66.70	45.70	1.40	37.02%	61.80%	16.98%	16.38%
2002	121.80	61.60	54.60	1.40	30.10%	48.00%	10.50%	-0.40%
2003	105.70	47.30	48.50	1.70	37.00%	61.80%	17.00%	3.30%
2004	99.60	49.70	41.98	1.10	29.00%	47.40%	12.40%	2.70%
2005	100.20	38.40	35.40	1.00	25.30%	42.90%	8.50%	1.50%
2006	115.00	41.40	43.70	0.80	21.40%	34.90%	5.60%	1.30%
2007	137.90	37.20	49.20	1.90	22.90%	33.70%	5.50%	0.80%
2008	127.60	37.30	57.00	2.90	25.40%	25.50%	4.40%	1.90%
2009	117.50	42.10	61.70	3.50	21.40%	25.90%	3.90%	2.30%
2010	107.60	49.70	64.30	5.50	15.70%	24.20%	3.20%	3.00%
2011	191.70	56.50	72.00	6.30	11.30%	24.60%	2.90%	3.00%
2012	215.20	73.30	130.40	8.50	23.90%	26.80%	4.40%	3.50%
2013	166.10	83.60	143.10	8.50	19.80%	26.80%	4.50%	5.50%
2014	227.60	72.60	184.30	17.10	22.20%	32.80%	5.00%	7.30%
2015	272.80	49.70	253.30	18.20	21.50%	23.20%	4.90%	7.00%

Year	NPL				NPL to total loan			
	SCB	DFI	PCB	FCB	SCB	DFI	PCB	FCB
2016	310.30	56.80	230.60	24.10	25.00%	26.00%	4.60%	9.60%
2017	373.30	54.30	294.00	21.50	26.50%	23.40%	4.90%	7.00%
2018	487.00	47.90	381.40	22.90	30.00%	19.50%	5.50%	6.50%
2019	439.90	40.60	441.70	21.00	23.90%	15.10%	5.80%	5.70%
2020	422.70	40.60	403.60	20.40	20.90%	13.30%	4.70%	3.50%
2021	449.80	39.90	515.20	27.90	19.30%	12.00%	5.30%	4.30%

Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

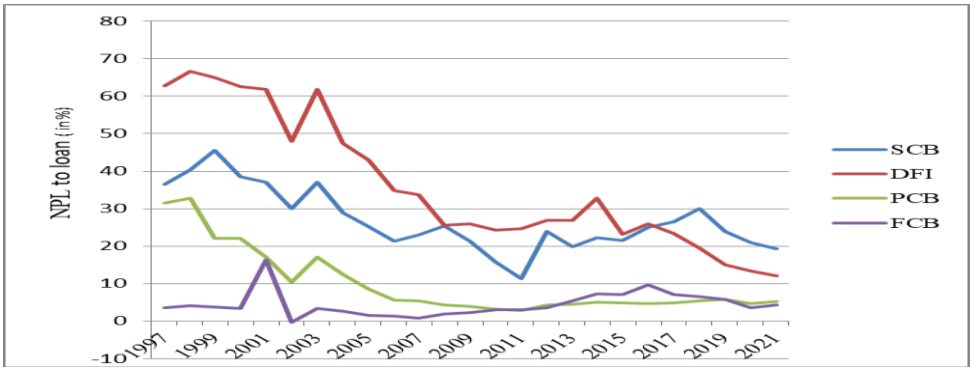
From the above data, the line Figure has been plotted which has been depicted in Figures 1.4 and 1.5. Figure 1.4 shows the line of the total NPLs based on the bank type for the period of 1997-2021. All the lines are positively increasing inferring that over the period total NPLs are increasing but NPLs of the state-owned banks and private banks are increasing more than that of the development institutions and foreign banks. Thus, the uprising trend of non-performing loans of the state-owned banks, and private banks is an alarming situation for the banking sector of Bangladesh. The data also shows that the amount of NPLs in state-owned banks is greater than that of private banks.



Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

Figure 1.4: Bank Type Wise NPL in Bangladesh

Figure 1.5 shows the ratios of the NPL to total loan from 1997 to 2021 of the type-wise banks. All the lines are positively decreasing inferring that over the period the ratios are decreasing but ratios are steady after 2010. The Figure also shows that the NPL ratios of the SCB are increasing after 2012 with a slide decrease after 2018. This decrease for the period of 2018-2021 may occur due to the flexible condition of the COVID-19 situation. Therefore, the asset quality of the SCB is deteriorating compared to the other types of banks.



Source: Bangladesh Bank Annual Report 2000-2001 to 2021-2022

Figure 1.5: Bank Type Wise NPL to Total Loan Ratios of Bangladesh

1.4 The Rescheduled Loans Status in Bangaldesh

The government of Bangladesh has taken some regulatory initiatives to enable banks to recover loans from defaulters. The National Commission on Money Exchange and Credit (NCMEC) was formed in 1986 to take administrative and judicial measures to reduce bad loans. The Financial Sector Reform Project (FSRP) emerged to enact different laws and regulations to expedite settlement processes. The Banking Reform Committee (BRC) was established in 1996, for adopting an effective loan recovery policy for State-owned Commercial Banks and for examining the viability of forming an asset management company (AMC) for settling NPL. The government of Bangladesh has also taken adequate measures on recovery of defaulted loans such as Artha Rin Adalat Ain was enacted in 2003 to improve the legal framework for the recovery of overdue loans and advances by the banks and financial institutions. The BB has issued guidelines on managing core risks in banking to maintain an effective risk management system.

The five core risks are Credit Risks, Asset and Liability Risks, Foreign Exchange Risks, Internal Control & Compliance Risks and Money Laundering Risks. Now banks are constrained to approve large loans in favor of any individual or group of borrowers based on their total eligible capital. Based on the credit risk guidelines, the Credit Risk Grading (CRG) Manual was prepared in 2005 for analyzing credit risk. CRG was updated and the Internal Credit Risk Rating Score (ICRRS) was introduced in 2019. Loans that have been classified as bad/loss for 5 years or more against which full provisions have been kept are to be written off by the banks to clean their books.

Under BB's prudential regulation, a loan that has been restructured can be declassified as a normal loan upon being restructured/ rescheduled. To reduce the non-performing loans, the loan rescheduling process has been adopted. The Laurin and Majnoni (2003) mentioned that loan rescheduling is involved with the extension of maturity or declining interest rate or both. BRPD Circular-15/2012 of Bangladesh Bank defined loan rescheduling as the "prolongation" or evergreening" of a loan when the loan has a low probability of repayment. Calvo and Kaminsky (1991) mentioned loan rescheduling as extending the repayment period.

The guideline for rescheduling loans has been formalized from time to time specifically in 2012 and 2022. Table 1.6 shows that in 1997, the total loan, total non-performing loan, and rescheduled loan were Tk.412 billion, Tk.173 billion, and Tk.47 billion and it rose to Tk.12522 billion, Tk.1033 billion and Tk.124 billion in 2021.

Table 1.6: RSD-related Bank Performance Data

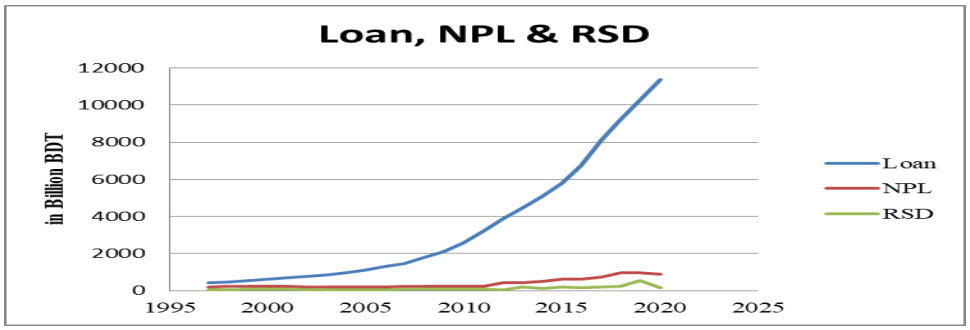
(In Billion BDT)

Year	Deposit	Loan	NPL	RSD	RSD to Deposit	RSD to Loan	RSD to NPL
1997	778	412	173	50.54	0.06	0.12	0.29
1998	819	468	214	62.52	0.07	0.13	0.29
1999	863	532	239	69.64	0.07	0.13	0.29
2000	908	605	229	66.64	0.07	0.11	0.29
2001	956	687	236	46.72	0.06	0.11	0.27
2002	1024	768	203	57.78	0.07	0.12	0.27
2003	1074	847	203	64.37	0.07	0.12	0.27
2004	1326	951	187	61.59	0.07	0.10	0.27
2005	1554	1117	175	63.61	0.07	0.09	0.27
2006	1687	1292	200	54.72	0.05	0.07	0.27
2007	1952	1466	226	54.72	0.05	0.06	0.27
2008	2316	1816	225	50.41	0.04	0.05	0.27
2009	2793	2090	225	47.17	0.03	0.04	0.27
2010	3379	2574	227	53.91	0.03	0.04	0.27
2011	4116	3213	226	60.92	0.03	0.04	0.27
2012	4864	3859	427	60.65	0.03	0.03	0.27
2013	6105	4438	406	60.65	0.02	0.03	0.27
2014	6931	5076	502	61.19	0.02	0.02	0.27
2015	7940	5799	594	60.92	0.01	0.02	0.27

Year	Deposit	Loan	NPL	RSD	RSD to Deposit	RSD to Loan	RSD to NPL
2016	8934	6739	622	55.00	0.01	0.01	0.13
2017	9874	8106	743	180.20	0.03	0.04	0.44
2018	10798	9246	939	123.50	0.02	0.02	0.25
2019	12145	10259	943	191.40	0.02	0.03	0.32
2020	13798	11387	888	154.20	0.02	0.02	0.25
2021	15181	12522	1033	191.20	0.02	0.02	0.26

Source: Annual Report (BB) 2000-2001 to 2021-2022 and Financial Stability Report (BB) 2016 to 2021

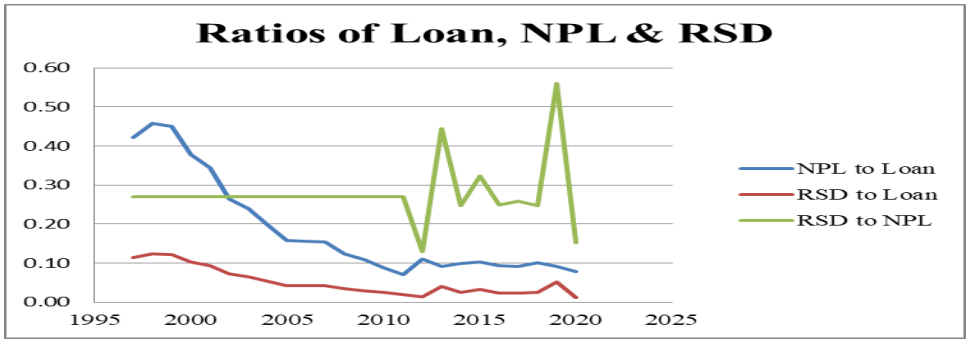
Figure 1.6 shows that the total loan, total non-performing loan, and rescheduling loan are increasing over the period 1997-2021.



Source: Annual Report (BB) 2000-2001 to 2021-2022 and Financial Stability Report (BB) 2016 to 2021

Figure 1.6: Total Loan, Total NPL, Total RSD Status in Bangladesh

Figure 1.7 shows that the ratio of the rescheduling loan to NPL is greater than the NPL to total loan. Thus, the trend of the results is also rising for these categories. It is also observed that the RSD to NPL lies above the entire trend.



Source: BB Annual Report 2000-2001 to 2021-2022 and Financial Stability Report 2016 to 2021

Figure 1.7: NPL to Loan and RSD to NPL in Bangladesh

From the outcomes of the loans, NPL, and rescheduled loan, the ratios of the NPL to total Loan, RSD to total Loan, and RSD to NPL have been observed, and the Figure shows the upward trend for the period of 1997-2021. Although the RSD to total Loan trend is below the NPL to total Loan trend, the RSD to NPL trend is upper than the NPL to total Loan trend infers that the rescheduled loan is increasing with the rise of NPL.

1.5 The Problem Statement and Research Gap Analysis

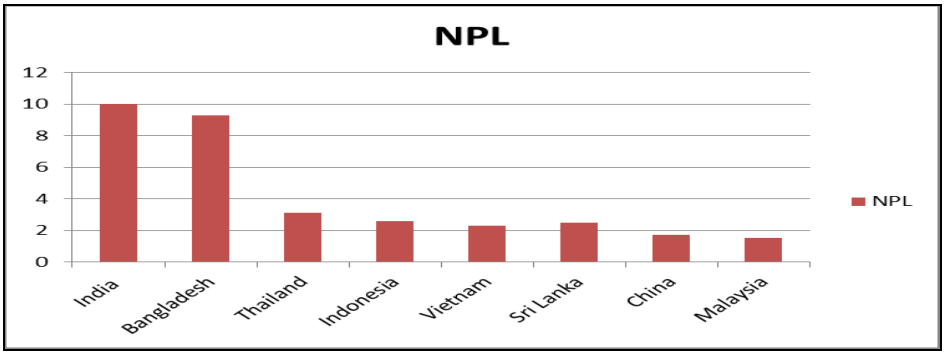
From a view of accounting perspective, loan loss provisioning is a method that banks use to deduct from the realizable value of the disbursed loans. Sometimes banks may be averse to being accountable for the whole amount of incurred losses because of the negative effect of provisions on profits and shareholders' dividends. All of these problems are enhanced due to non-performing loans. Patni and Darma (2017) emphasized a decrease in the level of NPL to optimize the level of Loan to Deposit Ratio (LDR), reduce the cost of funds efficiently to obtain Net Interest Margin (NIM) and related capital adequacy ratio (CAR), increase Return on Asset (ROA) and Return on Equity (ROE). There is no specific way to reduce the NPL but the rescheduling of the bad loans is regarded as one the brightest way of combatting NPL. The NPLs should be treated more seriously as a major problem of the banking industry by all the banks in the industry (Patwary and Tasneem, 2019).

Mohanty et al. (2018) found the negative impact of NPL resulting from the financial risk which affects the standard of living and also reduces the profitability of banks. Adhikary (2008) analyzed the causes of NPL where Yang (2017) analyzed the consequences of the NPL. NPL creates lower profitability, higher cost of the risky assets generating higher capital requirements, and higher funding costs (Firtescu et al., 2019 and Anastasiou, 2023). NPL significantly decreased the banking sector efficiency (Zogjani and Kelmendi, 2015). The NPL hampers not only the performance of the banks but also macroeconomic variables like real GDP, inflation, unemployment and interest rate (Škarica, 2014; Konstantinos et al., 2016). The loan performance and the macroeconomic indicators are simultaneously affected by distress in the banking sector for the non-performing loan (Dao et al., 2020 and Tölö and Virén, 2021).

The literatures of Bangladesh show that the banking sector and economy are adversely affected for higher rate of NPL and became the headache of the banking sector. Islam and Yasmin (2021) revealed that risk-weighted assets and liquidity ratios are adversely affected for the higher NPL. Rahman and Jahan (2018); Kumar et al. (2020); Ghosh et al. (2020); Rezina (2020); Amin et al. (2021); Bhowmik and Sarker (2021); Uddin (2022); Akhter (2023) found that the banking sector of Bangladesh is adversely affected for the increasing trend of NPL.

The recent literature and practical experience show that NPL have concentrated all over the world as credit growth and NPLs have a negative relationship. NPL has a negative impact not only on profitability but also on the capital adequacy of the financial institution. Capital adequacy has a great influence on asset quality. An increase in capital ratios sometimes reduced the levels of non-performing loans but an increase in non-performing assets. Like other countries, NPL has become one of the detrimental situations in the banking sector of Bangladesh for more than a decade.

Through a graphical presentation (in figue 1.8), Dey (2019) spectacles that the NPL ratio to total loans in 2017 was highest in India (10.0%), followed by Bangladesh (9.3%), Thailand (3.1%), Indonesia (2.6%), Vietnam (2.3%), Sri Lanka (2.5%), the People's Republic of China (1.7%), and Malaysia (1.5%). Therefore, the situation of NPL in Bangladesh is worsening more than in any other neighboring country.



Source: Dey, B., 2019. Managing Nonperforming Loans in Bangladesh. *ADB Brief no. 116.* Asian Development Bank. Philippines.

Figure 1.8: Cross-Country Comparison of NPL

The real data also show the delinquency of the NPL in Bangladesh. The comprehensive data has also given away that the state-owned banks are more pretentious than the private banks. At the same time, the CBs are undesirably affected than that of IBs in the statement of NPLs.

Research Gap

Loan rescheduling is one of the most common methods of recovery of the NPLs. Bangaldesh has adopted various policies to reduce the NPL but the rescheduling policy is widely used in this purposes. Rescheduling of loans is assumed to change the status of credit which accelerates the better health of a bank (BRPD 2012). Rescheduled loans refer to loans that have been restructured and renegotiated between lending institutions and borrowers. Rescheduling changes the repayment performance without changing the real value of loans. To avoid enforcement of loan securities, the bank restructures the loan to avoid the additional cost reduce the legal process, or both (Dardac et al. 2011).

The loan is rescheduled for the non-payment of the borrowed loan within the stipulated timeframe. In this regard, loan rescheduling is quietly related to the classification of loans within the context of repayment nature. Loan classification is the process banks use to review their loan portfolios and assign loans to categories or grades based on the apparent risk and other relevant distinctiveness of the loans.

The process of frequent review and classification of loans enables banks to scrutinize the quality of their loan portfolios and take corrective action to counteract the worsening in the credit quality of their portfolios. It is often necessary for banks to use more multifaceted internal classification systems than the more standardized systems that bank regulators require for reporting purposes and that are intended to facilitate monitoring and interbank comparisons. BB has introduced loan rescheduling guidelines and gradually amended them from time to time. It is assumed that rescheduling creates a higher quality of assets than earlier. In this regard, it is felt that a detailed study is needed to find out the effectiveness of loan rescheduling on the performance of commercial banks in Bangladesh.

International literatures like Balgova et al. (2017) and Kahuko (2018) showed the different methods of loan rescheduling. Yang (2017); Ahamed and Mallick (2017); Dodson and Ahrendsen (2018); Carrière (2020); Galande (2023) analyzed on the method of loan rescheduling. Gilson et al. (1990); Okoye et al. (2020); Wanyoike et al. (2022) analyzed the demand side analysis of rescheduling (the advantage received by borrower). Many researchers like Kaurand Srivastava (2017) and Johari (2022) found that the performance of the debt-restructured firms is much below their projected levels.

Pande (2021); Dzingirai and Baporikar (2022); Mulwa and Onguso (2022); Dzingirai and Baporikar (2022) found the positive impact of financial restructuring on commercial banks. Tchistyi and Piskorski (2008); Patwary and Tasneem (2019); Coelho et al. (2020) mentioned the inverse outcome. Although rescheduling is a widely used method for the recovery of loans, its implication on bank performance has not been investigated elaborately.

Chowdhury et al. (2017) investigated the implication of loan rescheduling and write-off of the banking sector of Bangladesh which mentioned that the classified loans become un-classified through the rescheduling process. However, there are instances that a large amount of rescheduled loans require repeated rescheduling (Chowdhury et. al. 2017). Their study was focused on the implication of loan rescheduling and write-off on the performance of banks through semi-structured questionnaires, secondary data from annual reports of different banks and Focused Group Discussions (FGD) to find out the facts/reasons behind the use of rescheduling and write-off in a regular manner.

They found that classified loans will increase if these rescheduled loans are not recovered in due time. Their survey data found that rescheduling loans have a positive impact on the performance of banks like an increase in banks' investable funds, an increase in cash flow, a decrease in provision requirement, a decrease in the capital requirement, expediting loan recovery but there is no positive impact on the increase in banks' interest income and enhancement of banks' asset quality. The study was a fantastic one that initiated literature on the rescheduling of loans in Bangladesh. But, the study was not focused detailed on the indicators of the performance of the banks. On the other hand, the data collection period was only 2010-2014 which does not focus on the long-term impact of the process.

Banerjee et al. (2021) investigated the effectiveness of NPL policies in Bangladesh and mentioned that banks followed the liberal procedure of loan rescheduling. They found that about 99% of applied proposals were accepted for loan rescheduling from 2016 to 2020 although the regulatory framework urged to tighten reschedule policy. Sunny and Tang (2022) studied the corporate restructuring effectiveness on reduction of the non-performing loans in Bangladesh and revealed that this process reduced the NPL and the provision regarding banks. This study focused only on the asset quality. This study has not deliberated the performance indicators of Banks like profitability, liquidity, capital, bank size, etc. Banerjee et al. (2023) showed the rescheduled loan trend in Bangladesh Bank from 2016 to 2020.

All of these studies show only the rescheduling loan tendency in Bangladesh but the effectiveness of this policy has not been elaborately discussed. BB publishes an annual report namely "Financial Stability Report" from 2010. In this report, the trend of the rescheduled loan is described but the effectiveness of this policy on the performance of the banks is not discussed richly.

So, it is essential to find the lack of understanding on the degree of the effectiveness of loan recovery through loan rescheduling results in the reduction of the NPL on the performance of the commercial banks in Bangladesh. In this consideration, it creates an earnestness to find out the effectiveness of the loan rescheduling on performance of the banks.

Thus, this research finds out the problem as-

"No clear evidence about the effectiveness of loan rescheduling in terms of:

- *Impact on short-run and long-run performance of Commercial Banks; and*
- *Ultimate recovery of the rescheduled loans.''*

1.6 Research Questions

A number of research questions deduce from the research gap. Main research question is followed up by some specific research questions for clarity, focus and depth.

- Is the policy of loan rescheduling effective on performance of commercial banks in Bangladesh?
  - How is the loan rescheduling process adopted for potential impact for boosting the performance by the banks?
  - What is the trend of the loan rescheduling?
  - Is there any short-run and long-run impact of the rescheduled loan on performance?
  - Are the banks able to recover the rescheduling loans?
  - Is there any difference among typewise banks in their loan recovery through rescheduling?

1.7 The Rationale of the Study

A sound and smooth banking process is essential for a stable growing economy as the manufacturing, trading, and service-related companies and enterprises need the fund flow from the banking channel. Consumers sometimes need retail financial assistance from the banks as well and savers need assurance of the return of their savings. Besides, international trade needs the confirmation of a sound banking system for any economy as with a haphazard banking system, foreign countries do not feel comfortable in international financial transactions. With the situation of non-recovery of the loan over time, the risk of NPLs becomes stronger which refers the non-profitability of the banks due to block of fund flow as well as income loss - ultimately affecting the economy in general. In Bangladesh, the impact of rising NPLs has become severe in recent years although various policies have been taken to tackle the problem.

Loan rescheduling is one of the policies for recovery of the NPL. It is necessary to understand the effectiveness of loan rescheduling on the performance of the banks because the impact of it will have on the financial system and economic condition. Various researches have shown the cause of NPL but lack of the elaborated analysis of the effectiveness of the rescheduling. This researcher believes that this study is likely to create a new dimension on policy mechanisms in developing the banking system as well as create a field of research by minimizing the limitations of the study.

1.7.1 Contributions of the study

The contribution of this study aims to fill some of the gaps in the literature on loan rescheduling in Bangladesh. This paper focuses on analysis of the non-performing loan and loan rescheduling process and the aggregate level of banking sector performance indicators to evaluate loan rescheduling. Literature review analysis has been used in this paper to identify the variables of performance indicators of commercial banks. Mentionable, this research identifies prospective all performance indicators to evaluate the effectiveness of loan rescheduling process. The lagged regression model has been used to analyze the effectiveness of loan rescheduling on the performance of commercial papers. The methodology of this research is also quite different from the existing literature of loan rescheduling's impact.

This study focuses on in-depth analysis on recovery status of non-performing loans through case study analysis. Finally, experts' opinions have been analyzed to find out the cause of the result of the long-term impact and recovery status with the suggestion. The experts' opinions on another part of this research may contribute to the literature and policy mechanism.

1.8 Research Objectives

The main objective of the study is to enhance understanding of the practical activities of the loan rescheduling process and its impact on the performance of commercial banks in Bangladesh. The researcher believes that it will not only help in searching for new knowledge on banking sector performance and activities but also step into the professional exposure as well as policy implication. The study is summarized into two types of objectives, viz.-broad objective and specific objectives.

1.8.1 Broad objective

To evaluate the effectiveness of loan rescheduling on the performance of commercial banks in Bangladesh.

1.8.2 Specific objectives

Based on the problem statement and research questions, the following specific objectives are posited:

1. To analyze elaborately the loan rescheduling process adopted by the banks and its trend;
2. To investigate the short-run and long-run impact of the rescheduled loan on banks' performance;
3. To track the rescheduling loan to determine their ultimate recovery rate, and
4. To identify whether any differences among typewise banks in their loan recovery through rescheduling.

1.9 Scope of the Study

There are several studies, surveys, and researches that have been conducted worldwide on the amount of NPL and loan rescheduling but a literature survey shows there is a gap in the analysis of the effectiveness of the loan rescheduling on the performance of the commercial banks. The overall study includes aggregate data from the banking sector in Bangladesh. It includes the period of 1997 to 2021 and analyses the secondary data utilising the lagged regression model through VAR and VECM. This study also finds recovery status through loan rescheduling using the primary data collection which also focuses on the comparison of the typewise banks performance regarding the recovery through loan rescheduling like the state-owned banks with private banks and Islamic banks with conventional banks' performance in recovery. After words, the practitioners' opinion of the relevant recovery of the NPL has been collected to elaborately explain and align the results of the econometric models and in-depth analysis of the case study. But considering different factors, this study focuses on the following to analyze the performance evolution-

- Includes only commercial banks operating in Bangladesh;
- Excludes NBFI as the study focuses only on the performance of commercial banks in Bangladesh;

- Excludes FCB operating in Bangladesh due to lack of data access;
- Excludes DFI due to only small size of loan;
- Excludes commercial banks starting operation after 2010 (4^{th} generation) due to lack of length of data access; and
- Excludes Non-financial performance of the banks.

1.10 Limitations of the Study

Every study has some constraints like time constraints or cost constraints or information constraints. This study also contains constraints which are highlighted below:

- Lack of sufficient literature on the effectiveness of loan rescheduling;
- Differences in the loan rescheduling policy from country to country, institution to institution, and time to time;
- Lack of sufficient primary and secondary relevant data like constraints in data collection-individual banks and Bangladesh Bank do not publish/share RSD and NPL related data;
- Exclusion of non-financial performance of the banks; and
- Problems in the selection of a big sample size.

1.11 Outline of the Research

This research presents the effectiveness of loan rescheduling on the performance of commercial banks in Bangladesh. Chapter 1 introduces the research topics with background, problem statement and research gap along with questions, rationale, objectives, scopes and limitations.

Chapter 2 presents the literature review of the research. This chapter includes the key concepts and related topics from the literature. Based on the literature from the economics, finance, and business-related textbooks and journal articles, it is tried to analyze non-performing loan, and different perspective measures of trackling it, loan rescheduling procedures, and its impact.
The performance indicators of commercial banks have also been analyzed in this chapter. Relevant theories and practices have also been tried to identify the effectiveness of loan rescheduling. Ultimately, the research gap analysis has been done focusing on the rationality of this research.

Chapter 3 broadly directs the research methodology used in data collection and analysis. It elaborates on data collection process, the sampling technique, sample size, and tools of data analysis. The rationale of the data analysis technique has elaborately been discussed as well as relevant literature review has been given. This chapter has broadly directs how the research and analysis will be done. Based on the literature review, the mathematical and theoretical models have been developed. From the model, the research hypothesis has also been obtained.

Chapter 4 has four parts depicting the data analysis with explanation of the results. *Part* A explores the loan rescheduling process adopted by the banks. In this part, the researcher presents the findings of overall loan-rescheduling-related practices in terms of policy, strategy, and status. A comparision among the typewise banks has also been revealed. *Part B* explains the short-run and long-run impact of the rescheduled loan. Preliminarily, the correlation among the variables has been identified to find out the relevant variables of the models. The elaborated process of the lagged regression model like stationary checking, lag selection, cointegration checking and model specification has been conducted to find the ultimate model for the research. The step by step analysis has been performed through STATA software as per the econometric analysis process. *Part C* of Chapter 4 explains the in-depth analysis of the case study of the recovery of the chosen clients, conducted deliberately by tracking the rescheduling of loans to determine their ultimate recovery. The performance of recovery was also compared with the state-owned banks to private banks as well as Islamic banks to traditional banks. *Part D* presents the results of the findings of the semi-structured interview. Experts' opinions regarding the effectiveness of loan rescheduling has been analysed in this part. This part also focuses on the reason behind ineffectiveness of the loan rescheduling and summerizes the ultimate suggestion provided by the experts. The analysis has been done by using the NVivo software.

Chapter 5 explains the discussion on the findings from the results of the data analysis. It revisits the objectives and then presents major findings on each objective. This chapter also focuses elaborately discussion on the findings aligning with the previous research.

Chapter 6 summarizes the findings. It revisits the objectives and then presents major findings on each objective. It highlights the implications of the findings for policy and planning. It also indicates the contribution of the research and the direction of further research. Finally, bibliograhical references have been quoted.

The research outline is presented graphically in Figure 1.9.

Chapter 1: Introduction

The background, problem statement and research gap along with questions, rationale, objectives, scopes and limitations of the study and outline

Chapter 2: Literature Review

The non-performing loan, different prospective measure of tracking it, loan rescheduling procedures, its impact, performance indicators of commercial banks and research gap

Chapter 3:Research Methodology

Data collection, sampling technique, sample size, data analysis technique and tools of data analysis, mathematical and theoretical model, the research hypothesis.

Chapter 4: Data Analysis and Results

Part A: RSD Process and Status

Presentation and analysis of descriptive analysis

Part B: Performance of RSD

Presentation and analysis of lagged regression model

Part C: Recovery status of RSD

Presentation and analysis of in-depth analysis of the case study

Part D: Interview Result

The way of effectiveness, the logic of ineffectiveness of the loan rescheduling and ultimate suggestion

Chapter 5: Discussions of the Results

Elaborately discussion on the findings aligning with the previous research

Chapter 6: Conclusion

Summary of the findings, contributions of the research, policy recommendations, limitations and prospect of future research

References

Appendix

Source: Author's Design

Figure 1.9: Research Outline

CHAPTER TWO: LITERATURE REVIEW

In the first chapter, it is witnessed that the contribution of the banking sector in Bangladesh is accelarating with continuous growth but facing with the harsh circumstances of the delinquent of NPLs. RSD is used as one of the universally practiced approaches to the recovery of NPLs. Based on the problem statement and research gap analysis the research questions along with the objectives were mentioned about. It also discusses the rationale, scope, and limitations of the study. Now, relevant pieces of literature on NPLs and RSD have been discussed to establish the ostentatious logic of the problem statement and investigate the research gap in this chapter. Firstly, the kinds of literature on the problems of NPLs along with bank-specific and macroeconomic aspects are revealed. Secondly, the way of the recovery methods of the NPLs are discussed. After words, the methods of RSD describing the definition, preference for RSD, demand and supply-side analysis of RSD, and impact of RSD on bank performance are investigated to establish the rationality of the research gap. Lastly, the performance indicators of the commercial banks have been identified to analyze the objectives of this research. The relevant international and Bangladeshi literatures are scrutinized throughout this chapter.

2.1 Banking Business and Non-Performing Loans

The research on NPL is crucial for policymakers, financial institutions, and investors to understand the risks and challenges associated with NPL and to develop strategies for their effective management and resolution. It contributes to a deeper understanding of the complex dynamics of lending, credit risk, and financial stability on both national and global scales. NPL refer to those financial assets from which banks no longer receive interest and/or installment payments as scheduled (Adhikary, 2008). The study mentioned that NPL impede economic recovery in a bank-centered financial system by shrinking operating margins and grinding down the banks' capital base for new loans and advances. Developed countries' literature like Dietsch and Lozano-Vivas (2000); Thaker et al. (2022); and the transition countries literature like Mittal and Suneja (2017); Andrieș et al. (2018); Pelletier (2018); Moudud-Ul-Huq (2021); Diallo (2021) mentioned that proper recovery of the loans is predetermining of the sound banking system.

2.1.1 Non-performing loans and the industry-specific problems

Onofrei et al. (2018) analyzed the performance of banks' profitability from the evidence of Bulgaria and Romania and stated that the loan loss reserves rate and the ratio of cost to income of the analyzed banks have been significantly affected to the profitability. As a consequence of NPL, the net interest income cuts, impaired costs rise, and the extra capital required for the risky weighted assets and potential lenders with lower risk appetite (Anastasiou, 2023). NPL creates additional capital requirements for risky weighted assets, reduction of net interest income, intensification of diminishing costs, and fewer risk-lover borrowers. Aiyar et al. (2015) revealed that NPL is obliged to lower profitability, higher capital requirements, and higher funding costs. The existence of NPL inferred that the net operating profit of the bank reduces as well as it continues higher cost of the risky assets generating higher capital requirements. For this reason, the cost of the fund increased simultaneously; the investors have less willingness to lend.

Singh (2016) was frustrated that NPL has always created a big problem for banks in India. Zogjani et al. (2016) mentioned that NPLs have a negative impact whereas interest rates of loans and CAR have a positive impact on the banking sector of Kosovo. The relationship between NPL and overall banks' profit efficiency is found as statistically insignificant (Fan and Shaffer 2004). Berger and De Young (1997) investigated the efficiency of the banking sector and concluded that bad-quality loans are the ultimate result of poor management in the banking institution. Barr (2017) argues that bank failure occurs due to managerial inefficiency which indirectly refers to the non-recovery of the disbursed loans within the scheduled time frame. Islamoglu (2015) found most important reason behind bank failures which is asset quality deterioration and before insolvency; banks generally have high amount of non-performing loan portfolios.

Tracey (2011) mentioned that bank lending behavior puts away economic activity for higher non-performing loans of two Caribbean countries like Jamaica and Trinidad and Tobago. Abd Karim et al. (2010) investigated the relationship between non-performing loans and bank efficiency in Malaysia and Singapore and revealed that higher non-performing loans reduce cost efficiency of both of the countries where Singapore has the higher efficiency.

Fukuyama and Matousek (2016) argue that NPL significantly decreases the banking sector efficiency in Japan reflecting the restructuring process undertaken by the Banks, or the banks' NPL are written off. Credit-deposit ratio and net interest margin have a positive influence on the NPL, but capital adequacy ratio, employee efficiency, loan deposit ratio, and return on assets have a negative impact on the NPL (Rahman et al. 2016). Waqas et al. (2017) and Partovi and Matousek (2019) revealed that NPL and the inefficiency have a significant positive relationship and suggested for controlling and amending credit policy in order to lessen NPLs.

2.1.2 Non-performing loans and the macroeconomic problems

Messai and Jouini (2013) mentioned that return on assets and GDP growth has a negative impact on non-performing loans as well, and the real interest and unemployment rate positively increase non-performing loans. Konstantinos et al. (2016) concluded that public debt and unemployment have a strong impact on the level of NPL. Škarica (2014) concluded that real GDP growth accelerates non-performing loan ratios. There is a negative relationship between non-performing loans and inflation rates (Umar and Gang, 2018). Žiković et al. (2015) scrutinized the relationship between macroeconomic performance and non-performing loans ratio of Croatia and exposed that the NPL ratio is strongly affected by industrial production index, unemployment rate, interest rate and the real GDP. Roy (2014) found that GDP growth, changes in the exchange rate, and global volatility have major effects on the non-performing asset (NPA) level of the Indian banking sector. Farhan et al. (2012) revealed that non-performing loans have a significant positive relationship with the interest rate, energy crisis, unemployment, inflation, and exchange rate but GDP growth has a significant negative relationship with the Pakistani banking sector. Islamoglu (2015) analyzed the effect of macroeconomic variables on interest rates and public debt stock-GDP ratios of Turkey and found that the increasing ratio of non-performing loans accelerates the public debt stock-GDP ratio in the long-term.

An empirical result of an econometric model based on a study on Guyana shows that GDP growth is inversely related to non-performing loans, suggesting that an improvement in the real economy translates into lower non-performing loans (Khemraj and Pasha, 2009). They also found that banks that charge relatively higher interest rates and lend excessively are likely to incur higher levels of non-performing loans.

Salas and Jesus (2002) mentioned that NPL has an impact on real growth in GDP, rapid credit expansion, bank size; capital ratio, and market power through researching the determinants of NPL of Spanish commercial and saving banks. Jimenez and Saurina (2018) revealed that the NPL are related to GDP growth, real interest rates, and credit terms in the Spanish banking sector. Khemraj and Pasha (2009) found that the level of NPL impacts the real effective exchange rate and real GDP growth of Guyana significantly. Ranjan and Dhal (2003) regressed NPL on three sets of factors in terms of credit, bank-induced risk preference, and macroeconomic shocks and the result found that the terms of credit variables are significant. The estimated coefficient on changes in the cost of credit because of the expectation of a higher interest rate is positive.

On the contrary, the horizon of maturity of credit, better credit culture, and favorable macroeconomic and business conditions decrease the NPL. The loan performance and the macroeconomic indicators such as inflation rate, economic growth, nominal interest rate, unemployment, and foreign trade results show that they are concurrently affected by distress in the banking sector for the non-performing loan (Duong, et al. 2020; Tölö and Virén, 2021).

2.1.3 Non-performing loans problems in Bangladesh

Adhikary (2008) shows the reasons for non-performing loans in Bangladesh and mentioned that the lack of efficient monitoring and supervision on the part of banks, lack of efficient bankers, defective legal framework and lack of effective loan recovery systems, lapses in documentation, are the factors for NPL in Bangladesh. This study found that the non-performing loans are increasing due to non-compliance with risk management guidelines, threatening the profitability of banks.

A bank with a high level of NPL is forced to incur carrying costs on non-income-yielding assets that strike both profitability and capital adequacy. The SCBs of Bangladesh are especially suffering from the excessiveness of non-performing loans (Lata, 2015). Hania and Himel (2023) found that GDP growth rate and unemployment rate have a significant positive relationship with NPLs though the interest rate has a significant negative relationship with NPL.

GDP growth and inflation have a positive impact on the NPL ratio of local private commercial banks in Bangladesh (Roy et al. 2014). Bhuiya et al. (2023) investigated credit risk on the profitability of commercial banks of Bangladesh and revealed that the NPL ratio has significant negative impact on return on asset and return on equity infereing that the ratio has adverse effect on the profitability of commercial banks of Bangladesh. Roy and Aktar (2018) investigated the relationship between the NPLs and profitability of the banks listed in Dhaka Stock Exchange and found that non-pefroming loans has statistically significant negative impact on net profit margin.

According to Anjom and Karim (2016), NPL accelerates the insolvency of the bank performance adversely affecting the macroeconomic performance of the country. Rahman and Jahan (2018) mentioned that NPL has a negative relationship with the profitability of Islamic commercial banks in Bangladesh. This study was supported by Adebisi and Matthew (2015); Ekanayake and Azeez (2015); Bhattarai (2016); Chimkono et al. (2016). NPL to total loans is found statistically significant and inversely related to credit growth (Amir and Choudhury, 2023). They also found that NPL are increasing due to poor credit appraisal, poor loan review process, insufficient and poor quality of collateral security, name lending, high interest rates, and unethical banking practices. The same result was found by Accornero et al. (2017); Alihodžić and Ekşï (2018); Nugroho et al. (2021); Bhowmik and Sarker (2021).

Islam and Yasmin (2021) tried to investigate determinants of NPL of the Commercial Banks in Bangladesh using time series data of the banking sector from 1997 to 2020 through VECM and found that lagged values of risk-weighted assets and liquidity ratio have a significant effect on NPL inferring that risk-weighted asset and liquidity ratio are adversely affected for the higher NPL. The research also found that profitability is not maintaining a statistically significant relationship with NPL. As like many researches of Bangladesh like Akter and Roy (2017); Islam and Rana (2017); Islam (2018); Rahman and Jahan (2018); Khatun and Ghosh (2019); Nargis et al. (2019); Patwary and Tasneem (2019); Towhid et al. (2019); Chowdhury and Jannah (2020); Chowdhury (2020); Hosen et al. (2020); Kumar et al. (2020); Ghosh et al. (2020); Rezina (2020); Zhang et al. (2020); Amin et al. (2021); Bhowmik and Sarker (2021); Uddin (2022); Akhter (2023); Chowdhury et al. (2023) found that the banking sector of Bangladesh is adversely affected for the increasing trend of NPL.

2.2 Recovery Methods of Non-Performing Loans

Policymakers around the world are concerned more about the issue of NPL since this problem has far-reaching implications for economic growth, financial stability, and overall economic condition of the countries (Balgova et al., 2017). Therefore, a significant number of approaches have been taken to addressing NPL though the success rates of such policies vary depending on the economic environment, legal and regulatory frameworks, the quality of institutions, and the specific measures (Anastasiou, 2023). Balgova et al. (2017) suggested five ways of financial policies for NPL reduction: i) establishment of asset management companies, ii) provision of bailouts to the financial sector through public funds for bank recapitalization, iii) changes to the regulation, iv) changes to loan classification, and v) changes to provisioning strategy.

Anastasiou (2023) mentioned common methods of NPL resolutions like debt for equity swap (Xu, 2005; Lieu, 2011; Stijepovic, 2014), direct sales to the investors (Xu, 2005), and securitization (Xu, 2005). Debt for equity swap creation helps distressed companies to continue operations through the provision of further security, restructuring fee payment, further deleveraging, and a rise in margin (Xu, 2005). Through sales of individual assets of the distressed company in the way of negotiation and auctions, the NPL can be reduced (Xu, 2005). In the other way, the receivables and other mortgaged properties are sold to settle the loan in the process of NPL loan securitization (Xu, 2005).

The Bankruptcy Code is a commonly used policy to reduce the NPL for most companies in the USA (Gilson et al. 1990). This study compared the effectiveness of bankruptcy code and corporate debt restructuring using 169 samples of distressed companies and found that half of the distressed firm was successful through debt restructuring. In this study, they used three types of debt restructuring i) extension of maturity of the debt repayment, ii) reduction of interest or principal, and iii) distribution of equity securities and suggested that the highly leveraged companies can resolve the bad debt problems through private. Asquith et al. (1994) also supported that out-of-court, settlement is better than Chapter 11 of the Bankruptcy Code.

The study of Gilson et al. (1990) was highly supported by Obstefeld (1996); Moris and Shin (1999); Ding et al. (2021); Brunner and Krehnen (2001); and Brunner and Krehnen (2008) which emphasizes the corporate debt restructuring in Germany. Das, et al. (2015) researched on the corporate debt restructuring and bank stability of the Indian banking sector and revealed that this process is somewhat related to the development of performance of the banks. Acharya et al. (2007) investigated defaulted loans and bond recoveries from 1982 to 1999 in the United States and revealed that defaulted firms are more likely to develop through restructuring than acquisition or liquidation. Yang (2017) comprises two issues i) the role of NPL in the efficiency analysis and their impact on operational efficiency; and ii) how to reduce NPL. Dadhwal and Dange (2012) revealed that modern organizations are increasingly competition and facing customers to restructure. Jassaud and Kang (2015) suggested a comprehensive strategy to control the NPL through debt restructuring in Italy.

A series of measures and recommendations for the resolution of the NPL was proposed by the World Bank Financial Sector Advisory Centre (FinSac) located in Vienna through several models named the “Podgorica Approach”. The "Podgorica Approach" is an initiative to address the issue of NPL promotes financial stability, supports debtors' recovery, and improves economic growth. This approach represents a coordinated strategy aimed at resolving NPL and addressing related challenges within the Montenegrin financial system. Based on the “Podgorica Approach”, a detailed study was done by Stijepovic (2014) which has been cited by various studies like Anastasiou (2023); Khan et al. (2020); Hassan et al. (2022). The study found three ways of debt restructuring i) modification of the maturity date; ii) changing the interest rate; and iii) reduction in debt principal taken by the bank. “Podgorica Approach” focuses on three types of restructuring:

i) **Financial restructuring** includes extension of repayment period of loans, full or partial loan repayment through third party assumption of receivables, loan renewal by replacement of the existing loan; purchase of the debtor’s receivables; provision of additional collateral from debtors or third parties, debt to equity swap, acceptable legal credentials (Stijepovic, 2014 and Anastasiou, 2023).

ii) **Corporate restructuring** includes changing structures of the distressed company's assets, capital, management, costs, and organization which will improve the company's performance through rationalization in the way of changing the business strategy configuration, selling assets to ensure cash to pay obligations, reduction of production costs, the removal of the existing management or change management structure (Stijepovic, 2014 and Anastasiou, 2023).

iii) **Business restructuring** includes significant changes in the structure and stakeholders of the company, partial or full purchase or sell-off of the company by management, the strategy of expansion or contraction, changes of the business line and business unit, sell-off or purchase of a portion of the company by management (Stijepovic, 2014; Nadeem et al, 2017; and Anastasiou, 2023).

Anastasiou (2023) referred to the creation of an AMC as an alternative way of NPL resolution through the enhancement of credit discipline, and the division of labor having the drawback of pricing of bad assets, and political intervention (Woo, 2000). The bad loans are to be transferred to the AMC which enables commercial banks to transfer NPL from their balance sheet.

The use of asset management companies has become popular in different countries all over the world. The Korea Asset Management Corporation (KAMCO), Danaharta in Malaysia, Thai Asset Management Corporation (TAMC), China Asset Management Corporation (CHAMC), and Resolution and Collection Corporation (RCC) in Japan are the contributor companies in the Asian Countries. Japan controlled the NPL by selling loans directly to the market, pursuing bankruptcy proceedings, and rehabilitating the borrower by centralized AMC (Ohashi and Singh, 2004). The Swedish authorities took three models to control the NPL: i) Distressed assets were transferred to centralise AMC ii) either sold or liquidation of the distressed firm and iii) the corporate debt restructuring process (Jassaud and Kang, 2015). Dreyer (2020) analyzed details of the NPL in Malaysia and mentioned the creation of three new agencies to control the NPL during 1998-1999, i) Danaharta (asset management company), ii) Danamodal (recapitalize weak financial institution), and iii) Corporate Debt Restructuring Committee (CDRC) work together to resolve the problems. Korea Asset Management Corporation (KAMCO) - an asset management company and Korea Deposit Insurance Corporation (KDIC) were formed to control the NPL in Korea (Park, 1999).

Siddique et al. (2015) mentioned Bangladesh follows legal action to recover non-performing loans through the Public Demands Recovery (PDR) Act, 1913; Bankruptcy Act (BA), 1997; Artha Rin Adalat Ain (ARA) 2003 and also studied on claimed, settled, and recovered amounts under these acts. They revealed that legal procedures are time-consuming, expensive, and unpleasant. A similar type of study was done by Banerjee et al. (2021) and Banerjee et al. (2023). Banerjee et al. (2021) investigated the process of loan rescheduling as well as other methods of NPL recovery from 2016 to 2020 in Bangladesh and concluded that this country has liberal use of loan rescheduling. Chowdhury et al. (2017) patronized the impact of loan rescheduling and write-off policy in Bangladesh and summarized through case studies that these procedures are effectively working on the recovery of NPLs.

From the above analysis, it is found that recovery methods of NPL are commonly as follows-

i) Restructuring – Finance, Corporate, and business (Gilson et al., 1990; Kwaning et al. 2014; Anastasiou, 2023; Tomas and Ivana, 2016; Baudino and Yun, 2017; Yang, 2017; Carrière, 2020).
ii) Credit Debt Swaps (Culp et al., 2017; Culp et al., 2016; Anastasiou, 2023; Bomfim, 2023).
iii) Direct Sales to the investors (Baudino and Yun, 2017; Fell et al., 2017; Anastasiou, 2023).
iv) Asset Management Companies (Kozak and Hoang, 2017; Dey, 2019; Woo, 2000; Anastasiou, 2023; Pandey and Guhathakurta, 2023).
v) Securitization (Baudino and Yun, 2017; Fell et al., 2017; Pandey, 2019; Alessi et al., 2021; Prasad and Mathur, 2022).
vi) Bankruptcy Code (Gilson et al. 1990; Moris and Shin, 1999; Brunner and Krehnen, 2001; Acharya et al., 2007).
vii) Legal Procedures (Siddique et al. 2015; Chowdhury et al. 2017; Banerjee et al. 2021; Banerjee et al., 2023).

Ilievski (2022) suggested combined solutions to implement an operational plan through selling of receivables; restructuring or rescheduling of debt; selling of the existing security or obtaining additional security; and contracting judicial means like forced settlement bankruptcy, or liquidation.

2.3 The Loan Rescheduling Process

Loan rescheduling or restructuring is a common strategy that banks use to manage NPL and minimize credit risk. Most of the world-wide literatures support this method as an ultimate resolution of the loan rescheduling. The liteartures use loan/credit/debt rescheduling and loan/credit/debt restructurer as the same meaning though there are few differences in the meaning of the terms in some literature.

2.3.1 Definitions of the loan rescheduling

The loan rescheduling or restructuring involves renegotiating the terms of a loan with a borrower who is facing financial difficulties to make it more manageable and increase the likelihood of repayment. Restructuring is the process of debt extension, often accompanied by issuing a new loan, and is a valuable tool that banks use to proactively manage credit risk and maintain a healthier loan portfolio (Burakov, 2014). Tarmizi (2023) defined rescheduling as the alteration of the period and payment schedule which also includes reduction or waiver of interest rates and penalties. A similar type of definition was placed by Ankrah et al. (2019); Odhiambo and Upadhyaya (2020); Topimin and Hashim (2021); Hasan and Mustafa (2022); Akib et al. (2023); Kurniadi (2023); Wibisono et al. (2023).

The BRPD Circular no. 15/2012 and 16/2022 of Bangladesh Bank mentioned the loan rescheduling is the process of the time extension of the classified loans subject to instant recovery of specified down payment based on the category of loans like: continuous, demand, term and micro (credit) loans. As per BRPD Circular no. 16/2022, the loan restructuring is the process of time extension of the regular term loans which has presently cashflow problem. But as per BRPD Circular no. 04/2015, the large loan restructuring was categorized only for the time extension of repayment the amount more than 500.00 crore in aggregate of a particular borrower or group in a bank, singly or clubbed together. However, all of the relevant circulars of Bangladesh Bank have termed loan rescheduling and restructuring to extend time to recover the loans specifically the NPLs.

Nafi'ah and Widyianingsih (2021) mentioned that financing restructuring is a way to improve the financing activities of a distressed customer to meet the payments and obligations for financing transactions. Claessens et al. (2001) defined restructuring as the financial institutions' and corporations' claims and operational restructuring through allocating and recognizing. As per this study, financial restructuring is the process of rescheduling through extensions of maturities, lower interest rates, indexing interest payments to earnings, and liability compassion whereas operational restructuring is the process of improvements in the efficiency of the management, modification of the number of employees and their payments, sale of assets, enhancement of marketing strategy.

Drelichman and Voth (2013) mentioned that rescheduling of disbursements and repayments allows the parties to modify cash flows considering the unforeseen state of affairs. Mehta and Kaul (2020) mentioned that banks take the process of loan restructuring on more reasonable terms in the way of increasing tenure and decreasing interest against a general deferral of repayments in case of actual financial hardship of the borrower. Wardoyo et al. (2022) also mentioned rescheduling as the ultimate solution to NPL recovery.Velentina et al. (2022) defined restructuring as remodeling of the finance whereas the credit agreement structure includes changing the maturity and clauses of interest. The mutual agreement between the bank and borrower is essential with the consideration of the financial capability of the borrower so that the borrower can repay their obligations. Quantifying risk considering the remaining principal and arrears of rescheduling is an alternative way of recovering of NPL (Aisyah et al. 2023).

Yanenkova et al. (2021) defined the restructuring process as making a feasible repayment schedule of the customer's present and future cash flow to avoid liquidation for the failure. According to Onikiienko et al. (2021) mentioned that loan rescheduling is the process of the changing of the initial loan terms to save the expected economic effect projected by the bank. Dardac et al. (2011) argued two techniques - restructuring of troubled loans and simple modification of the characteristics of loan and concluded that simple modification of original contract terms saves time by allowing the debtors to recover after temporary financial difficulties but restructuring of bad loans which are ridiculously full repayment of the dues. Thus, the loan restructuring is the process of rescheduling the time of the loan or changing the instalment of the loan whereas loan modification is the process of reduction of interest rate or principal.

The "London Approach" is indeed a well-known framework for handling corporate financial difficulties through out-of-court debt restructurings. It was developed by the Bank of England in the 1980s and has been influential in the United Kingdom and internationally. The London Approach is characterized by its collaborative and market-based approach to addressing financial distress among large corporations. This proposition advocates setting voluntary principles of negotiation between the creditor and debtor, which is the ultimate process of restructuring the agreement believing in all concerned beneficiaries. The London Approach has been credited with contributing to the efficient resolution of numerous corporate debt restructurings, allowing companies to continue their operations, protect jobs, and avoid bankruptcy. It has become an integral part of the corporate restructuring landscape, both in the UK and globally, and serves as a valuable example of a market-oriented approach to financial distress (Flood et al. 1995; Puspadma, 2021; Marney et al. 2021; Azizi et al., 2023; Cahyanto and Setiyono, 2023).

The “Podgorica Approach” proposed by the World Bank Financial Sector Advisory Centre (FinSac) emphasized debt restructuring (Abid et al. 2014; Ziu, 2014, Meka, 2015; Yang, 2017). This approach is considered as composite package of loan rescheduling comprising financial restructuring, corporate restructuring, and business restructuring (Stijepovic, 2014).

2.3.2 Impact of the loan rescheduling on the performance of the rescheduled firms

Mulwa and Onguso (2022) determined that loan rescheduling has a positive impact on poverty reduction among smallholder farmers (Field et al., 2020) and suggests seeking equilibrium between supporting the farmers to pay back the loan and the rescheduled loan risk. Ziky and Elghabri (2022) mentioned that a customer in financial difficulty can benefit from a free rescheduling of the remaining amounts due of a customer in financial difficulty can be beneficial. Frantz and Instefjord (2019) found that the optimal restructuring path creates the optimal investment trigger by a sequence of continuous equity-for-debt or debt-for-equity exchanges for maintaining positive leverage. Kithinji (2017) revealed that corporate debt restructuring makes sure organizational growth and survival. Gupta (2017) mentioned that corporate debt restructuring improves the ability of the repayments of a company’s debt obligations as it improves liquidity ratios and solvency of such a company.

The repayment burden and ability of the debt of the restructured farm are highly sensitive to the restructured loan in the consideration of income, interest rate, financial, and leverage structure of the farms. Dodson and Ahrendsen (2018) and Galande (2023) also mentioned that restructured loans are beneficial for distressed credits. Moore and Philippatos (2011) investigated the home value estimation relation with the loan restructuring terms optimality and concluded that the process is beneficial to the parties. They also suggested lessening interest rates and principal to reduce the monthly repayment to an affordable level and increase the market value of the loan. Okoye et al. (2020); Wanyoike et al. (2022) also found the same outcomes of the loan rescheduling. But Noe and Wang (2000) stressed conditional restructuring agreements linking the allowances of different creditors.

Rescheduled loan increases the accrued interest for which borrowers might face higher costs in the repayment schedule (Coelho et al., 2020). Khanam et al. (2021) emphasized the creditworthiness of borrowers, forecasts and feasibility studies, and specific lending procedures for project appraisal which is also obligatory before debt restructuring. The findings of Kaur and Srivastava (2017) revealed that debt-restructured firms were unable to improve significant performance; rather operating performance of the firms was declining. The corporate debt restructuring mechanism improves the profitability of the companies significantly but the capital structure of the companies is not very effective. Rastogi and Mazumdar (2016) have also questioned the Corporate Debt Restructuring (CDR) mechanism by examining the movement in stock prices as a measure of shareholder value.

The investigation of Alderson and Betker (1999) found that debt-restructured firms neither outperform nor underperform after reorganization. Rather Michel et al. (1998) found that the performance of the debt-restructured firms is much below their projected levels. Espahbodi et al. (2000) mentioned that the restructuring process involves downsizing the operating performance of firms. The market reaction toward debt restructuring announcements delivers a significantly negative effect on the market. Similarly, Johari (2022) warned that loan rescheduling may greatly increase the credit risk of the borrower as the investors of the stock purchaser will negatively value the investment with the consideration of the negative impact of the process. The profitability of the banks can be temporarily increased by way of the rescheduling of NPLs but a large portion of rescheduled loans cannot be collected from the defaulters.

2.3.2 Impact of the loan rescheduling on the performance of banks

Sunny and Tang (2022) revealed that this process reduced the NPL and the provision of regarding banks in Bangladesh. Pande (2021) investigated the impact of restructuring in the Indian banking sector and found that gross non-performing assets and gross loans were highly statistically positively significant with the total number of restructured loans. Debt restructuring will help in the economic recovery of distressed loans. As per Dzingirai and Baporikar (2022) opinion, commercial banks have a positive impact on financial restructuring but need to follow a conformist methodology to avoid failures in the banking business. Patwary and Tasneem (2019) mentioned that loan rescheduling of loans is not the ultimate solution to the NPL problem rather than increasing NPL for repeated rescheduling ultimately encouraging the default culture.

Dardac et al. (2011) treated bad loan restructuring as a loss allocation process between debtor and creditor. Ghosh (2019) mentioned that the lack of coordination among creditors can significantly impede the restructuring process for financially distressed companies and effective coordination among creditors is essential to reaching a consensual agreement that benefits all parties involved. Kiliç (2011) found that a very strict restructuring program was applied in the banking sector in Turkey after the 2001 financial crisis and revealed that some of the banks were closed or merged or taken over mandatorily for strict restructuring program. From this study, it is found that the restructuring process was not successful in Turkey which caused the merger or acquisition of some banks. The benefits for the lender from the restructuring of a loan should be higher than the cost of restructuring as well as net gains of the lender would be higher than the cost.

Kaveri (2016), as well as Sharma (2016), mentioned the initiation of the Strategic Debt Restructuring (SDR) Scheme in 2015 in India allowing banks to convert debt into equity of defaulting companies in the way of exercising control over the management of inefficient and dishonest companies or changing the present management that appoints new promoters to whom their equity to be transferred.

2.4 The Research Gap Analysis

Due to adverse sitiatuation of the NPLs, the loan rescheduling is widely used process to reduce the adversity of the problem. The relevant literatures on the loan rescheduling create a gap for this research.

2.4.1 Preference on loan rescheduling

The study of Gilson et al. (1990) study is considered the first comparison between bankruptcy and corporate debt restructuring in the history of debt restructuring and the results that bankruptcy cost is higher than that of private renegotiation. The study also showed that decision-making is quicker in the debt restructuring process. Field et al. (2020) investigated the impact of flexible credit for entrepreneurs in Colombia and suggested for equilibrium between supporting the farmers to pay back the loan and the rescheduled loan risk. Kahuko (2018) used financial performance as the dependent variable and financial restructuring, portfolio restructuring, operational restructuring, firm size, and liquidity as independent variables where the performance of listed commercial and service-related distressed firms' performance was analyzed.

Ziky and Elghabri (2022) mentioned that a customer in financial difficulty can benefit from free rescheduling of the remaining amounts due of a customer in financial difficulty can be beneficial. Ahamed and Mallick (2017); Baudino and Yun (2017); Yang (2017); Dodson and Ahrendsen (2018); Kahuko (2018); Anita et al. (2020); Carrière (2020); Aisyah et al. (2023); Galande (2023); Sianipar and Talib (2023) also preferred debt restructuring to legal procedure. Additionally, the "London Approach" and the "Podgorica Approach" proposed debt restructure as an alternative way of out-of-court solution to non-performing loan recovery assuming the better performance of the financial organization but empirical assessment of this process is required.

2.4.2 Demand-side analysis of loan rescheduling

Das (2012); Das and Kim (2014); Okoye et al. (2020); Wanyoike et al. (2022) analysed on corporate debt restructure from the viewpoint of the demand side. The researchers concluded how much the distressed firms regain their businesses in the process of restructuring. In contrast, Rastogi and Mazumdar (2016); Kaur and Srivastava (2017); Johari (2022); Asuquo et al. (2023) revealed that the performance of the debt-restructured firms is much below their projected levels, in some cases it involves downsizing the operating performance of firms. All these researches do not focus on the performance of the financial institutions or whether these organizations got any benefit from the restructuring process.

2.4.3 Supply-side analysis on loan rescheduling

The studies of Yadav (2011); Chalkiadis (2019); Disemadi and Shaleh (2020); Pande (2021); Mulwa and Onguso (2022); Dzingirai and Baporikar (2022); Alimuddin et al. (2023); Chambost (2023) mentioned that commercial banks have a positive impact on financial restructuring. But Patwary and Tasneem (2019) contradicted the loan rescheduling procedure to solve the NPL problem and mentioned that NPL increases for repeated rescheduling which ultimately encourages the default culture. Coelho et al. (2020) were frustrated that rescheduling loans increase the accrued interest whereas Tchistyi and Piskorski (2008) are frazzled that the inverse outcome of the restructuring is created due to a moral hazard problem. Alam et al (2015) investigated the causes of NPLs in Bangladesh and opined that the opportunity for loan rescheduling creates lingering problems as the defaulters' motivation to unwillingness to pay back the bank payments through taking the opportunity loan rescheduling. This study also mentioned that the banks can present their bad loans as good loans and increase temporary operating profit due to the rescheduling of NPL but a large portion of rescheduled loans cannot be collected from the defaulters. This study has the lacking of strong literature and empirical analysis of the rescheduling process in Bangladesh. Patwary and Tasneem (2019) investigated the impact of NPLs on the profitability of banks in Bangladesh from 1997 to 2017 and mentioned that repeated loan rescheduling increases the NPL like other factors but this procedure ultimately encourages the default culture. Like Alam et al. (2015), this study has the lacking of strong literature and empirical analysis of the rescheduling process in Bangladesh.

2.4.4 The research gap

Chowdhury et al. (2017) examined the implication of loan rescheduling and write-offs on the performance of banks in Bangladesh through semi-structured questionnaires and secondary data from annual reports of different banks from 2010 to 2014. They also incorporated 17 case studies and FGD to find out the ins and outs of rescheduling and write-off policy. Their survey data found that rescheduling of loans has a positive impact on the performance of banks which increases investable fund and cash flow, decreases provision and capital requirement, expedites loan recovery, and enhances asset quality. This study did not find a positive impact on the interest income of the banks. The study was not focused on the indicators of the performance of the banks. On the other hand, the data collection period was only from 2010 to 2014 which does not focus on the long-term implications of the loan rescheduling.

Banerjee et al. (2021) investigated the effectiveness of NPL policies in Bangladesh where the sample size was 30 commercial banks and remarked that banks followed the liberal procedure of loan rescheduling. They observed that about 99% of applied proposals were accepted for loan rescheduling from 2016 to 2020 although the regulatory framework urged to tighten reschedule policy.

Sunny and Tang (2022) studied the corporate restructuring effectiveness on reduction of the NPL in Bangladesh and revealed that this process reduced the NPL and the provision regarding banks but there is a lower stability of these banks after the policy period. This study focuses on the reduction of distress loans and provision reserve through the process of regulator-initiated corporate debt restructuring (RCDR) policy under BRPD Circular No.4, January 29, 2015, and found the positive impact of the policy. As per this policy, Tk.164.1 billion of loans was restructured. Financial Stability Report of Bangladesh Bank shows that Tk.191.40 billion was rescheduled in 2016. So, they did not cover total data of that year. Mentionable that the banking sector of Bangladesh followed BRPD Circular no. 15/2012 dated 23.09.2012 to reschedule the distressed loan, and a supplementary circular was issued through BRPD Circular no. 04/2015 dated 29.01.2015 titled “Large Loan Restructuring” which specially allowed restructuring “Large Loan” having the amount more than Tk.500.00 crore in aggregate of a particular borrower or group in a bank(s).

Therefore, only this policy is not sufficient to analyze the overall effectiveness of loan rescheduling on the performance of the banking sector in Bangladesh. Additionally, this study has studied only on the asset quality, not studied the performance indicators of Banks like profitability, liquidity, capital, bank size, etc.

Banerjee et al. (2023) showed the rescheduled loan trend in Bangladesh Bank from 2016 to 2020 which shows only the rescheduling loan tendency in Bangladesh but the effectiveness of this policy has not been discussed. Bangladesh Bank publishes an annual report namely "Financial Stability Report" from 2010. In this report, the trend of the rescheduled loan is described broadly but the effectiveness of this policy on the performance of the banks is not discussed decoratively.

The above mentioned deliberation creates an earnestness to find out the effectiveness of the loan rescheduling on the performance of the banks. The theories of loan rescheduling assume the acceleration of the banking performance but the loan rescheduling has not been found as a component of performance in any studies of bank performance indicators in the international and Bangladeshi litearture. Hence, a comprehensive study in the context of the effectiveness of loan rescheduling in the performance of commercial banks in Bangladesh is the opulence of quarrying. Additionally, there are typewise banks' differences in term of NPLs as per aggregate data. Consequently, it also creates a sagacity to recognize the recovery performance of the typewise banks. On the other hand, the existing research has create eagerness to find out the impact of loan rescheduling utilizing probable all performance indicators of the banking sector. Therefore, this research gap also identifies the performance indicators of commercial banks.

2.5 Performance Indicators of the Commercial Banks

Evaluating the performance of a business organization is crucial for assessing its health, effectiveness, and sustainability. Various indicators and metrics are used to gauge different aspects of a company's performance like type, size, and region of the organization. Performance measurement has been defined as the process of quantifying the efficiency and effectiveness of action which varies from an assortment of perspectives and opinions including strategy development and the taking of action (Neely, 2002; Marr and Schiuma, 2003; Franco-Santos and Bourne, 2005).

Performance assessment is not just a routine business practice; it's a critical component of a company's strategy for survival and success. By focusing on operational efficiency and effectiveness through regular assessment and improvement initiatives, businesses can enhance their competitiveness, adapt to changing circumstances, and build a foundation for sustainable growth. Performance assessment is a critical aspect of ensuring the survival and long-term success of a company, and it has a direct impact on operational efficiency and effectiveness (Chien and Danw, 2004).

Various theories and procedures have evolved independently for the performance measurement of financial organizations by Atkinson et al. (1997); Adeola and Adebiyi, 2016; Ayatse et al. (2017); Dvouletý et al. (2018); Rojas-Lema et al. (2021); Kafetzopoulos (2022); Muthuveloo et al. (2022). These approaches have developed over time in response to different objectives, regulatory requirements, and the changing landscape of the financial industry. These different theories and procedures reflect the multifaceted nature of financial organizations and the need to consider various dimensions of performance, including financial health, risk management, customer satisfaction, and social responsibility. Depending on the organization's objectives and stakeholders, different approaches may be prioritized and customized for performance measurement and management.

2.5.1 Profitability as performance indicators of commercial bank

Chakraborty et al. (2004) pointed out that the motto of the commercial business organization is wealth maximization which is measured through performance. Performance management is an important trait of banking business management. Moufty et al. (2021) investigated the bank performance and different measurements of sustainability of the EU and the USA and found that there is a significant positive relationship between the bank performance and internal social aspects of sustainability where they used ROA and ROE as bank performance. Similarly, Molyneux and Thornton (1992); Zhang, et al. (2020); Buallay et al. (2021); Ecer and Pamucar (2022); Kolia and Papadopoulos (2022); Hassan et al. (2023); López-Penabad et al. (2023); Özdemirci et al. (2023); Sibanda and Chaita (2023) literature of USA and European used ROA and ROE as bank performance.

Athanasoglou et al. (2005) researched the determinants of the profitability of South Eastern European (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania, and Serbia and Montenegro) banks and found that the size of the bank is positively correlated with profitability as well as the mixed impact of macroeconomic variables where profitability is considered to be ROA and ROE. Similarly, Tunay et al. (2015) used ROA and ROE as profitability measures of bank performance for the Euro Area banking sector for the period of 2005-2013, and Korzeb and Samaniego-Medina (2019) used ROA and ROE as profitability measures of bank performance for the Polish banking sector.

Chowdhury (2015) used annual data of 44 Islamic banks in 2013 from the Asian and African regions to investigate the determinants of profitability and found that the operating efficiency ratio has a statistically negative significance but equity financing and inflation have a statistically positive significant impact on performance. The credit risks, liquidity risks, and GDP growth rate are insignificant to the performance. On the contrary, Chowdhury et al. (2016) found that profitability (return on asset) has a statistically positive relationship with credit risk but credit risk has a negative relationship with the cost-to-income ratio of 55 full-fledged Islamic banks of 24 countries of the world. Mateev (2017) investigated the determinants of bank performance using 102 large and medium-sized banks from 33 countries of the world and found that poor governance was the main cause of the financial crisis of 2007-2008 in the banking sector. This result also supports the study of developing countries' researches like Afolabi et al. (2017); Le (2017); Rodionova and Piatkov (2020); Rusydiana and Rahmawati (2021); Bătae et al. (2021); Abdurachman et al. (2023); Pîslaru et al. (2023).

All these studies used return on asset and/or return on equity as indicators of the performance of the banking sector. Nasserinia et al. (2017) researched 100 banks in 25 countries of the globe for the period of 2007 - 2015 using the equivalent profit-shared margin as a market-based measure of bank performance instead of return on asset and return on equity. Yang et al. (2018) used ROA, ROE, operating margin (OM), NIM, and efficiency ratio as performance indicators to analyze the banking sector performance of China. Similarly, Ferrouhi (2017) used ROA, ROE, and NIM as dependent variables for performance measurement of the Morocco Banking sector.

El-Kassem (2019) used Return on Average Assets (ROAA) as independent variables and liquidity and risk as dependent variables to measure the Banks' Profitability in Qatar. The literature review of Sinha and Sharma (2016); Batten and Vo (2019); Rain et al. (2022) used ROA and ROE as performance indicators of banking sector.

Banna et al. (2017) investigated the efficiency of the banking sector of Bangladesh and found that capital adequacy ratio, return on average, equity bank size, and real interest rate have significant effects on bank efficiency. Fatema et al. (2019); Haque and Sohel (2019); Nabi et al. (2019); Azad et al. (2020); Lalon (2020); Hassan (2021); Uddin et al. (2022); Asmild et al. (2022); Rahman (2023) also researched operational efficiency and profitability of banking sector of Bangladesh. Samad (2015) mentioned that bank-specific factors like operating expenses to total assets, loan-loss provision to total assets, loan-deposit ratio, and equity capital to total assets are significant factors in the performance measurement of the banking sector of Bangladesh. According to this study, bank sizes and macroeconomic variables have no impact on performance. All of these studies used profitability as the performance of the banking sector.

Saha and Bishwas (2021) investigated determinants of the financial performance of private commercial banks in Bangladesh using time-series data from 2008 to 2017 and found bank-specific factors have a significant effect on the performance but macroeconomic factors have an insignificant effect while ROA, ROE, NIM and return on capital employed (ROCE) are regarded as performance indicators of banking sector. Likely, Akter et al. (2021); Abedin et al. (2022); Ullah and Rahman (2022); Bhuiya et al. (2023) used ROA and ROE as performance indicators of banking sector of Bangladesh.

2.5.2 Efficiency as a performance indicator of commercial bank

Bank efficiency has also been the utilized in different literatures all over the world where they used the Return on Asset, Return on Equity, and Net Interest Margin as performance indicators of commercial banks (Ferrier, 2001; Dacanay, 2007; culp et al., 2016; Barry et al., 2010; Gardener et al., 2011; Qin and Pastory, 2012; Parinduri and Riyanto, 2014).

Efficiency-based analysis was done by Sufian (2007); Chaity and Islam (2022) suggested to corporate governace increasing efficiency of the banks in Bangladesh. Banna et al. (2017) investigated the efficiency based performance analysis of the commercial banks in Bangladesh using the Data Envelopment Analysis (DEA) method and revealed that capital adequacy ratio, bank size, real interest rate, and return on average equity have a significant effect on bank efficiency in Bangladesh. Efficiency based performance analysis of the commercial banks in Bangladesh was also investigated by Hoque and Rayhan (2013) and Sufian and Kamarudin (2013).

2.5.3 CAMEL model as performance indicators of commercial bank

Wheelock and Wilson (2000) mentioned that Federal regulators of U.S. banks evaluate banks on five criteria: capital adequacy, asset quality, management, earnings, and liquidity (CAMEL), and these ratings are categorized to estimate the determinants of US bank failures and acquisitions. They revealed that the proximity to the insolvency of a bank is related to low equity-to-assets ratio and management inefficiency. Ondes et al. (2019) used time series data (Pooled Least Squares) as panel regression on nine financial ratios of the CAMEL model to examine the financial performance of three Islamic banks in Turkey and five Islamic banks in the UK. Gazi et al. (2022) used the CAMEL model indicators to determine the impact of COVID-19 on the financial performance and profitability of private commercial banks in Bangladesh.

The CAMEL model was used as a performance indicator in various studies like Matthew and Laryea (2012); Ifeacho and Ngalawa (2014); Hossain et al. (2017); Islam (2018); Mahmud and Rahman (2020); Nguyen et al. (2020); Ali et al. (2021); Amer (2021); Fitriyah et al. (2021); Islam and Yasmin (2021); Islam et al. (2021); Malandrakis and Drakos (2021); Quoc (2021); Naushad (2021); Abebe (2022); Afroj (2022); Bhatti et al. (2022); Dragoeva (2022); Hussein and Al-Dulaimi (2022); Shrestha and Gnawali (2022); Prodanov et al. (2022); Daboh and Duramany-Lakkoh (2023); Mahmud (2023); Singh and Milan (2023); Nizar et al. (2023).

Thus it is observed that there are different thoughts on the performance indicator of commercial banks. Actually, the choice of performance indicators varies on the research hypothesis and strategic objectives.

Regulators also have their own set of key performance indicators to ensure the stability and soundness of the banking system. Additionally, the financial industry is dynamic, and new performance indicators may emerge over time as the industry evolves and new challenges arise.

But literature shows that the earnings of the CAMEL model include the profitability; the asset quality of the CAMEL model includes the non-performing loans. In this consideration, the profitability and the NPL are included in the CAMEL model. On the other hand, the efficiency based analysis also includes the components of the CAMEL model. Besides, the central bank of Bangladesh appraises performance of the banking sector make use of the CAMEL model. In this consideration, it is expected that the variables of the CAMEL model would comprise all potential varibles as performance indicators of banking sector to evaluate the impact of loan rescheduling in Bangladesh. The literatures also show that the existing researches for loan rescheduling do not utilize all the variables of the CAMEL model.

CHAPTER THREE: RESEARCH METHODODOLOGY

Generally, the research methodology instigates with the research philosophy which points in the right direction for the researcher to investigate in a logical framework. From the problem statement and research gap analysis of this research, the broad objective of this study is to evaluate the effectiveness of loan rescheduling on the performance of commercial banks in Bangladesh with four specific objectives. In this chapter, the research philosophy along with the research design and research approach has been briefly discussed with the consistency of the objectives. After determining these, the sources of data, the population, and the sampling have been acknowledged. Based on the literature on performance indicators of commercial banks, the mathematical and theoretical model along with the appropriate hypothesis has been demonstrated. Lastly, data analysis techniques and tools are broadly described. Actually, this research methodology chapter guides the extravagant pathway of this research.

3.1 Research Philosophy

The research philosophy plays a crucial role in shaping the thought and approach of a researcher. It influences the way a researcher views the world, and determines their beliefs and values regarding the nature of knowledge and the methods they use to acquire it. Research philosophy guides the selection of research methods, data collection techniques, and interpretation of results (Heron, J., 1996). The thought of a researcher is determined by a distinctive way of research philosophy as it specifies the field of dealing with the "study of knowledge, reality, and existence" (Moon et al., 2018). Dougherty et al. (2019) mentioned that the identification of research philosophy is important in participating in scientific research that clearly expresses the objectives, sources of data, and estimated outcomes of a study. Choosing the right research philosophy depends on the research question, the context of the study, and the values and beliefs of the researcher. According to Moon et al., 2018, specific philosophical thinking predetermines the overall theoretical framework, results, and contributions of a study determined by the research philosophy.

There are different types of research philosophies. For example, Galliers (1991) listed fourteen types of philosophy whereas Alavi and Carlson (1992) listed eighteen categories. Research philosophy can be understood and categorized based on three main components: epistemology, ontology, and axiology which lead to different methodological issues like positivism, pluralism, and interpretation subdivided by experiments, surveys, questionnaires, structured interviews, thematic structure, unstructured interviews, and ethno figurey. Each of these components can be used to understand and categorize different research philosophies.

The **epistemology** approach is the philosophical study of identifying what is real from what is mistaken which is concerned with the scope and nature of knowledge (Pernecky, 2016). It is also known as the "Theory of Knowledge" that knowledge is somehow available, without the knowledge itself. Johnson and Duberley (2000) clarify that epistemology creates the path to decide what is scientifically allowed and what is not, what is rational and what is not or to assess the guaranteed from the uncertain. Kivunja and Kuyini (2017) states that this branch supports relating how knowledge appeared, what forms it has, and how it impacts the world. This branch of knowledge directs the right way through creating rational clarifications to comprehend explored inquiry. They also mentioned that a scholar might regain knowledge from such sources as intuitive, authoritative, logical, and empirical knowledge. The epistemological perspective of research has three basic types of branches interpretivism, positivism, and realism.

The **Interpretivism** is broadly used in qualitative studies and cannot be quantitatively measured it is based on the idea that any scientific finding should be interpreted within a social context (Gichuru, 2017). The objective of interpretivism is to explain certain things under certain circumstances having no generalized conclusion in the identification of problems that are inherent in human nature and investigation (Black, 2006; Perry, 2000, Cooper et al., 2006).

The **positivism** works on the similarities between the natural and social fields to explain the investigated knowledge (Gichuru, 2017). Eketu (2017) and Healy and Perry (2000) explain that positivism holds the world consisting of regularities that can be dictated by observing a certain phenomenon; the researcher infers knowledge about the real world. It applies given knowledge only from a scientific perspective relying on empirical data and scientific methods to draw generalized conclusions. There is no provision for human interest within the study as the positivist is considered to be independent of the research.

The **Realists** use the mixed method of qualitative and quantitative (Carson et al., 2001; Perry, 2000). The realist believes that reality exists independently in the researcher's mind which must fit the subject matter, either quantitative or qualitative. The realistic not only looks for the answer but also tries to construct various views of reality.

The **Ontology** is an approach to research of analyzing the facts like being, becoming, existing, and reality. It is also known as metaphysics - the existence of anything making relationship of the similarities or dissimilarities with questions of entities existence, and how such entities can be grouped, and sub-grouped as per similarities and differences (Hay, 2016). Fleetwood (2005) mentioned that ontology is the process of researching the way we think of the world as the science of being, existence, and/or similarities and differences. Like the epistemological perspective of research, Ontology has three basic types of branches: interpretivism (constructive), positivism (objectivist), and realistic.

The **Realism** is the research process of the real existence of something whereas 'Reality' means all the things in the universe causing the phenomenon of our perception with our senses (Blaikie, 2007).

The **Objectivism** deals with the researcher being external to the investigated problem and evaluating it objectively (McManus et al., 2017; Ragab and Arisha, 2018). All researched phenomena might be viewed as units and measured in the objectivism paradigm. Therefore, this methodology is widely used in quantitative studies.

The **constructivism** is defined by a set of different assumptions based on people's experiences and interactions with the world (Moon et al., 2018). The constructive view of paradigm uses the qualitative data.

Epistemology and ontology are interrelated and share some similarities. Epistemology is concerned with the nature of knowledge and how it is acquired and justified, while ontology is concerned with the nature of reality and existence. The way we understand reality and existence shapes our beliefs and understanding of knowledge, and vice versa.

For example, if an individual subscribes to realist ontology, they may believe that knowledge is an accurate reflection of objective, reality and that it can be acquired through empirical observation and experimentation. On the other hand, if an individual subscribes to constructivist ontology, they may believe that knowledge is a social construction shaped by our experiences, perspectives, and interactions. Therefore, ontology and epistemology are interlinked and shape each other, and a researcher's views on ontology and epistemology are reflected in their research philosophy and approach. For example, objectivism and positivism are connected like quantitative data analysis as well and interpretivism and constructive are connected like qualitative data analysis (Ryan, 2018; Zukauskas et al., 2018).

Constructivism and interpretivism are also both linked and share similarities as they are both post-positivist research philosophies. Both constructivism and interpretivism reject the idea of objective reality and instead, emphasize the role of the researcher and the participants in shaping knowledge and understanding. Constructivism and interpretivism both focus on the importance of understanding the perspectives and experiences of the participants in the study. They view knowledge as a social construction that is shaped by our interactions, experiences, and perspectives. They also emphasize the importance of qualitative research methods, such as interviews, observation, and case studies, as a means of gaining an in-depth understanding of the phenomena being studied.

However, there are some differences between constructivism and interpretivism. Constructivism places a greater emphasis on the role of the researcher in shaping knowledge and understanding, while interpretivism places more emphasis on the perspectives and experiences of the participants. Constructivism also has roots in the fields of psychology and education, while interpretivism is more closely associated with sociology and anthropology. In summary, while constructivism and interpretivism are linked and share similarities, they have different emphases and roots. Constructivism and interpretivism are linked because they both investigate a problem or phenomenon within a particular context considering multiple influential factors of it (Harrison et al., 2017). Thus, there are significant similarities in the ontological and epistemological approaches that might be useful when choosing a research philosophy.

The **Axiology** is an approach of philosophy focusing on values and it is also known as the philosophical study of value. It is either the collective term for ethics and aesthetics where ethics investigates the concepts of "right" and "good" in individual and social conduct, and aesthetics studies the concepts of "beauty" and "harmony."

The axiology, calls into question "the values of being about which human states, should be valued simply for what they are" (Heron and Reason, 1997). Axiology mainly refers to the objectives of the research. This branch of research philosophy has the objective of clarifying or trying to clarify to explain or predict the world, or only seeking to understand it. Axiology focuses on the explanation of the role of the researcher's value in all phases of the research process.

All of the branches of the research philosophy have the sub-division of positivism or objectivism and constructive or interpretivism. Another branch of sub-division is **pragmatism** which is often seen as having elements of both constructivism and interpretivism. It emphasizes practical outcomes and the use of experience as a basis for knowledge and action. Constructivism emphasizes the active role of the learner in constructing meaning, while interpretivism focuses on understanding the meaning and perspectives of individuals in social situations.

The **Pragmatism** combines these ideas by recognizing that knowledge is constructed through personal experiences and interactions and that the meaning of these experiences is shaped by social and cultural factors. Pragmatism began in the United States around 1870 by the Metaphysical Club, a group of a dozen Harvard-educated men. Pragmatism focuses on an individual decision-maker within an actual real-world situation which is the process of understanding a pragmatic study is first to identify a problem and view within its broadcast context. Pragmatism is the philosophy of prediction, action, and problem-solving covering the nature of knowledge, language, concepts, meaning, belief, and science viewed in terms of their practical uses and successes in terms of representative accuracy (James, 1975; Rorty, 1982; Shields, 1998; Biesta and Burbules, 2003; Morgan, 2014; Shusterman, 2016).

3.1.1 Research philosophy of this study

The researcher of this study adopts the pragmatism philosophy. Pragmatism prioritizes practicality and real-world results over abstract theory or idealistic beliefs. It recognizes that people are driven by their interests and experiences, and that these motivations drive their actions and beliefs. By focusing on practical outcomes, pragmatism offers a way to understand and solve problems that are grounded in actual experiences and can lead to tangible results (Morgan, 2014).

Additionally, pragmatism emphasizes the importance of experimentation and continuous learning, which allows people to adapt and make progress even in the face of changing circumstances. For these reasons, pragmatism is often seen as a practical and flexible approach to solving problems and making progress in various fields, including education, philosophy, politics, and science. The importance of pragmatism in research lies in its focus on practicality and problem-solving. By considering the experiences and motivations of individuals, as well as the social and cultural factors that shape these experiences, pragmatism can provide a more comprehensive and nuanced understanding of the problem being studied (Rorty, 1982). This, in turn, can lead to more effective and relevant solutions. Additionally, pragmatism's emphasis on experimentation and continuous learning allows researchers to adapt and refine their approach as new information and insights emerge.

In summary, pragmatism as a research philosophy is important because it offers a practical and flexible approach to problem-solving that takes into account the experiences and perspectives of individuals and is open to ongoing experimentation and adaptation. Pragmatism may be considered the most appropriate philosophy for a research project for several reasons (Kaushik and Walsh, 2019). Firstly, pragmatism prioritizes practical solutions and outcomes over abstract theories or speculative ideas, which is often important in research projects where the goal is to find practical solutions to real-world problems. Secondly, pragmatism recognizes that people are motivated by their interests and experiences, and these motivations drive their actions and beliefs. This makes pragmatism well-suited for research projects that aim to understand the experiences and perspectives of individuals and the social and cultural factors that shape these experiences.

Additionally, pragmatism's emphasis on experimentation and continuous learning allows researchers to adapt and make progress even in the face of changing circumstances. This is particularly important in complex and dynamic research environments where new information and insights are likely to emerge during the study. Finally, the pragmatist approach is flexible and responsive to the unique characteristics of the problem being studied, which makes it an appropriate choice for research projects that involve complex and multi-faceted problems.

This study combines both quantitative and qualitative research methods to gather data from both primary and secondary sources in order to understand the problem of the recovery of the banking sector. The use of a combination of research methods is consistent with the pragmatist approach, as it recognizes that different problems may require different methods and the most effective approach is likely to be one that is flexible and responsive to the unique characteristics of the problem being studied. Additionally, the focus on understanding the experiences and perspectives of individuals in the real-world scenario of the problem suggests that the researchers take an interpretivism approach.

This approach is consistent with the pragmatist philosophy, which recognizes the importance of personal experiences and perspectives in shaping knowledge and action. The interpretivism approach emphasizes understanding the meaning and perspectives of individuals in social situations, which is important in this study as the experiences and perspectives of those directly affected by the problem of the recovery of the banking sector will likely play a role in shaping its outcome. The combination of interpretivism and pragmatist approaches is expected to provide a more comprehensive understanding of the problem and lead to more effective and relevant solutions.

Overall, this study appears to be following a pragmatic research philosophy as it aims to understand and solve the problem of the recovery of the banking sector in a practical and flexible way, while taking into account the experiences and perspectives of those directly affected by the problem. The use of both quantitative and qualitative research methods, as well as data from both primary and secondary sources, supports this approach by providing a comprehensive and nuanced understanding of the problem.

The focus on real-world scenarios and practical outcomes is also consistent with the pragmatist approach. For these reasons, the researcher of this study adopts the pragmatism philosophy as data have been collected from primary and secondary sources and analyzed by means of quantitative and qualitative tools.

3.2 Research Design

Exploratory research is the way research is designed to reveal or seek research questions for studying in depth that have not been previously searched. This approach of research generally gathers new ideas, relationships, and information to identify complicated problems deploying qualitative research gathering rich and detailed information about a subject utilizing tools like in-depth interviews, focus groups, case studies, etc. It is also possible to use quantitative methods, such as surveys or experiments for the large sample size (Stebbins, 2001; Mainardes et al., 2010).

Generally, exploratory research is often accompanied by limitation of previous knowledge on a problem or issue. The preliminary objective of this type of research is to gain a deeper understanding of the problem to generate new ideas without providing conclusive results except a preliminary understanding of the problem. However, it formulates a more focused and structured approach for future research. Consequently, it is generally observed as an introductory phase in the research process to develop more organized and concentrated research intentions. It is used to answer questions like what, why, and how for which it is also regarded as a grounded theory approach or interpretive research (Waters, 2007).

Mainardes et al. (2010) contends that explorative research has the prospective danger of producing false or useless theories. Alternatively, descriptive research can be used. Descriptive research is the way of study to describe the features of a population or group to describe what, when, and how questions. This approach may investigate to define the demoFigureics, attitudes, activities, or understandings of a particular population. It is often conducted to gather information about a particular group or population for developing a program or making decisions.

Descriptive research defines the characteristics of collected data of a particular population or group that is used to cope with a wide range of what, when, and how questions (Lans and Van der Voordt, 2002; Siedlecki, 2020).

There are three main types of descriptive research, which include case studies, surveys, and naturalistic observation. A case study involves an in-depth examination of a single case or a small number of cases to investigate multifaceted or rare phenomena for a deeper understanding of the experiences and perspectives (Harrison et al., 2017). A survey involves collecting data from a large sample of individuals through self-administered questionnaires or interviews to collect information about the approaches, conducts, or understandings of a certain population. Naturalistic observation involves observing individuals or groups in their usual situations to collect information about behavior in real-life circumstances for identifying patterns of attitudes.

Every research design has its limitations and strengths but has the potential of used based on the purposes and objectives of the study. Quantitative data is uncontrolled and non-manipulated but qualitative data involves a straightforward descriptive summary of the informational contents of the data (Lambert and Lambert, 2012). In this way researcher can use explorative descriptive or mixed approaches combining both based on the research objectives.

This study of the research has been used by both the output of exploratory and descriptive research. Exploratory research has been used to advance a preliminary understanding of the problem and recognize prospective areas for the investigation. Descriptive research has been utilized to describe the characteristics of the population and answer questions about what, when, and how to gather information on decision-making. By combining both exploratory and descriptive research methods, it is tried to investigate a more comprehensive understanding of the issue and identify areas for further investigation. In this circumstance, exploratory research methods are being used to analyze the literature review, identify the NPL, and analyze the loan rescheduling process in Bangladesh. The descriptive research methods are likely to provide valuable information that can help to answer research questions and inform the decision-making of the performance measurement of the loan rescheduling on the performance of commercial banks in Bangladesh.

Based on the research objectives, the summary of the research design and methodology for this research is depicted in Table 3.1.

Table 3.1: The Research Design and Methodology

Specific Objectives	Type of Research Design	Methodology	Data Source
To analyze elaborately loan rescheduling process adopted by the banks on performance and its trend	Explorative	Qualitative	Secondary data
To investigate the long-run impact of the rescheduled loan on performance	Descriptive	Quantitative	Secondary data
To track the rescheduling loan to determine their ultimate recovery rate	Descriptive	Quantitative	Primary data
To identify whether any differences among typewise banks in their loan recovery through rescheduling.	Descriptive	Quantitative	Secondary data

3.3 Research Approach

The study uses the "Explanatory Sequential Research Design" to analyze the data and interpret the result with conclusive outcomes. Explanatory Sequential Research Design includes both quantitative and qualitative data to decide on the priority of the type of data, the sequence, and the stage/stages in the research process with a relevant analysis of the data which also creates a connection and integration of the results (Wong and Cooper, 2016; Bowen et al., 2017).

The explanatory Sequential Research Approach consists of two phases combining qualitative and quantitative. Researchers acquire data through literature review, interviews, observation, and focus groups in the qualitative phase to gain an in-depth understanding of the research problem. This phase is enriched with the understanding of the context and perspectives of the participants. On the contrary, researchers use structured data collection methods such as surveys or experiments to test hypotheses and gather data in the quantitative phase utilizing scientific methods.

The qualitative phase results are used to inform the design of the quantitative phase and the quantitative phase results are used to validate and support the findings from the qualitative phase. In this way, Explanatory Sequential Research Design can provide a deeper understanding of the perspectives and context of the participants.

Figure 3.1 (Subedi, 2016) specifies that the statement implies that the first two specific objectives of the study will be analyzed using qualitative data from a secondary source using existing data, such as reports, articles, or other sources of qualitative information, to gain insights and understanding related to the first two objectives.

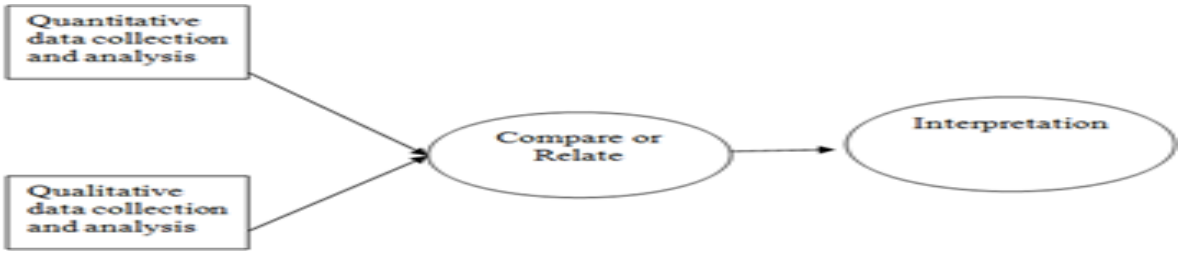


Figure 3.1: Explanatory Sequential Mixed Method Design

The last two specific objectives of the study have been analyzed using quantitative data from both primary and secondary sources implying that these data have been collected and analyzed numerical information related to the last two objectives, both from own study and existing sources. Later the results of the data were analyzed with a semi-structured interview of the experts. Based on the results of the data analysis, the interpretations have been made. By including both the explanation of data analysis results and a description of the prospect of future research, it is expected that the report is likely to provide a comprehensive and well-rounded conclusion ensuring the study's contributions are properly contextualized offering valuable insights for future research endeavors in the related areas.

3.4 Sources of Data

Data have been collected from both primary and secondary sources for this research to provide a more comprehensive perceptive of the research problem and authenticate the findings of the study which allows collecting directly relevant data. Ibert et al. (2001) mentioned that a researcher can collect new data for the specific purpose of addressing the problem in the way of primary data collection whereas secondary data are collected by others for other purposes.

Having the properties of the source of a wide range, including government agencies, academic journals, websites, and databases. The researchers can use this data to save time, cost, and other resources (Ibert et al., 2001). This data is readily and quickly available to use but it may not match the current need of the researcher so that most research projects require a combination of secondary and primary sources of data (Saunders et al., 2015).

In this study, a qualitative research approach has been used to analyze the loan rescheduling process adopted by the banks in Bangladesh (specific objective I) which is directly involved with a comprehensive literature review. This specific objective will also focus on the quantitative data. In this study, quantitative research was used to investigate the short-run and long-run impact of the rescheduled loan on performance (specific objective II), track the rescheduling loan to determine its ultimate recovery rate (specific objective III), and identify whether any differences among typewise banks in their loan recovery through rescheduling (specific objective IV). It is administered semi-structured interviews with the banking sector practitioner to judge the logic of the results from the specific objectives.

For specific objectives I, II, and IV, the data have been collected from secondary sources likely from literature-based journals, reports, periodicals, books, newspapers, etc. so that these can provide valuable insights into the loan rescheduling process. For the specific objective III, primary data have been collected from different commercial banks operating in Bangladesh. Finally, it was used a semi-structured questionnaire survey method to collect primary data from bank officials involved in the loan rescheduling process. Therefore, the data has been collected from a variety of sources including both primary and secondary.

3.4.1 Primary sources of data

In order to track the post rescheduling performance of the rescheduled loans, the primary sources of data have been collected. The primary data was collected from commercial banks operating in Bangladesh for the first-time rescheduled clients in 2016 and the recovery trend of these clients through down payments and installment payments as well as second-time and third-time rescheduling to address the specific objectives of the study which is a case study-based analysis for a depth analysis of the aggregate data analysis. Besides, the semi-structured interview data based on the questionnaire was collected from the expert opinions of different commercial banks.

3.4.1.1 Questionnaire survey

A questionnaire survey is used to collect information and responses from respondents through telephone, mail, e-mail, and in person. The in-person interview has the advantage of human interaction to clarify the problems with an advantage of face-to-face interviews with participants to conduct information and insights (De-Vaus and De-Vaus, 2013). The questionnaire survey was conducted in this study to gather information and validate the findings of the previous phases of the analyses with a view to increase the chances of getting accurate responses from the respondents.

3.4.1.2 Questionnaire design

There are three ways of interviews: structured (the interviewer follows a standardized set of questions), semi-structured (the interviewer has a general outline of topics with a possibility of deviation), and unstructured (the interview is conversational). Among these processes, the semi-structured questionnaire interviews allow to utilization of a clear list of questions with flexibility of response (McIntosh and Morse, 2015).

The semi-structured questionnaire has been designed for this research to gather more in-depth information about the loan rescheduling process and its impact on bank performance. It has started with Multiple Chioce Questions (MCQ) questions about the role of the respondent (recovery head of bank and branch managers of the commercial banks), the banking experience (1-5 year, 5-10 years and more than 10 years), and response on the effectiveness of loan rescheduling (yes/no/partial). The semi-structured questionnaire in this research also includes three open-ended questions to collect further insights. These questions are designed to ask respondents about how loan rescheduling improves the performance of the bank, the reasons behind the ineffectiveness of loan rescheduling, and how it could be improved. The selected interviewees have in-depth knowledge and experience in the area of loan rescheduling and NPL recovery. Each interview in this study has formal and informal conversations of nearly 20 minutes in length.

3.4.2 Secondary sources of data

Firstly, the pertinent literature review and applicable policy interconnected with this research are identified through deployment of secondary sources of data. In order to track the trend of loan rescheduling in consort with comparision and identify the short-run and long-run impact of loan rescheduling on pereformance of commercial banks, the secondary sources of data have been employed. Additionally, the comparision of the typewise banks rescheduling have been utilized in the way of secondary sources of data.

Secondary data sources include the annual reports of Bangladesh Bank from 1997 to 2021 and financial stability reports of Bangladesh Bank from 2012 to 2021. The data relating to NPL, RWA, EIR, ROA, ROE, NIM, and LR have been collected from annual reports of Bangladesh Bank from 1997-2021. The data relating to RSD has been acquired from financial stability reports of Bangladesh Bank from 2012 to 2021. The rescheduled loans data is not available over 1997 to 2011 in the said report. Also it is not available in any other sources. To match the study period of rescheduled loans with other variables, the aggregate average of the rescheduled loans to total loans from 2012 to 2021 has been used as a interpolation form for the period of 1997-2011 for the rescheduled loans.

Apart from the above, data was collected from the information research, economics, finance, and business-related textbooks and articles in journals for building the theoretical framework, hypothesis, and literature review section of this study. As well as books and articles, periodicals, newspapers, and other relevant sources of information have also been collected and used in this report. The data collected from these sources were used to build the theoretical framework, hypothesis, and literature review section of the study, and provided a comprehensive understanding of the issue at hand.

3.5 The Population

The population of research refers to the entire group of individuals, events, or objects that have the characteristics relevant to the research problem. The researcher aims to collect facts from the entire population or a representative sample of the population to make inferences about the entire group.

The size and the composition of the population depend on the research question, and the researcher must determine the population for the study before collecting data. A population is the aggregate outcome of all elements of the common characteristics under investigation in the research (Malhotra et al., 2014; Zikmund et al., 2013). Zikmund et al., 2013 specified that the target population is defined to answer questions about the crucial characteristics of the population. The objective of research specifies the population or multitude that will come under the purview of the study. There are 61 commercial banks in Bangladesh operating up to 2021 which are categorized in Table 3.2. All 61 banks operating in Bangladesh comprise the population of this study.

Table 3.2 Commercial Banks in Bangladesh

Category	**No of Banks**
State-owned Commercial Banks (SCB)	06
Development Financial Institution (DFI)	03
Private Commercial Banks (PCB) 1st to 3rd Generation Conventional Islamic 4th Generation Conventional Islamic	43 23 08 10 01
Foreign Commercial Banks (FCB)	09
Total	**61**

Source: Bangladesh Bank Annual Report (2022)

In this research, the population refers to the set of all commercial banks in Bangladesh and their clients who have received loan rescheduling from 1997 to 2021 (specific objective III). The aggregate data of this population is used to investigate the short-term and long-term impact of loan rescheduling on the performance of banks and their clients. The data collected from this population is analyzed to reach conclusions and insights related to specific objective II of the study.

At the same time, other information in this research: the introduction, specific objectives I and II, and the aggregate data from the population have been collected. The researcher has used the collected data to analyze the loan rescheduling process adopted by the banks and its impact on the performance of the banks and determine the ultimate recovery rate of the rescheduled loans. This information was used to support the findings and conclusions of the study.

3.6 The Sample

Collecting data from the entire population can be time-consuming, expensive, and often unnecessary. Sampling allows the researcher to make inferences about the population, which is the process of selecting a subgroup. The subgroup of a population selected to collect data is defined as sampling (Malhotra et al., 2014). There are two types of sampling techniques - probability sampling (simple random sampling, stratified random sampling, systematic sampling, cluster sampling, multistage sampling), and non-probability sampling (deliberate sampling, convenience sampling, purposive sampling, snowball sampling, multistage sampling). A single element or a group of elements in the sample is called the sampling unit (Zikmund et al., 2013). In this study, the commercial banks in Bangladesh are the population, and a subset of these commercial banks is considered to be the sampling unit.

The NPLs and the rescheduled loans in Bangladesh differ from bank to bank. Therefore, data for the case study was collected from different commercial banks in Bangladesh based on sampling. The type of banking system is also different form of conventional, Islamic, state-owned, private, and foreign commercial banks operating in Bangladesh. Therefore, the sample for this study was selected based on the number of first-time rescheduled clients in 2016 and the recovery trend of these clients through down payment and installment as well as second/third-time rescheduling.
The banks with a high number of rescheduled clients were selected as the sample for this study through purposive sampling. Purposive sampling is a type of non-probability sampling. The researchers select the elements for the sample based on their judgment or purpose, which is called purposive sampling (Black, 2010; Saunders et al., 2015). Black (2010) described that researchers can obtain a representative sample by using sound judgment to save time and money. This process aims to represent the most relevant information for the research objectives. The sample in this study has been designed purposively to represent all types of relevant banks.

3.6.1 The sample for rescheduled loan accounts selection

The number of rescheduled loan accounts has been taken largely from the state-owned banks as the size of the bank; total loans, non-performing loans, and rescheduled loans of these banks are larger than that of other private banks. The highest vulnerable banks in terms of non-performing and rescheduled loans based on BB reports and newspaper reports have been selected purposively to observe the clients of respective banks.

This study focuses on all sizes of rescheduled loans but gives more weight to large loans. The DFI has loan sizes that are smaller, so the data from DFI has not been included in this study. This study focuses on established banks with a history of operation and data available for a significant period of time, rather than newly established banks. The absence of long-term data for newly established banks after 2010 led to their exclusion from the study sample. Additionally, the sample size has been limited due to the unavailability of data and the non-cooperation of some of the banks.

The exclusion of some banks may affect the representativeness of the sample, but it is hoped that the purposive sampling approach and the focus on the largest and most vulnerable banks will provide meaningful insights into the loan rescheduling trend and its impact on bank performance in Bangladesh. The explanation provided clarifies the sample selection and the rationale behind excluding certain banks from the study. Here are the key points:

- **Focus on all Sizes of Rescheduled Loans, with Emphasis on Large Loans:** The study aims to examine the relationship between loan rescheduling and bank performance for all sizes of rescheduled loans. However, it places more emphasis on large loans for a comprehensive understanding of loan rescheduling trends across different loan sizes while acknowledging the potential significance of large loans in impacting bank performance.

- **Exclusion of Data from Development Financial Institution:** Due to the smaller loan sizes in the DFI, the data from DFI has not been included in the study to ensure the sample represents a meaningful range of loan sizes and to focus on banks with a broader spectrum of loan portfolios.

- **Focus on Established Banks and Exclusion of Newly Established Banks after 2010:** The study targets established banks with a history of operation and data available for a significant period to ensure the analysis is based on banks with a substantial operating history and sufficient data for analysis. Newly established banks are excluded from the study due to the absence of long-term data beyond 2010 since data continuity over a substantial period is required for analysis of bank performance trends, which might not be available for newly established banks.

Table 3.3 shows the sample distribution of the case study on the recovery trend of the clients.

Table 3.3 Sample Distribution- The Client Selection

Category	Exclude/Include	No of Banks	No. of Clients	Exclusion Rationale
SCB	Include	03	60	-
DFI	Exclude	-	-	Small loan size
PCB 1st to 3rd Generation Conventional Islamic 4th Generation Conventional Islamic	 Include Include Exclude	 02 02	 20 20	 - - Absence of long-term data
FCB	Exclude	-	-	Unable to data access
Total		**07**	**100**	

Source: Author's Design

3.6.2 The sample for the the experts interview

The aim of conducting semi-structured interviews is to gather information and perspectives on the effectiveness of loan rescheduling in the improvement of the performance of commercial banks in Bangladesh. So, a total number of 60 semi-structured interviews were conducted as part of this study to gather qualitative data and insights related to loan rescheduling and bank performance.

A total of 35 branch managers and recovery heads have been interviewed from the initially selected 7 banks for the case study. In addition to the study group, 25 branch managers from other than these 7 banks have also been interviewed. These individuals represent different banks or financial institutions to provide a comprehensive perception of the topic of loan rescheduling and bank performance. Among these 60 respondents, there are 7 recovery heads and 53 branch managers. The aim of the mixture of participants from different banks and roles is to provide a comprehensive understanding of the topic and contribute to the richness of the qualitative data analysis. The interviews were conducted with experts who have offices at Gulshan and Motijheel in Dhaka City as these locations have been chosen strategically due to their significance rule in the banking sector of the banking community.

3.7 The Models

The model is derived from the preceding study on the basis of objectives and research design. The model leads the researcher the disnctive patway how the results of the objectives will be attained. Based on the research questions and the model, the hypothesis of the research is also recognized which ultimately justified as per pertinent investigative tools.

3.7.1 The ultimate decision on performance indicators

Profitability

The profitability is most used method of performance evolution in the banking sector. The ROA, ROE, and NIM are used as profitability measures. ROA is a measure of a bank's profitability relative to its total assets. It shows how efficiently a bank is using its assets to generate profits. A higher ROA indicates better performance.

ROE is the approach to measure profitability of the bank relative to its shareholders' equity. It reflects how well the bank is generating returns for its shareholders. A higher ROE is generally considered favorable. NIM measures the difference between the interest income generated by a bank's assets (e.g., loans and investments) and the interest expenses it incurs (e.g., interest paid on deposits and borrowings). A higher NIM indicates better profitability.

International literature like Nasserinia et al. (2017); Afolabi et al. (2017); Ferrouhi (2017); Yang et al. (2018); Admati and Hellwig (2019); Batten and Vo (2019); Kassem (2019); Korzeb and Samaniego-Medina (2019); Rodionova and Piatkov (2020); Zhang et al. (2020); Buallay et al. (2021); Bătae et al. (2021); Rusydiana and Rahmawati (2021); Ecer and Pamucar (2022); Kolia and Papadopoulos (2022); Rain et al. (2022); Abdurachman et al. (2023); Hassan et al. (2023); López-Penabad et al. (2023); Özdemirci et al. (2023); Pîslaru et al. (2023); Sibanda and Chaita (2023) etc. used the profitability measures as performance indicator of banking sector.

The Bangladeshi literature like Sufian and Kamarudin (2012); Banna et al. (2017); Fatema et al. (2019); Haque and Sohel (2019); Nabi et al. (2019); Azad et al. (2020); Akter et al. (2021); Hassan (2021); Saha and Bishwas (2021); Abedin et al. (2022); Uddin et al. (2022); Ullah and Rahman (2022); Rahman (2023) used profitability as performance indicator of banking sector of Bangladesh.

Non-Performing Loans

The NPL ratio measures the percentage of a bank's loan portfolio that is not being paid back on time. Basically, it represents the asset quality of the banks. A lower NPL ratio is generally preferable, as it indicates lower credit risk. Ally 2014; Rahman et al., 2015; Sinha and Sharma, 2016 used NPL as one of the performance indicators of banking sector.

Share Price-based (Tobin's Q) Analysis

Share price-based (Tobin's Q) analysis was done by Hagendorff and Keasey (2012); Al Karim and Alam (2013); Poon et al. (2013); Rahman and Mustafa (2018) to analyze the performance of the banking sector.

The CAMEL Model

The CAMEL model is a supervisory rating system used by regulators and examiners to assess the overall health and performance of commercial banks. Bangladesh Bank evaluates the banks through this model which is a critical tool to identify potential weaknesses in a bank's operations and to take appropriate actions to address those weaknesses.

It helps to ensure the stability of the banking system and the protection of depositors' funds. For investors and stakeholders, knowledge of a bank's CAMEL rating can provide insights into its performance and risk profile. Kumbirai and Web (2010); Hossain et al. (2017); Ondes et al. (2019); Mahmud and Rahman, (2020); Nguyen et al. (2020); Wheelock and Wilson (2000); Ali et al. (2021); Amer (2021); Fitriyah et al. (2021); Malandrakis and Drakos (2021); Quoc-Trung (2021); Naushad (2021); Abebe (2022); Afroj (2022); Bhatti et al. (2022); Dragoeva, R. (2022); Hussein and Al-Dulaimi (2022); Shrestha and Gnawali (2022); Prodanov et al. (2022); Daboh and Duramany-Lakkoh (2023); Mahmud (2023); Singh and Milan (2023); Nizar, N., et al. (2023) used CAMEL model as performance indicators of banking sector.

Like international literature, Akter (2017); Majumder and Rahman (2017); Akter et al. (2018); Islam (2018); Mahmud and Rahman (2020); Islam and Yasmin (2021); Islam et al. (2021); Gazi et al. (2022) used CAMEL model as performance indicators of banking sector in Bangladesh.

Actually, the earnings of the CAMEL model includes the profitability.The asset quality of this model includes the non-performing loans. In this consideration, the profitability and the NPL are included in the CAMEL model. Additionally, the efficiency based analysis also includes the components of the CAMEL model. Eventually, the efficiency based analysis does not include the entire components for all the literature. Additionally, Bangladesh Bank evaluates performance of the banking sector utilizing the CAMEL model. In this consideration, it is expected that the variables of the CAMEL model would comprise all potential varibles as performance indicators of banking sector to evaluate the impact of loan rescheduling in Bangladesh.

Therefore, the variables in the CAMEL model are used as performance indicators to establish the model for this research. The variables list is described in table 3.4.

Table 3.4: Ratios for Measurement of Loan Rescheduling and Bank Performance

Variables	Represents	Ratios	Reference
Independent Variable			
Rescheduled Loan	Loan Recovery	$RSD = \frac{\text{Total Rescheduled Loans}}{\text{Total Loan}}$	Author's own construct
Dependent Variables			
Capital Adequacy	Risk-Weighted Asset	$RWA = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Capital Adequacy Ratio}}$	Waqas et al. (2017); Bardhan and Mukharjee (2016)
Asset Quality	Non-Performing Loan	$NPL = \frac{Total\ Non-Performing\ Loan}{TotalLoan}$	Haneef et al. (2012); Berger and De Young (1997); Rahman et al. (2015)
Management Efficiency	Expenditure Income Ratio	$EIR = \frac{\text{Total Expenditure}}{\text{Total Income}}$	Bardhan and Mukharjee (2016)
Earnings	Return on Asset Return on Equity Net Interest Margin	$ROA = \frac{\text{Net Profit}}{\text{Total Asset}}$ $ROE = \frac{\text{Net Profit}}{\text{Total Equity}}$ $NIM = \frac{\text{Net Ineterst Margin}}{\text{Total Asst}}$	Waqas et al. (2017); Ecer and Pamucar (2022); Rain et al. (2022); Abdurachman et al. (2023); Sibanda and Chaita (2023)
Liquidity	Liquidity Ratio	$LR = \frac{\text{Demand Liabilities}}{\text{Total Deposit}}$	Zeng et al. (2020)

3.7.2 The mathematical model

In the mathematical model, for the evolution of each dependent variable, the RSD and other controlled variables will be used as independent variables.

Therefore, $\text{Performance}_t = f(\text{rsd})_{t-i} + f(\text{other controlled variables})_{t-i}$; where, t=year and i=1,2----n.

In this regard, the mathematical models are

$npl_t = f(rsd, rwa, roa, roe, nim, eir, lr)_{t-i}$----------(1)

$rwa_t = f(rsd, npl, roa, roe, nim, eir, lr)_{t-i}$----------(2)

$eir_t = f(rsd, npl, rwa, roa, roe, nim, lr)_{t-i}$----------(3)

$roa_t = f(rsd, npl, rwa, roe, nim, eir, lr)_{t-i}$----------(4)

$roe_t = f(rsd, npl, rwa, roa, nim, eir, lr)_{t-i}$----------(5)

$nim_t = f(rsd, npl, rwa, roa, roe, eir, lr)_{t-i}$----------(6)

$lr_t = f(rsd, npl, rwa, roa, roe, eir, nim)_{t-i}$----------(7)

3.7.3 The hypothesis

The loan rescheduling is used to reduce the NPL (Gilson et al., 1990; Jassaud and Kang, 2015; Balgova et al., 2017; Chowdhury et al., 2017; Yang, 2017; Dodson and Ahrendsen, 2018; Khan et al., 2020; Banerjee et al., 2021; Pande, 2021; Hassan et al., 2022; Sunny and Tang, 2022; and Galande, 2023). So, it is expected that loan rescheduling will reduce the non-performing loan.

In this regard,

H_{o1}: RSD has no impact on NPL

H_{a1}: RSD has impact on NPL

Risk-weighted asset is adversely affected for the higher NPL (Aiyar et al., 2015; Islam and Yasmin, 2021; Anastasiou, 2023). Islam et al. (2019) revealed that Capital Adequacy Ratio has a significant positive relationship with performances of the banks ultimately effects the risk-weighted assets. As NPL is reduced by rescheduling, the risk-weighted asset will be reduced.

Therefore,

H_{o2}: RSD has no impact on RWA

H_{a2}: RSD has impact on RWA

The non-recovery of the disbursed loans within the scheduled time frame results the inefficiency of the banks (Berger and De Young, 1997; Wanke and Barros 2014; Fukuyama and Matousek, 2016). As NPL is reduced by rescheduling, the efficiency will be increased. In this regard, the loan rescheduling will increase the income-expenditure ratio of the banks.

So,

H_{o3}: RSD has no impact on EIR

H_{a3}: RSD has impact on EIR

NPL have a negative relationship with the profitability (Bowman, et al., 1999; Adebisi and Matthew, 2015; Aiyar et al., 2015; Chimkono et al., 2016; Firtescu et al., 2019; Anastasiou, 2023; Islam et al., 2017; Islam et al. 2019; Amir and Choudhury, 2023) revealed that debt restructuring mechanism improves the profitability.

Thus,

H_{o4}: RSD has no impact on ROA

H_{a4}: RSD has impact on ROA

H_{o5}: RSD has no impact on ROE

H_{a5}: RSD has impact on ROE

H_{o6}: RSD has no impact on NIM

H_{a6}: RSD has impact on NIM

Like risk-weighted asset, the liquidity ratio is adversely affected for the higher NPL (Islam and Yasmin, 2021). As NPL is reduced by rescheduling, the liquidity will be increased. In this regard, the loan rescheduling will increase the liquidity of the banks.

Therefore,

H_{o7}: RSD has no impact on LR

H_{a7}: RSD has impact on LR

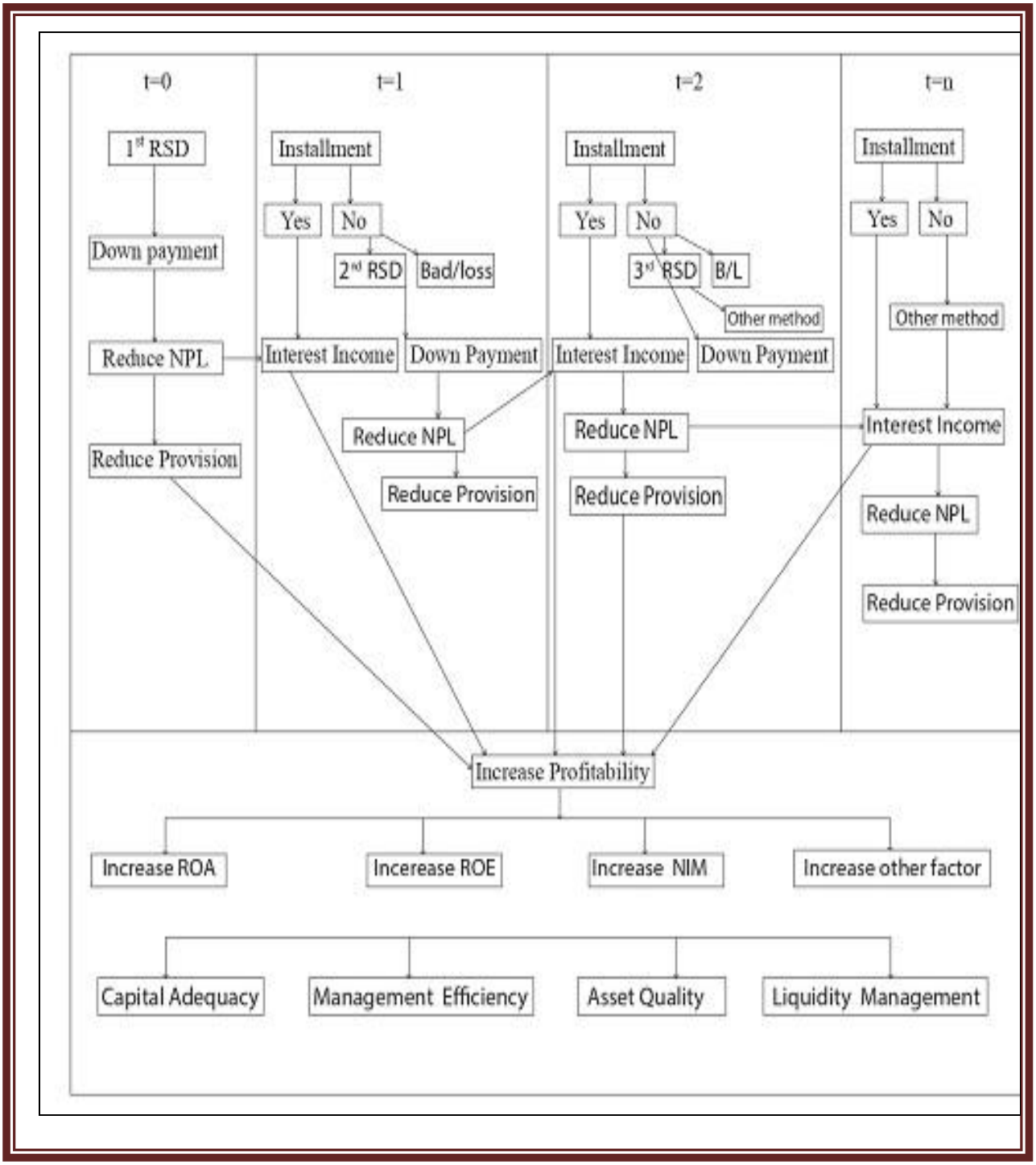
Based on the literature review and the expected mathematical model, the hypothesis has been built up which is described in table 3.5.

Table 3.5: Hypotheses Derived from Literature Review and Mathematical Model

Sl. no.	Hypothesis	Expected Outcome
1	H_{o1}: RSD has no impact on NPL H_{a1}: RSD has impact on NPL	Loan rescheduling is likely to reduce the non-performing loan
2	H_{o2}: RSD has no impact on RWA H_{a2}: RSD has impact on RWA	Loan rescheduling is likely to reduce the risk-weighted asset.
3	H_{o3}: RSD has no impact on EIR H_{a3}: RSD has impact on EIR	Loan rescheduling is likely to increase the expenditure-income ratio.
4	H_{o4}: RSD has no impact on ROA H_{a4}: RSD has impact on ROA	Loan rescheduling is likely to increase the return on asset.
5	H_{o5}: RSD has no impact on ROE H_{a5}: RSD has impact on ROE	Loan rescheduling is likely to increase the return on equity.
6	H_{o6}: RSD has no impact on NIM H_{a6}: RSD has impact on NIM	Loan rescheduling is likely to increase the net interest margin.
7	H_{o7}: RSD has no impact on LR H_{a7}: RSD has impact on LR	Loan rescheduling is likely to increase the liquidity ratio.

3.7.4 The conceptual framework

Figure 3.2 presents a conceptual framework that visualizes the relationship between rescheduling guidelines and the research hypothesis. The model is designed to illustrate how the rescheduling guidelines impact the outcomes as hypothesized in this research. The loan is rescheduled in a specific year, and will be partially recovered in the way of instantly down payment and installment. In this way, the loan will be termed as unclassified from the classified share of the loan for which the non-performing loans together with the provision reservation requirements will be reduced. As a result, the profitability like return on asset, return on equity, and net interest margin will be augmented. Similarly, capital adequacy, management efficiency, asset quality, and liquidity management will also be greater than before. If the loan is paid back as per the rescheduling condition, a similar result will be followed. But the loan will be again classified as bad/loss which will dictate it to reschedule again for the second time. For the second time rescheduling, similar results will be trip over like first time rescheduling. The recurrence will come about for every time rescheduling.



Source: Author's design

Figure 3.2: Model of Loan Rescheduling and Bank Performance

3.8 Data Analysis Technique

As per research design of this study, the analyses comprise both the methodology of qualitative and quantitative analysis.

3.8.1 Qualitative analysis

Qualitative analysis consists of the examination and interpretation of qualitative data of textual information, interview responses, and expert opinions allowing the researcher to explore in-depth the research subject matter that might not be fully captured by numerical data alone. This research has first tried to investigate the research gap in the field of loan rescheduling perspective in Bangladesh through a literature review. It has also tried to provide policy-related information regarding the NPLs and rescheduled loans. The qualitative data have also been involved in analyzing narratives or expert opinions related to the challenges faced by banks in managing loan rescheduling, the reasons behind loan rescheduling, the impact of loan rescheduling on banks' operations, and potential strategies for improving bank performance.

3.8.2 Quantitative analysis

Quantitative analysis consists of the examination and interpretation of quantitative data from the reporta and primary numerical data. This research has tried to explore the the short and long-run influence of loan rescheduling data as quantitative form. The banking sector quantitative data like assets, deposits, loans and all other relevant data are used to analyse in this study. The recovery performance of the sample based clients is also in the form of quatitative data. The quantitative data of this research is analysed in both descriptive and inferential statistical exploration.

3.8.2.1 Descriptive statistics

Descriptive statistics provide a brief summary of the foremost features of the data under analysis. In this study, descriptive statistical analysis has been used to analyze most of the data. The researcher tries to make a clear and quantifiable proposition of detailed banking-related data specifically, the loan rescheduling-related information to inform decision-making, identify potential areas for improvement, and provide a basis for further analysis. Construction of frequency distribution of NPL status, rescheduled loan status, and recovery rates will help to visualize the outcome of this research.

3.8.2.2 The dynamic model

The dynamic model, the alternative name of the lagged regression model is a statistical method used to investigate the typical relationship between the dependent variable and one or more independent variables. The dynamic model is used for the analysis of time series data (Box and Pierce, 1970; Box and Jenkins, 1978; Box, 2015). By analyzing the data over time, the impact of rescheduled loans on performance can be quantified and evaluated. There are various ways of lagged regression models like Autoregressive Distributed Lag (ARDL) model, Autoregressive Integrated Moving Average Model (ARIMA); Autoregressive Conditional Heteroscedasticity (ARCH) model, Generalized ARCH (GARCH) model, VAR model, VECM. The study takes the VAR and VECM based on the Johansen cointegration test. In this research, the relationship between loan rescheduling and bank performance indicating variables is analyzed using the data from 1997 to 2021.

The ARDL model is a single equation model having the property of both stationary and non-stationary variables. But this model ignores the homogeneity leading to much erroneous analysis (Nkoro and Uko 2016). At the same time, an ARDL is a single equation model in which the dependent variable is explained by its lags the dependent variable, and the lags of the dependent variable (Pesaran and Shin, 1995; Pesaran et al., 2001). The VAR methodology has had a much greater impact on economics or econometrics than ARDL (Patterson, 2000). In this situation, this study uses VAR and VECM as the best alternative to the ARDL model.

In the time series data analysis, ARMA or ARIMA models are used but variables in an ARIMA process may be integrated. In this situation, the VAR models can be used in a more specified way in policy-making (Fritzer et al. 2002; Khan and Khan, 2020). However, to some extent, a VAR is a multivariate analog of the univariate AR process. As the ARIMA process is based on a trial and error process, and often does not forecast well whereas VAR and VECM are often over-specified, so this study uses VAR and VECM.

The ARCH and GRACH model can be used like the ARMA model for highly volatile data use. As the GARCH model is used for high-jumped data, the model is used for non-linearity but VAR is used for linearity-based data. The properties of the variables of this research are not highly volatile. Thus, VAR and VECM are the best alternative to the ARCH/GRACH models.

As the relationship between loan rescheduling and bank performance indicating variables is analyzed in this research, the VAR and/or VECM is the best-fitted model with an expectation of interpreting policy recommendations. It is a comprehensive study that aims to analyze the relationship between loan rescheduling and bank performance using both VAR and VECM approaches based on the Johansen cointegration test. The study uses data spanning from 1997 to 2021 to investigate the relationship between loan rescheduling and bank performance.

3.8.3 Steps for the dynamic model analysis

The steps for the analysis of the data using VAR and VECM are briefly discussed here.

3.8.3.1 Stationary test

Spurious results generally occur in economic and financial time series data due to the non-stationary properties of the data. A statistical property of time series observed which does not depend on time is called the stationary time series. For this problem, autoregression and heteroskedasticity occur in the model (Granger, 1981, Bollerslev, 1886). Generally, it has no predictable pattern in the long-run. If Y_t is a stationary time series for all i, the distribution of Y_t,……., Y_{t+i} will not depend on t. Therefore, a stationarity test is essential before conducting the analysis. To convert non-stationary data to stationary, the first difference in the data is created.

If the time series model is $Y_t=Y_{t-1}+u_t$, the first order difference can be noted as $Ý_t=Y_t-Y_{t-1}$; where diffrenced series will have only T-1 values because it is impossible to calculate $Ý_1$ for first observation. When the data is at level zero, it is called I(0) and the first differential level is called I(1). Gujarati (2003) mentioned three ways of testing stationarity such as:

a) Graphical Analysis (Two-way Graphical analyses)
b) Autocorrelation Function (ACF) and Correlogram
c) Unit Root Test

Graphical Analysis (Two-way Graphical analyses)

By plotting the data in a Figure, the stationarity could be checked. When the series lies in a trend, the variable has the problem of the non-stationary, and when the series lies in a zigzag line, the variable is stationary.

Autocorrelation Function and Correlogram

Autocorrelation Function (ACF) is the relationship between two observations at different points in a time series. When the correlations exist, they indicate that past values influence the current value. Analysts use the ACF and partial autocorrelation functions (PCF) to understand the properties of time series data, fit the appropriate models, and make forecasts. The ACF can be estimated at any lag by using the following formula:

$$\eta_i=\frac{\theta i}{\theta o}$$

where,
η_i is the ACF at lag i
i is the chosen lag
$\theta_i= =\frac{\sum(yt-\bar{Y})-(yt+i-\bar{Y})}{n}$ is the covariance at lag i
$\theta_o= =\frac{\sum(yt-\bar{Y})2}{n}$ is the variance
n is the sample size and $\bar{Y}$ is the mean of γ.

The value of ACF or η_i lies between +1 and -1 ($-1< \eta i <+1$). The PCF of lag is a way of identifying the order of an autoregressive model. The ACF and PCF are plotted in a figure which is called Correlogram. For a purely white noise process, the autocorrelations at various lags drift around zero (Gujarati, 2003; Gujarati et al. 2012).

The Unit Root Test

The most favorite way of testing stationarity is the unit root test. The null hypothesis is generally defined as the presence of a unit root stationarity or explosive root depending on the test used. Generally, the unit root test is tested from the model of

$$Y_t=D_t+u_t+\varepsilon_t$$

Where,

- D_t is the deterministic component
- u_t is the stochastic component
- ε_t is the stationery error process

The aim of this test is to identify the whether u_t contains a unit root or stationary. Several unit root tests are available, which are based on different assumptions. The most used unit root test methods are:

(i) Augmented Dickey-Fuller (ADF) Test, and
(ii) Phillips-Perron (P-P) Test.

ADF Test

The Augmented Dickey-Fuller test (Dickey and Fuller, 1979) process has been applied for the presence of the unit root in the autoregressive process for higher order, is the way of testing $\gamma=0$ in the model of

$$\Delta Y_t= \alpha + ßt + \gamma Y_{t-1} + \sum_{j=1}^{k} \left(\delta_j \Delta Y_{t-j}\right) + u_t$$

Where,

- t is the time index
- A is the intercept constant (drift)
- ß is the coefficient on a time trend
- γ is the coefficient on a time trend of the lag
- u_t is the disturbance term

The focus of the testing is whether the coefficient γ equals to zero inferring that Y_1, Y_2…….. Y_n process has a unit root. Rejection of null hypothesis requires p-value of less (i.e: 0.00 to 0.10) in

H_o: if $\gamma=0$, there is non-stationarity
H_α: if $\gamma<0$, there is stationarity

P-P Test

The ADF test identifies if the mean of the time series is constant over time, alternatively; the Phillips-Perron (P-P) test identifies if the variance of the time series is constant over time (Phillips and Perron, 1988; Härdle et al.1997). At the same time, the ADF test is used for parametric variables but the P-P test is used for non-parametric variables. The P-P test is the way of testing ρ =1 in the model of

$$\Delta Y_t = \gamma Y_{t-1} + \sum_{j=1}^{k} \left(\delta_j \Delta Y_{t-j}\right) + u_t \quad ----------(1)$$

$$Y_t = \alpha + \rho Y_{t-1} + u_t \quad ----------(2)$$

Where,

- t= the time index
- α= the intercept constant (drift)
- γ= the coefficient on a time trend
- ρ= non-parametric t-test for the serial correlation or heteroscetidasticity with disturbance term
- u_t= the disturbance term

The focus of the testing is whether the coefficient ρ equals to one inferring that Y_1, Y_2…….. Y_n process has a unit root. Therefore,

H_o: if ρ=1, there is stationarity
H_α: if ρ<1, there is non-stationarity

Rejection of null hypothesis requires p-value of less (that is 0.00 to 0.10).

In this research, the following methods have been used at levels zero and one time series analysis:

(i) Two-way Graphical tests;
(ii) ACF and Correlogram;
(iii) ADF Test; and
(iv)P-P Test.

3.8.3.2 Structural break test

Structural break in the data results spurious outcome in the time series analysis (Perron, 2006; Arai and Kurozumi, 2007; and Narayan and Popp, 2013). The original model is:

$$Y_t = \alpha + \beta x_{1t} + \delta x_{2t} + \varepsilon$$

If the data are split into two groups as: $Y_t=\alpha_1+ß_1x_{1t}+\delta_1x_{2t}+\varepsilon$ and $Y_t=\alpha_2+ß_2x_{2t}+\delta_2x_{2t}+\varepsilon$, then there is structural break. In this regard, structural break test have been run in this research for every variables. There are various ways of detecting structural break. In this study, following three ways are used to detect the structural break:

a) Graphical Analysis (Trend of each variable with time)
b) Sup-Wald Test (for unknown structural break)
c) Chow Test

Graphical Analysis (Trend of each variable with time)

By plotting the regression data of any variable with time in a figure, the structural break could be checked. When the line of the variable intersects the trend of time at any point in time, it is decided that there is a structural break in the data. Ideally, it is assumed that the line of the variable does not cross over the time trend for non-structural break.

Sup-Wald Test

The bound test using the supremum Wald (Sup-Wald) test can be used to identify structural break for unknown structural break (Perron, 2006; Kejriwal and Perron, 2010; Abi-Morshed et al., 2018). In this test, the model is used as:

$W_t=\frac{(\theta-\theta 0)^2}{Var\ (\theta)}$ where $(\theta-\theta 0)^2$ is the estimated maximum likelihood estimate.

H_o: there is no structural break
H_α: there is structural break

Under the null hypothesis, the ratio follows a standard normal distribution (that is 0.00 to 0.10).

Chow Test

Chow test is a classical way of testing structural break for linear regression model which is used to test for a single break (Breitung and Kruse, 2013; Nielsen and Whitby, 2015). The formula of Chow test

$$F_c=\frac{\{RSSp-(RSS1+RSS2)\}/k}{(RSS1+RSS2)/(n-2k)}$$

Where,

- RSS_p=Pooled (combined) regression line
- RSS_1=Regression line before break
- RSS_2=Regression line after break
- n= Number of observation
- k= degree of freedom
- F_s= Find the F-critical value from the F-table for F(n,k)

H_o: if $F_c<F_s$, there is no structural break
H_α: if $F_c>F_s$, there is structural break

3.8.3.3 Lag Selection Criteria

The lag selection is one of the important aspects of the VAR and VECM specification. Generally, maximum lag is selected to evaluate the model. The optimal model VAR(i) and/or VECM(i) which minimizes some lag selection criteria of the model of

$$Y_t= \alpha + \sum_{i=1}^{k=1}(ß_i y_{t-i}) + u_t$$

Assumptions:

- $Y_t = Y_{1t}, Y_{2t},\ldots\ldots, Y_{nt}$ is an (n*1) vector of time series
- α is an (n*1) vector of intercepts
- $ß_i$=coefficient matrix of (i=1,-------,i)=(n*n)
- u_t= zero mean noise term

The commonly used lag selection criteria are:

- Akaika Information Criteria (AIC)
- Hannan-Quinn Information Criteria (HQIC)
- Schwarz-Bayesian Information Criteria (SBIC/BIC)
- Sequential Modified LR test Statistics (LR)
- Final Prediction Error (FPE)

3.8.3.4 Cointegration test

Spurious correlation occurs when two or more variables are associated in the time series due to either a coincident or unknown third factor. The cointegration technique is used to find possible correlations between time series variables in the long-run (Granger, 1981; Engle and Granger, 1987; Johansen, 1995). Johansen's test is widely used for cointegration tests which have two main forms namely trace test and maximum eigenvalue test. When trace statistics are less than the critical value at rank zero, there is no cointegration. Trace statistics less than the critical value at a rank more than zero signifies cointegration. In econometric analysis, the VAR model is used when there is no cointegration, and the VECM is used when there is cointegration.

The cointegration can be tested by the Johansen cointegration test developed by Johansen (1992). If we consider r as a number of cointegration vectors of k variables, three scenarios will be caused like r=0, 0<r<k, and r=k. As per Johansen's Test, the following decisions may be determined (in table 3.6):

Table 3.6: Decision Criteria for VAR or VECM

Number of Cointegrating Vectors (r)	Meaning	Model to be used	Results
r=0	No cointegration	Apply VAR in differences	The VAR results show short-run coefficients
0<r<k	Cointegration exists	Apply VECM	The VECM results show short-run coefficients and long-run cointegration relationship
r=k	No cointegration	Apply VAR to variables in their original form	The VAR results show long-run coefficients as the variables are not in differences.

3.8.3.5 Vector Autoregressive model

The VAR model is a type of stochastic process, used to analyze the dynamic relationships among multiple time series variables introduced by Christopher, A. Sims in 1980 and demonstrated the usefulness of VAR models in macroeconomic analysis by allowing for dynamic interactions among multiple economic variables (Sims, 1980).

The VAR model is particularly suitable for analyzing the simultaneous behavior of multiple related variables over time allowing for the estimation of the lagged effects and contemporaneous relationships among the variables in the system. The VAR model allows for the analysis of multiple time series variables simultaneously and each variable in the system is regressed on its lagged values as well as the lagged values of all the other variables in the system establishing relationships between the variables. One of the crucial presentations of VAR models is for forecasting future values of the variables and conducting impulse response analysis to examine how the system responds to shocks or innovations. This model is every so often used in policy-making institutions and macroeconomic organizations to observe or estimate the dynamic relationships of the variables interacting with one another. The transmission of a particular shock within a noisy system of equations can be a useful tool in the evaluation of economic strategies (Koop et al. 1996). The model equation is set up as

$$Y_t = \alpha + \sum_{i=1}^{k=1} (ß_i y_{t-i}) + u_t$$

Assumptions:

- $Y_t = Stationary \ \ k - variable \ vector$
- $\alpha =$ k constatnt parameters vector
- ß=k by k parameters matrix, i=1,-------,n
- u_t= i.i.i.d(, sigma)
- Exogenous variable may be added
- The error term has a conditional mean of zero
- The variables are stationary
- No multicollinearity and serial autocorrelation

Here it is defined that $Y_t = \begin{bmatrix} Yt \\ Yt-1 \\ Yt-2 \\ \vdots \\ Yt-i+1 \end{bmatrix}$, ß$= \begin{bmatrix} \mu \\ 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix}$, $u_t = \begin{bmatrix} ut \\ 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix}$

So that the matrix notation is

$$\begin{bmatrix} Yt \\ Yt-1 \\ Yt-2 \\ \vdots \\ Yt-i+1 \end{bmatrix} = \begin{bmatrix} \mu \\ 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix} + \begin{bmatrix} A1 & A2 & \cdots & Ai-1 & Ai \\ I & 0 & \cdots & 0 & 0 \\ 0 & I & \cdots & 0 & 0 \\ \vdots & \vdots & \ddots & \vdots & \vdots \\ 0 & 0 & \cdots & I & 0 \end{bmatrix} \begin{bmatrix} Yt-1 \\ Yt-2 \\ Yt-3 \\ \vdots \\ Yt-i \end{bmatrix} + \begin{bmatrix} ut \\ 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix}$$

Where the dimensions of the vectors Y_t, ß and u_t are of dimensions k_{i*1}. The coefficient matrix, A_i for i=1,……..wil be dimension of k*k and ß1 is k_i*k_i.

Therefore, the VAR(p) involves the following two equations in case of two time series variables:

$$y_t = ß_{10} + ß_{11}y_{t-1} + \text{----} + ß_{1p}y_{t-p} + \eta\gamma_{11}x_{t-1} + \text{-------} + \eta_{1p}x_{t-p} + u_{1t}$$

$$x_t = ß_{20} + ß_{21}y_{t-1} + \text{----} + ß_{2p}y_{t-p} + \eta\gamma_{21}x_{t-1} + \text{-------} + \eta_{2p}x_{t-p} + u_{2t}$$

where, ß's and η's denote the unknown coefficient and u_{1t} and u_{2t} are the error terms

3.8.3.6 Vector Error Correction Model

The VECM is indeed an extension of the VAR model that combines the advantages of both the error correction model and the VAR. While the VAR model focuses on the short-term dynamics among variables, the VECM incorporates both short-term dynamics and long-term relationships, particularly when the variables in the system are cointegrated. The VECM was introduced in 1995 by Søren Johansen, a Danish econometrician. This model adjusts the short-run changes in variables (having cointegration) and deviation from the multi-equation. Cointegration refers to the long-term equilibrium relationship between non-stationary variables. The VAR model is used when there is no cointegration between the variables, and the VECM is used with cointegration between/among two or more variables (Andrei and Andrei 2015). The key component of the VECM is the error correction term which is the adjustments in the short-run to bring the variables back to their long-run equilibrium relationship when they deviate from it. The VECM is a valuable tool for analyzing the dynamic interactions among cointegrated time series variables and how they adjust to deviations from their long-term equilibrium relationship. It is widely used in macroeconomics, finance, and other fields for modeling non-stationary time series data.

In the VAR model, $Y_t = \alpha + \sum_{i=1}^{k=1}(ß_i y_{t-i}) + u_t$; Y_t is the vector k parameter (k*1), α is the vector of constant (k*1), Y_1 to Y_i are matrix of parameters (k*k) at different lags (1-------i) and u_t is a vector of impulse (k*1). If we consider k=2 and i=3 (specified from lag criteria), the VAR (3) with 2 variables Y_t, X_t, Z_t can be specified as:

$$Y_t = \alpha + ß_1 Y_{t-1} + ß_2 Y_{t-2} + ß_3 Y_{t-3} + u_t$$

where $Y_t = \begin{bmatrix} Xt \\ Zt \end{bmatrix}$

$$\alpha = \begin{bmatrix} \alpha 1 \\ \alpha 2 \end{bmatrix}$$

$$u_t = \begin{bmatrix} u1 \\ u2 \end{bmatrix}$$

$$Y_1 = \begin{bmatrix} Y1,1 & Y1,2 \\ Y1,3 & Y1,4 \end{bmatrix}, \; Y_{t-1} = \begin{bmatrix} Xt-1 \\ Zt-1 \end{bmatrix}$$

$$Y_2 = \begin{bmatrix} Y2,1 & Y2,2 \\ Y2,3 & Y2,4 \end{bmatrix}, \; Y_{t-1} = \begin{bmatrix} Xt-2 \\ Zt-2 \end{bmatrix}$$

$$Y_3 = \begin{bmatrix} Y3,1 & Y3,2 \\ Y3,3 & Y3,4 \end{bmatrix}, \; Y_{t-1} = \begin{bmatrix} Xt-3 \\ Zt-3 \end{bmatrix}$$

When, there is cointegration (when 0<r<k) between the k variables as η and short-run coefficient θ, the ultimate model (VECM) will be:

$$\Delta Y_t = \alpha + \theta_1 \Delta Y_{t-1} + \theta_2 \Delta Y_{t-2} + \theta_2 \Delta Y_{t-3} + \eta Y_{t-1} + u_t .$$

Where,

- $\Delta Y_t = \begin{bmatrix} Xt - Xt-1 \\ Zt - Zt-1 \end{bmatrix} = \begin{bmatrix} \Delta Xt \\ \Delta Zt \end{bmatrix}$, the first difference of the endogenous variables
- $\theta_{1-----n}$ are short-run coefficient
- ΔY_{t-1} , $\Delta Y_{t-2}\Delta Y_{t-2}$ and ΔY_{t-2} are lagged differences for short-run impact
- u_t= is a vector of impulses
- η= rank of matrix η shows the number of cointegration vectors known as coefficient of error correction term (ECT)

Therefore, the ultimate model of VECM is specified as

$$\Delta Y_t = \alpha + \sum_{i=1}^{k=1}(\theta_i \Delta y_{t-i}) + \eta Y_{t-1} + u_t$$

In the VECM, the ECT is negative and must be significant ideally at 1% to 5% level indicating long-rum equilibrium in spite of short-run shocks. The coefficients ranges from 0 to -1, but it may ranges from 0 to -2 (Lütkepohl, 2004; Citak, 2019; Belfqih, 2020).

3.8.3.7 Impulse Response Functions

The Impulse Response Function (IRF) represents the response of a variable to a sock of one standard deviation in another variable of the system over time (Koop at el., 1996; Naka and Tufte, 1997; Lütkepohl, 2010). It traces out one standard deviation shock to an endogenous variable with its effect on all the endogenous variables of the identified model. Generally, it is presented graphically to find out the deviation from zero. In this research, the IRF has been analyzed for the respective VAR model(s).

3.8.3.8 Variance Decomposition Functions

The Variance Decomposition Function (VDF) represents the proportion of variations in an endogenous variable that is explained by an impulse (Lütkepohl, 2010; Amado and Teräsvirta, 2013; Carriero and Volpicella, 2022; Volpicella, 2022). Generally, it is presented in tabular form to find out the variance as a percentage form. In this research, the Choleskey Forcast-Error Variance Decomposition (FEVD) function has been analyzed for the respective VAR model(s).

3.8.3.9 Diagnosis of the VECM and VAR model

Various tested are run to check the ultimate model of the time series analysis. This research follows following tests:

a) short-run causality tests to identify whether all the variables individually and altogether have the short-run causality (Dufour and Renault, 1998; Breitung and Candelon, 2006; Dufour et al., 2006);
b) Serial autocorrelation test using Lagrange-multiplier test (Hatemi-J, 2004; Brüggemann et al., 2006; Catani and Ahlgren, 2017);
c) Normality test using Jarque-Bera test (Kilian and Demiroglu, 2000; Górecki et al., 2018); and
d) Stability test to identify eigenvalue stability condition (Hansen and Johansen, 1999; Dinh, 2020).

3.9 Data Analysis Tools

In this research, both descriptive and inferential data have been analyzed and presented through the STATA software which is a widely used statistical software package to arrange for data manipulation, visualization, and statistical analysis. Descriptive statistics have been used to analyze the common features of all of the banking sector data, the case study, survey result and so on through different kinds of tables and charts, mean median, and mode. The short-run and long-run impact of loan rescheduling on the performance of commercial banks has been analyzed through inferential statistics. Based on the Johansen Cointegration test, the VAR and VECMs have been specified for each of the performance-indicating variables. In the analysis of the VAR and VECM, relevant fitness has been tested through the autocorrelation test, normality test, stability test, and causality test. The qualitative part of the research has used the NVivo software for coding, mapping, and interpreting data gathered from interviews, expert opinions, or any other qualitative sources related to loan rescheduling and bank performance as this software assists researchers in managing, coding, analyzing, and interpreting textual and non-numeric data by categorizing and organizing text or multimedia content into themes or topics.

3.10 Ethical Consideration

The secondary data has been collected from different textbooks, articles in journals, periodicals, annual and periodical reports, and newspapers whose sources have been described in the way of the research report. By utilizing a diverse range of secondary sources, this researcher has tried to build a robust foundation of knowledge of this research. Additionally, properly citing of these sources in this research report is properly incorporated to maintain credibility and transparency in the research process. The questionnaire has ensured the participants that the confidentiality of the data will be strictly maintained considering a safe and secure environment for participants to share their views and experiences openly. Instead, the data will be analyzed as a whole to draw general conclusions and insights, protecting the anonymity of respondents. It is also committed to use the provided data in aggregate form for the research ensuring the unidentifiable characteristics of individual responses. This also allowed the respondents the flexibility and right to withdraw their responses fully or partially at any time during the study empowering them to control their data and change their participation status if they wish to do so.

CHAPTER FOUR: DATA ANALYSIS AND RESULTS

In chapters one, two, and three; the introduction, the literature review, and the methodology were elaborately discussed. In this chapter, the data analysis results are elaborately discussed in four parts. The first specific objective of this study is to analyze the loan rescheduling process adopted by the banks and the trend of rescheduling loans. The commercial banks in Bangladesh rescheduled the loans following the policy declared by Bangladesh Bank, the central bank of Bangladesh. Hence, the related policies are discussed in Part A. Moreover, the loan rescheduling process adopted by the banks, the trends of the rescheduled loan and the types of bank comparison of the rescheduled loan have been investigated. As well as the research gap, the outcome of Part A directs the thirst for investigation of the short-run and long-run impact of the rescheduled loan on bank performance which is elaborately analyzed here in Part B. Based on the mathematical model developed in the methodology section, the correlation of the variables are firstly scrutinized which ultimately directs the equations for the data analysis. The stationarity test is examined for both level I(0) and I(1) of all the variables using two-way graphical analyses, autocorrelation function and correlogram, and the unit root test (ADF test and P-P test). The structural break test is also run using graphical, the Sup-Wald test, and the Chow test. Then cointegration tests were investigated for all the equations to decide the econometric model like VAR and VECM. After the decision of the model, the results of the model have been acquired to develop the ultimate model of each equation. The IRF and Cholesky forecast-error VDF are also checked to identify the response of a variable to a sock of one standard deviation or variance in another variable of the system over time for the outcome of the VAR model. From the results of the ultimate model, the interpretation is conferred. The relevant diagnostics of each model are also identified to fit the model(s).

Real data on the recovery of the rescheduled loans has been collected from different types of commercial banks in Bangladesh. The accounts were first-time rescheduled in 2016 and the recovery of these accounts up to 2019 has been collected that are discussed in Part C. As per Bangladesh Bank guidelines, a certain amount should be paid before rescheduling which is termed a down payment.

After rescheduling, the clients pay the dues as per repayment rescheduling as installment. Therefore, the recovery data has been collected in two types and ultimately calculated total recovery. The analysis has functioned for the different accounts of state-owned, private commercial and Islamic banks. Lastly, there are comparisons among different types of banks to scrutinize the recovery performance. Additionally, the recovery status is also analyzed based on loan size to compare.

Indeed, the results of the case study point out that a momentous number of rescheduled accounts become classified as non-performing loans again in the long run. This frequent classification of accounts as non-performing loans has adverse effects on various aspects of the performance of commercial banks including capital adequacy, earnings, management efficiency, and liquidity. In this consideration, semi-structured interviews with 60 experts' opinions provide valuable insights into their perspectives on the effectiveness of loan rescheduling. Part D focuses on the results of the data of the experts' opinions. It is observed that the experts' opinions have varied in the performance of the banking sector through the loan rescheduling process. This part elaborately discusses the variety of opinions. Last of all the suggestions of the experts are also scrutinized.

PART A: THE RESCHEDULED LOANS STATUS IN BANGLADESH

4.1 Policy of the Rescheduled Loans in Bangladesh

Since the NPL overhangs the revenue of the bank, various policies are adopted to lessen NPL. The rescheduling of the loan is used as a mostly worldwide common method to reduce NPL. Rescheduled loans refer to loans that have been restructured and renegotiated between lending institutions and borrowers. Loan rescheduling changes the repayment performance without changing the real value of loans. It is assumed that rescheduling creates a higher quality of assets than earlier. BB has introduced loan rescheduling guidelines and gradually amended them from time to time. Initially, the banks used their own policy to reschedule the loan.

BB followed up the process and provided the guidelines to reduce the classified loan efficiently. The rescheduled loan is directly related to the loan classification system which was introduced in 1989. BB issued BCD circular no. 18/1995 dated 11.12.1995 considering the loan classification and provisioning policy of BB. As per this circular, the banks were instructed to recover at least 10% of overdue loans as a down payment for loan rescheduling.

The BRPD Circular no. 01/2003 dated 13.01.2003 was circulated to clarify and supersede the terms and conditions of previous circulars specifically down payment, period, nature, and amount of loans and advances (Detailed described in Appendix V-A and V-B). The BRPD Circular no. 08/2012 dated 14.06.2012 superseded the BRPD Circular no. 01/2003 and related circulars on the rescheduling loan. This circular states that BB is concerned that rescheduling is ultimately prolongation or ever-greening results in an overstatement of capital when loans that have a low probability of repayment are carried at full value on banks' balance sheets. To communicate its policy stance, this circular was issued that focused on the rescheduling that must be done in limited circumstances and under restriction.

As per this circular, the application for rescheduling would be considered for rescheduling of NPLs which are classified as SS, DF, and BL. The circular bounded up to the third time rescheduling and directed that the borrower will be treated as a habitual loan defaulter if the loan becomes default after the third time rescheduling and the bank will not consider further rescheduling (Detailed described in Appendix V-C and V-D).

BB observed various difficulties of the BRPD Circular no. 08/2012 dated 14.06.2012 within three months of its issuance. Based on the reports of banks and the business community, BB issued BRPD Circular no. 15/2012 dated 23.09.2023 by reviewing, revising, modifying, and superseding the BRPD Circular no. 08/2012 dated 14.06.2012. This circular is considered a master circular on loan rescheduling before the issuance of BRPD Circular no. 16/2022 dated 18.07.2022. Several amendment or modification was done on the BRPD Circular no. 15/2012 dated 23.09.2012 (Detailed described in Appendix V-E, V-F, V-G, V-I).

A supplementary circular of BRPD Circular no. 15/2012 dated 23.09.2012 was issued through BRPD Circular no. 04/2015 dated 29.01.2015 titled "Large Loan Restructuring". In the caption of this circular, it is mentioned that large borrowers having multiple bank exposures have experienced difficulties due to adverse economic scenarios expediting various internal and domestic factors. As these borrowers have significant importance from the viewpoint of employment generation and socio-economic development, Bangladesh Bank has taken the policy to support these borrowers. Hence, this circular's purpose was defined as restructuring of the borrower having a minimum outstanding of Tk. 500.00 crore in aggregate of a particular borrower or group in a bank, singly or clubbed together which will be restructured to a particular loan account once only (Detailed described in Appendix V-H).

A special circular was issued with the aim of loan rescheduling and one-time exit through BRPD Circular no. 05/2019 dated 16.05.2019 as a supplementary circular of BRPD Circular no. 15/2012. As per this circular, the only BL classified borrowers of the trading sector (wheat, food items, refinery, and edible oil), ship industry (ship-breaking and ship-building), iron and ispat industry, and import-export related industry of non-agricultural sector financed by specialized banks and default without the loan activity would be eligible for loan rescheduling and one-time exit subject to the banker-client relationship. Mentionable that a number of circulars was also issued during the COVID-19 time which modified the classification and provision related circular as well as master circular for loan rescheduling (Detailed described in Appendix V-I:4-8).

BB issued a new master circular for loan rescheduling and restructuring vide BRPD Circular no 16/2022 dated 18.07.2022 superseding all previous loan reschedule-related circulars. But the rescheduling under previous circulars would remain unchanged up to the maturity of the respective rescheduled loan(s). BRPD Circular no 16/2022 dated 18.07.2022 was issued to continue the stability of the financial sector and management of the classified loan of Bangladesh due to the long-term effect of the COVID-19 pandemic and absurd worldwide turmoil circumstances of the lingering world war position. The BRPD Circular no. 16/2022 dated 18.07.2022 was firstly modified by BRPD Circular no. 33/2022 dated 03.08.2022 with few replacements (Detailed described in Appendix V-J, V-K, V-L).

From the above observation, it is observed that BB has changed its policy for loan rescheduling over time. The master circular for loan rescheduling of 2012 specified the policy of loan rescheduling and it was carried up to 2022 before the issuance of a new circular for loan rescheduling. Several amendments were made to the policy of 2012 and two special circulars were issued in 2015 and 2018 to accelerate the recovery of NPLs. As per this circular, the application for rescheduling will be considered for rescheduling of NPLs which are classified as SS, DF, and BL. The circular bounded up to the third time rescheduling and directed that the borrower will be treated as a habitual loan defaulter if the loan becomes default after the third rescheduling and the bank will not consider further rescheduling.

Directions for considering an application for BRPD Circular no. 15/2012 dated 14.06.2012 are-

- The bank must have its policy stricter than BB circular to control routine or repeat RSD specifically for unproductive sectors or unprofitable business organizations.
- The bank shall meticulously scrutinize the cause of becoming a loan as NPL. Habitual or diverted fund-related defaulters will not be considered for RSD.
- Only the cash amount (even any cheque or pay order or any other instrument must ensure encashment) at a time will be regarded as a down payment, and the application must be considered within three months of deposit.
- Overall repayment capacity of the borrower considering the borrower's liability with other banks and financial institutions.
- Cash flow statements, audited balance sheets, income statements, and other financial statements will be scrutinized to analyze the repayment of the RSD and/or existing liability.
- Physical inspection is required to ensure the real condition of the borrower and the report will be preserved for the future.
- RSD must be justified by the bank's credit committee by giving logic of long-run profitability and capital adequacy of the bank as well as the impact of RSD on the bank's liquidity position and the needs of other customers. Due to the failure of the above situations, the bank will follow another legal method of recovery as well as a reserve of provision.
- No prior approval from BB is essential except for directors' (and/or interested) loans or large loans.

The summary of the BRPD circular no. 15/2012 and its amendments are depicted in Table 4.1.

Table 4.1: The Policy of Loan Rescheduling as per BRPD Circular no. 15/2012 and its Amendments

Frequency	Loan Type	SS	DF	BL	Down Payment
1st time RSD	CL DL FTL SAMC	Max. 18 months Max. 12 months Max.36 months Not exceed two years from the expiry	Max. 12 months Max. 09 months Max.24 months Not exceed two years from the expiry	Max. 12 months Max. 09 months Max.24 months Not exceed two years from the expiry	Min. 30% of the OD inst. or 20% of total outstanding amount of loan(whichever is less)*
2nd time RSD	CL DL FTL SAMC	Max. 12 months Max. 09 months Max.24 months Max. 12 months from the date of 1st rescheduling	Max. 09 months Max. 06 months Max. 18 months Max. 12 months from the date of 1st rescheduling	Max. 09 months Max. 06 months Max. 18 months Max. 12 months from the date of 1st rescheduling	Min. 30% of the OD inst. or 20% of total outstanding amount of loan (whichever is less)
3rd time RSD	CL DL FTL SAMC	Max. 06months Max. 06 months Max. 18 months Max. 6 months from the date of second rescheduling	Max. 06 months Max. 06 months Max.12 months Max.6 months from the date of second rescheduling	Max.06months Max. 06 months Max.12 months Max. 6 months from the date of second rescheduling	Min. 50% of the OD inst. or 30% of the total outstanding amount of loan, (whichever is less)
*1st time RSD for Continuous Loan and Demand Loan: Up to Tk. 1.00 crore- 15% Tk. 1.00 crore to Tk.5.00 crore- 10% (but not less Tk. 15.00 lac) Above Tk.5.00 crore- 5% (but not less Tk. 50.00 lac)					

Source: BRPD Circular no. 15/2012 dated 14.06.2012 and its subsequent amendments

The BRPD Circular no. 16/2022 also directed the following conditions:

- The maximum time limit will not be allowable for all borrowers but the time limit will be set considering the actual loss of the borrower. The time limit will be set through the approval of the board of directors or executive committee of the respective bank(s).
- Approval of the loan rescheduling for 1st and 2nd time rescheduling cannot be made below the level at which it was originally sanctioned but 3rd and 4th time rescheduling must be made by the board of directors.
- Prior approval from BB is not essential. The rescheduling and restructuring must be approved by at least one step upgraded approval authority, and the board of directors' approval will be regarded as the highest approval authority. For the 3rd and 4th time approval, the board of directors' approval is essential for rescheduling for all types of loans except agricultural, SME, and micro-credit loans. Registered bank(s) outside Bangladesh will approve such facility from the country management team or a responsible similar committee/team.
- Regular (Unclassified: Standard or SMA) term loan (not converted the continuous or demand or other type of loan) may be restructured for a single time by a 50%-time extension of the maturity without recovery of any down payment subject to approval from the board of directors or executive committee of the respective bank(s).
- The borrower must pay at least 3% (but 2% for the exporter) of the outstanding balance excluding the rescheduled time down payment as a compromised amount. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a NOC from the rescheduling bank(s). Bank must be highest cautious about the new loan or enhanced credit facility for the long-time defaulted borrower(s).
- The number of rescheduling must be mentioned in the sanction letter. Classification status will be decided with the consideration of the present solvency and ability of the repayment of the loan. Information on such rescheduled loan accounts shall be reported to the CIB and the rescheduled loans/advances should be shown as RS-1 for 1st time rescheduling, RS-2 for 2nd time rescheduling, RS-3 for 3rd time rescheduling, and RS-4 for 4th time rescheduling. RSIW-1 for 1st time rescheduling, RSIW-2 for second time rescheduling and RSIW-3 for 3rd time rescheduling, and RS-4 for 4th time rescheduling will be reported if the rescheduling facility is availed through interest waiver.

- Classified loans may be eligible for rescheduling three times but a fourth time rescheduling may be allowed with special consideration to the recovery of the classified loan. After the 4th time of RSD, the bank(s) must take legal action and preserve the provision as per the rule. Taking over rescheduled loans of another bank will be decided by several rescheduling of the previous bank(s).
- The rescheduled amount including principal and interest must be repaid in monthly/ quarterly installments and six monthly/ two quarterly installments defaulted amount will be classified as BL directly.
- The interest accrued will not be transferrable to the income of the bank till recovery of the interest. In addition, the reserved provision for the 3rd and 4th time rescheduling of the BL defaulter must not be transferrable to the income of the bank till recovery.

The down payment required for loan rescheduling as per BRPD circular no. 16/2022 and its amendments are depicted in Table 4.2.

Table 4.2: The Down Payment Required for Loan Rescheduling as per BRPD Circular no. 16/2022 and its Amendments

For Continuous and Demand Loan 1st time RSD: Up to BDT 1 crore: 15%. BDT 1 crore to BDT 5 crore: 10% (not less than BDT 15 lac). More than BDT 5 crore: 5% (not less than BDT 50 lac). second time RSD: 20% overdue or 30% of inst. (whichever is less). 3rd time RSD: 30% overdue or 50% of inst. (whichever is less).
For Term Loan, Short-term Agricultural and Micro-Credit 1st time RSD: 10% overdue or 25% of inst. (whichever is less). second time RSD: 20% overdue or 30% of inst. (whichever is less). 3rd time RSD: 30% overdue or 50% of inst. (whichever is less).

Source: BRPD Circular no. 16/2022 dated 18.07.2022 and BRPD Circular no. 33/2022 dated 03.08.2022

The time limit for loan rescheduling as per BRPD circular no. 16/2022 and its amendments are depicted in Table 4.3.

Table 4.3: Time Limit for Loan Rescheduling as per BRPD Circular no. 16/2022 and its Amendments

Frequency	Loan Type	Outstanding Loan Amount	Maximum Tenure (Including Grace Period)	Grace Period
1st and secondtime RSD	FTL	Up to BDT 100.00 crore	6 years	06 months but 12 months may be considering loss of the borrower
		From BDT 100.00 crore to BDT 500.00 crore	7 years	
		More than BDT 500.00 crore	8 years	
	CL/DL	Up to BDT 50.00 crore	5 years	
		From BDT 50.00 crore to BDT 300.00 crore	6 years	
		More than BDT 300.00 crore	7 years	
	SAMC	Any amount for 1st time RSD Any amount for second time RSD	3 years 2 years 06 months	
3rd and 4th time RSD	01 year less than the 1st and secondtime RSD for CL/DL/FTL but 2 years 06 months for SAMC loan.			

Source: BRPD Circular no. 16/2022 dated 18.07.2022 and BRPD Circular no. 33/2022 dated 03.08.2022

4.2 Rescheduled Loans Trend in Bangladesh

The RSD trend and ratios are discussed in the background of this report. It is observed that total deposit, total loan, total NPL, and total RSD for the period of 1997-2021 are increasing but the rate of increase of RSD was accelerated after 2015 and its increasing trend fluctuates from 2018 to 2019. Due to the special circular for loan rescheduling and one-time exit in 2018, the amount of rescheduling was more than that of previous years. RSD to total deposit and total loan are positively increasing. The RSD to NPL ratio was steady up to 2011 but corkscrew from 2011 to 2021 due to the policy change of classification and rescheduling. Due to the issuance of a master circular in 2012 for loan rescheduling and a special circular for loan rescheduling and one-time exit in 2018, the amount of rescheduling, as well as the ratio of RSD to NPL, was more in 2012, 2013, and 2019.

For the various circulars during the COVID-19 pandemic time, the amount of rescheduling and ratio of RSD to NPL was less in 2020 and 2021. The impact of circular of master circular in 2022 will be focused on the data of 2022 and the following years.

4.3 Type-wise Banking Sector Rescheduled Loans

Table 4.4 shows the type-wise banking sector rescheduled loans in Bangladesh from 2016 to 2021. The first part of the table shows the percentage share of rescheduled loans of the total rescheduled loan and the second part shows the ratios of rescheduled loans to total loans. As the financial stability report of Bangladesh Bank furnished the performance-based data from 2016, the table is summarized for the data of 2016-2021.

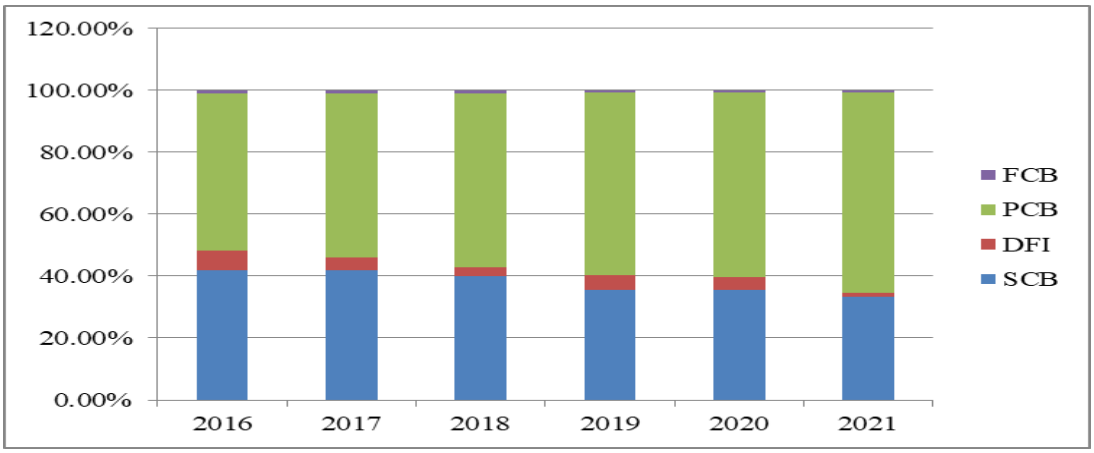
Table 4.4: Type wise Banking Sector RSD

(In Billion BDT)

Year	Percentage of RSD of total share				Ratios of RSD to total loan			
	SCB	DFI	PCB	FCB	SCB	DFI	PCB	FCB
2016	42.00%	6.10%	51.00%	0.90%	24.10%	19.70%	7.20%	2.80%
2017	41.90%	4.10%	53.10%	0.90%	23.10%	13.80%	6.90%	2.30%
2018	40.10%	2.90%	56.10%	0.90%	23.80%	11.50%	7.90%	2.50%
2019	35.50%	4.80%	59.10%	0.60%	26.40%	25.90%	11.30%	1.90%
2020	35.60%	4.20%	59.60%	0.50%	26.80%	23.30%	11.60%	1.60%
2021	33.30%	1.20%	65.00%	0.50%	21.80%	16.50%	11.90%	1.50%

Source: Financial Stability Report (Bangladesh Bank) 2016 to 2021

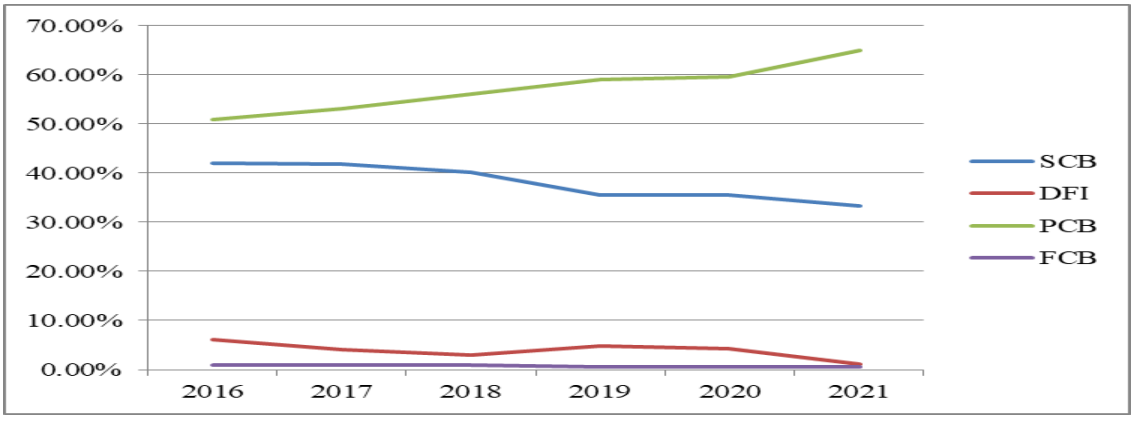
From the above data, the line Figure has been plotted which has been depicted in Figures 4.1-4.4. Figure 4.1 shows the histogram of the percentage share of rescheduled loans of the type-wise banks from the total rescheduled loans of the banking sector. The Figure shows that private commercial banks have a major share in the rescheduled loan which is more than 50% whereas the state-owned commercial banks have a share of around 35%.



Source: Financial Stability Report (Bangladesh Bank) 2016 to 2021

Figure 4.1: Type-wise Banking Sector Percentage of RSD of Total Share

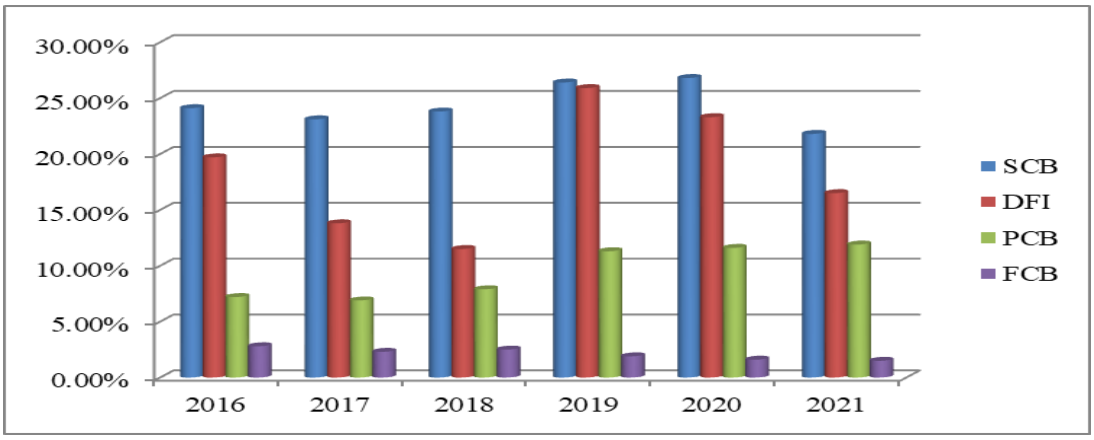
Figure 4.2 shows the trend of the percentage of RSD of total shares based on the bank type for the period of 2016-2021. The percentage share of the line of Privately Commercial Banks is positively increasing inferring that over the period percentage of rescheduled loan is increasing but the percentage of rescheduled loans of the state-owned banks is decreasing after 2019. Rescheduled loans of the DFIs and FCBs are at a steady level during the period.



Source: Financial Stability Report (Bangladesh Bank) 2016 to 2021

Figure 4.2: Trend of Type-wise Banking Sector Percentage of RSD on Total Share

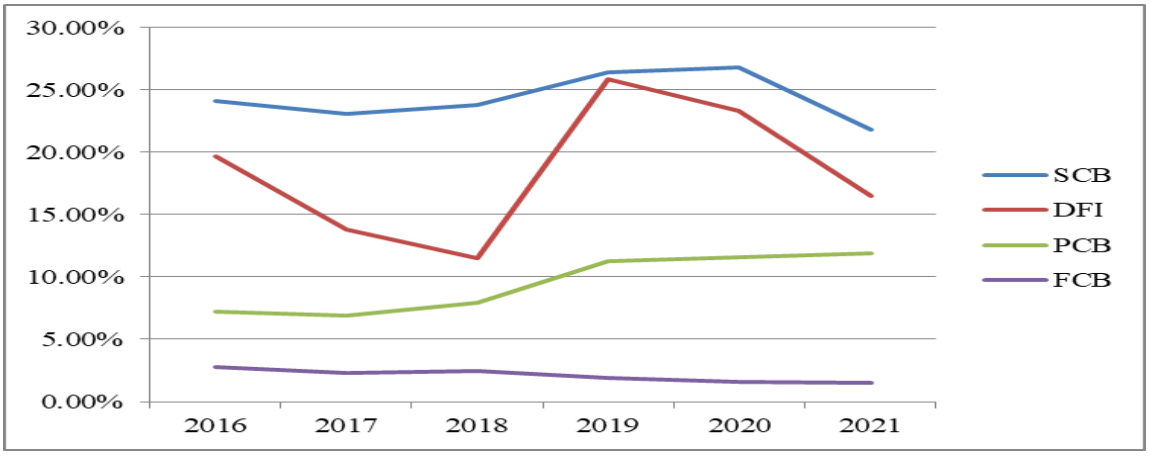
Figure 4.3 shows the histogram of type-wise RSD to total loan ratio. The Figure shows that state-owned commercial banks and DFIs have ratio ranges of 20%-25%, and private commercial banks have ratio ranges of 10%-20%. The ratio of FCB is nearly 5%.



Source: Financial Stability Report (Bangladesh Bank) 2016 to 2021

Figure 4.3: Bank Type-wise RSD to Total Loan Ratio

Figure 4.4 shows the trend of ratios of RSD to total loans from 2016 to 2021 of the type-wise banks. The trend of SCB is steady up to 2018 but decreases after 2018. The trend of PCB is steady up to 2018 and it is rising up after 2018. At the same time, the trend of DFIs shows fluctuations whereas the FCBs trend is steady over the years. The Figure also shows that the NPL ratios of the SCB are increasing after 2012 with a slide decrease after 2018. This decrease for the period of 2018-2021 may occur due to the flexible condition of the COVID-19 situation. Therefore, the asset quality of the SCB is deteriorating compared to the other types of banks.



Source: Financial Stability Report (Bangladesh Bank) 2016 to 2021

Figure 4.4: Bank Type-wise RSD to Total Loan Ratio Trend

PART B: THE SHORT-RUN AND LONG-RUN IMPACT OF RESCHEDULED LOANS ON PERFORMANCE OF THE BANKS

4.4 Correlation Analysis: Impact of the RSD on the Bank Performance

Table 4.5 represents the correlation matrix of RSD, NPL, RWA, EIR, ROA, ROE, NIM, and LR. RSD has a high correlation with NPL (0.91), RWA (-0.71), EIR (0.80), and NIM (-0.81). NPL has a high correlation with RSD (0.97), RWA (-0.75), EIR (0.82), and NIM (-0.84). RWA has a high correlation with RSD (-0.71), NPL (-0.75), EIR (-0.83), and NIM (0.79). EIR has a high correlation with RSD (0.80), NPL (0.82), RWA (-0.83), and NIM (-0.88). ROA has a high correlation with NPL (-0.56), and ROE (0.92). ROE has a high correlation ROA (0.92). NIM has a high correlation with RSD (-0.81), NPL (0.84), RWA (0.79), and EIR (-0.88). LR has no high correlation with any other variable.

Table 4.5: Correlation Analysis: Impact of the RSD on Performance Indicators

Variables	RSD	NPL	RWA	EIR	ROA	ROE	NIM	LR
RSD	1.00							
NPL	0.97	1.00						
RWA	-0.71	-0.75	1.00					
EIR	0.80	0.82	-0.83	1.00				
ROA	-0.43	-0.56	0.20	-0.51	1.00			
ROE	-0.28	-0.31	0.03	-0.28	0.92	1.00		
NIM	-0.81	0.84	0.79	-0.88	0.30	0.07	1.00	
LR	0.16	0.10	-0.05	0.02	-0.08	-0.17	-0.05	1.00

Correlation is significant at the 0.01 level (2-tailed)

This chapter aims to investigate the relationship of RSD with other variables. In this regard, the RWA, EIR, ROE, and NIM have been omitted to avoid the multicollinearity for setting the relationship of NPL with RSD. Thus, the model would be:

$$NPL_t = f(RSD, ROA, LR)_{t-i} \text{ ----------(1)}$$

The NPL, EIR, ROE, and NIM have been omitted to avoid the multicollinearity for setting the relationship of RWA with RSD. Thus, the model would be:

$$RWA_t = f(RSD, ROA, LR)_{t-i} \text{ ----------(2)}$$

The NPL, RWA, ROE, and NIM have been omitted to avoid the multicollinearity for setting the relationship of EIR with RSD. Thus, the model would be:

$$EIR_t = f(RSD, ROA, LR)_{t-i} \text{ ----------(3)}$$

The NPL, EIR, RWA, and NIM have been omitted to avoid the multicollinearity for setting the relationship of ROA with RSD. Thus, the model would be:

$$ROA_t = f(RSD, ROE, LR)_{t-i} \text{ ----------(4)}$$

The NPL, RWA, EIR, and NIM have been omitted to avoid the multicollinearity for setting the relationship of ROE with RSD. Thus, the model would be:

$$ROE_t = f(RSD, ROA, LR)_{t-i} \text{ ----------(5)}$$

The NPL, RWA, EIR, and ROE have been omitted to avoid the multicollinearity for setting the relationship of NIM with RSD. Thus, the model would be:

$$NIM_t = f(RSD, ROA, LR)_{t-i} \text{ ----------(6)}$$

The NPL, RWA, EIR, ROE, and NIM have been omitted to avoid the multicollinearity for setting the relationship of LR with RSD. Thus, the model would be:

$$LR_t = f(RSD, ROA)_{t-i} \text{ ----------(7)}$$

4.5 Stationary Test

Stationary test of the rescheduled loans at I(0)

Two-way Graphical Test

Figure 4.5 represents the two-way Graphical presentation of the time series values of the RSD that the values of the RSD lie between 0 to .15 which indicates that the RSD at I(0) as non-stationary.

Figure 4.5: Two-way Figure of Rescheduled Loans at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-A1; the Correlogram of the RSD shows that ACF and PCF where prob > Q is less than 0.05 (i.e.: 0.00) at all lags of RSD. Therefore, the RSD is non-stationary at level I(0).

ADF Test

Considering

H_0 = RSD is non-stationary

H_1 = RSD is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-A2) where the lag of RSD is 2 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-A3) the t-stat (-2.15) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.225 >0.05. We cannot reject the null hypothesis which states that RSD at I(0) is non-stationary.

P-P Test

Considering

H_0 = RSD is stationary

H_1 = RSD is non-stationary

As per the P-P test (Described in Appendix VI-A4); the t-stat (-1.57) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.496) >0.05. Thus we can reject the null hypothesis which indicates that RSD at I(0) is non-stationary.

Stationary test of the rescheduled loans at I(1)

The two-way Graphical test, ACF test, ADF test, and PP test show that the RSD at level I(0) is non-stationary. Therefore, the first-order difference of RSD has been done which signifies the RSD at level I(1).

Two-way Graphical Test

Figure 4.6 reveals the two-way Graphical presentation of the time series values of the dRSD that the values of the dRSD lie between -.02 to 0.01 which cycles near to zero which indicates that the RSD at I(1) is stationary.

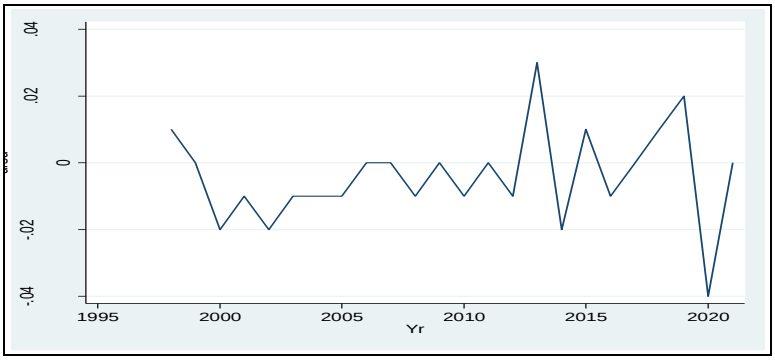


Figure 4.6: Two-way Figure of Rescheduled Loans at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-A5; the Correlogram of the RSD shows that ACF and PCF where prob > Q is greater than 0.05 at all lags of dRSD. Therefore, the RSD is stationary at level I(1).

ADF Test

Considering,

H_0 = dRSD is non-stationary

H_1 = dRSD is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-A6) where the lag of dRSD is 1 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-A7) the t-stat (-3.08) < critical values (-2.63 at 10% significance) and the p-value (0.028) <0.05. Thus, we can reject the null hypothesis which states that RSD at I(1) is stationary.

P-P Test

Considering,

H_0 = dRSD is stationary

H_1 = dRSD is non-stationary

As per the P-P test (Described in Appendix VI-A8); the t-stat (-6.42) < critical values (-3.75 at 1% significance) and the p-value (0.000) < 0.05. Thus we cannot reject the null hypothesis which indicates that RSD at I(1) is stationary.

Stationary test of the non-performing loans at I(0)

Two-way Graphical Test

Figure 4.7 shows the two-way Graphical presentation of the time series values of the NPL that the values of the NPL lie between 0.1 to 0.5 which indicates that the NPL at I(0) is non-stationary.

Figure 4.7: Two-way Figure of Non- Performing Loans at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-B1; the Correlogram of the NPL shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.000) at all lags of NPL. Therefore, the NPL is non-stationary at level I(0).

ADF Test

Considering,

H_0 = NPL is non-stationary

H_1 = NPL is stationary

Before, the ADF test the lag selection criteria were followed (Described in Appendix VI-B2) where the lag of NPL is 2 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-B3) the t-stat (-1.96) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.305) >0.05. Thus, we cannot reject the null hypothesis which states that NPL at I(0) is non-stationary.

P-P Test

Considering,

H_0 = NPL is stationary

H_1 = NPL is non-stationary

As per the P-P test (Described in Appendix VI-B4); the t-stat (-2.08) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value is (0.278) > 0.05. Thus we can reject the null hypothesis which indicates that NPL at I(0) is non-stationary.

Stationary test of the non-performing loans at I(1)

The two-way Graphical test, ACF test, ADF test, and PP test show that the NPL at level I(0) is non-stationary. Therefore, the first-order difference of NPL has been done which signifies the NPL at level I(1).

Two-way Graphical Test

Figure 4.8 illustrates the two-way Graphical presentation of the time series values of the dNPL that the values of the dNPL lie between -0.1 to 0.05 which cycles near to zero referring that the NPL at I(1) is stationary.

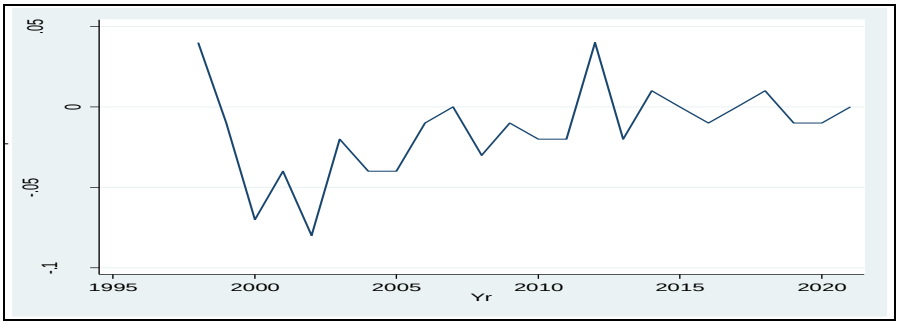


Figure 4.8: Two-way Figure of Non-Performing Loans at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-B5; the Correlogram of the NPL shows that ACF and PCF where prob >Q is greater 0.05 at all lags of dNPL. Therefore, the NPL is stationary at level I(1).

ADF Test

Considering,

H_0 = dNPL is non-stationary

H_1 = dNPL is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-B6) where the lag of dNPL is 2 as per SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-B7) the t-stat (-3.91) < critical values (-3.75 at 1% significance) and the p-value (0.002) <0.05. Thus, we can reject the null hypothesis which states that NPL at I(1) is stationary.

P-P Test

Considering,

H_0 = dNPL is stationary

H_1 = dNPL is non-stationary

As per the P-P test (Described in Appendix VI-B8); the t-stat (-4.00) < critical values (-3.75 at 1% significance) and the p-value (0.001) < 0.05. Thus we cannot reject the null hypothesis which indicates that NPL at I(1) is stationary.

Stationary test of the risk-weighted assets at I(0)

Two-way Graphical Test

Figure 4.9 shows the two-way Graphical presentation of the time series values of the rwa that the values of the rwa lie between 5 to 10 which indicates that the rwa at I(0) as non-stationary.

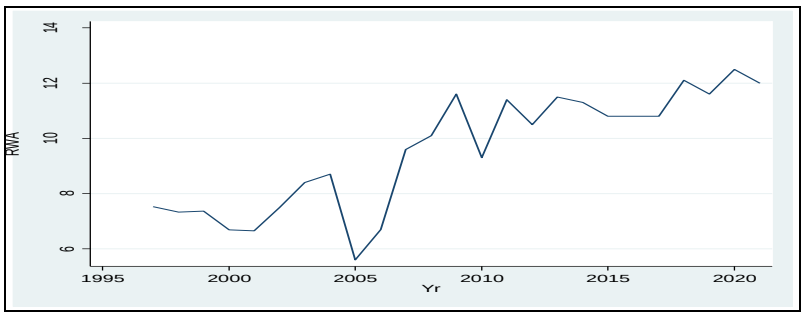


Figure 4.9: Two-way Figure of Risk Weighted Assets at I(0**)**

Autocorrelation Function and Correlogram

As per Appendix VI-C1; the Correlogram of the RWA shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.00) at all lags of RWA. Thus, the RWA is non-stationary at level I(0).

ADF Test

Considering,

H_0 = rwa is non-stationary

H_1 = rwa is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-C2) where the lag of RWA is 1 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-C3) the t-stat (-1.02) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.745) >0.05. Thus, we cannot reject the null hypothesis which states that RWA at I(0) is non-stationary.

P-P Test

Considering,

H_0 = rwa is stationary

H_1 = rwa is non-stationary

As per the P-P test (Described in Appendix VI-C4); the t-stat (-1.02) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.745) > 0.05. Thus we can reject the null hypothesis indicating that RWA at I(0) is non-stationary.

Stationary test of the risk-weighted assets at I(1)

The two-way Graphical test, ACF test, ADF test, and PP test show that the rwa at level I(0) is non-stationary. Therefore, the first-order difference of rwa has been done which signifies the rwa at level I(1).

The Two-Way Graphical Test

Figure 4.10 shows the two-way Graphical presentation of the time series values of the drwa that the values of the drwa lie between -4 to 4 which cycles near zero referring to the rwa at I(1) being stationary.

Figure 4.10: Two-way Figure of Risk Weighted Assets at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-C5; the Correlogram of the RWA shows that ACF and PCF where prob >Q is greater than 0.05 at all lags of dRWA. Therefore, the RWA is stationary at level I(1).

ADF Test

Considering,

H_0 = drwa is non-stationary

H_1 = drwa is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-C6) where the lag of dRWA is 0 as per SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-C7) the t-stat (-6.30) < critical values (-3.75 at 1% significance) and the p-value (0.000) <0.05. Thus, we can reject the null hypothesis which states that RWA at I(1) is stationary.

P-P Test

Considering,

H_0 = drwa is stationary

H_1 = drwa is non-stationary

As per the P-P test (Described in Appendix VI-C8); the t-stat (-6.56) < critical values (-3.75 at 1% significance) and the p-value (0.000)< 0.05. Thus we can reject the null hypothesis which indicates that RWA at I(1) is stationary.

Stationary test of the expenditure-income ratios at I(0)

The Two-Way Graphical Test

Figure 4.11 shows the two-way Graphical presentation of the time series values of the eir that the values of the eir lie between 70 to 100 which indicates that the eir at I(0) being non-stationery.

Figure 4.11: Two-way Figure of Expenditure-Income Ratios at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-D1; the Correlogram of the EIR shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.000) at all lags of EIR. Therefore, the EIR is non-stationary at level I(0).

ADF Test

Considering,

H_0 = EIR is non-stationary

H_1 = EIR is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-D2) where the lag of EIR is 1 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-D3) the t-stat (-1.35) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.605) >0.05. Thus, we cannot reject the null hypothesis which states that EIR at I(0) is non-stationary.

P-P Test

Considering,

H_0 = EIR is stationary

H_1 = EIR is non-stationary

As per the P-P test (Described in Appendix VI-D4); the t-stat (-1.30) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.629) > 0.05. Thus we can reject the null hypothesis which indicates that EIR at I(0) is non-stationary.

Stationary test of the expenditure-income ratios at I(1)

The two-way Graphical test, ACF test, ADF test, and PP test show that the rwa at level I(0) is non-stationary. Therefore, the first-order difference of eir has been done which signifies the eir at level I(1).

The Two-Way Graphical Test

Figure 4.12 shows the two-way Graphical presentation of the time series values of the deir that the values of the deir lie between -15 to 5 which cycles near to zero referring to the eir at I(1) being stationary.

Figure 4.12: Two-way Figure of Expenditure-Income Ratios at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-D5; the Correlogram of the EIR shows that ACF and PCF where prob >Q is greater than 0.05 at all lags of dEIR. Therefore, the EIR is stationary at level I(1).

ADF Test

Considering,

H_0 = dEIR is non-stationary

H_1 = dEIR is stationary

Before that ADF test, the lag selection criteria were followed (Described in Appendix VI-D6) where the lag of dEIR is 0 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-D7) the t-stat (-4.45) < critical values (-3.75 at 1% significance) and the p-value (0.020) <0.05. Thus, we can reject the null hypothesis which states that EIR at I(1) is stationary.

P-P Test

Considering,

H_0 = dEIR is stationary

H_1 = dEIR is non-stationary

As per the P-P test (Described in Appendix VI-D8); the t-stat (-4.45) < critical values (-3.75 at 1% significance) and the p-value (0.020) < 0.05. Thus we cannot reject the null hypothesis which indicates that EIR at I(1) is stationary.

Stationary test of the return on assets at I(0)

The Two-Way Graphical Test

Figure 4.13 shows the two-way Graphical presentation of the time series values of the roa that the values of the roa lie between 0 to 2 which indicates that the roa at I(0) is non-stationary.

Figure 4.13: Two-way Figure of Return on Assets at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-E1; the Correlogram of the ROA shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.00) at all lags of ROA. Therefore, the ROA is non-stationary at level I(0).

ADF Test

Considering,

H_0 = roa is non-stationary

H_1 = roa is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-E2) where the lag of ROA is 1 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-E3) the t-stat (-1.48) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.542) >0.05. Thus, we cannot reject the null hypothesis which states that ROA at I(0) is non-stationary.

P-P Test

Considering,

H_0 = roa is stationary

H_1 = roa is non-stationary

As per the P-P test (Described in Appendix VI-E4); the t-stat (-1.78) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.391) >0.05. Thus we cant reject the null hypothesis which indicates that ROA at I(0) is non-stationary.

Stationary test of the return on assets at I(1)

The two-way Graphical test, ACF test, ADF test, and PP test show that the roa at level I(0) is non-stationary. Therefore, the first-order difference of roa has been done which signifies the roa at level I(1).

Two-Way Graphical Test

Figure 4.14 shows the two-way Graphical presentation of the time series values of the roa that the values of the droa lie between -1 to 1 which cycles near zero referring to the roa at I(1) being stationary.

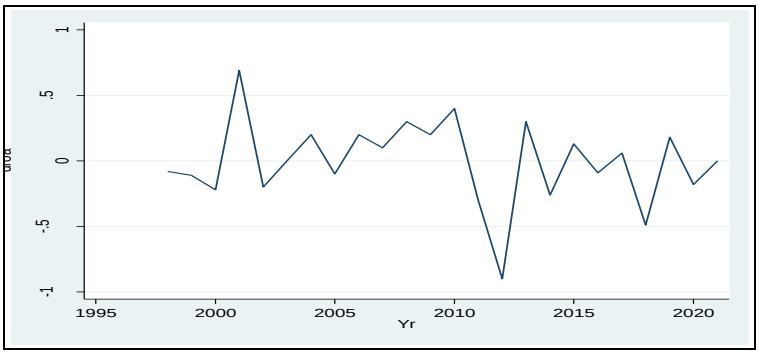


Figure 4.14: Two-way Figure of Return on Assets at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-E5; the Correlogram of the ROA shows that ACF and PCF where prob >Q is greater than 0.05 at all lags of dROA. Therefore, the ROA is stationary at level I(1).

ADF Test

Considering,

H_0 = dROA is non-stationary

H_1 = dROA is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-E6) where the lag of dROA is 0 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-E7) the t-stat (-5.70) < critical value (-3.75 at 1% significance) and the p-value (0.000) <0.05. Thus, we can reject the null hypothesis which states that ROA at I(1) is stationary.

P-P Test

Considering,

H_0 = dROA is stationary

H_1 = dROA is non-stationary

As per the P-P test (Described in Appendix VI-E8); the t-stat (-5.71) < critical value (-3.75 at 1% significance) and the p-value (0.000) < 0.05. Thus we cannot reject the null hypothesis which indicates that ROA at I(1) is stationary.

Stationary test of the return on equity at I(0)

Two-Way Graphical Test

Figure 4.15 shows the two-way Graphical presentation of the time series values of the ROE that the values of the ROE lie between 0 to 25 which indicates that the roe at I(0) is non-stationary.

Figure 4.15: Two-way Figure of Return on Equity at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-F1; the Correlogram of the ROE shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.000) at all lags of ROE. Therefore, the ROE is non-stationary at level I(0).

ADF Test

Considering,

H_0 = ROE is non-stationary

H_1 = ROE is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-F2) where the lag of ROE is 1 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-F3) the t-stat (-1.60) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.485) >0.05. Thus, we cannot reject the null hypothesis which states that ROE at I(0) is non-stationary.

P-P Test

Considering,

H_0 = ROE is stationary

H_1 = ROE is non-stationary

As per the P-P test (Described in Appendix VI-F4); the t-stat (-2.20) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.207%)> 0.05. Thus we can reject the null hypothesis which indicates that ROE at I(0) is non-stationary.

Stationary test of the return on equity at I(1)

The two-way Graphical test, ACF test, ADF test and PP test shows that the roe at level I(0) is non-stationary. Therefore, the first order difference of roe has been done which signifies the roe at level I(1).

Two-Way Graphical Test

Figure 4.16 shows the two-way Graphical presentation of the time series values of the droe that the values of the droe lie between -10 to 15 which cycles near to zero referring to the roe at I(1) being stationary.

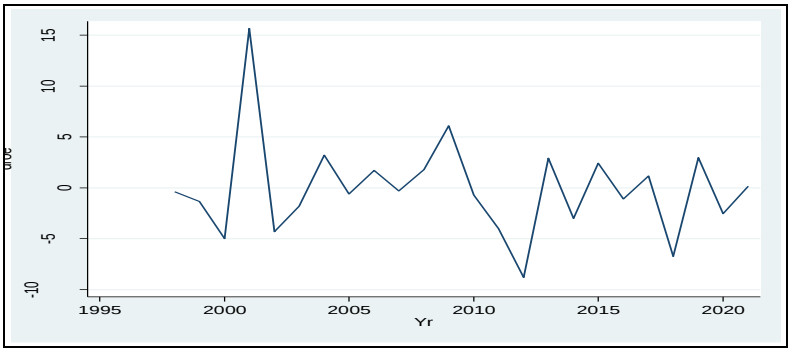


Figure 4.16: Two-way Figure of Return on Equity at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-F5; the Correlogram of the ROE shows that ACF and PCF where prob >Q is greater than 0.05 at all lags of dROE. Therefore, the ROE is stationary at level I(1).

ADF Test

Considering,

H_0 = dROE is non-stationary

H_1 = dROE is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-F6) where the lag of dROE is 0 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-F7) the t-stat (-6.50) < critical value (-3.75 at 1% significance) and the p-value (0.000) <0.05. Thus, we can reject the null hypothesis which states that ROE at I(1) is stationary.

P-P Test

Considering,

H_0 = dROE is stationary

H_1 = dROE is non-stationary

As per the P-P test (Described in Appendix VI-F8); the t-stat (-6.50) < critical value (-3.75 at 1% significance) and the p-value (0.000)< 0.05. Thus we can reject the null hypothesis which indicates that ROE at I(1) is stationary.

Stationary test of the net interest margin at I(0)

Two-Way Graphical Test

Figure 4.17 depicts the two-way Graphical presentation of the time series values of the nim that the values of the nim lie between 0 to 4 which indicates to the roe at I(0) as non-stationary.

Figure 4.17: Two-way Figure of Net Interest Margin at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-G1; the Correlogram of the NIM shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.000) at all lags of NIM. Therefore, the NIM is non-stationary at level I(0).

ADF Test

Considering,

H_0 = nim is non-stationary

H_1 = nim is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-G2) where the lag of NIM is 3 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-G3) the t-stat (-1.52) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.524) >0.05. Thus, we cannot reject the null hypothesis which states that NIM at I(0) is non-stationary.

P-P Test

Considering,

H_0 = nim is stationary

H_1 = nim is non-stationary

As per the P-P test (Described in Appendix VI-G4); the t-stat (-1.37) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.596) >0.05. Thus we can reject the null hypothesis which indicates that NIM at I(0) is non-stationary.

Stationary test of the net interest margin at I(1)

The two-way Graphical test, ACF test, ADF test, and PP test show that the nim at level I(0) is non-stationary. Therefore, the first-order difference of nim has been done which signifies the nim at level I(1).

Two-Way Graphical Test

Figure 4.18 shows the two-way Graphical presentation of the time series values of the dnim that the values of the dnim lie between -1 to 1.5 which cycles near to zero referring that the nim at I(1) is stationary.

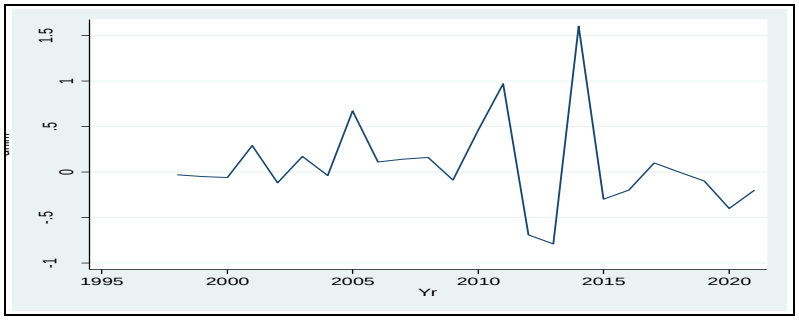


Figure 4.18: Two-way Figure of Net Interest Margin at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-G5; the Correlogram of the NIM shows that ACF and PCF where prob >Q is greater than 0.05 at all lags of dNIM. Therefore, the NIM is stationary at level I(1).

ADF Test

Considering,

H_0 = dNIM is non-stationary

H_1 = dNIM is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-G6) where the lag of dNIM is 2 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-G7) the t-stat (-5.97) < critical value (-3.75 at 1% significance) and the p-value (0.000) <0.05. Thus, we can reject the null hypothesis which states that NIM at I(1) is stationary.

P-P Test

Considering,

H_0 = dNIM is stationary

H_1 = dNIM is non-stationary

As per the P-P test (Described in Appendix VI-G8); the t-stat (-6.58) < critical value (-3.75 at 1% significance) and the p-value (0.000)<0.05. Thus, we cannot reject the null hypothesis which indicates that NIM at I(1) is stationary.

Stationary test of the liquidity ratios at I(0)

Two-Way Graphical Test

Figure 4.19 depicts the two-way Graphical presentation of the time series values of the lr that the values of the lr lie between 15 to 35 which indicating to the roe at I(0) being non-stationery.

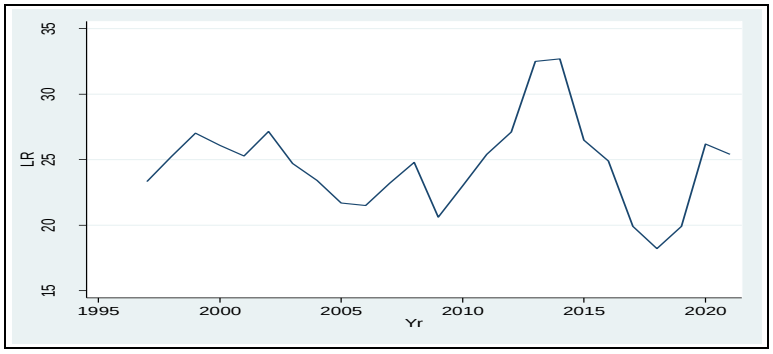


Figure 4.19: Two-way Figure of Liquidity Ratios at I(0)

Autocorrelation Function and Correlogram

As per Appendix VI-H1; the Correlogram of the LR shows that ACF and PCF where prob > Q is less than 0.05 (i.e: 0.000) at all lags of LR. Therefore, the LR is non-stationary at level I(0).

ADF Test

Considering,

H_0 = LR is non-stationary

H_1 = LR is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-H2) where the lag of LR is 2 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-H3) the t-stat (-1.87) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.345) >0.05. Thus, we cannot reject the null hypothesis which states that LR at I(0) is non-stationary.

P-P Test

Considering,

H_0 = LR is stationary

H_1 = LR is non-stationary

As per the P-P test (Described in Appendix VI-H4); the t-stat (-2.45) > all critical values (-3.75 at 1% significance, -3.00 at 5% significance, and -2.63 at 10% significance) and the p-value (0.128) > 0.05. Thus we cannot reject the null hypothesis which indicates that LR at I(0) is non-stationary.

Stationary test of the liquidity ratios at I(1)

The two-way Graphical test, ACF test, ADF test and PP test show that the lr at level I(0) is non-stationary. Therefore, the first order difference of lr has been done which signifies the lr at level I(1).

Two-way Graphical Test

Figure 4.20 shows the two-way Graphical presentation of the time series values of the dlr that the values of the dlr lie between 0-5 which cycles near to 0 referring that the lr at I(1) is stationary.

Figure 4.20: Two-way Figure of Liquidity Ratios at I(1)

Autocorrelation Function and Correlogram

As per Appendix VI-H5; the Correlogram of the LR shows that ACF and PCF where prob >Q is greater than 0.05 at all lags of dLR. Therefore, the LR is stationary at level I(1).

ADF Test

Considering,

H_0 = dLR is non-stationary

H_1 = dLR is stationary

Before the ADF test, the lag selection criteria were followed (Described in Appendix VI-H6) where the lag of dLR is 0 as per AIC, HQIC, and SBIC. Based on the lag value, the ADF-test shows (Described in Appendix VI-H7) the t-stat (-3.85)< critical value (-3.75 at 1% significance) and the p-value (0.002) <0.05. Thus, we can reject the null hypothesis which states that LR at I(1) is stationary.

P-P Test

Considering,

H_0 = dLR is stationary

H_1 = dLR is non-stationary

As per the P-P test (Described in Appendix VI-H8); the t-stat (-6.58) < critical value (-3.75 at 1% significance) and the p-value (0.000) < 0.05. Thus we cannot reject the null hypothesis which indicates that LR at I(1) is stationary.

4.5.1 Summary of the stationary test of the variables at I(0)

From the analysis of the stationary test, it is observed that all the variables are non-stationary for all critical values at I(0). Table 4.6 shows the summary result of the unit root test of the ADF test and the P-P test.

Table 4.6: Summary of the Stationary Test of the Variables at I(0)

Variables	ADF Test		P-P Test		Decision
	t-stat	p-value	t-stat	p-value	
RSD	-2.15	0.224	-1.57	0.496	Non-stationary
NPL	-1.96	0.304	-2.02	0.278	Non-stationary
RWA	-1.02	0.746	-1.25	0.651	Non-stationary
EIR	-1.35	0.605	-1.30	0.629	Non-stationary
ROA	-1.48	0.542	-1.78	0.390	Non-stationary
ROE	-1.60	0.482	-2.20	0.207	Non-stationary
NIM	-1.52	0.523	-1.37	0.595	Non-stationary
LR	-1.87	0.347	-2.45	0.127	Non-stationary

4.5.2 Summary of the stationary test of the variables at I(1)

The two-way Graphical test, ACF test, ADF test, and P-P test show that all the variables at level I(0) are non-stationary. Therefore, the first-order difference of the variables has been referring to the value at level I(1). From the analysis of the stationary test, it is observed that all the variables are stationary for I(1) of the variables. Table 4.7 shows the summary result of the unit root test of the ADF test and the P-P test.

Table 4.7: Summary of the Stationary Test of the Variables at I(1)

Variables	ADF Test		P-P Test		Decision
	t-stat	p-value	t-stat	p-value	
∂RSD	-3.08**	2.78%	-6.42*	0.00%	Stationary
∂NPL	-3.91*	0.20%	-4.00*	0.14%	Stationary
∂RWA	-6.30*	0.00%	-6.56*	0.00%	Stationary
∂EIR	-4.44*	0.02%	-4.45*	0.02%	Stationary
∂ROA	-5.70*	0.00%	-5.71*	0.00%	Stationary
∂ROE	-6.50*	0.00%	-6.68*	0.00%	Stationary
∂NIM	-5.97*	0.00%	-6.58*	0.00%	Stationary
∂LR	-3.85*	0.24%	-3.83*	0.26%	Stationary
					* Statistical significance at 1%
					** Statistical significance at 10%

4.6 Structural Break Test

Structural break test for the rescheduled loans

Considering,

H_0= There is no structural break of the data of RSD
H_1= There is structural break of the data of RSD

Figure 4.21 represents the Graphical presentation of the time series values of the RSD. It denotes that there is no structural break in the trend of RSD.

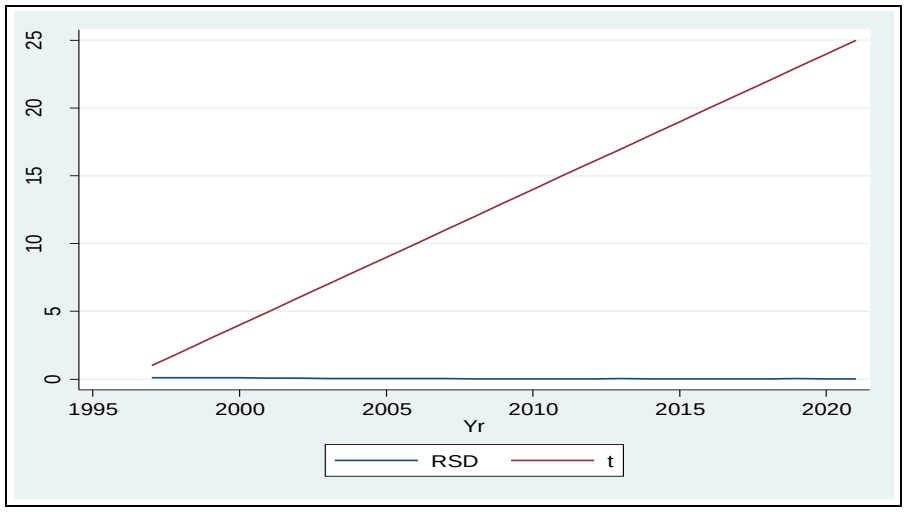


Figure 4.21: Structural Break Figure of the Rescheduled Loans

Appendix VII-A1 illustrates that the Sup-Wald test result is 53.94 which is statistically significant at 0.01 (p-value 0.00). Therefore, we can not reject the null hypothesis which states that there is no structural break in the rescheduled loan data. Similarly, Appendix VII-A2 shows that the Chow test result is Fc=-2.100 and Fs=3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break of the rescheduled loan data.

Thus, the graphical, the Sup-Wald Test, and the Chow Test depict that there is no structural break of the rescheduled loan data.

Structural break test for the non-performing loans

Considering,

H_0= There is no structural break of the data of NPL
H_1= There is structural break of the data of NPL

Figure 4.22 represents the Graphical presentation of the time series values of the NPL. It represents that there is no structural break in the trend of NPL.

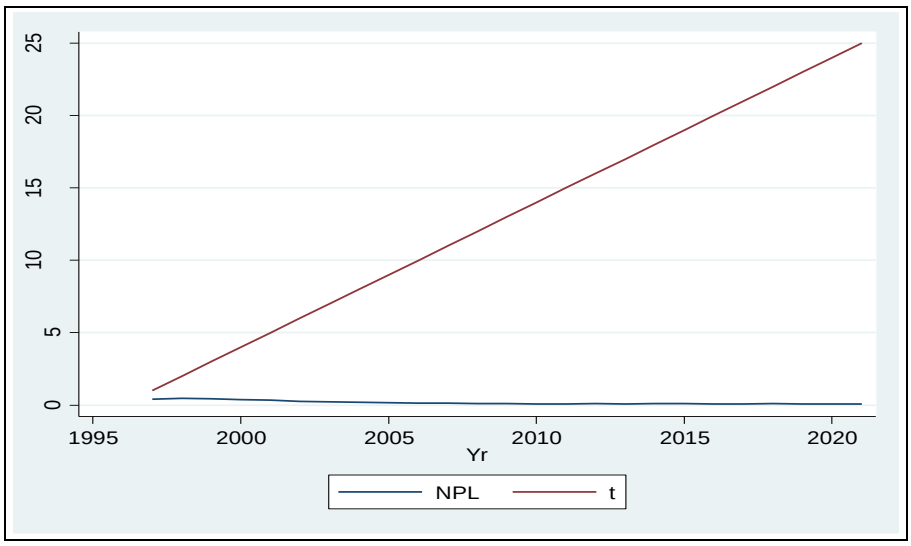


Figure 4.22: Structural Break Figure of the Non-Performing Loans

Appendix VII-B1 illustrates that the Sup-Wald test result is 167.63 which is statistically significant at 0.01 (p-value 0.00). Therefore, we can not reject the null hypothesis which states that there is no structural break of the non-performing loans data. On the other hand, Appendix VII-B2 indicates that the Chow test result is Fc=1.712 and Fs=3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break of the non-performing loans data.

So, the graphical, the Sup-Wald Test, and the Chow Test show that there is no structural break of the NPLs data.

Structural break test for the risk-weighted assets

Considering,

H_0= There is no structural break of the data of RWA
H_1= There is structural break of the data of RWA

Figure 4.23 represents the Graphical presentation of the time series values of the RWA. It represents that there is structural break in 2003 on the trend of RWA.

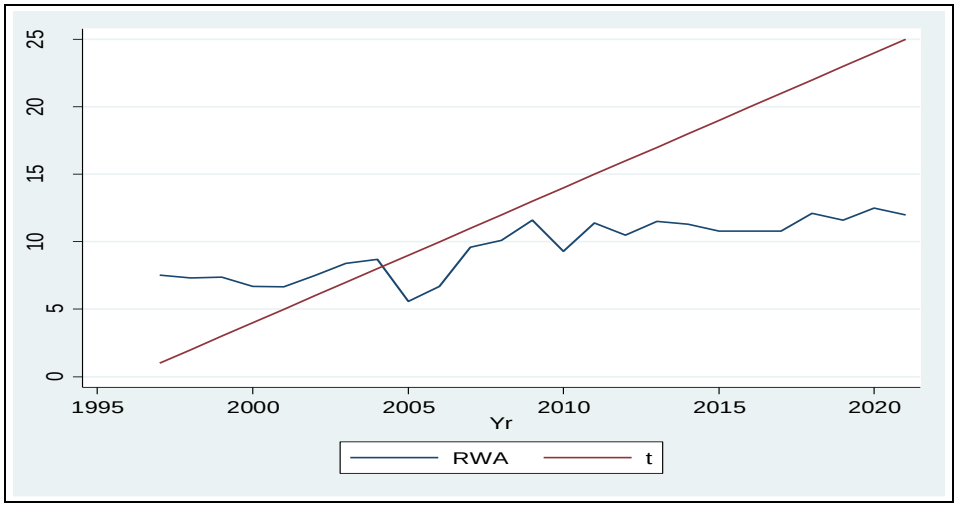


Figure 4.23: Structural Break Figure of the Risk-Weighted Assets

Appendix VII-C1 indicates that the Sup-Wald test result is 21.08 which is statistically significant at 0.01 (p-value 0.0007). Therefore, we can not reject the null hypothesis which states that there is no structural break of the risk-weighted assets data. Similarly, Appendix VII-C2 illustrates that the Chow test result is F_c=2.279 and F_s=3.385. As F_c<F_s, we can not reject the null hypothesis which states that there is no structural break of the risk-weighted assets data.

Although the graphical test shows structural break, the Sup-Wald Test, and the Chow Tests show that there is no structural break of the risk-weighted assets data.

Structural break test for the expenditure-income ratio

Considering,

H_0= There is no structural break of the data of EIR
H_1= There is structural break of the data of EIR

Figure 4.24 represents the Graphical presentation of the time series values of the EIR. It symbolizes that there is no structural break in the trend of EIR.

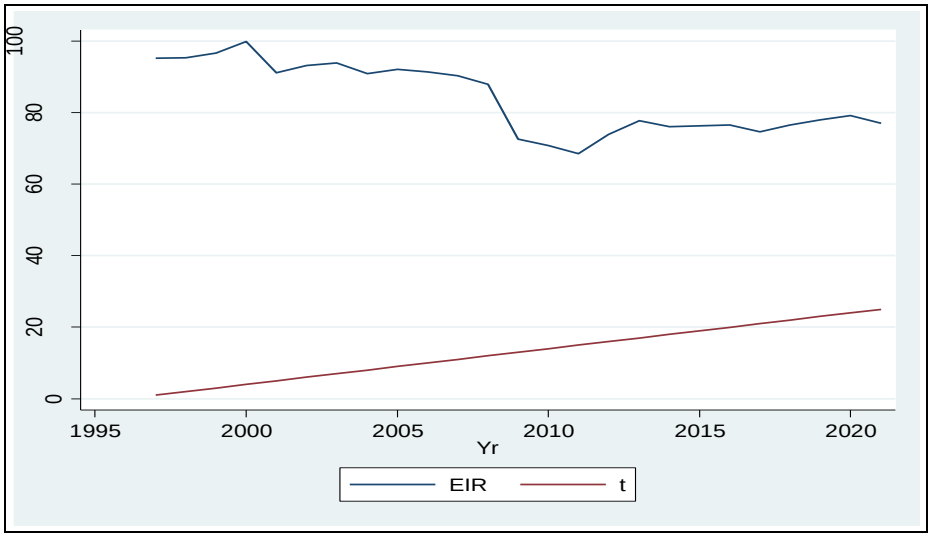


Figure 4.24: Structural Break Figure of the Expenditure-Income Ratios

Appendix VII-D1 illustrates that the Sup-Wald test result is 148.68 which is statistically significant at 0.01 (p-value (0.00). Therefore, we can not reject the null hypothesis which states that there is no structural break in the expenditure-income ratios data. Similarly, Appendix VII-D2 illustrates that the Chow test result is Fc=3.341 and Fs=3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break in the expenditure-income ratios data.

So, the graphical, the Sup-Wald Test, and the Chow Tests show that there is no structural break in the expenditure-income ratios data.

Structural break test for the return on assets

Considering,

H_0= There is no structural break of the data of ROA
H_1= There is structural break of the data of ROA

Figure 4.25 represents the Graphical presentation of the time series values of the ROA. It represents that there is no structural break in the trend of ROA.

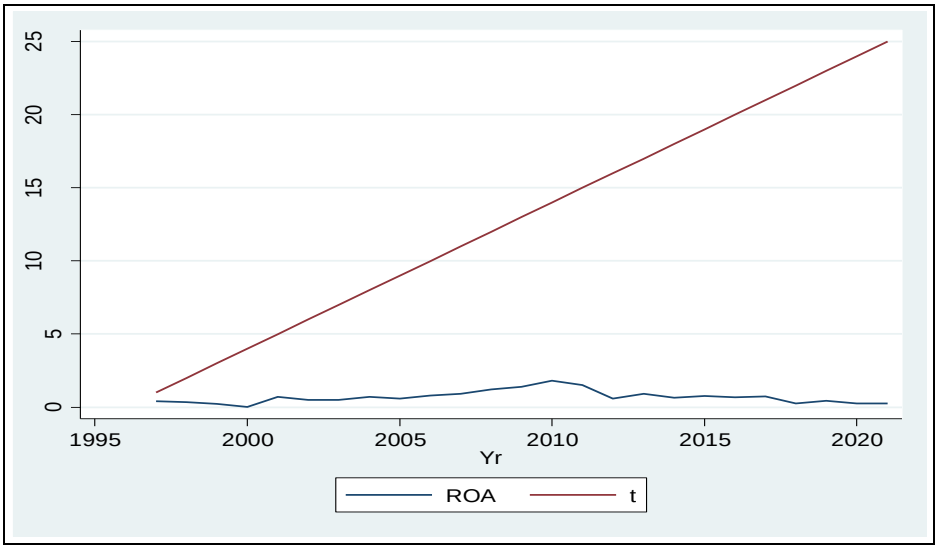


Figure 4.25: Structural Break Figure of the Return on Assets

Appendix VII-E1 illustrates that the Sup-Wald test result is 79.26 which is statistically significant at 0.01 (p-value (0.00). Therefore, we can not reject the null hypothesis which states that there is no structural break in the return on assets data. Appendix VII-E2 illustrates that the Chow test result is Fc=1.938 and Fs=3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break of the Return on Assets (ROA) data.

The graphical, the Sup-Wald Test, and the Chow Tests show that there is no structural break of the return on assets data.

Structural break test for the return on equity

Considering,

H_0= There is no structural break of the data of ROE
H_1= There is structural break of the data of ROE

Figure 4.26 represents the Graphical presentation of the time series values of the ROE. It represents that there is structural break in 1999, 2001 and 2012 of the trend of ROE.

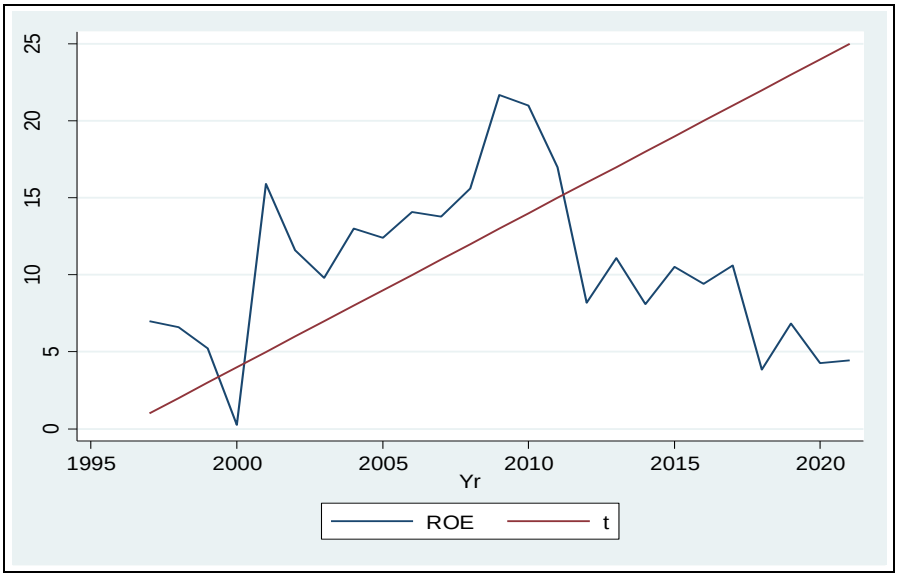


Figure 4.26: Structural Break Figure of the Return on Equity

Appendix VII-F1 illustrates that the Sup-Wald test result is 53.4004 which is statistically significant at 0.01 (p-value (0.00). Therefore, we can not reject the null hypothesis which states that there is no structural break in the return on equity data. Appendix VII-F2 illustrates that the Chow test result is Fc=2.092 and Fs=3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break of the Return on Equity (ROE) data.

Though the graphical test shows that there is a structural break, the Sup-Wald Test and the Chow Test show that there is no structural break in the return on equity data.

Structural break test for the net interest margin

Considering,

H_0= There is no structural break of the data of NIM
H_1= There is structural break of the data of NIM

Figure 4.27 represents the Graphical presentation of the time series values of the NIM. It represents that there is no structural break in the trend of NIM.

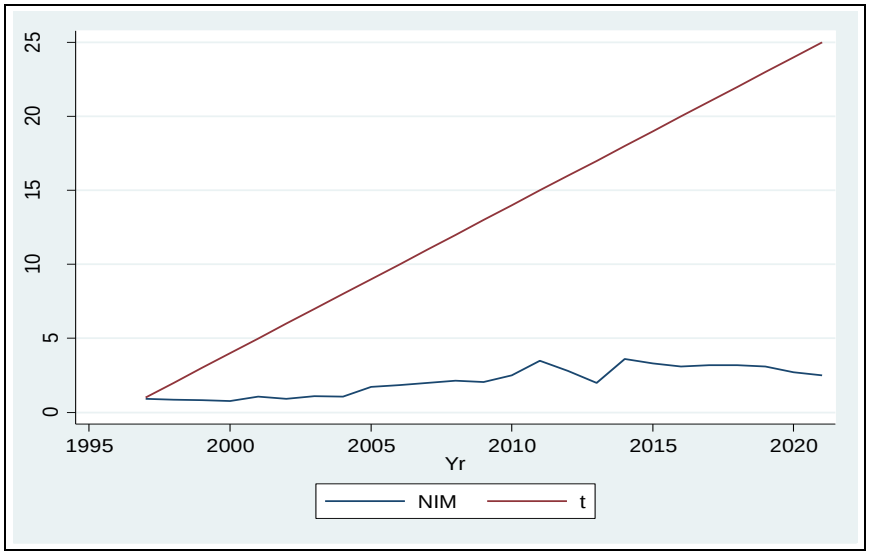


Figure 4.27: Structural Break Figure of the Net Interest Margin

Appendix VII-G1 illustrates that the Sup-Wald test result is 23.8874 which is statistically significant at 0.01 (p-value (0.0002). Therefore, we can not reject the null hypothesis which states that there is no structural break of the net interest margin data. Appendix VII-G2 illustrates that the Chow test result is Fc=1.387 and Fs=3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break of the Net Interest Margin (NIM) data.

The graphical, the Sup-Wald Test; and the Chow Test show that there is no structural break of the net interest margin data.

Structural break test for the liquidity ratios

Considering,

H_0= There is no structural break of the data of LR
H_1= There is structural break of the data of LR

Figure 4.28 represents the Graphical presentation of the time series values of the LR. It represents that there are structural breaks in 2017 and 2019 of the trend of NIM.

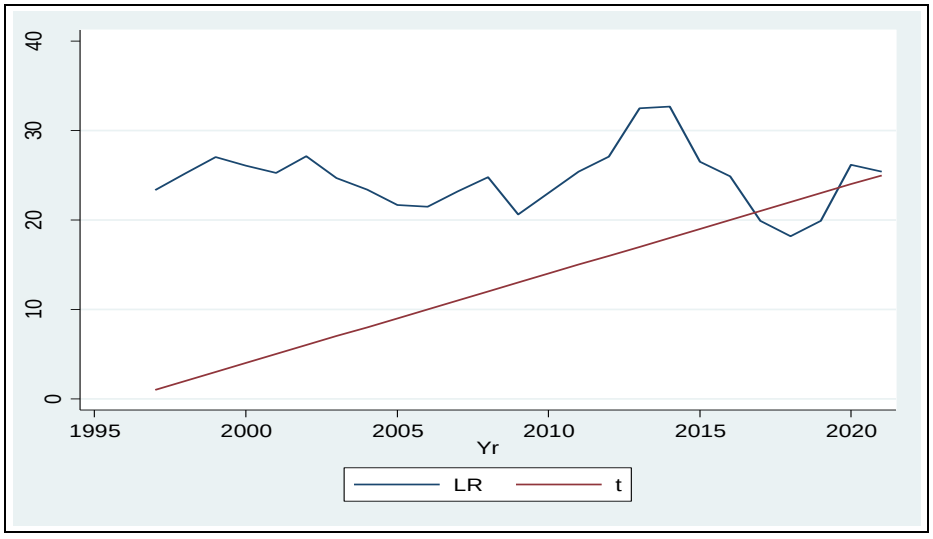


Figure 4.28: Structural Break Figure of the Liquidity Ratios

Appendix VII-H1 demonstrates that the Sup-Wald test result is 10.9546 which is statistically significant at 0.05 (p-value (0.0642). Therefore, we can not reject the null hypothesis which states that there is no structural break in the liquidity ratios data. Appendix VII-H2 illustrates that the Chow test result is Fc =1.966 and Fs = 3.385. As Fc<Fs, we can not reject the null hypothesis which states that there is no structural break of the liquidity ratios data.

Though the graphical test shows that there is a structural break, the Sup-Wald Test; and the Chow Test show that there is no structural break in the liquidity ratios data.

4.7 Model Specification for the Analysis of the Effectiveness of the Rescheduled Loans on the Performance Banks

The fourth specific objective of the study is to investigate the short-run and long-run impact of the rescheduled loan on the performance of banks. In this circumstance, individual variables impact rescheduled loans by the model specification of the already developed equations as per hypothesis.

4.7.1 Model specification for the analysis of the effectiveness of rescheduled loans on non-performing loans

4.7.1.1 Lag selection criteria for non-performing loans to rescheduled loans

Firstly, the lag selection criteria were done to specify the model. The LR, AIC, HQIC, and SBIC values in Table 4.8 suggest that the appropriate length of lag should be 4 for this study.

Table 4.8: Lag Selection Criteria for the NPL Model

lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	49.496				9.8e-08	-4.78905	-4.7554	-4.59022
1	68.069	37.146	16	0.002	7.8e-08	-5.0599	-4.89165	-4.06575
2	84.51	32.882	16	0.008	9.9e-08	-5.10631	-4.80346	-3.31685
3	104.728	40.436	16	0.001	1.6e-07	-5.55031	-5.11287	-2.96553
4	815.689	1421.9*	16	0.000	6.3e-38*	-78.7041*	78.132*	-75.324*
Endogenous: dnpl, drsd, droa, dlr Exogenous: _cons								

4.7.1.2 Cointegration test for non-performing loans to rescheduled loans

Table 4.9 shows the results of Johansen's co-integration test. The trace statistics are less than the critical value only at rank 2. That means there is co-integration in the data set. Hence, the VECM is applicable.

Table 4.9: Cointegration Test Result for the NPL Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	52	96.460226	.	1199.88	47.21
1	59	403.95008	1.00000	584.90	29.68
2	64	690.513	1.0000	11.77*	15.41
3	67	695.69104	.42099	1.42	3.76
4	68	696.40008	.07192		

4.7.1.3 Equation set-up for non-performing loans to rescheduled loans

Thus the VECM equations will be

$$\Delta npl = \alpha + \sum_{i=1}^{k=1}(\beta_i \Delta npl_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_1 ECT_{t-1} + u_{1t} \quad -----(1.1)$$

$$\Delta rsd = \xi + \sum_{i=1}^{k=1}(\beta_i \Delta npl_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_2 ECT_{t-1} + u_{2t} \quad -----(1.2)$$

$$\Delta roa = \gamma + \sum_{i=1}^{k=1}(\beta_i \Delta npl_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_3 ECT_{t-1} + u_{3t} \quad -----(1.3)$$

$$\Delta lr = \theta + \sum_{i=1}^{k=1}(\beta_i \Delta npl_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_4 ECT_{t-1} + u_{4t} \quad -----(1.4)$$

Here,

- α,ξ, γ, θ are the constant term
- β, δ, φ, μ are the short-run coefficients of npl, rsd, roa, and lr
- t,i, j, m, n=1,2,---------n
- u_t is the vector of impulses
- η is the coefficient of error correction term (ECT)

4.7.1.4 VECM estimation of the effectiveness of rescheduled loans on non-performing loans

Finally, VECM estimation is done by using time series data from 1997 to 2021. The number of co-integration equations is 2 (from the Johansen tests for cointegration) and the maximum lag used is 4 for the VECM. The results of the VECM are shown in Table 4.10.

The R Square of all the lagged variables is statistically significant. The equation parameters of equations 1.1, 1.2, and 1.3 are statistically significant but equation 1.4 is not statistically significant. As the aim of this study is to find out the relationship of the rescheduled loan with the non-performing loan, equation 1.1 has been specified here.

Table 4.10: VECM Results of Effectiveness of Rescheduled Loans on Non-Performing Loans

Sample: 2001- 2021		Number of obs	=	21	
		AIC	=	-41.5012	
Log likelihood = 479.0116		HQIC	=	-40.8792	
Det(Sigma_ml) = -1.85e-26		SBIC	=	-38.3148	

Equation	**Parms**	**RMSE**	**R-sq**	**chi2**	**P>chi2**
D_npl	15	0.014688	0.9326	55.32868	0.0000
D_rsd	15	0.00678	0.9521	79.5377	0.0000
D_roa	15	0.235174	0.8747	27.91649	0.0221
D_lr	15	2.38176	0.8217	18.43038	0.2407

		Coef.	**Std. Err.**	**Z**	**P>z**	**[95%Conf.**	**Interval]**
D_npl	_ce1						
	L1.	-1.40197	0.52836	-2.65	0.008	-2.43753	-0.3664
	_ce2						
	L1.	5.406814	1.94875	2.77	0.006	1.587334	9.226294
	Npl						
	LD.	1.377867	0.5009	2.75	0.006	0.396122	2.359613
	L2D.	1.010313	0.351176	2.88	0.004	0.32202	1.698606
	L3D.	0.442301	0.285109	1.55	0.121	-0.1165	1.001104
	Rsd						
	LD.	-2.34066	1.524156	-1.54	0.125	-5.32795	0.646633
	L2D.	-2.82256	1.274575	-2.21	0.027	-5.32068	-0.32444
	L3D.	-1.13234	0.641422	-1.77	0.078	-2.38951	0.124821
	Roa						
	LD.	-0.08023	0.037403	-2.15	0.032	-0.10354	-0.00692
	L2D.	0.010473	0.029231	0.36	0.720	-0.04682	0.067766
	L3D.	-0.02537	0.028186	-0.9	0.368	-0.08061	0.029872
	Lr						
	LD.	-0.00772	0.003297	-2.34	0.019	-0.01418	-0.00126
	L2D.	-0.00215	0.002615	-0.82	0.411	-0.00727	0.002976
	L3D.	-0.007	0.002441	-2.87	0.004	-0.01179	-0.00222
	_cons	-0.00378	0.00563	-0.67	0.502	-0.01481	0.007255

Johansen normalization restrictions imposed						
Beta	**Coef.**	**Std. Err.**	**Z**	**P>z**	**[95% Conf.**	**Interval]**
_ce1						
npl	1	.	.	.	.	.
rsd	0	(omitted)				
roa	0.2756817	0.0455485	6.05	0.0000	0.186408	0.364955
lr	-0.0021021	0.0041211	-0.51	0.61	-0.01018	0.005975
_cons	-0.3168032	.	.	.	.	.

_ce2						
npl	2.78e-17	.	.	.	.	.
rsd	1	.	.	.	.	.
roa	0.08226	0.0093512	8.8	0.000	0.063932	0.100588
lr	0.0007047	0.0008461	0.83	0.405	-0.00095	0.002363
_cons	-0.1255089	.	.	.	.	.

The model indicates that the constant is not statistically significant. The lag_1 and lag_2 of npl; lag_2 and lag_3 of rsd; lag_1 of roa; lag_1 and lag_3 of lr are statistically significant. Coefficient ce_1 is negative and statistically significant (p-value <0.05).

Therefore, the ultimate model will be:

$$\mathbf{NPL_t=1.37NPL_{t-1}+1.01NPL_{t-2}-2.82RSD_{t-2}-1.13RSD_{t-3}-0.08ROA_{t-1}-.008LR_{t-1}-.008LR_{t-3}-1.40ECTt_{-i}+u_{t-i}}\text{-----}(1.5)$$

From this model, it is clear that lag_2 and lag_3 of rescheduled loans hurt non-performing loans. So, we can reject the H_{o1} meaning that rescheduled loans hurt non-performing loans in the long-run. Mentionable that the coefficient lag_1 is not statistically significant and coefficient lag_2 is statistically significant at a 5% confidence level but coefficient lag_3 is statistically significant at a 10% confidence level.

Therefore, the long-run effect of rescheduled loans on the non-performing loans is not as expected. In the VECM the ECT is negative and must be significant ideally at 1% to 5% level indicating long-rum equilibrium in spite of short-run shocks. The coefficients ranges from 0 to -1, but it may ranges from 0 to -2 (Belfqih, 2020; Citak, 2019). As evident from Table 4.10, coefficient ce_1 is negative and statistically significant since a coefficient of ECT (Error Correction Term) is -1.40 suggesting that the previous year's error (or deviation from the long-run equation) is corrected for within the current year at a convergent speed of 1.40 times. Thus, it can be concluded that there is long-run causality between the dependent and independent variables.

The results of the short-run causality test as presented in Table 4.11 indicate that there are short-run causalities of this model. The probabilities of the post-estimation test are positive and less than 5% value(s) which signify short-run causality running from the independent variables individually and altogether.

Table 4.11: Short-Run Causality Test for the VECM of NPL

Variables	prob>chi^2
NPL	0.000
RSD	0.000
ROA	0.000
LR	0.000
Altogether	0.000

Altogether, we can summarize the results of this model in Table 4.12.

Table 4.12: Interpretation from the VECM for the NPL

Significance of equation	npl (at 1%), rsd (at 1%), roa (at 5%) but lr is insignificant (25%)	
For equation 1.1 (Δnpl)	**Coefficient**	**Significance**
Npl	1.37 (lag1) 1.01 (lag2)	at 1% at 1%
Rsd	-2.82 (lag2) -1.13 (lag3)	at 5% at 10%
Roa	-0.08 (lag1)	at 5%
Lr	-0.008 (lag1) -0.008 (lag3)	at 1% at 5%
ECT	-1.40	at 1%
β is properly identified as Johansen normalization restriction-imposed probability is positive.		

4.7.1.5 VECM diagnostic of the effectiveness of rescheduled loans on non-performing loans

The VECM was diagnosed, and summarized results are described in Table 4.13 (details in Appendix VIII-A). From the Lagrange-multiplier test, it is observed that the p-value is greater than 0.05 which implies no serial correlation in the model. From the Jarque-Bera normality test, all the p-values are found to be greater than 0.05, which indicates that the model is normally distributed.

Table 4.13: Diagnostics: VECM for the NPL

Test	Prob>chi2	Result	Decision
Short-run causality tests	0.000 where chi2 (9) are 69.19, 31.44, 95.87, 84.51 and chi2 (36) is 244.93	All the variables individually and altogether have the probability of greater than 0.	There is short-run causality.

Test	Prob>chi2	Result	Decision
Autocorrelation Test (Lagrange-multiplier test)	Lag (1)= 0.184 Lag (2)= 0.487	all probability is greater than 0.05	No autocorrelation at lag order
Normality Test (Jarque-Bera test)	D_npl=0.914 D_rsd=0.794 D_roa=0.635 D_lr=0.940 All=0.989	probability of all variables is greater than 0.05	Model is normally distributed
Eigenvalue stability condition			The VECM specification imposes 2-unit moduli.

In the Eigenvalue stability condition, the VECM specification imposes 2-unit moduli (shown in Figure 4.29).

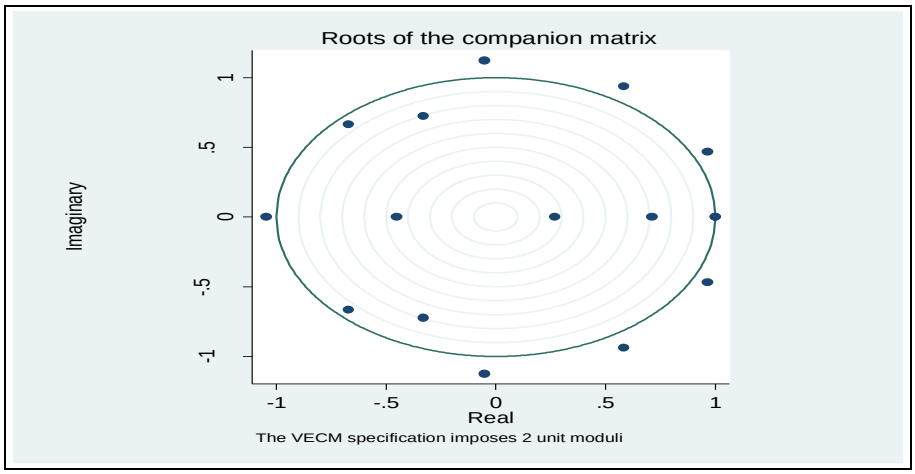


Figure 4.29: Eigen Value Stability Condition for the VECM of the NPL

4.7.2 Model specification for the analysis of the effectiveness of rescheduled loans on risk-weighted assets

4.7.2.1 Lag selection criteria for the risk-weighted assets to rescheduled loans

Firstly, the lag selection criteria were done to specify the model. The AIC and HQIC values in Table 4.14 suggest that appropriate length of lag should be 3 for this study.

Table 4.14: Lag Selection Criteria for the RAW Model

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-30.2377	24.849			.000432	3.60397	3.26376	3.8028*
1	-17.8133	22.912	16	0.073	.000662	3.98035	4.1486	4.9745
2	-6.35718	63.014*	16	0.116	.00141	4.45865	4.7615	6.24811
3	25.15		16	0.000	.000674	2.82631*	3.26376*	5.41109
4			16		5.7e-34*			
Endogenous: drwa, drsd, droa, dlr Exogenous: _cons								

4.7.2.2 Cointegration test for risk-weighted assets to rescheduled loans

Table 4.15 shows the results of Johansen's co-integration test. The trace statistics is less than the critical value only at rank 1. That means there is co-integration in the data set. Hence, the VECM is applicable.

Table 4.15: Cointegration Test Result for the RAW Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	36	-17.877817	.	65.2743	47.21
1	43	3.9477267	0.88725	21.6232*	29.68
2	48	9.8813541	0.44753	9.7559	15.41
3	51	13.167479	0.28008	3.1837	3.76
4	52	14.759322	0.14716		

4.7.2.3 Equation set-up for the risk-weighted assets to rescheduled loans

Thus the VECM equations will be

$$\Delta rwa = \alpha + \sum_{i=1}^{k=1}(\beta_i \Delta rwa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_1 ECT_{t-1} + u_{1t} \quad -----(2.1)$$

$$\Delta rsd = \xi + \sum_{i=1}^{k=1}(\beta_i \Delta rwa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_2 ECT_{t-1} + u_{2t} \quad -----(2.2)$$

$$\Delta roa = \gamma + \sum_{i=1}^{k=1}(\beta_i \Delta rwa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_3 ECT_{t-1} + u_{3t} \quad -----(2.3)$$

$$\Delta lr = \theta + \sum_{i=1}^{k=1}(\beta_i \Delta rwa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_4 ECT_{t-1} + u_{4t} \quad -----(2.4)$$

Here,

- $\alpha,\xi, \gamma, \theta$ are the constant term
- $\beta, \delta, \varphi, \mu$ are the short-run coefficients of rwa, rsd, roa, and lr
- t,i, j, m, n=1,2,---------n
- u_t is the vector of impulses
- η is the coefficient of error correction term (ECT)

4.7.2.4 VECM estimation of the effectiveness of rescheduled loans on risk-weighted assets

Finally, the VECM estimation is done by using time series data from 1997 to 2021. The number of co-integration equations is 1 (from the Johansen tests for cointegration) and the maximum lag used is 3 for the VECM. The results of the VECM are shown in Table 4.16. The R Square of all the lagged variables is statistically significant. The equation parameters of equations 2.2 and 2.4 are statistically significant but equations 2.1 and 2.3 are not statistically significant. As the objective of this study is to find out the relationship of rescheduled loans with risk-weighted assets, equation 2.1 has been specified here.

Table 4.16: VECM Results of Effectiveness of Rescheduled Loans on Risk-Weighted Assets

Sample: 2000- 2021		Number of obs		=	22	
		AIC		=	3.587521	
Log likelihood = 5.331034		HQIC		=	4.051691	
Det (Sigma_ml) = 7.07e-06		SBIC		=	5.726305	

Equation	**Parms**	**RMSE**	**R-sq**	**chi2**	**P>chi2**
D_rwa	10	1.45177	0.3827	6.819282	0.7424
D_rsd	10	0.011725	0.7092	26.82338	0.0028
D_roa	10	0.345539	0.4175	7.88567	0.64
D_lr	10	2.3266	0.6277	18.54645	0.0464

		Coef.	**Std. Err.**	**Z**	**P>z**	**[95%Conf.**	**Interval]**
D_rwa	_ce1						
	L1.	-0.2141865	0.203761	-1.05	0.293	-0.6135506	0.1851776
	rwa						
	LD.	-0.1016647	0.3030695	-0.5	0.617	-0.75567	0.4423406
	L2D.	-0.0660814	0.2705228	-0.24	0.807	-0.5962964	0.4641335
	rsd						
	LD.	18.7578	49.66445	0.38	0.706	-78.58273	116.0983
	L2D.	-29.13324	31.42362	-0.93	0.354	-90.7224	32.45592

D_rwa	roa						
	LD.	0.1100881	1.126665	0.1	0.922	-2.098135	2.318311
	L2D.	1.004553	1.735191	0.58	0.563	-2.39636	4.405466
	lr						
	LD.	0.1310259	0.1362061	0.96	0.336	-0.1359333	0.397985
	L2D.	-0.1487821	0.1485451	-1	0.317	-0.4399251	0.1423609
	_cons	0.051014	0.3984386	0.13	0.898	-0.7299113	0.8319392

Johansen normalization restrictions imposed						
Beta	**Coef.**	**Std. Err.**	**Z**	**P>z**	**[95% Conf.**	**Interval]**
_ce1						
rwa	1	.	.	.	.	.
rsd	58.81828	20.61464	2.85	0.004	18.41434	99.22222
roa	2.547889	1.738025	1.47	0.143	-0.81858	5.954356
lr	-0.51276	0.133284	-3.85	0	-0.77399	-0.25152
_cons	-2.40195	.	.	.	.	.

The model indicates that the constant is significant at a 10% confidence level. No lagged values of the variables are statistically significant.

Therefore, the ultimate model cannot be determined. So, we cannot reject the H_{o2} meaning that the rescheduled loan has no impact on risk-weighted assets in the long-run. Mentionable, the coefficient of cointegration (ce_1) is also not statistically significant and the value is not negative. Therefore, it can be concluded that there is no long-run causality between the dependent and independent variables. The results of the short-run causality test as presented in Table 4.17 indicate that there are short-run causalities of this model. The probabilities of the post-estimation test are positive and less than 0.05 value(s) (except ROA) which signify short-run causality running from the independent variables individually and altogether (Detailed in Appendix VIII-B).

Table 4.17: Short-Run Causality Test for the VECM of the RWA

Variables	**prob>chi^2**
RWA	0.000
RSD	0.038
ROA	0.070
LR	0.001
Altogether	0.000

In summary, it can be described that there is no statistically signified relationship between rescheduled loans and risk-weighted assets although there is short-run causality of it.

4.7.3 Model specification for the analysis of the effectiveness of rescheduled loans on expenditure-income ratios

4.7.3.1 Lag selection criteria for the expenditure-income ratios to rescheduled loans

Firstly, the lag selection criteria were done to specify the model. The AIC, HQIC values in Table 4.18 suggest that appropriate length of lag should be 3 for this study.

Table 4.18: Lag Selection Criteria for the EIR Model

lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-30.2377	24.849			.000432	3.60397	3.26376	3.8028*
1	-17.8133	22.912	16	0.073	.000662	3.98035	4.1486	4.9745
2	-6.35718	63.014*	16	0.116	.00141	4.45865	4.7615	6.24811
3	25.15		16	0.000	.000674	2.82631*	3.26376*	5.41109
4			16		5.7e-34*			
Endogenous: drwa, drsd, droa, dlr Exogenous: _cons								

4.7.3.2 Cointegration test for expenditure-income ratios to rescheduled loans

Table 4.19 shows the results of Johansen's co-integration test. The trace statistics is less than the critical value only at rank 2. That means there is co-integration in the data set. Hence, VECM is applicable.

Table 4.19: Cointegration Test Result for the EIR Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	36	-21.3246	.	108.0926	47.21
1	43	17.20471	0.97451	31.034	29.68
2	48	26.86738	0.60158	11.7087*	15.41
3	51	31.70087	0.36893	2.0417	3.76
4	52	32.72171	0.09265		

4.7.3.3 Equation set-up for the expenditure-income ratios to rescheduled loans

Thus the VECM equations will be

$$\Delta eir = \alpha + \sum_{i=1}^{k=1}(\beta_i \Delta eir_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_1 ECT_{t-1} + u_{1t} \quad ----- (3.1)$$

$$\Delta rsd = \xi + \sum_{i=1}^{k=1}(\beta_i \Delta eir_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_2 ECT_{t-1} + u_{2t} \quad ----- (3.2)$$

$$\Delta roa = \gamma + \sum_{i=1}^{k=1}(\beta_i \Delta eir_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_3 ECT_{t-1} + u_{3t} \quad ----- (3.3)$$

$$\Delta lr = \theta + \sum_{i=1}^{k=1}(\beta_i \Delta eir_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_4 ECT_{t-1} + u_{4t} \quad ----- (3.4)$$

Here,

- α,ξ, γ, θ are the constant term
- β, δ, φ, μ are the short-run coefficients of eir, rsd, roa, and lr
- t,i, j, m, n=1,2,---------n
- u_t is the vector of impulses
- η is the coefficient of error correction term (ECT)

4.7.3.4 VECM estimation of the effectiveness of rescheduled loans on expenditure-income ratios

Finally, VECM estimation is done by using time series data from 1997 to 2021. The number of co-integration equations is 2 (from the Johansen tests for cointegration) and the maximum lag used is 3 for the VECM. The results of the VECM are shown in Table 4.20. The R Square of all the lagged variables is statistically significant except equation 3.1 (R Square 32.02% and p-value 0.962). The equation parameters of equations 3.2, 3.3, and 3.4 are statistically significant but equation 3.1 is not statistically significant. As the aim of this study is to find out the relationship between rescheduled loans and with expenditure-income ratio, equation 3.1 has been specified here.

Table 4.20: VECM Results of the Effectiveness of Rescheduled Loans on the Expenditure-Income Ratios

Sample: 2000 – 2021		Number of obs	=	22	
		AIC	=	2.012631	
Log likelihood = 26.86738		HQIC	=	2.530775	
Det (Sigma_ml) = 9.10e-07		SBIC	=	4.400111	

Equation	**Parms**	**RMSE**	**R-sq**	**chi2**	**P>chi2**
D_eir	11	5.5087	0.3202	4.23868	0.9624
D_rsd	11	0.0116	0.7412	25.77982	0.007
D_roa	11	0.218766	0.7878	33.40437	0.0005
D_lr	11	1.84103	0.7881	33.46857	0.0004

		Coef.	**Std. Err.**	**Z**	**P>z**	**[95%Conf.**	**Interval]**
D_eir	_ce1						
	L1.	-0.2799257	0.2782093	-1.01	0.314	-0.8252059	0.2653546
	_ce2						
	L1.	84.45516	95.05749	0.89	0.374	-101.8541	270.7644
	eir						
	LD.	-0.0221228	0.7476515	-0.03	0.976	-1.487493	1.443247
	L2D.	0.4243079	0.6374441	0.67	0.506	-0.8250597	1.673675
	rsd						
	LD.	28.52998	194.9705	0.10	0.884	-353.6051	410.6651
	L2D.	-20.31171	157.8564	-0.13	0.898	-329.7046	289.0812
	roa						
	LD.	-8.462523	6.298145	-1.34	0.179	-20.80666	3.881614
	L2D.	0.1138874	9.225463	0.02	0.986	-17.91769	18.24546
	lr						
	LD.	-0.06624	0.643831	-0.1	0.918	-1.328126	1.195646

Johansen normalization restrictions imposed

Beta	**Coef.**	**Std. Err.**	**Z**	**P>z**	**[95% Conf.**	**Interval]**
_ce1						
Rwa	1	.	.	.	.	.
Rsd	0	(omitted)				
Roa	14.1252	17.32197	0.82	0.415	-19.8252	48.07563
Lr	-5.54384	1.854034	-2.99	0.003	-9.17768	-1.91
_cons	29.16769	.	.	.	.	.
_ce2						
Rwa	0	(omitted)				0
Rsd	1	.	.	.	.	1
Roa	0.097783	0.04658	2.1	0.036	0.006489	0.097783
Lr	-0.01812	0.004986	-3.63	0	-0.02789	-0.01812
_cons	0.275182	.	.	.	.	0.275182

The model indicates that the constant is not statistically significant at a 1% or 5% or 10% confidence level. At the same time, no lagged values of the variables are statistically significant. Therefore, the ultimate model cannot be determined. So, we cannot reject the H_{03} meaning that the rescheduled loan has no impact on the expenditure-income ratio in the long-run. Mentionable that the coefficient of cointegration (ce_1) is also not statistically significant though the value is negative. Therefore, it can be concluded that there is no long-run causality between the dependent and independent variables.

The results of the short-run causality test as presented in Table 4.21 indicate that there are short-run causalities of this model. The probabilities of the post-estimation test are positive and less 0.05 value(s) referring to short-run causality running from the independent variables individually and altogether (Detailed in Appendix VIII-C).

Table 4.21: Short-Run Causality Test for the VECM of the EIR

Variables	**prob>chi^2**
EIR	0.000
RSD	0.000
ROA	0.000
LR	0.000
Altogether	0.000

In summary, it can be described that there is no statistically signified relationship between rescheduled loans and the expenditure-income ratio although there is short-run causality of it.

4.7.4 Model specification for the analysis of the effectiveness of rescheduled loans on the return on assets

4.7.4.1 Lag selection criteria for return on assets to rescheduled loans

Firstly, the lag selection criteria were done to specify the model. The LR, AIC, HQIC, SBIC values in Table 4.22 suggest that appropriate length of lag should be 3 for this study.

Table 4.22: Lag Selection Criteria for the ROA Model

lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-50.475				.002729	5.4475	5.48637	5.64665
1	-16.7479	67.454	16	0.000	.000484	3.67479	3.86917	4.67052
2	3.50682	40.509	16	0.001	.0004	3.24932	3.5992	5.04164
3	31.4309	55.848*	16	0.000	.00025	2.05691*	2.56229*	4.64582*
4			16		2.2e-22*			
Endogenous: droa, drsd, droe, dlr Exogenous: _cons								

4.7.4.2 Cointegration test for return on assets to rescheduled loans

Table 4.23 shows the results of Johansen's co-integration test. The trace statistics is less than the critical value only at rank 1. That means there is co-integration in the data set. Hence, VECM is applicable.

Table 4.23: Cointegration Test Result for the ROA Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	36	-23.537476	.	52.1369	47.21
1	43	-7.463041	0.7996	19.9880*	29.68
2	48	-2.401601	0.39718	9.8651	15.41
3	51	1.1449702	0.29859	2.772	3.76
4	52	2.5309664	0.12942		

4.7.4.3 Equation set-up for return on assets to rescheduled loans

Thus, the VECM equations will be

$$\Delta roa = \alpha + \sum_{i=1}^{k=1}(\beta_i \Delta roa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roe_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_1 ECT_{t-1} + u_{1t} \quad -----(4.1)$$

$$\Delta rsd = \xi + \sum_{i=1}^{k=1}(\beta_i \Delta roa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roe_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_2 ECT_{t-1} + u_{2t} \quad -----(4.2)$$

$$\Delta roe = \gamma + \sum_{i=1}^{k=1}(\beta_i \Delta roa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roe_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_3 ECT_{t-1} + u_{3t} \quad -----(4.3)$$

$$\Delta lr = \theta + \sum_{i=1}^{k=1}(\beta_i \Delta roa_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roe_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_4 ECT_{t-1} + u_{4t} \quad -----(4.4)$$

Here,

- α,ξ, γ, θ are the constant term
- β, δ, φ, μ are the short-run coefficients of roa, rsd, roe, and lr
- t,i, j, m, n=1,2,---------n
- u_t is the vector of impulses
- η is the coefficient of error correction term (ECT)

4.7.4.4 VECM estimation of the effectiveness of rescheduled loans on return on assets

Finally, VECM estimation is done by using time series data from 1997 to 2021. The number of co-integration equations is 1 and the maximum lag used is 3 for the VECM. The results of the VECM are shown in Table 4.24. The equation parameters of equation 4.2 and 4.4 are statistically significant but the equations 4.1 and 4.3 are not statistically significant. As the aim of this study is to find out the relationship between rescheduled loans and return on assets, equation 4.1 has been specified here.

Table 4.24: VECM Results of the Effectiveness of Rescheduled Loans on Return on Assets

Sample: 2001 – 2020			Number of obs		=	21
			AIC		=	4.146549
Log likelihood = -.5387608			HQIC		=	4.61072
Det(Sigma_ml) = .0000124			SBIC		=	6.28533

Equation	**Parms**	**RMSE**	**R-sq**	**chi2**	**P>chi2**
D_roa	10	0.343948	0.4229	8.060771	0.6229
D_rsd	10	0.013417	0.6192	17.88486	0.0569
D_roe	10	5.12072	0.4435	8.768045	0.5542
D_lr	10	2.43397	0.5925	15.99702	0.0997

		Coef.	**Std. Err.**	**z**	**P>z**	**[95%Conf.**	**Interval]**
D_roa	_ce1						
	L1.	-0.48212	0.40845	-1.18	0.238	-1.28267	0.318424
	roa						
	LD.	0.4085	0.571932	0.71	0.475	-0.71247	1.529467
	L2D.	-1.64404	0.770293	-2.13	0.033	-3.15379	-0.13429
	rsd						
	LD.	-21.3153	10.59088	-2.01	0.044	-42.073	-0.55752
	L2D.	16.6008	10.48957	1.58	0.114	-3.95839	37.15998
	roe						
	LD.	-0.0571	0.047875	-1.19	0.233	-0.10093	0.036735
	L2D.	0.04229	0.036493	1.16	0.247	-0.02924	0.113816
	lr						
	LD.	-0.0455	0.032886	-1.38	0.117	-0.10995	0.018958
	L2D.	0.008076	0.032923	0.25	0.806	-0.05645	0.072604
	_cons	-0.02296	0.089513	-0.26	0.798	-0.1984	0.102484

Johansen normalization restrictions imposed						
beta	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
_ce1						
roa	1	.	.	.	.	.
rsd	-1.95109	1.798825	-1.08	.278	-5.476723	1.574539
roe	-0.1454	0.015839	-9.18	0.000	0.186408	-0.1143583
lr	0.025127	0.014174	1.77	0.076	-0.01018	0.052906
_cons	0.367524	.	.	.	.	.

The model implies that the constant is not statistically significant having a p-value of 0.798. Only the coefficient of lag_2 of roa and lag_1 of rsd is statistically significant. Coefficient ce_1 is negative but not statistically significant (p-value >0.05).

Therefore, the ultimate model will be:

$$\mathbf{ROA_t=-1.64404ROA_{t-2}-21.3153RSD_{t-1}+u_{t-i}}\text{----------}(4.5)$$

From this model, it is clear that only lag_1 of rescheduled loans has a negative impact on non-performing loans. So, we can reject the H_{o4} but the rescheduled loan hurts the return on asset which is the inverse of H_{a4} as it was expected, the rescheduled loan has a positive impact on the return on asset. These may be for the rescheduled loan or the blockage of the bank fund flow in the long-run. As evident from Table 4.24, coefficient ce_1 is negative but not statistically significant suggesting that the previous year's error (or deviation from the long-run equation) is not corrected for within the current year at a specific convergent speed. Therefore, it cannot determine the long-run causality between the dependent and independent variables. The results of the short-run causality test as presented in Table 4.25 indicate that there are short-run causalities in this model. The probabilities of the post-estimation test are positive and less than 0.05 value(s) signifying short-run causality running from the independent variables individually and altogether.

Table 4.25: Short-Run Causality Test for the VECM of the ROA

Variables	**prob>chi^2**
ROA	0.000
RSD	0.010
ROE	0.050
LR	0.048
Altogether	0.000

Altogether, we can summarize the results of this model in Table 4.26.

Table 4.26: Interpretation from the VECM for the ROA

Significance of equation	rsd (at 10%), lr (at 10%) significant, but roa (62%) and roe (55%) are insignificant	
For equation 4.1 (Δroa)	**Coefficient**	**Significance**
Roa	-1.64 (lag2)	at 5%
Rsd	-21.32 (lag1)	at 5%
Roe	Insignificant	
Lr	Insignificant	
Cons	Insignificant	
ECT	Insignificant	
β is properly identified as Johansen normalization restriction-imposed probability is positive		

4.7.4.5 VECM diagnostic of the effectiveness of rescheduled loans on return on assets

The VECM was diagnosed, and summarized results are described in Table 4.27 (details in Appendix VIII-D). From the Lagrange-multiplier test, it is observed that the p-value is greater than 0.05 which implies no serial correlation in the model. From the Jarque-Bera normality test, all the p-values are found to be greater than 0.05, which indicates that the model is normally distributed.

Table 4.27: Diagnostics: VECM for the ROA

Test	**Prob>chi2**	**Result**	**Decision**
Short-run causality tests	0.000 where chi2 (8) are 40.51, 30.99, 15.62, 27.98 and chi2 (32) is 86.44	All the variables individually and altogether have the probability of greater than 0.	There is short-run causality.
Autocorrelation Test (Lagrange-multiplier test)	Lag (1)= 0.769 Lag (2)= 0.408	all probability is greater than 0.05	No autocorrelation at lag order
Normality Test (Jarque-Bera test)	D_roa=0.921 D_rsd=0.485 D_roe=0.068 D_lr=0.782 All=0.487	probability of all variables is greater than 0.05	Model is normally distributed
Eigenvalue stability condition			The VECM specification imposes 3-unit moduli.

In the Eigenvalue stability condition, the VECM specification imposes a 3-unit moduli (shown in Figure 4.30).

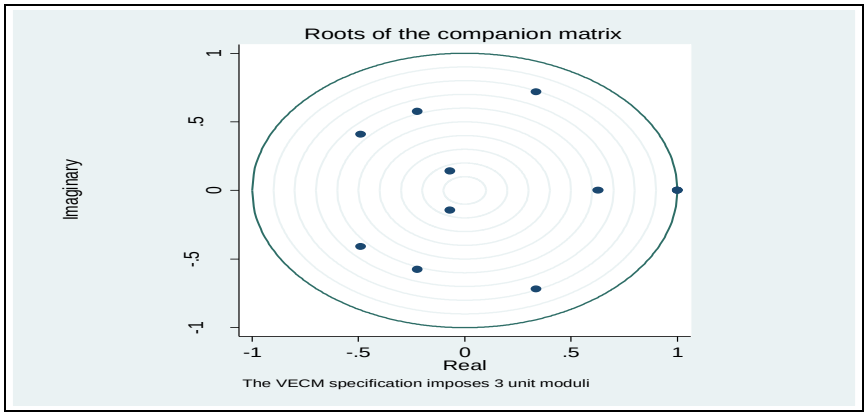


Figure 4.30: Eigen Value Stability Condition for the VECM of the ROA

4.7.5 Model specification for the analysis of the effectiveness of rescheduled loans on return on equity

4.7.5.1 Lag Selection Criteria for Return on Equity to Rescheduled Loan

Firstly, the lag selection criteria were done to specify the model. The AIC and HQIC values in Table 4.28 suggest that the appropriate length of lag should be 3 for this study.

Table 4.28: Lag Selection Criteria for the ROE Model

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-34.3645				.000677	4.03837	4.07202	4.2372*
1	-18.7384	31.252	16	0.012	.00073	4.07773	4.24597	5.07187
2	-.21965	37.037	16	0.002	.000739	3.81259	4.11544	5.60206
3	19.3031	39.046*	16	0.001	.001246	3.44178*	3.87922*	6.02656*
4			16		2.3e-34*			
Endogenous: droe, drsd, droa, dlr Exogenous: _cons								

4.7.5.2 Cointegration Test for Return on Equity to Rescheduled Loans

Table 4.29 shows the results of Johansen's co-integration test. The trace statistics is less than the critical value only at rank 1. That means there is co-integration in the data set. Hence, the VECM is applicable.

Table 4.29: Cointegration Test Result for the ROE Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	36	-23.537476	.	52.1369	47.21
1	43	-7.463041	0.7996	19.9880*	29.68
2	48	-2.401601	0.39718	9.8651	15.41
3	51	1.1449702	0.29859	2.772	3.76
4	52	2.5309664	0.12942		

4.7.5.3 Equation set-up for return on equity to rescheduled loans

Thus the VECM equations will be

$$\Delta roe = \alpha + \sum_{i=1}^{k=1}(\beta_i \Delta roe_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_1 ECT_{t-1} + u_{1t} \quad ----- \quad (5.1)$$

$$\Delta rsd = \xi + \sum_{i=1}^{k=1}(\beta_i \Delta roe_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_2 ECT_{t-1} + u_{2t} \quad ----- \quad (5.2)$$

$$\Delta roa = \gamma + \sum_{i=1}^{k=1}(\beta_i \Delta roe_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_3 ECT_{t-1} + u_{3t} \quad ----- \quad (5.3)$$

$$\Delta lr = \theta + \sum_{i=1}^{k=1}(\beta_i \Delta roe_{t-i}) + \sum_{j=1}^{k=1}(\delta_j \Delta rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m \Delta roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n \Delta lr_{t-n}) + \eta_4 ECT_{t-1} + u_{4t} \quad ----- \quad (5.4)$$

Here,

- α,ξ, γ, θ are the constant term
- β, δ, φ, μ are the short-run coefficients of roa, rsd, roe, and lr
- t,i, j, m, n=1,2,---------n
- u_t is the vector of impulses
- η is the coefficient of error correction term (ECT)

4.7.5.4 VECM estimation of the effectiveness of rescheduled loans on return on equity

Finally, VECM estimation is done by using time series data from 1997 to 2021. The number of co-integration equations is 1 (from the Johansen tests for cointegration) and the maximum lag used is 3 for the VECM. The results of the VECM are shown in Table 4.30. The equation parameters of equations 5.2 and 5.4 are statistically significant but equations 5.1 and 5.3 are not statistically significant. As the aim of this study is to find out the relationship between rescheduled loans with return on assets, equation 5.1 has been specified here.

Table 4.30: VECM Results of the Effectiveness of Rescheduled Loans on Return on Equity

Sample: 2001 – 2021		Number of obs		=	22
		AIC		=	4.146549
Log likelihood = -.5387608		HQIC		=	4.61072
Det(Sigma_ml) = .0000124		SBIC		=	6.285333

Equation	**Parms**	**RMSE**	**R-sq**	**chi2**	**P>chi2**
D_roe	10	5.12072	0.4435	8.768045	0.5542
D_rsd	10	0.013417	0.6192	17.88486	0.0569
D_roa	10	0.343948	0.4229	8.060771	0.6229
D_lr	10	2.43397	0.5925	15.99702	0.0997

		Coef.	**Std. Err.**	**z**	**P>z**	**[95%Conf.**	**Interval]**
D_roe	_ce1						
	L1.	-0.2612307	0.8841894	-0.3	0.768	-1.99421	1.471749
	roe						
	LD.	-0.8602679	0.7127685	-1.21	0.227	-2.257269	0.5367327
	L2D.	0.0295909	0.5433145	0.05	0.957	-1.035286	1.094468
	rsd						
	LD.	-325.0436	157.6773	-2.06	0.039	-634.0855	-16.00171
	L2D.	79.05381	156.1691	0.51	0.613	-227.032	385.1396
	roa						
	LD.	11.26228	8.514948	1.32	0.186	-5.426708	27.95127
	L2D.	-11.34451	11.46815	-0.99	0.323	-33.82167	11.13266
	lr						
	LD.	-0.321987	0.4896025	-0.66	0.511	-1.28159	0.6376163
	L2D.	-0.082173	0.4901618	-0.17	0.867	-1.042873	0.8785265
	_cons	-0.9830883	1.332669	-0.75	0.461	-3.595072	1.628895

Johansen normalization restrictions imposed						
Beta	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
_ce1						
roe	1	.	.	.	.	.
rsd	13.41866	12.17726	1.10	.270	-10.44833	37.28565
roa	-6.877512	1.106319	-6.22	0.000	-9.045857	-4.70917
lr	-.1728081	.0942057	-1.83	0.067	-0.3574478	0.011832
_cons	-2.527652	.	.	.	.	.

The model indicates that the constant is not statistically significant having a p-value of 0.461. Only the coefficient of lag_1 of rsd is statistically significant. Coefficient ce_1 is negative but not statistically significant (p-value >0.05). Therefore, the ultimate model will be:

$$\mathbf{ROE_t = -325.0436RSD_{t-1} + u_{t-i}} \text{---------- (5.5)}$$

From this model, it is clear that only lag_1 of rescheduled loans has a negative impact on return on equity. So, we can reject the H_{o5} but the rescheduled loan hurts the return on equity which is the inverse of H_{a5} as it was expected rescheduled loan has a positive impact on the return on equity. These may be for the rescheduled loan, the fund flow of the bank blockage for the long-run which impacts the equity of the banks. As evident from Table 4.30 coefficient ce_1 is negative but not statistically significant suggesting that the previous year's error (or deviation from the long-run equation) is not corrected for within the current year at a specific convergent speed. Therefore, it can be concluded that it cannot determine the long-run causality between the dependent and independent variables.

The results of the short-run causality test as presented in Table 4.31 indicate that there are short-run causalities of this model. The probabilities of the post-estimation test are positive and less than 0.05 value(s) signifying short-run causality running from the independent variables individually and altogether.

Table 4.31: Short-Run Causality Test for the VECM of the ROE

Variables	**prob>chi^2**
ROE	0.005
RSD	0.001
ROA	0.000
LR	0.048
Altogether	0.000

Altogether, we can summarize the results of this model in Table 4.32.

Table 4.32: Interpretation from the VECM for the ROE

Significance of equation	rsd (at 10%), lr (at 10%) significant, but roa (62%) and roe (55%) are insignificant	
For equation 5.1 (Δroe)	**Coefficient**	**Significance**
Roe	Insignificant	
Rsd	-325.04(lag1)	at 5%
Roe	Insignificant	
Lr	Insignificant	
Cons_	Insignificant	
ECT	Insignificant	
β is properly identified as Johansen normalization restriction imposed probability is positive		

4.7.5.5 VECM diagnostic of the effectiveness of rescheduled loans on return on equity

The VECM was diagnosed, and summarized results are described in Table 4.33 (details in Appendix VIII-E). From the Lagrange-multiplier test, it is observed that the p-value is greater than 0.05 which implies no serial correlation in the model. From the Jarque-Bera normality test, all the p-values are found to be greater than 0.05, which indicates that the model is normally distributed.

Table 4.33: Diagnostics- VECM for the ROE

Test	**Prob>chi2**	**Result**	**Decision**
Short-run causality tests	0.000 where chi2 (8) are 15.62, 27.98, 30.99, 40.51 and chi2 (32) is 86.44	All the variables individually and altogether have the probability of greater than 0.	There is short-run causality.
Autocorrelation Test (Lagrange-multiplier test)	Lag (1)= 0.769 Lag (2)= 0.408	all probability is greater than 0.05	No autocorrelation at lag order
Normality Test (Jarque-Bera test)	D_roe=0.752 D_rsd=0.281 D_roe=0.018 D_lr=0.963 All=0.145	probability of all variables is greater than 0.05	Model is normally distributed
Eigenvalue stability condition			The VECM specification imposes 3-unit moduli.

In the Eigenvalue stability condition, the VECM specification imposes 3-unit moduli (shown in Figure 4.31).

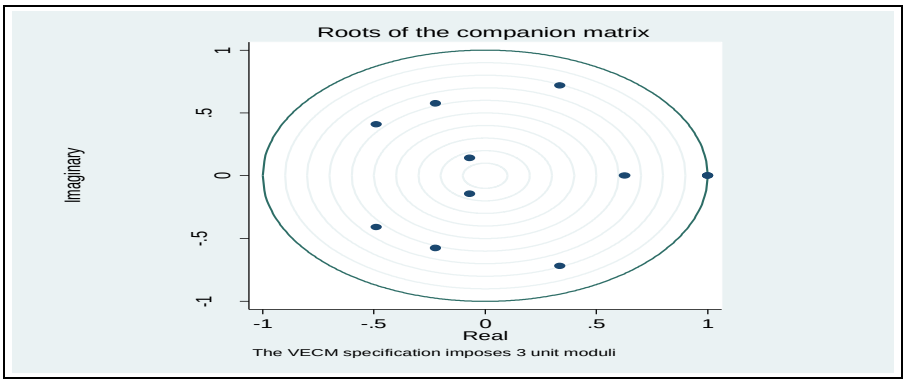


Figure 4.31: Eigen Value Stability Condition for the VECM of the ROE

4.7.6 Model specification for the analysis of the effectiveness of rescheduled loans on net interest margins

4.7.6.1 Lag Selection Criteria for Net Interest Margins to Rescheduled Loans

Firstly, the lag selection criteria were done to specify the model. The AIC, HQIC values in Table 4.34 suggest that appropriate length of lag should be 1 for this study.

Table 4.34: Lag Selection Criteria for the NIM Model

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-11.5375				.00006	1.63552	1.66917	1.83435*
1	7.03792	37.156*	16	0.002	.000048	1.36443*	1.53268*	2.35858
2	14.4041	14.732	16	0.544	.000159	2.27326	2.57611	4.06272
3	25.7571	22.706	16	0.122	.000632	2.76241	3.19986	5.34719*
4			16		2.8e-35*			
Endogenous: dnim, drsd, droa, dlr Exogenous: _cons								

4.7.6.2 Cointegration Test for Net Interest Margins to Rescheduled Loans

Table 4.35 shows the results of Johansen's co-integration test. The trace statistics is less than the critical value only at rank 0. That means there is no co-integration in the data set. Hence, VAR model is applicable.

Table 4.35: Cointegration Test Result for the NIM Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	4	-10.804251	.	29.1219*	47.21
1	11	-4.4448495	0.42527	16.3831	29.68
2	16	0.21992629	0.33345	7.0536	15.41
3	19	2.6620986	0.19133	2.1692	3.76
4	20	3.7467043	0.09		

4.7.6.3 Equation set-up for net interest margins to rescheduled loans

Thus the VAR equations will be

$$nim = \alpha + \sum_{i=1}^{k=1}(\beta_i nim_{t-i}) + \sum_{j=1}^{k=1}(\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n lr_{t-n}) + u_{1t} - - - - - (6.1)$$

$$rsd = \xi + \sum_{i=1}^{k=1}(\beta_i nim_{t-i}) + \sum_{j=1}^{k=1}(\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n lr_{t-n}) + u_{2t} - - - - - (6.2)$$

$$roa = \gamma + \sum_{i=1}^{k=1}(\beta_i nim_{t-i}) + \sum_{j=1}^{k=1}(\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n lr_{t-n}) + u_{3t} - - - - - (6.3)$$

$$lr = \theta + \sum_{i=1}^{k=1}(\beta_i nim_{t-i}) + \sum_{j=1}^{k=1}(\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1}(\varphi_m roa_{t-m}) + \sum_{n=1}^{k=1}(\mu_n lr_{t-n}) + u_{4t} - - - - - (6.4)$$

Here,

- α,ξ, γ, θ are the constant term
- β, δ, φ, μ are the short-run coefficients of nim, rsd, roa, and lr
- t,i, j, m, n=1,2,---------n
- u_t is the vector of impulses

4.7.6.4 VAR Estimation of the Effectiveness of Rescheduled Loans on Net Interest Margins

Finally, VAR estimation is done by using time series data from 1997 to 2021. The maximum lag used is 1 for the VAR model. The results of the VAR model are shown in Table 4.36. The equation parameters of all equations are statistically significant. As the aim of this study is to find out the relationship between rescheduled loans with return on assets, equation 6.1 has been specified here.

Table 4.36: VAR Results of Effectiveness of Rescheduled Loans on Net Interest Margins

Sample: 1998 – 2021				Number of obs		=	24
Log likelihood = 3.746704				AIC		=	1.41333
FPE = .0000497				HQIC		=	1.661655
Det (Sigma_ml) = 8.48e-06				SBIC		=	2.400716
Equation	**Parms**	**RMSE**	**R-sq**	**chi2**	**P>chi2**		
nim	5	0.45293	0.8228	106.7606	0		
rsd	5	0.014691	0.866	148.5966	0		
roa	5	0.279081	0.6445	41.7062	0		
lr	5	2.73015	0.5278	25.71161	0		

		Coef.	**Std. Err.**	**z**	**P>z**	**[95%Conf.**	**Interval]**
nim	nim						
	L1.	0.5880375	0.1189639	3.48	0.001	.2568743	.9192007
	rsd						
	L1.	-6.680844	4.989833	-1.34	0.181	-16.46074	3.099049
	roa						
	L1.	0.3363003	0.2505468	1.34	0.18	-.1547624	.827363
	Lr						
	L1.	0.0185933	0.024007	0.77	0.439	-.0284595	.0656462
	_cons	0.6040916	0.9058929	0.67	0.505	-1.171426	2.379609

The model indicates that the constant is not statistically significant having a p-value of 0.505. Only the coefficient of lag_1 of nim is statistically significant. So, the ultimate model will be:

$$\mathbf{NIM_t = 0.5880375NIM_{t-1} + u_{t-i}} \text{---------- (6.5)}$$

The model indicates that the constant is not statistically significant at a tolerable confidence level. At the same time, no lagged values except lag_1 of NIM of the variables are statistically significant. So, we can reject the H_{o6} meaning that rescheduled loan has no impact on net interest margin. Therefore, it can be concluded that there is no long-run causality between the dependent and independent variables.

The results of the short-run causality test as presented in Table 4.37 indicate that there are short-run causalities of this model. The probabilities of the post-estimation test are positive and less than 0.05 value(s) referring to short-run causality running from the independent variables individually and altogether.

Table 4.37: Short-Run Causality Test for the VAR Model of the NIM

Variables	**prob>chi^2**
NIM	0.00%
RSD	0.00%
ROA	0.00%
LR	0.00%
Altogether	0.00%

In summary, it can be described that there is no statistically signified relationship between rescheduled loans and net interest margin although there is short-run causality of it. Altogether, we can summarize the results of this model in Table 4.38.

Table 4.38: Interpretation from the VAR Model for the NIM

Significance of equation	nim, rsd, roa and lr are significant at 1%	
For equation 6.1 (nim)	**Coefficient**	**Significance**
NIM	-0.59 (lag1)	at 1%
RSD	Insignificant	
ROA	Insignificant	
LR	Insignificant	
Cons	Insignificant	

4.7.6.5 Impulse response functions of the VAR model for the net interest margin

Figure 4.32 shows the Impulse Response Function (IRF) of the VAR model which infers that all the values of the functions of lr to nim; lr to roa; lr to rsd; nim to lr; roa to lr; and rsd to lr move around zero. The response of lr to lr; rsd to rsd; roa to roa; and nim to nim moves positively for the first two lags but moves steadily after these two lags. The response of nim to roa; rsd to nim; rsd to roa; and roa to rsd move around zero but move flatter after two lags. In summary, a steady RSD divergence for a specific variable for LR in the IRF suggests a more stable or consistent response of that variable to shocks compared to others.

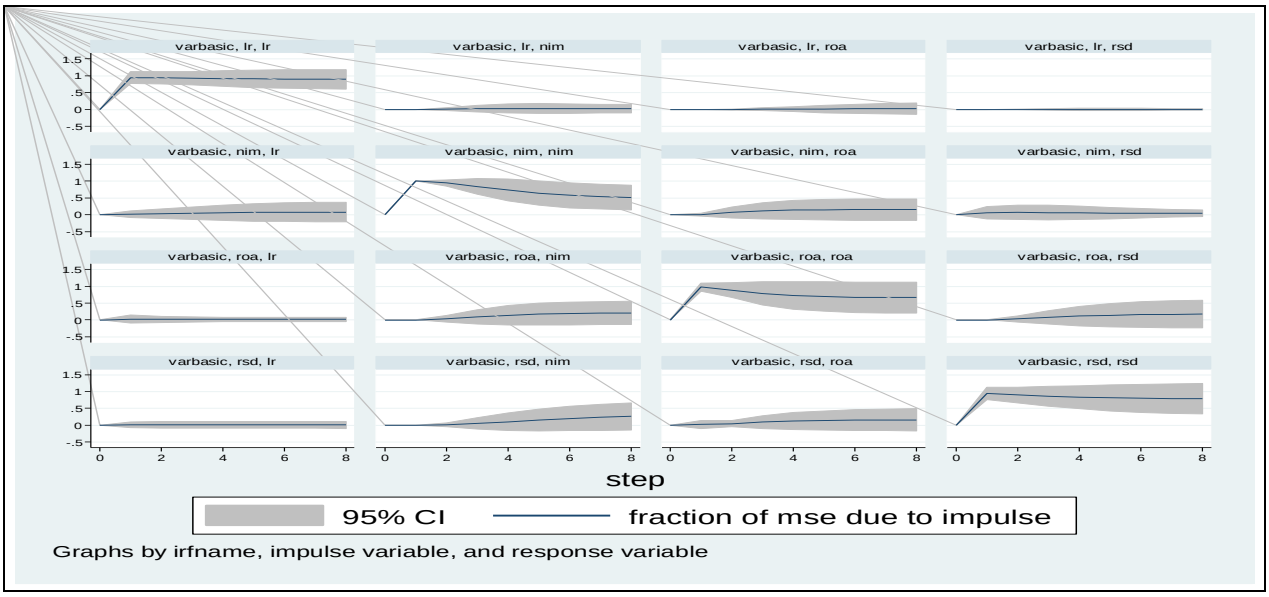


Figure 4.32: Impulse Response Functions for the VAR Model of the NIM

4.7.6.6 Variance decomposition functions of the VAR model for the net interest margin

Table 4.39 shows the Cholesky forcast-error variance decomposition of the VAR model which infers that all the values of the functions of nim to rsd start from 0.058 to 0.071 for the first two lags and move around 4% for the rest lags; nim to roa starts from 0.002 to 0.150 from the first lag to last lag; nim to lr starts from 0.017 to 0.078 from the first lag to last lag; rsd to nim starts from 0.013 to 0.262 from the second lag to last lag; rsd to roa starts from 0.022 to 0.160 of the first lag to last lag; rsd to lr starts from 0.011 to 0.012 from the first lag to last lag. It is also observed that all the values of the functions of roa to rsd start from 0.030 to 0.175 of the second lag to the last lag; roa to nim starts from 0.034 to 0.207 of the second lag to the last lag; roa to lr starts from 0.025 to 0.014 from the first lag to last lag; lr to nim starts from 0.0096 to 0.022 of the second lag to last lag; lr to roa starts from 0.0008 to 0.024 of the second lag to last lag; lr to rsd starts from 0.0005 to 0.0014 of the first lag to last lag. In summary, a steady RSD divergence for a specific variable for NIM in the variance decomposition suggests a more stable or consistent response of that variable to shocks compared to others.

Table 4.39: Interpretation from the VAR Model for Variance Decomposition Function of the NIM

.

step	(1) fevd	(2) fevd	(3) fevd	(4) fevd	(5) fevd	(6) fevd
0	0	0	0	0	0	0
1	.058324	.002732	.017233	0	.022716	.011437
2	.070895	.066885	.028896	.012933	.04651	.012831
3	.064243	.115551	.043266	.050509	.091419	.012535
4	.053888	.139504	.056724	.103812	.12437	.012073
5	.046598	.148488	.066912	.157474	.143639	.011822
6	.042916	.150682	.073355	.202574	.153683	.011772
7	.041514	.150557	.07679	.237119	.158524	.011922
8	.041171	.150011	.078299	.262346	.160747	.012298

(1) irfname = varbasic, impulse = nim, and response = rsd

(2) irfname = varbasic, impulse = nim, and response = roa

(3) irfname = varbasic, impulse = nim, and response = lr

(4) irfname = varbasic, impulse = rsd, and response = nim

(5) irfname = varbasic, impulse = rsd, and response = roa

(6) irfname = varbasic, impulse = rsd, and response = lr

.

step	(1) fevd	(2) fevd	(3) fevd	(4) fevd	(5) fevd	(6) fevd
0	0	0	0	0	0	0
1	0	0	.025552	0	0	0
2	.030397	.034004	.017723	.009577	.000853	.000517
3	.074258	.089018	.015598	.020504	.004172	.001214
4	.112962	.139308	.015004	.026175	.009265	.001521
5	.140709	.173504	.014667	.026862	.014644	.001455
6	.158504	.193022	.014474	.025279	.019189	.001299
7	.169215	.202999	.014525	.023392	.022448	.001272
8	.17544	.207692	.014826	.022001	.024497	.001442

(1) irfname = varbasic, impulse = roa, and response = rsd

(2) irfname = varbasic, impulse = roa, and response = nim

(3) irfname = varbasic, impulse = roa, and response = lr

(4) irfname = varbasic, impulse = lr, and response = nim

(5) irfname = varbasic, impulse = lr, and response = roa

(6) irfname = varbasic, impulse = lr, and response = rsd

4.7.6.7 VAR model diagnostic of the effectiveness of the rescheduled loans on net interest margin

The VAR model is diagnosed, and summarized results are described in Table 4.40 (details in Appendix VIII-F). From the Lagrange-multiplier test, it is observed that the p-value is greater than 0.05 which implies no serial correlation in the model. From the Jarque-Bera normality test, all the p-values are found to be greater than 0.05, which indicates that the model is normally distributed. Wald lag exclusion statistics test satisfies the lag exclusion test as the probability of all variables is less than 0.05 (i.e. 0.00%).

Table 4.40: Diagnostics: VAR Model for the NIM

Test	Prob>chi2	Result	Decision
Short-run causality tests	0.000 where chi2 (4) are 18.57, 32.83, 19.61, 26.21 and chi2 (16) is 300.97	All the variables individually and altogether have the probability of greater than 0.	There is short-run causality.
Autocorrelation Test (Lagrange-multiplier test)	Lag (1)= 0.094 Lag (2)= 0.174	all probability is greater than 0.05	No autocorrelation at lag order
Normality Test (Jarque-Bera test)	nim=0.281 rsd=0.112 roa=0.937 lr=0.823 All=0.492	probability of all variables is greater than 0.05	Model is normally distributed
Eigenvalue stability condition			The VAR specification inside unit circle.
Wald Lag Exclusion Statistics Test		Most of the probability of all variables is greater than 0.05 (i.e 0.00)	Satisfies the lag exclusion test

In the Eigenvalue stability condition, all the eigenvalues lie inside the unit circle which satisfies the stability condition (shown in Figure 4.33).

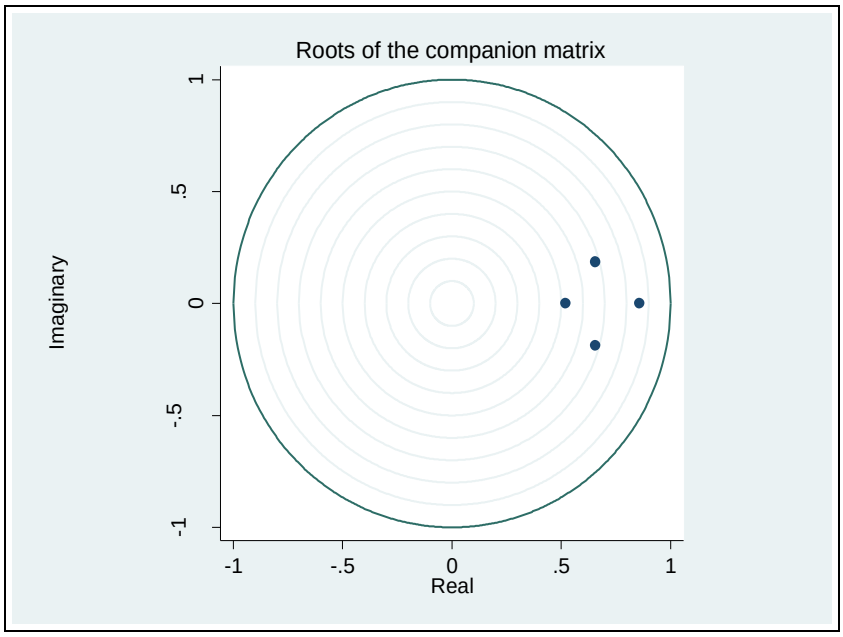


Figure 4.33: Eigen Value Stability Condition for the VAR Model of the NI**M**

4.7.7 Model specification for the analysis of the effectiveness of rescheduled loans on liquidity ratios

4.7.7.1 Lag selection criteria for liquidity ratios to rescheduled loans

Firstly, the lag selection criteria were done to specify the model. The AIC and HQIC values in Table 4.41 suggest that appropriate length of lag should be 1 for this study.

Table 4.41: Lag Selection Criteria for the LR Model

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	2.517				.0000211	.050842	.07608	.199964*
1	12.5584	20.083	9	0.017	.000193*	.058776*	.042174*	.537712
2	15.1676	5.2186	9	0.805	.000414	.613932	.790593	1.65779
3	19.714	9.0927	9	0.429	.000843	1.08274	1.33511	2.57396
4	32.8852	26.342*	9	0.002	.000955	.643662	.971748	2.58225
Endogenous: dlr, drsd, droa Exogenous: _cons								

4.7.7.2 Cointegration test for liquidity ratios to rescheduled loans

Table 4.42 shows the results of Johansen's co-integration test. The trace statistics are less than the critical value only at rank 0. That means there is no co-integration in the data set. Hence, VAR model is applicable.

Table 4.42: Cointegration Test Result for the LR Model

Maximum rank	Params	LL	Eigenvalue	Trace statistics	5% critical value
0	3	4.244288	.	13.7570*	29.68
1	8	8.204732	0.29135	5.8361	15.41
2	11	10.02838	0.14664	2.1888	3.76
3	12	11.12278	0.09078		
4	3	4.244288	.		

4.7.7.3 Equation set-up for liquidity ratios to rescheduled loans

Thus the VAR equations will be

$$lr = \alpha + \sum_{i=1}^{k=1} (\beta_i lr_{t-i}) + \sum_{j=1}^{k=1} (\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1} (\varphi_m roa_{t-m}) + u_{1t} \quad ----- (7.1)$$

$$rsl = \xi + \sum_{i=1}^{k=1} (\beta_i lr_{t-i}) + \sum_{j=1}^{k=1} (\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1} (\varphi_m roa_{t-m}) + u_{2t} \quad ----- (7.2)$$

$$roa = \gamma + \sum_{i=1}^{k=1} (\beta_i lr_{t-i}) + \sum_{j=1}^{k=1} (\delta_j rsd_{t-j}) + \sum_{m=1}^{k=1} (\varphi_m roa_{t-m}) + u_{3t} \quad ----- (7.3)$$

Here,

- α,ξ, γ are the constant term
- β, δ, φ are the short-run coefficients of nim, rsd, roa, and lr
- t,i, j, m=1,2,---------n
- u_t is the vector of impulses

4.7.7.4 VAR estimation of the effectiveness of rescheduled loans on liquidity ratios

Finally, VAR estimation is done by using time series data for the period of 1997-2021. The maximum lag used is 1 for the VAR model. The results of the VAR model are shown in Table 4.43. The equation parameters of all equations are statistically significant. As the aim of this study is to find out the relationship between the rescheduled loan and liquidity ratio, equation 7.1 has been specified here.

Table 4.43: VAR Results of Effectiveness of Rescheduled Loans on Liquidity Ratios

Sample: 1998 – 2021				Number of obs		=	24
Log likelihood = 11.12278				AIC		=	0.07628
FPE = .000219				HQIC		=	0.225275
Det(Sigma_ml) = .0000763				SBIC		=	0.668712
Equation Parms	**RMSE**	**R-sq**	**chi2**	**P>chi2**			
lr 4	2.65788	0.5276	25.69158	0			
rsd 4	0.014389	0.8643	146.442	0			
roa 4	0.31365	0.5261	25.53273	0			

		Coef.	**Std. Err.**	**Z**	**P>z**	**[95%Conf.**	**Interval]**
Lr	Lr						
	L1.	0.703989	0.1447376	4.86	0.000	.4203082	.987669
	Rsd						
	L1.	17.86603	16.39333	1.09	0.276	-14.26431	49.99638
	Roa						
	L1.	1.564666	1.46374	1.07	0.285	-1.304212	4.433545
	_cons	5.091525	3.945292	1.29	0.197	-2.641106	12.82416

The model indicates that the constant is not statistically significant having a p-value of 0.197. Only the coefficient of lag1 of lr is statistically significant. Therefore, the ultimate model will be:

$$\mathbf{LR_t = 0.703989 LR_{t-1} + u_{t-i}} \text{---------- (7.5)}$$

The model indicates that the constant is not statistically significant at a tolerable confidence level. At the same time, no lagged values except lag_1 of LR of the variables are statistically significant. So, we cannot reject the H_{o7} meaning that rescheduled loan has no impact on liquidity ratio. Mentionable, the model property was using the VAR model. Therefore, it can be concluded that there is no long-run causality between the dependent and independent variables.

The results of the short-run causality test as presented in Table 4.44 indicate that there are short-run causalities of this model. The probabilities of the post-estimation test are positive and less than 0.05 value(s) referring to short-run causality running from the independent variables individually and altogether.

Table 4.44: Short-Run Causality Test for the VAR Model of the LR

Variables	**prob>chi^2**
LR	0.000
RSD	0.000
ROA	0.000
Altogether	0.000

In summary, it can be described that there is no statistically signified relationship between the rescheduled loans and liquidity although there is short-run causality of it. Altogether we can summarize the results of this model in Table 4.45.

Table 4.45: Interpretation from the VAR Model for the LR

Significance of equation	lr, rsd, roa are significant at 1%	
For equation 7.1 (lr)	**Coefficient**	**Significance**
LR	0.70 (lag1)	at 1%
RSD	Insignificant	
ROA	Insignificant	
Cons	Insignificant	

7.4.7.5 Impulse response functions for theVAR Model of the liquidity ratios

Figure 4.34 shows the Impulse Response Function (IRF) of the VAR model which infers that all the values of the functions of lr to roa; lr to rsd; roa to lr, rsd to lr; and rsd to roa move around zero. The response of lr to lr; roa to roa; roa to roa; and rsd to rsd moves positively for the first two lags but moves steadily after these two lags. The response of roa to rsd moves around zero but moves more flat after two lags. In summary, a steady RSD divergence for a specific variable for LR in the IRF suggests a more stable or consistent response of that variable to shocks compared to others.

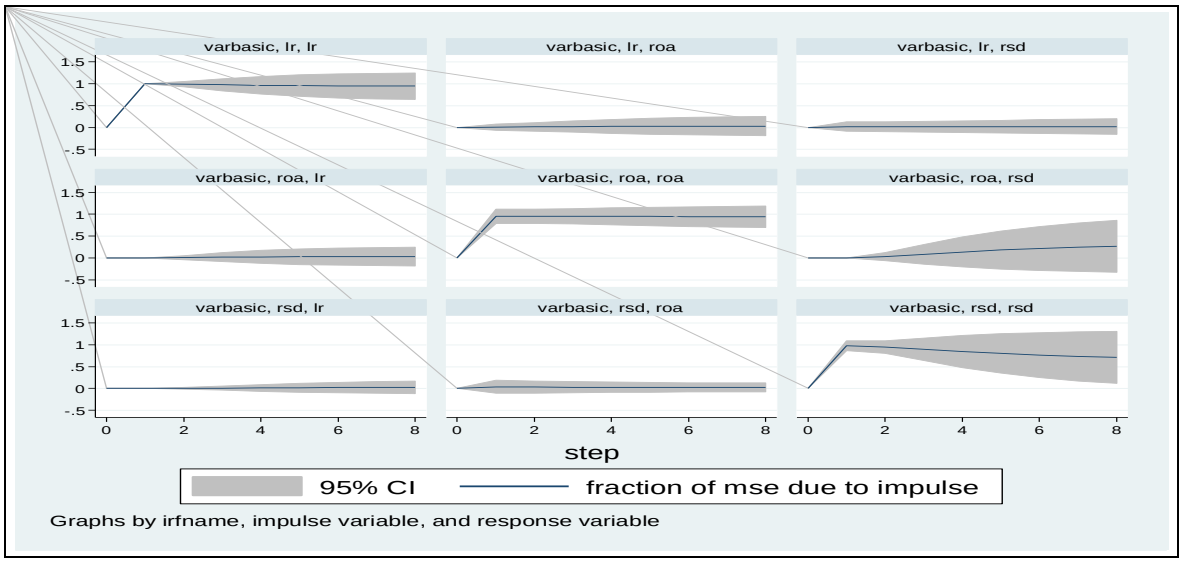


Figure 4.34: Impulse Response Functions for the VAR Model of the LR

4.7.7.6 Variance decomposition functions for theVAR Model of the liquidity ratios

Table 4.46 shows the Cholesky forecast-error variance decomposition of the VAR model which infers that all the values of the functions of lr to rsd start from 0.019 to 0.0203 from the first lag to last lag; lr to roa starts from 0.0076 to 0.0286 of the first lag to last lag; rsd to lr starts from 0.003 to 0.024 of the second lag to last lag; rsd to roa starts from 0.037 to 0.026 of the first lag to last lag; roa to lr starts from 0.0073 to 0.0269 from the second lag to last lag; roa to rsd starts from 0.033 to 0.266 of the second lag to last lag. In summary, a steady RSD divergence for a specific variable for LR in the variance decomposition suggests a more stable or consistent response of that variable to shocks compared to others.

Table 4.46: Interpretation from the VAR Model for Variance Decomposition Functions for the LR

step	(1) fevd	(2) fevd	(3) fevd	(4) fevd	(5) fevd	(6) fevd
0	0	0	0	0	0	0
1	.019979	.007676	0	.037188	0	0
2	.018853	.012994	.00334	.031437	.00731	.032953
3	.018346	.017825	.008369	.027829	.016308	.084231
4	.01831	.021683	.013365	.026008	.023302	.136157
5	.018612	.024507	.017556	.025445	.0276	.181043
6	.019128	.026455	.020752	.025639	.029783	.217083
7	.019749	.027747	.023053	.026212	.030675	.24497
8	.020398	.028584	.024648	.026918	.030927	.266149

(1) irfname = varbasic, impulse = lr, and response = rsd
(2) irfname = varbasic, impulse = lr, and response = roa
(3) irfname = varbasic, impulse = rsd, and response = lr
(4) irfname = varbasic, impulse = rsd, and response = roa
(5) irfname = varbasic, impulse = roa, and response = lr
(6) irfname = varbasic, impulse = roa, and response = rsd

4.7.7.7 VAR Model diagnostic of the effectiveness of rescheduled loans on the liquidity ratio

The VAR model was diagnosed, and summarized results are described in Table 4.47 (details in Appendix VIII-G). From the Lagrange-multiplier test, it is observed that the p-value is greater than 0.05 which implies no serial correlation in the model. From the Jarque-Bera normality test, all the p-values are found to be greater than 0.05, which indicates that the model is normally distributed.

Table 4.47: Diagnostics-VAR Model for the LR

Test	Prob>chi2	Result	Decision
Short-run causality tests	0.00 where chi2 (3) are 25.03, 89.09, 20.15 and chi2 (9) is 220.82	All the variables individually and altogether have the probability of greater than 0.	There is short-run causality.
Autocorrelation Test (Lagrange-multiplier test)	Lag (1)= 0.050 Lag (2)= 0.381	all probability is greater than 0.05	No autocorrelation at lag order
Normality Test (Jarque-Bera test)	lr=0.249 rsd=0.013 roa=0.860 All=0.059	probability of all variables is greater than 0.05	Model is normally distributed
Eigenvalue stability condition			Eigenvalue lie inside the unit circle
Wald Lag Exclusion Statistics Test		Most of the probability of all variables is greater than 0.05	Satisfies the lag exclusion test

In the Eigenvalue stability condition, all the eigenvalues lie inside the unit circle which satisfies the stability condition (shown in Figure 4.35).

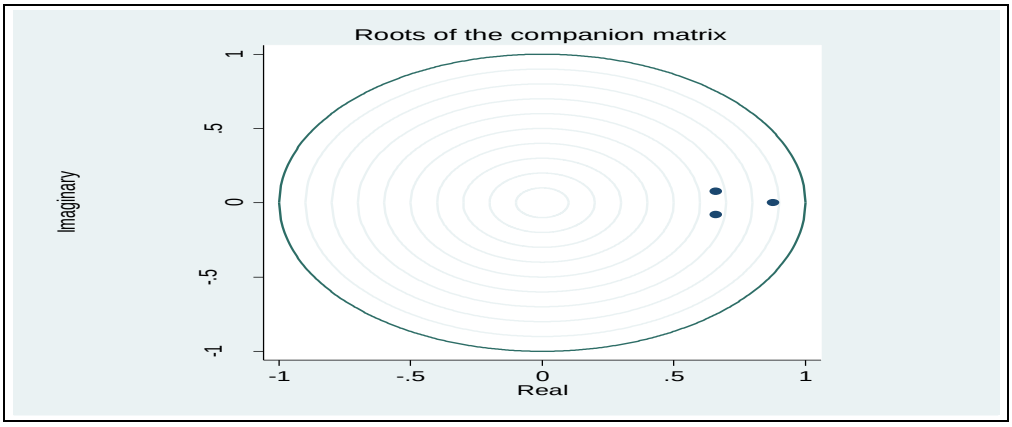


Figure 4.35: Eigen Value Stability Condition for the VAR Model of the LR

4.8 Summary of the Results of the VECM and VAR Model

From the literature review, non-performing loan (represents asset quality), risk-weighted asset (represents capital adequacy), expenditure-income ratio (represents earnings), return on asset (represents profitability), return on equity (represents profitability), net interest margin (represents profitability), and liquidity ratio (represents liquidity) are regarded as performing indicators of the commercial banks. Thus, these indicators are used as dependent variables and the rescheduled loan as independent variables. To confirm the real result, other controlled variables are also used as independent variables.

The lag selection criteria were run before the stationary testing for every variable. To check the stationery check, the two-way Graphical test, Correlogram test, and unit root test (both ADF test and P-P test) were done. From the stationary test, it is observed that the initial value of all variables I(0) is non-stationary which infers that there is an overlapping of the values in the time series data of the variables. Thus, the first-order difference was calculated to check isthe first-order difference whether stationary. From the stationary test of the first-order test I(1), it is observed that all the variables are stationary at 1% and 5% confidence levels. It is also observed that there is no structural break of the variables as per Sup-Wald test and Chow test.

To check the cointegration, all the equations' variables were checked through Johansen's cointegration test. Table 4.48 shows the results of Johansen's co-integration test lag selection criteria and ultimate selection of the model (VECM or VAR).

Table 4.48: Summary of the Model Selection

Equation number	Variables	Cointegration Rank	Lag	Model Decision
1	npl, rsd, roa, lr	2	4	VECM
2	rwa, rsd, roa, lr	1	3	VECM
3	eir, rsd, roa, lr	1	3	VECM
4	roa, rsd, roe, lr	1	3	VECM
5	roe, rsd, roa, lr	1	3	VECM
6	nim, rsd, roa, lr	0	1	VAR
7	lr, rsd, roa	0	1	VAR

As in equations 1 to 5, there was cointegration between the variables, the researcher has used the VECM, and the rest two equations used the VAR model as the lack of cointegration between the variables. In equations 1 to 6, 4 variables have 4 sub-equations of each but the equation 7, 3 variables have 3 sub-equations. As the target of this study is to find out the effectiveness of rescheduled loans of performance indicators of banks, the first sub-equation of all equations has been analyzed. The summary results of the analysis are presented in Table 4.49.

Table 4.49: Summary Findings of the VECM/VAR Model(s)

Dependent Variable	Significance of coefficient	Long-run causality	Short-run causality	Autocorrelation	Normality	Stability
NPL	NPL: $L_1(+),L_2(+)$ RSD: $L_2(-),L_3(-)$ ROA: $L_1(-)$ LR: $L_1(-),L_3(-)$	Yes	Yes	No	Yes	2 unit moduli
RWA	All lags are not significant	No	Yes	Not checked as no relationship with RSD		
EIR	All lags are not significant	No	Yes	Not checked as no relationship with RSD		
ROA	ROA: $L_2(-)$ RSD: $L_1(-)$	No	Yes	No	Yes	3 unit moduli
ROE	RSD:$L_1(-)$	No	Yes	No	Yes	3 unit moduli
NIM	NIM:$L_1(-)$	No	Yes	No	Yes	unit moduli
LR	LR:$L_1(+)$	No	Yes	No	Yes	unit moduli

The summary of the results of the hypotheses has been described in Table 4.50.

Table 4.50: Summary Findings of the VECM/VAR Model(s) on the Basis of Hypothesis

Sl no.	Hypothesis	Reject/Not reject	Remarks
1	**H_{o1}:** RSD has no impact on NPL **H_{a1}:** RSD has impact on NPL	Can reject H_{o1}	RSD has negative impact on NPL
2	**H_{o2}:** RSD has no impact on RWA **H_{a2}:** RSD has impact on RWA	Cannot reject H_{o2}	RSD has no impact on RWA
3	**H_{o3}:** RSD has no impact on EIR **H_{a3}:** RSD has impact on EIR	Cannot reject H_{o3}	RSD has no impact on EIR
4	**H_{o4}:** RSD has no impact on ROA **H_{a4}:** RSD has impact on ROA	Can reject H_{o4}	RSD has negative impact on ROA
5	**H_{o5}:** RSD has no impact on ROE **H_{a5}:** RSD has impact on ROE	Can reject H_{o5}	RSD has negative impact on ROE
6	**H_{o6}:** RSD has no impact on NIM **H_{a6}:** RSD has impact on NIM	Can reject H_{o6}	RSD has no impact on NIM
7	**H_{o7}:** RSD has no impact on LR **H_{a7}:** RSD has impact on LR	Cannot reject H_{o7}	RSD has no impact on LR

PART C: ULTIMATE RECOVERY RATE OF THE RESCHEDULED LOANS

4.9 Case Study of the Ultimate Recovery of the Rescheduled Loans

To track the ultimate recovery of the rescheduled loan, a case study based in depth analysis was conducted based on 100 rescheduled loan accounts (the first time was rescheduled in 2016 and the recovery up to 2019). In the study, it is found that a few accounts were second and third time rescheduled within the period 2017 - 2019. Considering the COVID-19 situation, the data was not collected after 2019 as the turmoil situation; the scenario of the recovery cannot be given in real terms of the economic condition.

In Bangladesh, there are two types of commercial banks based on ownership like -

a) State-owned commercial banks (owned by government and/or private);
b) Private commercial banks (Wholly owned by private and foreign)

At the same time two types of banking operation in Bangladesh-

a) Conventional commercial banks (businesses operated by the normal banking system);
b) Islamic commercial banks (businesses operated by Shariah principals)

All the state-owned banks are conventional but the private banks are conventional and Islamic. Therefore, the banks are categorized as-

a) State-owned banks (SOB);
b) Conventional private banks (CPB);
c) Islamic banks (IB).

The data was collected from above mentioned type of banks separately. Last of all, there is a comparison between different types of banks in the context of recovery to find out the performance of recovery through loan rescheduling. The findings of the collected data have been analyzed here. All the data and figures are deeply analyzed only from the sample of 100 numbers of accounts.

4.10 Ultimate Recovery of the Rescheduled Loans of State-Owned Commercial Banks

The recent data and newspaper information show that state-owned commercial banks comprise a large portion of the non-performing loans, as well as the accounts, that are rescheduled throughout the years. Therefore, 60% of the total collected data (accounts) have been analyzed from the state-owned commercial banks. The summary of these accounts is given in Table 4.51 (Details in Appendix IX-A). From the sample of 60 numbers of accounts, it is observed that the total Tk. 173734.84 million was rescheduled in 2016 from which Tk. 537.51 million was rescheduled during 2017-2019 for the second and third time which is 0.31% of the first-time rescheduling amount.

In 2016, the down payment was recovered Tk. 2916.58 million (0.168% of the first-time rescheduled total amount) but from the second and third time rescheduling the recovery from the down payment was Tk. 88.44 million (0.165% of the total rescheduled amount). The total recovery from the down payment is Tk. 3005.02 million (1.73% of the total rescheduled amount). In 2016, the installment was recovered Tk. 17342.22 million (9.98% of the total rescheduled amount) but during 2017-2019, the recovery from the installment was Tk. 40985.40 million (33.57% of the total rescheduled amount). Ultimately the total recovery from the installment is Tk.58327.62 million (33.57% of the total rescheduled amount). Thus, the total recovery in 2016 is Tk. 20258.80 million (11.66% of the total rescheduled amount) whereas, during 2017-2019, the total recovery was Tk. 41074.84 million (23.64% of the total rescheduled amount). Through rescheduling, a total of Tk. 61332.64 million was recovered during 2016-2019 which is 35.30% of the total Tk. 173734.84 million. From this data, it is clear that 64.70% amount is still overdue after the rescheduling during the four years.

Table 4.51 Rescheduled amounts and Recovery Status of the Rescheduled Loans of State-Owned Commercial Banks

(In million BDT)

	2016	**2017**	**2018**	**2019**	**Total**	**%**
RSD Amount	173734.84	93.13	292.42	151.96	2^{nd} and 3^{rd} time: 537.51	
Down Payment	2916.58	5.00	53.05	30.39	3005.02	1.73%
Installment	17342.22	18834.69	14547.16	7603.55	58327.62	33.57%
Total Recovery	20258.80	18839.69	14600.21	7633.94	61332.64	35.30%

Figure 4.36 shows the scenario of rescheduled loans from state-owned commercial banks. It is observed that the trend of the rescheduling downturn from 2016 to 2017 and after that, the rescheduling amount is very nominal inferring that in the state-owned commercial banks, the trend of second and third terms is not remarkable. The expected down payment is a minimum of 5% but the down payment is also not as expected and it is very steady throughout the period for which the total installment and total recovery are in a similar trend. The total recovery trend shows that the recovery is also at a steady level but not desirable. From this trend, it can be confirmed that the accounts which repay regularly are good in repayment as expected but a large amount is not repaid as per the repayment schedule as per rescheduling terms.

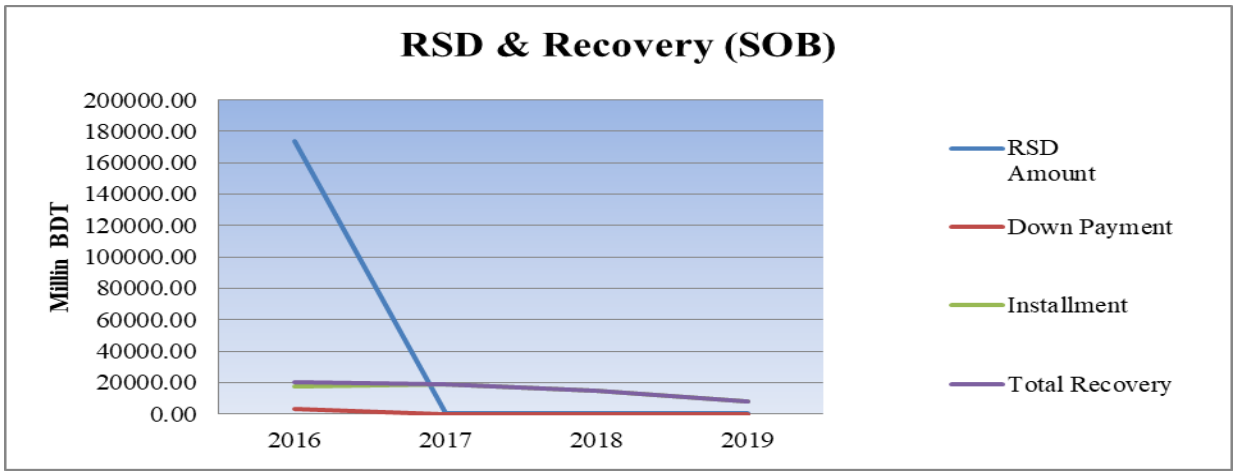


Figure 4.36: Rescheduled Amount and Recovery Status of the Rescheduled Loans of State-Owned Commercial Banks

4.10.1 Latest status of the rescheduled loans of the state-owned commercial banks

The status of the rescheduled in 2019 (ending year of the data) is presented in Figure 4.37. From the sample accounts, 2 are regular through second and third time rescheduling and 12 accounts are regular through installment payments. 15 accounts are already paid off and 31 accounts are classified again. Figure 4.37 shows that 3% of accounts are regular through the second and third time rescheduling; 20% of accounts are regular through installment payment; 25% of accounts are paid off; and 52% of accounts are classified again. The unrecovered amount is 25% of the total rescheduled amount where 52% are classified again inferring that large-sized loan accounts are again classified.

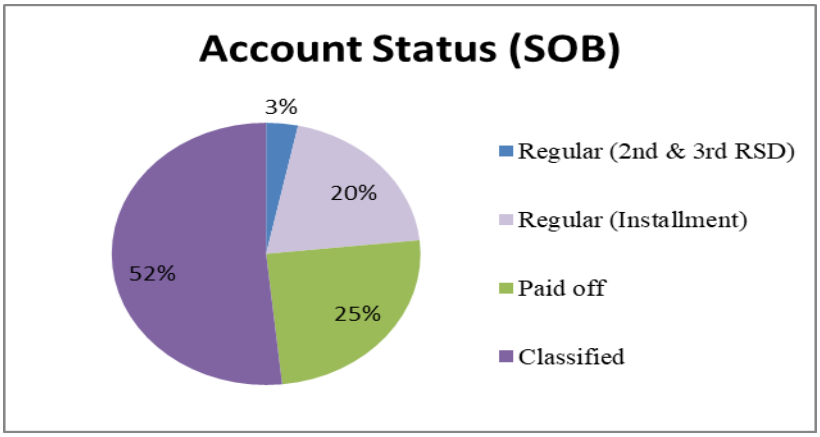


Figure 4.36: Statuses of the Rescheduled Loans of the State-Owned Commercial Banks

Table 4.52 shows the comparison of the accounts' status based on the loan size. It is observed that most of the paid-off and regular accounts comprise loan size belonging to less than a billion BDT but the classified accounts belong to more than a billion BDT. Thus % of the number of accounts classified is less than the % of unrecovered amounts.

Table 4.52 Recovery Status on Loan Size of all Conventional Commercial Banks

	Range	no. of A/Cs
Paid-off	More than 1 billion	2
	50 million- 1billion	0
	1 million- 50 million	1
	less than 1 million	12
	Sub-Total	15
Regular	More than 1 billion	9
	50 million- 1billion	2
	1 million- 50 million	2
	less than 1 million	1
	Sub-Total	14
Classified	More than 1 billion	7
	50 million- 1billion	1
	1 million- 50 million	2
	less than 1 million	21
	Sub-Total	31

4.11 Ultimate Recovery of the Rescheduled Loan of Private (Conventional) Commercial Banks

From the 100 accounts, 20 nos. have been selected from private conventional banks. The summary of these accounts is given in Table 4.53 (Details in Appendix IX-B). From the sample of 20 accounts, it is observed that the total Tk. 1550.38 million was rescheduled in 2016 from which Tk. 1422.38 million was rescheduled during 2017-2019 for the second and third time which is 91.74% of the first-time rescheduling amount. In 2016, the down payment was recovered Tk.74.22 million (4.79% of the first-time rescheduled total amount) but from the second-time and third-time rescheduling, the recovery from the down payment was Tk. 66.86 million (4.70 % of the total rescheduled amount). Thus, the total recovery from the down payment is Tk. 141.07 million (9.10% of the total rescheduled amount).

In 2016, the installment was recovered Tk. 233.40 million (15.05% of the total rescheduled amount) but during 2017-2019, the recovery from the installment was Tk. 479.97 million (30.96% of the total rescheduled amount). The total recovery from the installment is Tk.713.36 million (46.01% of the total rescheduled amount). Thus, the total recovery in 2016 is Tk.307.62 million (19.84% of the total rescheduled amount) and during 2017-2019, the total recovery was Tk. 546.82 million (35.27% of the total rescheduled amount). Through rescheduling, a total of Tk. 854.44 million was recovered during 2016-2019 which is 55.11% of the total Tk. 1550.38 million. From this data, it is clear that 44.89% amount is still overdue after the rescheduling of four years.

Table 4.53 Rescheduled Amounts and Recovery Status of the Rescheduled Loans of State-Owned Commercial Banks

(In million BDT)

	2016	**2017**	**2018**	**2019**	**Total**	**%**
RSD Amount	1550.38	771.84	285.78	364.71	second and 3rd time: 1422.38	
Down Payment	74.22	27.96	21.82	17.08	141.07	9.10%
Installment	233.40	138.60	124.14	217.22	713.36	46.01%
Total Recovery	307.62	166.56	145.96	234.30	854.44	55.11%

Figure 4.38 shows the scenario of rescheduled loans of conventional private commercial banks. It is inferred that the trend of the rescheduling downturn from 2016 to 2018 but a sliding increase from 2018 to 2019 is noticed meaning that the trend of second and third terms is remarkable in the conventional private commercial bank for which the recovery from the down payment is also at a steady level. The expected down payment is a minimum of 5% whereas the down payment is near 10%. The total recovery trend shows that the recovery is also at a steady level. From this trend, it can be confirmed that the accounts repaying regularly are good in repayment as expected but a large amount is not repaid as per the repayment schedule as per rescheduling terms.

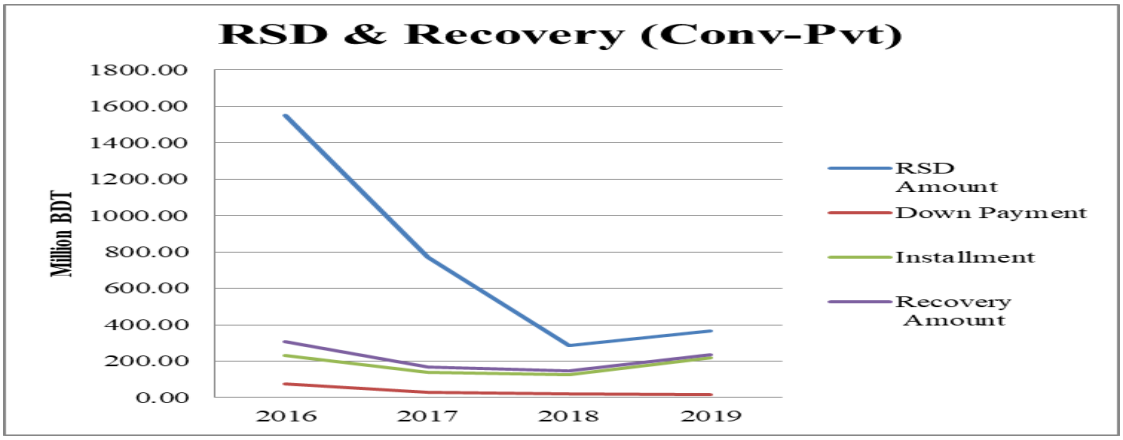


Figure 4.38: Rescheduled amount and Recovery Status of the Rescheduled Loans of Conventional Private Commercial Banks

4.11.1 Latest status of the rescheduled loans of conventional private commercial banks

The status of the rescheduled in 2019 (ending year of the data) is presented in Figure 4.39. From the sample accounts, 3 are regular through second-time and third-time rescheduling and 4 accounts are regular through installment payments. 9 accounts are already paid off and 4 accounts are classified again. Figure 4.39 shows that 15% of accounts are regular through the second-time and third-time rescheduling; 20% of accounts are regular through installment payment; 45% of accounts are paid off; and 20% of accounts are classified again. The unrecovered amount is 44.89% of the total rescheduled amount where 20% accounts are classified again. The percentage of several accounts classified is less than the percentage of unrecovered amounts. The logic of this situation is that most unrecovered accounts are large in volume size.

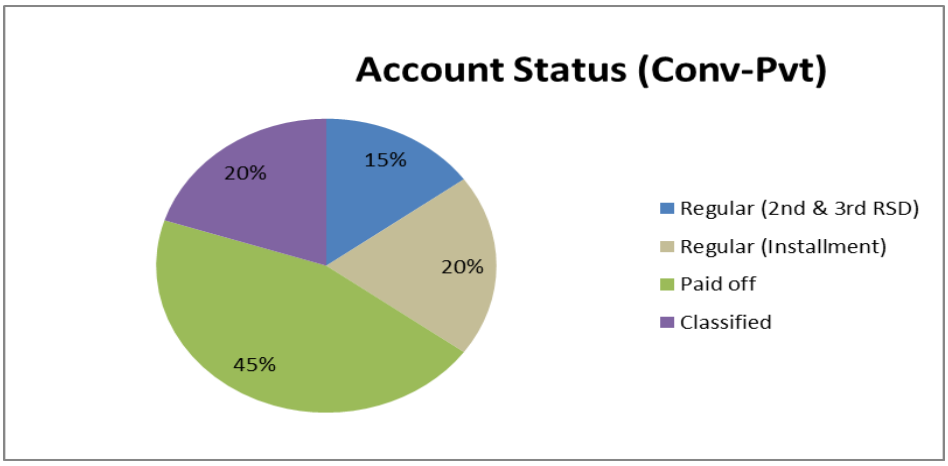


Figure 4.39: Statuses of the Rescheduled Loans of Conventional Private Commercial Banks

Table 4.54 shows that most of the paid-off and regular accounts comprise loan size belonging to less than a billion BDT but the classified accounts belong to more than a billion BDT. Thus, the percentage of the number of accounts classified is less than the percentage of unrecovered amounts.

Table 4.54 Recovery Status on Loan Size of Conventional Commercial Banks

	Range	no. of A/Cs
Paid-off	More than 1 billion	1
	50 million- 1billion	1
	1 million- 50 million	4
	less than 1 million	3
	Sub-Total	**9**
Regular	More than 1 billion	1
	50 million- 1billion	4
	1 million- 50 million	1
	less than 1 million	1
	Sub-Total	**7**
Classified	More than 1 billion	2
	50 million- 1billion	-
	1 million- 50 million	-
	less than 1 million	2
	Sub-Total	**4**

4.12 Ultimate Recovery of the Rescheduled Loans of Private (Islamic) Commercial Banks

From the 100 accounts, 20 accounts have been selected from private Islamic banks. The summary of these accounts is given in Table 4.55 (Details in Appendix IX-C). From the sample of 20 accounts, it is observed that the total Tk. 7097.03 million was rescheduled in 2016 from which Tk. 2562.45 million was rescheduled during 2017-2019 for second and third time rescheduling which is 36.11% of the first-time rescheduling amount. In 2016, the down payment was recovered Tk. 397.25 million (5.60% of the first-time rescheduled total amount) but from the second-time and third-time rescheduling, the recovery from the down payment was Tk. 488.71 million (6.88 % of the total rescheduled amount). Ultimately the total recovery from the down payment is Tk. 885.96 million (12.48% of the total rescheduled amount).

In 2016, the installment was recovered Tk. 621.12 million (8.75% of the total rescheduled amount) but during 2017-2019, the recovery from the installment was Tk. 2205.86 million (31.08% of the total rescheduled amount). The total recovery from the installment is Tk. 2826.98 million (39.83% of the total rescheduled amount). Thus, the total recovery in 2016 is Tk. 1018.37 million (14.35% of the total rescheduled amount) but during 2017-2019, the total recovery was Tk. 2694.57 million (37.97% of the total rescheduled amount). Through rescheduling, a total of Tk. 3712.94 million was recovered during 2016-2019 which is 52.32% of the total Tk. 7097.03 million. From this data, it is clear that 47.68% amount is still overdue after the rescheduling of four years.

Table 4.55 Rescheduled amount and Recovery Status of the Rescheduled Loans of Islamic Commercial Banks

(In million BDT)

	2016	**2017**	**2018**	**2019**	**Total**	**%**
RSD Amount	7097.03	2027.91	511.75	22.79	second and 3rd time: 2562.45	
Down Payment	397.25	369.06	117.36	2.28	885.96	12.48%
Installment	621.12	1484.44	596.09	125.33	2826.98	39.83%
Total Recovery	1018.37	1853.50	715.73	125.33	3712.94	52.32%

Figure 4.40 shows the scenario of rescheduled loans from Islamic private commercial banks. It shows the trend of the rescheduling downturn from 2016 to 2019 but the trend is steady from 2017 to 2019 meaning that the trend of the second and third terms is remarkable in the Islamic private commercial bank for which the recovery from the down payment is also at a steady level. The expected down payment is 5% whereas the down payment is more than 12%. The total recovery trend shows that the recovery is also at a steady level. From this trend, it can be confirmed that the accounts which repay regularly are good in repayment as expected but a large amount is not repaid as per the repayment schedule as per rescheduling terms.

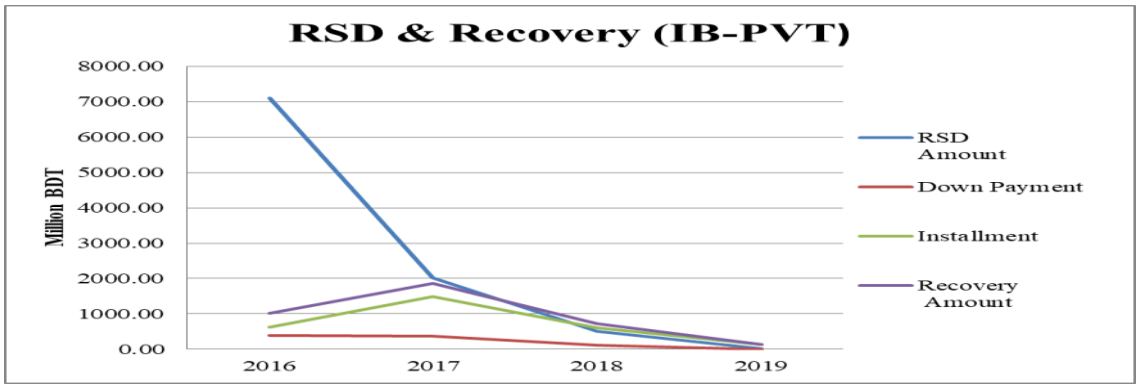


Figure 4.40 Rescheduled amount and Recovery Status of Rescheduled Loans of Islamic Private Commercial Banks

4.12.1 Latest status of the rescheduled loans of the Islamic private commercial banks

The status of the rescheduled in 2019 (ending year of the data) is presented in Figure 4.41. From the sample accounts, 1 is regular through the second-time and third-time rescheduling and 6 accounts are regular through installment payments. 11 accounts are already paid-off and 2 accounts are classified again. Figure 4.41 shows that 5% of accounts are regular through the second-time and third-time rescheduling; 30% of accounts are regular through installment payment; 55% of accounts are paid off; and 10% of accounts are classified again. The unrecovered amount is 47.68% of the total rescheduled amount where 10% number of the account is classified again inferring that the percentage of the number of accounts classified is less than the percentage of unrecovered amounts. The logic of this situation is that most unrecovered accounts are large in volume size.

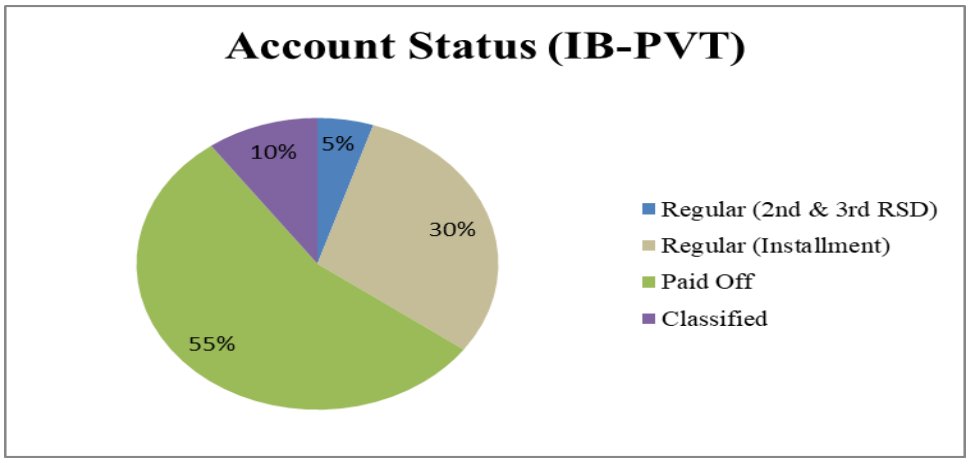


Figure 4.41: Statuses of the Rescheduled Loan of Islamic Private Commercial Banks

Table 4.56 shows that most of the paid-off and regular accounts comprise loan size belonging to less than a billion BDT but the classified accounts belong to more than a billion BDT. Thus, the percentage of the number of accounts classified is less than the percentage of unrecovered amounts.

Table 4.56 Recovery Status on Loan Size of Islamic Commercial Banks

	Range	no. of A/Cs
Paid-off	More than 1 billion	1
	50 million- 1billion	0
	1 million- 50 million	4
	less than 1 million	6
	Sub-Total	**11**
Regular	More than 1 billion	2
	50 million- 1billion	2
	1 million- 50 million	1
	less than 1 million	2
	Sub-Total	**7**
Classified	More than 1 billion	2
	50 million- 1billion	0
	1 million- 50 million	0
	less than 1 million	0
	Sub-Total	**2**

4.13 Ultimate Recovery of the Rescheduled Loans of Private (Conventional and Islamic) Commercial Banks

From the 100 accounts, 20 accounts have been selected from private conventional banks (discussed in 4.10) and 20 accounts have been selected from private Islamic banks (discussed in 4.12). Now these 40 numbers of accounts are accumulated to check the overall condition of rescheduled accounts of private banks.

The summary of these accounts is given in Table 4.57 (Details in Appendix IX-D). From the sample of 40 accounts, it is observed that a total of Tk. 8647.41 million was RSD in 2016 from which Tk. 3984.78 million was rescheduled during 2017-2019 for second and third time rescheduling which is 46.08% of the first-time rescheduling amount. The recovery from the down payment is Tk. 1027.03 million (11.88% of the total RSD amount) and the installment is Tk.3540.35 million (40.94% of the total RSD amount). A total of Tk. 4567.38 million was recovered during 2016-2019 which is 52.82% of the total Tk. 8647.41 million. From this data, it is clear that 47.18% amount is still overdue after the rescheduling of four years.

Table 4.57 Rescheduled Amounts and Recovery Status of the Rescheduled Loans of Private (Islamic and Conventional) Commercial Banks

(In million BDT)

	2016	**2017**	**2018**	**2019**	**Total**	**%**
RSD Amount	8647.41	2799.75	797.53	387.50	second and 3rd time: 3984.78	
Down Payment	471.47	397.02	141.46	17.08	1027.03	11.88%
Installment	854.52	1623.04	720.23	342.55	3540.35	40.94%
Total Recovery	1325.99	2020.06	861.69	359.63	4567.38	52.82%

Figure 4.42 shows the trend of the rescheduling downturn from 2016 to 2019 but the decline from 2017 to 2019 is steadily decreasing meaning that the trend of the second and third terms is remarkable in the PCB for which the recovery from the down payment is also at a steady level. The expected down payment is a minimum of 5% whereas the down payment is near 12%. The total recovery trend shows that the recovery is also at a steady level. From this trend, it can be confirmed that the accounts which repay regularly are good in repayment as expected but a large amount is not repaid as per the repayment schedule as per rescheduling terms.

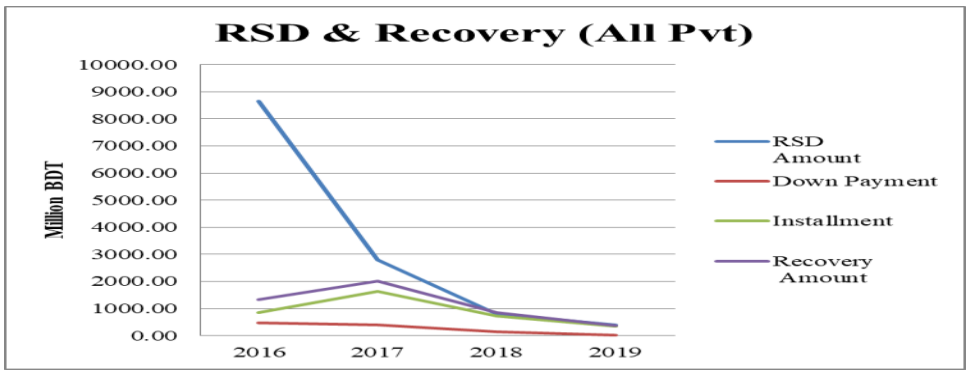


Figure 4.42: Rescheduled Amount and Recovery Status of Rescheduled Loans of all Private Commercial Banks

4.13.1 Latest status of the rescheduled loans of all private commercial banks

The status of the rescheduled in 2019 (ending year of the data) is presented in Figure 4.43. From the sample accounts, 3 are regular through second-time and third-time rescheduling and 11 accounts are regular through installment payments. 19 accounts are already paid off and 7 accounts are classified again. Figure 4.43 shows that 7% of accounts are regular through the second-time and third-time rescheduling; 27% of accounts are regular through installment payment; 48% of accounts are paid off; and 18% of accounts are classified again. The unrecovered amount is 47.18% of the total rescheduled amount where 18% number of the accounts are classified again inferring that the percentage of the number of accounts classified is less than the percentage of unrecovered amounts. The logic of this situation is that most unrecovered accounts are large in volume size.

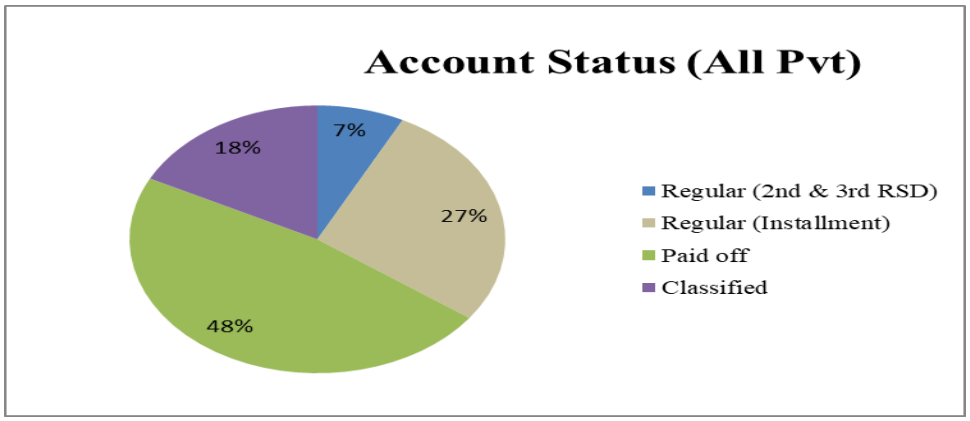


Figure 4.43 Statuses of the Rescheduled Loans of all Private Commercial Banks

Table 4.58 shows that most of the paid-off and regular accounts comprise loan size belonging to less than a billion BDT but the classified accounts belong to more than a billion BDT. Thus, the percentage of the number of accounts classified is less than the percentage of unrecovered amounts.

Table 4.58 Recovery Status on a Loan Size of all Private Commercial Banks

	Range	no. of A/Cs
Paid-off	More than 1 billion	2
	50 million- 1billion	1
	1 million- 50 million	8
	less than 1 million	8
	Sub-Total	**19**
Regular	More than 1 billion	3
	50 million- 1billion	6
	1 million- 50 million	2
	less than 1 million	3
	Sub-Total	**14**
Classified	More than 1 billion	4
	50 million- 1billion	0
	1 million- 50 million	0
	less than 1 million	3
	Sub-Total	**7**

4.14 Ultimate Recovery of the Rescheduled Loans of Conventional Commercial Banks

From the 100 accounts, 20 numbers of accounts have been selected from private conventional banks (discussed in 4.11) and 60 numbers of accounts have been selected from state-owned banks (discussed in 4.10). Now these 80 numbers of accounts are accumulated to check the overall condition of rescheduled accounts of conventional banks. The summary of these accounts are given in table 4.59 (Details in Appendix IX-E). From the sample of 80 accounts, it is observed that a total of Tk. 175285.22 million was rescheduled in 2016 from which Tk. 1959.84 million was rescheduled during 2017-2019 for second and third time rescheduled which is 1.12% of the first-time rescheduling amount. The total recovery from the down payment is Tk. 3146.09 million (1.79% of the total rescheduled amount) and the installment is Tk. 590.40.99 million (33.68% of the total rescheduled amount).

Through rescheduling, a total of Tk. 62187.08 million was recovered during 2016-2019 which is 35.48% of the total Tk. 175285.22 million. From this data, it is clear that 64.52% amount is still overdue after the rescheduling of four years.

Table 4.59: Rescheduled Amounts and Recovery Status of Rescheduled Loans of Conventional Commercial Banks

(In million BDT)

	2016	2017	2018	2019	Total	%
RSD Amount	175285.22	864.97	578.20	516.67	second and 3rd time: 3984.78	
Down Payment	2990.79	32.96	74.87	47.47	3146.09	1.79%
Installment	17575.62	18973.30	14671.30	7820.77	59040.99	33.68%
Total Recovery	20566.42	19006.25	14746.17	7868.24	62187.08	35.48%

Figure 4.44 shows the trend of the rescheduling downturn from 2016 to 2017 but the trend from 2017-2019 is not remarkable meaning that the trend of the second and third terms is unremarkable in the conventional commercial bank for which the recovery from the down payment is also not satisfactory. The expected down payment is a minimum of 5% whereas the down payment is near 2% and it is very steady throughout the period for which the total installment recovery and total recovery are in similar trends. The total recovery trend shows that the recovery is also at a steady level but not desirable. From this trend, it can be confirmed that the accounts which repay regularly are good in repayment as expected but a large amount is not repaid as per the repayment schedule as per rescheduling terms.

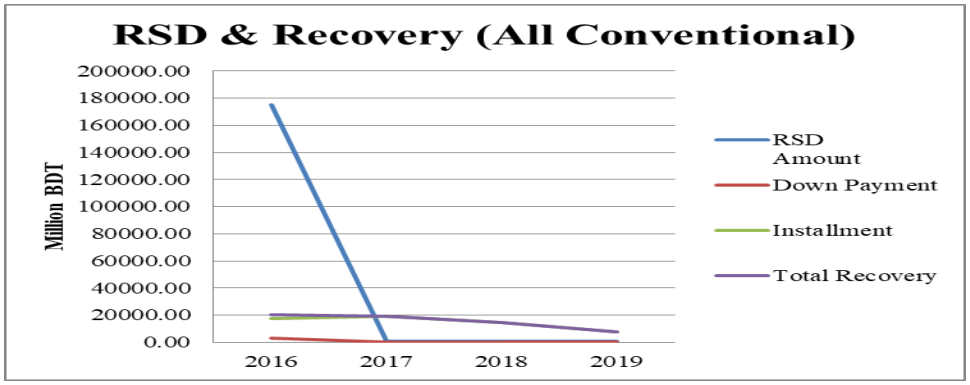


Figure 4.44 Rescheduled Amount and Recovery Status of the Rescheduled Loans of all Conventional Commercial Banks

4.14.1 Latest status of the rescheduled loans of the conventional commercial banks

The status of the rescheduled in 2019 (ending year of the data) is presented in Figure 4.45. From the sample accounts, 5 are regular through second-time and third-time rescheduling and 16 accounts are regular through installment payments.19 accounts are already paid off and 35 accounts are classified again. Figure 4.45 shows that 6% of accounts are regular through the second-time and third-time rescheduling; 20% of accounts are regular through installment payment; 30% of accounts are paid off; and 44% of accounts are classified again. The unrecovered amount is 66% of the total rescheduled amount where 44% of accounts are classified again inferring that the percentage of number of classified again is remarkably terrible. Graph 4.45 shows this comparison.

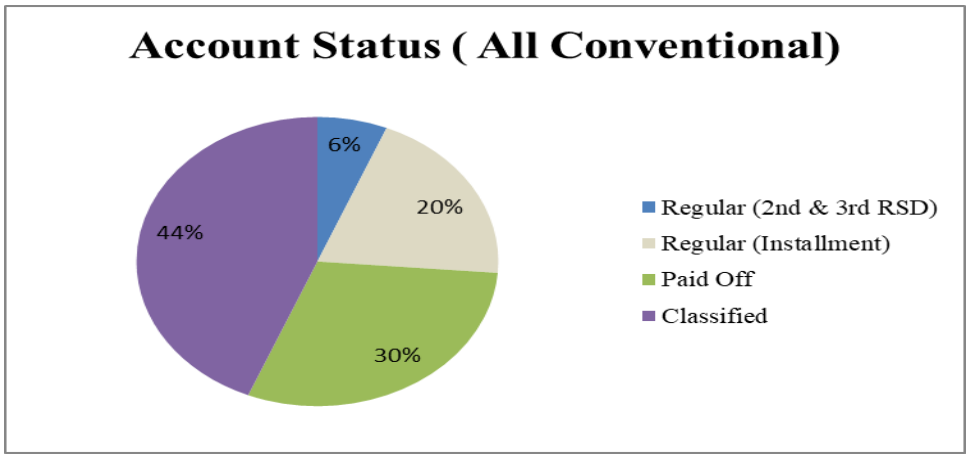


Figure 6.10 Statuses of the Rescheduled Loans of all Conventional Commercial Banks

Table 4.60 shows that most of the paid-off and regular accounts comprise loan sizes belonging to less than a billion BDT but the classified accounts belong to more than a billion BDT. Thus, the percentage of the number of accounts classified is less than the percentage of unrecovered amounts.

Table 4.60 Recovery Status on Loan Size of all Conventional Commercial Banks

	Range	no. of A/Cs
Paid-off	More than 1 billion	3
	50 million- 1billion	1
	1 million- 50 million	5
	less than 1 million	15
	Sub-Total	**24**
Regular	More than 1 billion	10
	50 million- 1billion	5
	1 million- 50 million	3
	less than 1 million	3
	Sub-Total	**21**
Classified	More than 1 billion	9
	50 million- 1billion	1
	1 million- 50 million	2
	less than 1 million	23
	Sub-Total	**35**

4.15 Ultimate Recovery of the Rescheduled Loan of all Commercial Banks

Last, of all performance the 100 accounts are accumulated to check the overall condition of rescheduled accounts of the commercial banks. The summary of these accounts is given in Table 4.61 (Details in Appendix IX-F). From the sample of 100 accounts, it is observed that the total Tk. 182382.25 million was rescheduled in 2016 from which Tk. 4522.29 million was rescheduled during 2017-2019 for the second and third time which is 2.48% of the first-time rescheduling amount. In 2016, the down payment was recovered Tk. 3388.05 million (1.86% of the first-time rescheduled total amount) but from the second-time and third-time rescheduling, the recovery from the down payment was Tk. 644.00 million (3.53% of the total rescheduled amount).

The total recovery from the down payment is Tk. 4032.05 million (2.21% of the total rescheduled amount). In 2016, the installment was recovered Tk. 18196.74 million (9.98% of the total rescheduled amount) but during 2017-2019, the recovery from the installment was Tk. 43671.23 million (23.94% of the total rescheduled amount). Ultimately the total recovery from the installment is Tk. 61867.97 million (33.92% of the total rescheduled amount).

Thus, the total recovery in 2016 is Tk. 21584.79 million (11.83% of the total rescheduled amount) whereas during 2017-2019, the total recovery was Tk. 44315.23 million (24.30% of the total rescheduled amount). Through rescheduling, a total of Tk. 65900.02 million was recovered during 2016-2019 which is 36.13% of the total Tk. 182382.25 million. From this data, it is clear that 63.87% amount is still overdue after the rescheduling of four years.

Table 4.61 Rescheduled amount and Recovery Status of Rescheduled Loans of all Commercial Banks

(In million BDT)

	2016	2017	2018	2019	Total	%
RSD Amount	182382.25	2892.88	1089.95	539.46	2nd and 3rd time: 4522.29	
Down Payment	3388.05	402.02	194.51	47.47	4032.05	2.21%
Installment	18196.74	20457.74	15267.39	7946.10	61867.97	33.92%
Total Recovery	21584.79	20859.76	15461.90	7993.57	65900.02	36.13%

Figure 4.46 shows the trend of the rescheduling downturn from 2016 to 2017 and after that the rescheduling amount is very nominal inferring that the trend of the second and third terms is not remarkable. The expected down payment is a minimum of 5% but the down payment is also not as expected (only 2.21%) and it is very steady throughout the period for which the total installment and total recovery are in a similar trend. The total recovery trend shows that the recovery is also at a steady level but not desirable. From this trend, it can be confirmed that the accounts which repay regularly are good in repayment as expected but a large amount is not repaid as per the repayment schedule of rescheduling terms.

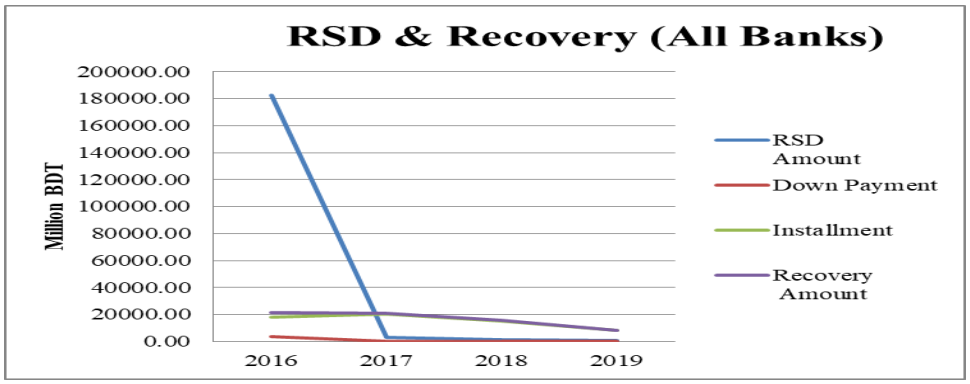


Figure 4.46: Rescheduled Amount and Recovery Status of Rescheduled Loans of all Commercial Banks

4.15.1 Latest status of the rescheduled loans of all commercial banks

The status of the rescheduled in 2019 (ending year of the data) is presented in Figure 4.47. From the sample accounts, 4 are regular through second-time and third-time rescheduling and 23 accounts are regular through installment payments. 35 accounts are already paid off and 38 accounts are classified again. Figure 4.47 shows that 4% of accounts are regular through the second-time and third-time rescheduling; 23% of accounts are regular through installment payment; 35% of accounts are paid off; and 38% of accounts are classified again. The unrecovered amount is 63.87% of the total rescheduled amount where 38% are classified again inferring that large-sized loan accounts are again classified.

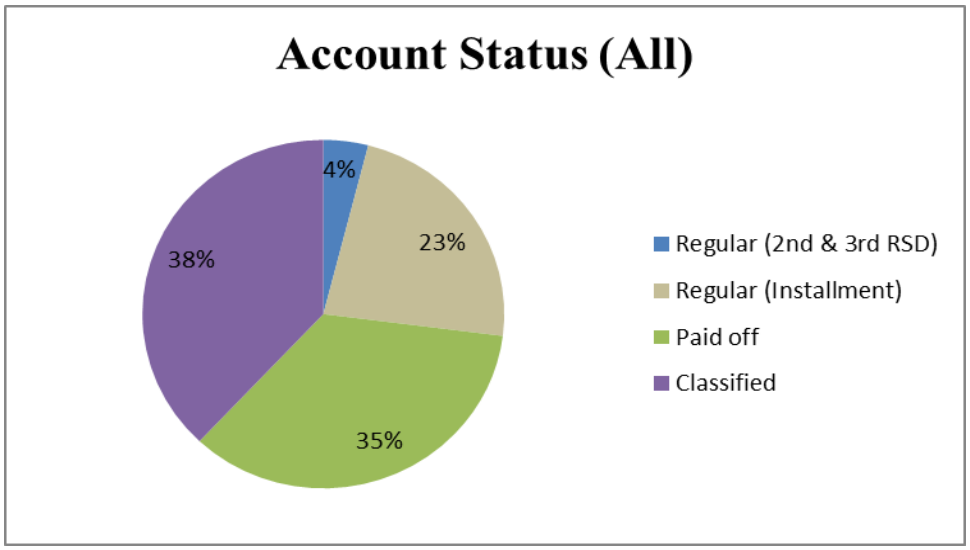


Figure 4.47: Statuses of the Rescheduled Loans of all Commercial Banks

Table 4.62 shows that most of the paid-off and regular accounts comprise loan size belonging to less than a billion BDT but the classified accounts belong to more than a billion BDT. Thus, the percentage of the number of accounts classified is less than the percentage of unrecovered amounts.

Table 4.62 Recovery Status on Loan Size of all Commercial Banks

	Range	no. of A/Cs
Paid-off	More than 1 billion	4
	50 million- 1billion	1
	1 million- 50 million	9
	less than 1 million	21
	Sub-Total	**35**
Regular	More than 1 billion	11
	50 million- 1billion	7
	1 million- 50 million	4
	less than 1 million	5
	Sub-Total	**27**
Classified	More than 1 billion	12
	50 million- 1billion	1
	1 million- 50 million	2
	less than 1 million	23
	Sub-Total	**38**

4.16 Comparison between Different Types of Banks Based on Recovery of the Rescheduled Loans

From the analysis of different commercial banks, it is clear that the recovery is different based on the types of commercial banks. In this regard, the comparison between different types of banks is discussed here. The comparison is based on:

i. Conventional private banks vs. Islamic banks;
ii. Conventional private banks vs. State-owned banks;
iii. Islamic banks vs. State-owned banks; and
iv. Conventional banks vs. Islamic banks.

4.16.1 Comparison between conventional private banks vs. Islamic banks based on recovery of the rescheduled loans

Figure 4.48 shows the conventional private banks have more efficiency than Islamic Banks in the context of installment recovery and ultimately total recovery. The logic behind that throughout the years, the second time and third time rescheduling of the Islamic Banks is less than the conventional private banks.

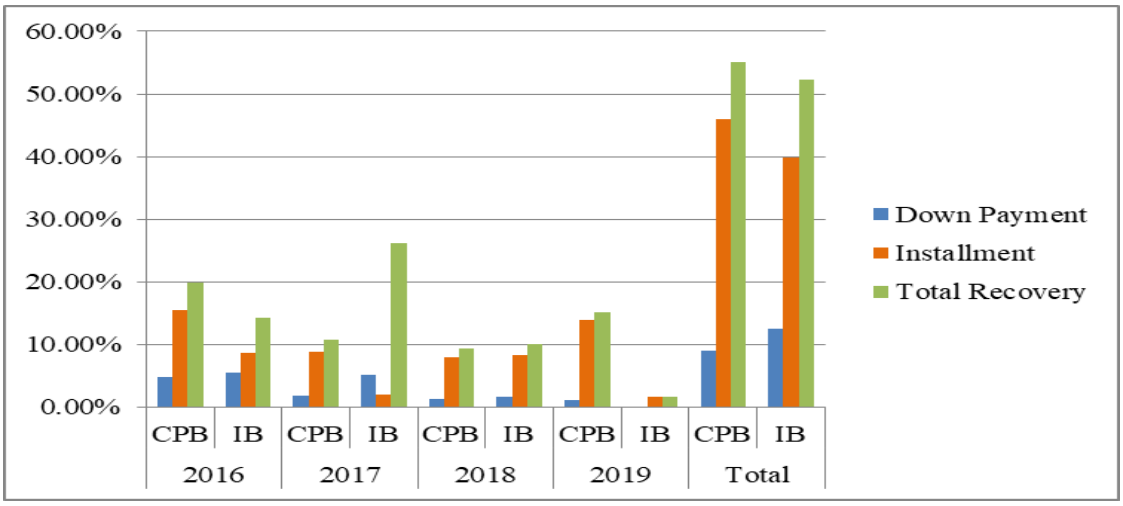


Figure 4.48: Comparisons between Conventional Private Banks Vs. Islamic Banks

Figure 4.39 4.44 show the status of the rescheduled in 2019 (the ending year of the data) of the Conventional Private Banks vs. Islamic Banks which direct that 15% of accounts are regular through the second-time and third-time rescheduling of the conventional private banks but 5% of accounts are regular through the second-time and third-time rescheduling of the Islamic private banks. On the contrary, 20% of accounts are regular through installment payments of conventional private banks whereas 30% of accounts are regular through installment payments of Islamic private banks.

At the same time, 45% of accounts are paid off by conventional private banks whereas 55% of accounts are paid off by Islamic private banks. At last, it is observed that 20% of accounts from conventional private banks are classified again whereas 10% of accounts from Islamic Private Banks are classified again.

The again classified accounts of conventional private banks are worse than those of the Islamic banks but the total recovery of conventional private banks is better than that of the Islamic banks because the large loan recovery of the conventional private banks is better than that of the Islamic Banks.

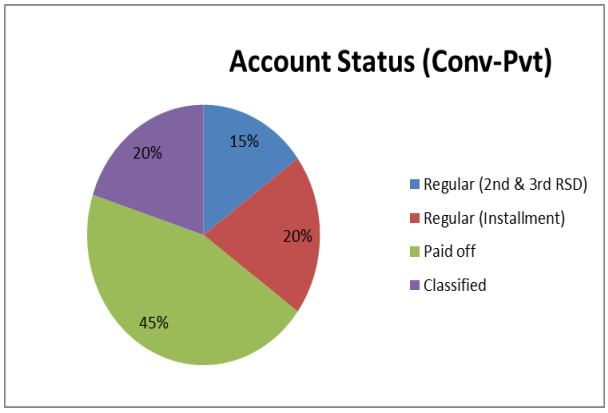


Figure 4.39 Statuses of the Rescheduled Loans of CPBs

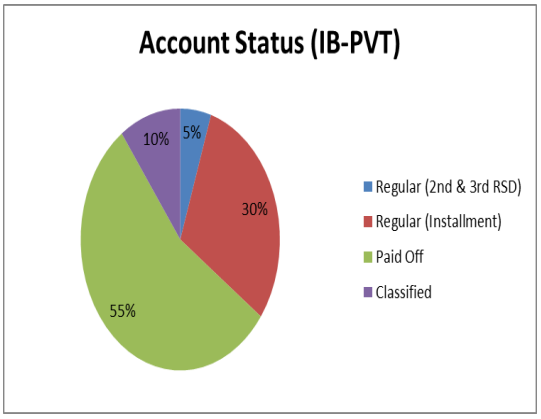


Figure 4.41 Statuses of the Rescheduled Loans of IBs

4.16.2 Comparison between conventional private banks vs. state-owned banks based on recovery of the rescheduled loans

Figure 4.49 shows that conventional private banks are more efficient than SOB in the context of down payment and installment recovery ultimately total recovery. As the SOBs hold more portfolios of NPLs, the ultimate recovery is also not satisfied through rescheduling.

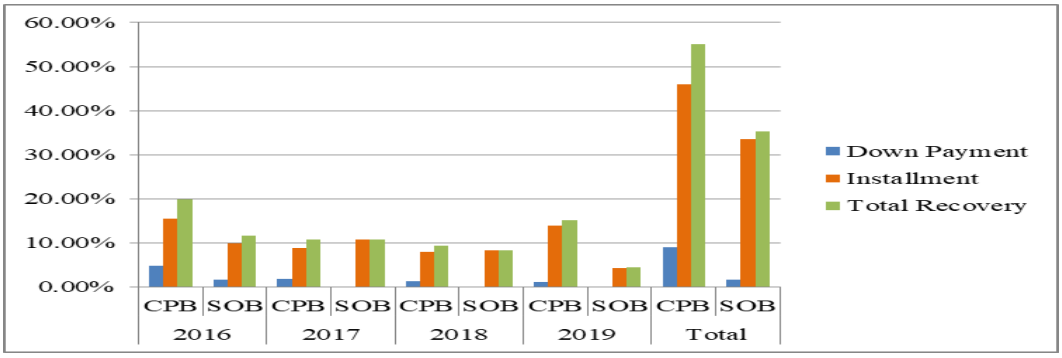


Figure 4.49: Comparisons between Conventional Private Banks Vs. State-Owned Banks

Figure 4.37 and 4.39 shows the status of the rescheduled in 2019 (ending year of the data) of the Conventional Private Banks vs State-owned Banks which direct that 15% of accounts are regular through second-time and third-time rescheduling of the conventional private banks but only 3% of accounts are regular through second-time and third-time rescheduling of the state-owned banks whereas 20% of both banks' accounts are regular through installment payment meaning that the state-owned banks having largely sized loans without minimum down payment for which instant recovery from the rescheduling is not satisfactory at all.

At the same time, 45% of accounts are paid off by conventional private banks whereas only 25% of accounts are paid off by SOBs and for this reason; the classification of the rescheduled accounts is also high for the SOBs. It is observed that 20% of accounts of conventional private banks are classified again but in the contrary, 52% of accounts of SOBs are classified again.

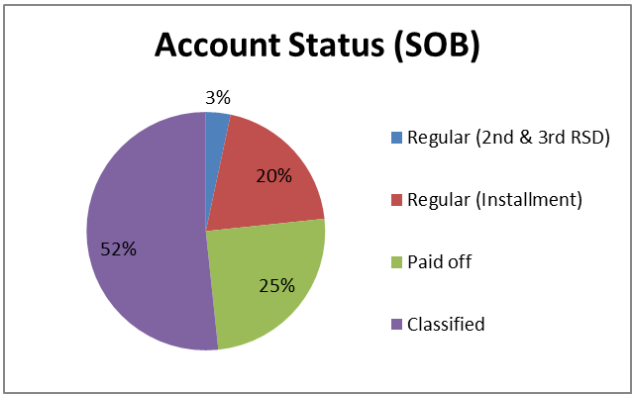


Figure 4.37 Statuses of the Rescheduled Loans of SOBs

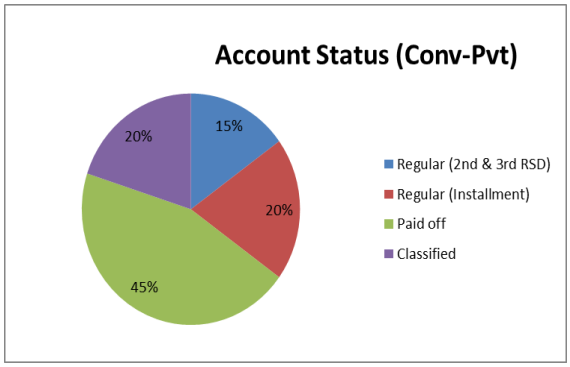


Figure 4.39 Statuses of the Rescheduled Loans of CPBs

4.16.3 Comparison between state-owned banks vs. Islamic banks based on recovery of the rescheduled loans

Figure 4.50 shows that the efficiency of SOBs is remarkably less than that of IBs in terms of down payment and installment recovery ultimately total recovery. As the SOBs hold more portfolios of NPLs, the ultimate recovery is also not satisfied through rescheduling.

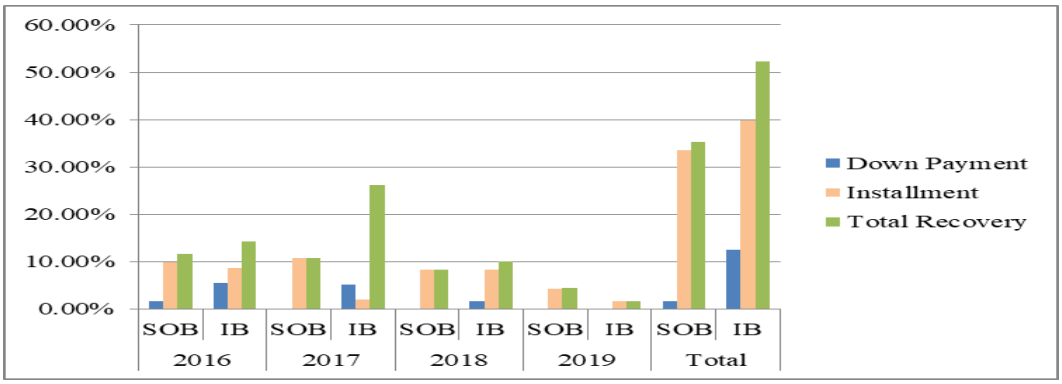


Figure 4.50: Comparisons between State-Owned Banks Vs. Islamic Banks

Figure 4.37 and 4.41 show the status of the rescheduled in 2019 of the IB vs. SOB. 3% of accounts are regular through second-time and third-time rescheduling of the SOBs whereas 5% of accounts are regular through second-time and third-time rescheduling of the IBs but 20% of accounts are regular through installment payment of the SOBs whereas 30% accounts are regular through installment payment of the Islamic banks. At the same time, 25% of accounts are paid off by SOBs whereas 55% of accounts are paid off by IBs, and for this reason, the classification of the rescheduled accounts is also high for the SOBs. It is observed that 10% of accounts of IBs are classified again but in the contrary, 52% of accounts of State-owned Banks are classified again.

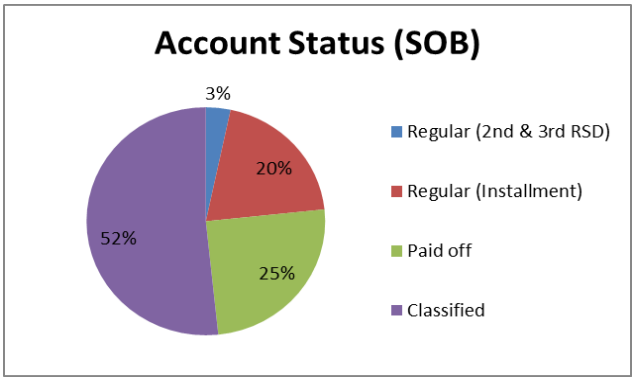


Figure 4.37 Statuses of the Rescheduled Loans of SOBs

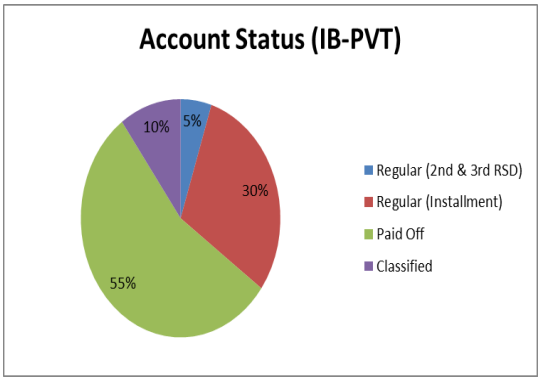


Figure 4.41 Statuses of the Rescheduled Loans of IBs

4.16.4 Comparison between conventional banks vs. Islamic banks based on recovery of the rescheduled loans

Figure 4.51 shows that the efficiency of conventional banks is remarkably less than the Islamic Banks in the context of down payment and installment recovery ultimately total recovery. As the state-owned banks hold more portfolio of non-performing loans which comprises a large portion of the conventional banks' portfolio, the ultimate recovery is also not satisfied through rescheduling although the recovery of the Islamic banks and conventional private banks is more or less similar.

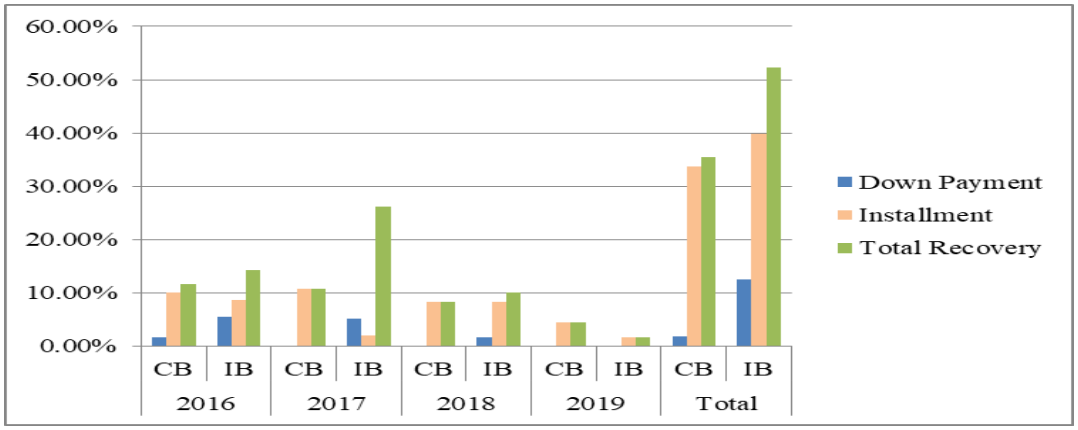


Figure 4.51: Comparisons between Conventional Banks Vs Islamic Banks

Figure 4.45 and 4.41 show the status of the rescheduled in 2019 (ending year of the data) of the Conventional Private Banks vs. State-owned Banks.

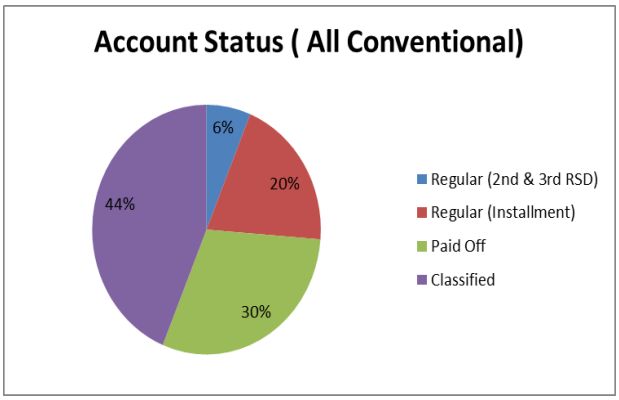


Figure 4.45 Statuses of the Rescheduled Loans of CBs

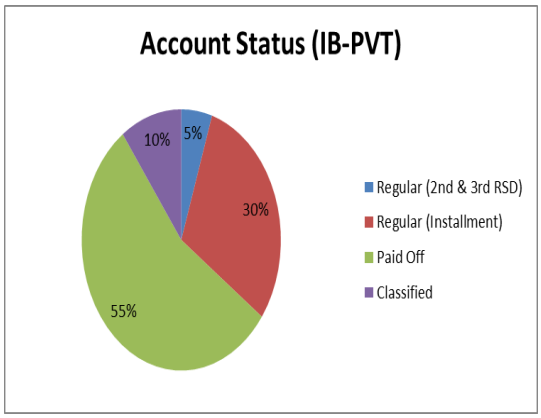


Figure 4.41Statuses of the Rescheduled Loans of IBs

Figures 4.45 and 4.41 direct that 6% of accounts are regular through second-time and third-time rescheduling of the conventional banks whereas 5% of accounts are regular through second-time and third-time rescheduling of the Islamic banks but 20% of accounts are regular through installment payments of the conventional banks whereas 30% accounts are regular through installment payment of the Islamic banks. At the same time, 30% of accounts are paid off by conventional private banks whereas 55% of accounts are paid off by Islamic banks, and for this reason, the classification of the rescheduled accounts is also high for the conventional banks. It is observed that 10% of accounts of Islamic Banks are classified again, but in the contrary, 44% of accounts of Conventional Banks are classified again.

Therefore, the ultimate model can be determined in the graph 4.52.

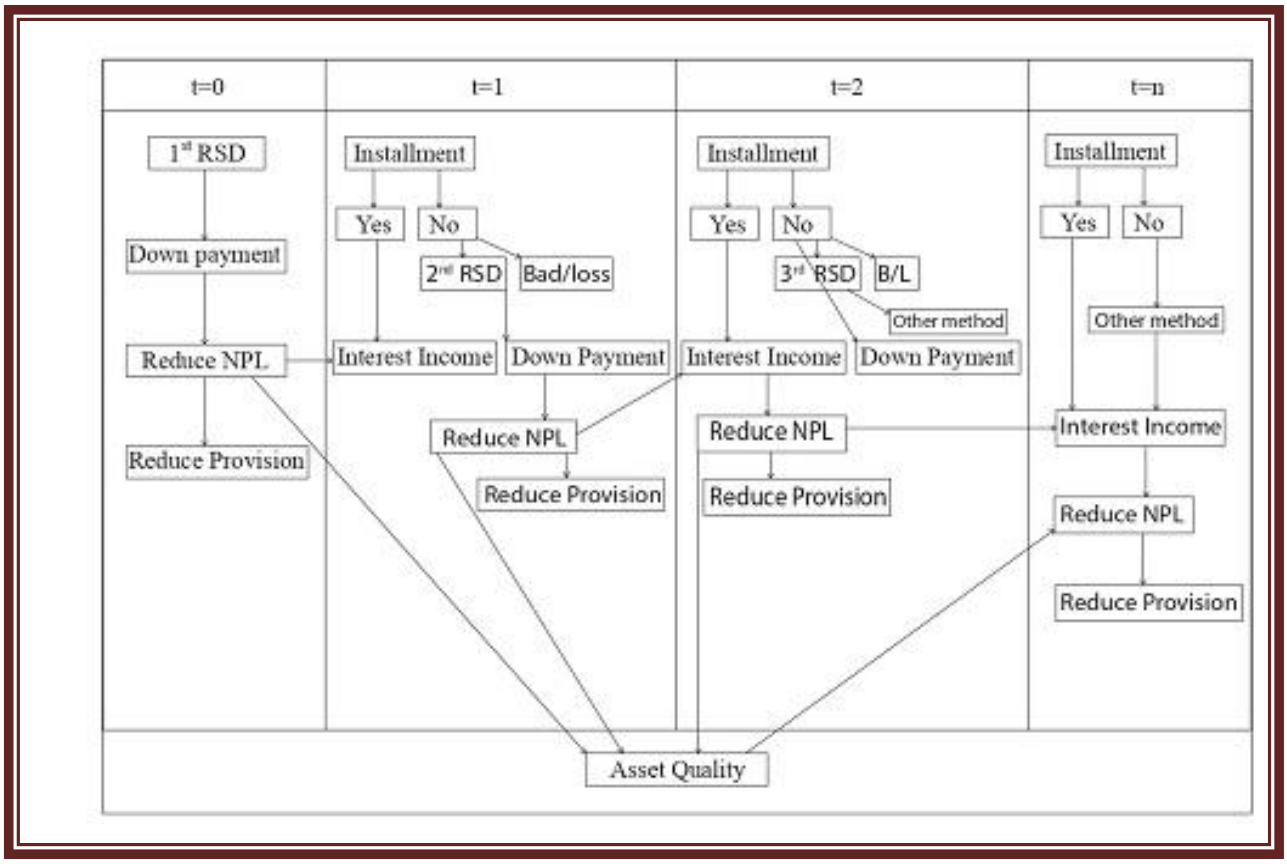


Figure 4.52: The Ultimate Model of the Loan Rescheduling and Bank Performance

PART D: EXPERTS OPINION ON THE EFFECTIVENESS OF RESCHEDULING

4.17 The Experts' Opinions

The differing opinions highlight the complexities and challenges involved in addressing financial distress through rescheduling, emphasizing the need for evidence-based and contextually relevant strategies in loan rescheduling efforts. From 60 experts, 23 experts believe that loan rescheduling is an effective strategy to help borrowers in financial distress. They likely see rescheduling as a viable option for reducing non-performing loans, assisting borrowers in meeting their obligations, and ultimately improving the financial institution's stability.

On the other hand, 25 experts hold the view that loan rescheduling is not an effective approach. They might argue that rescheduling can lead to adverse consequences, such as repeated non-performing loans or negative impacts on the financial institution's performance indicators, as mentioned in the earlier discussions. 12 experts' opinions believe that loan rescheduling can be effective to some extent but may not be a comprehensive solution. They might acknowledge that rescheduling can help certain borrowers, but it might have limitations or challenges that prevent it from being fully effective. The findings from Figure 4.53 reveal a diverse range of opinions among the experts, indicating that there is no clear consensus on the overall impact of loan rescheduling on bank performance. The opinions of the 60 experts on the impact of loan rescheduling on bank performance are given below as a breakdown of the percentages:

- **Positive Impact (38%):** 38% of the experts believe that loan rescheduling has a positive impact on bank performance. These experts likely view rescheduling as an effective tool for improving bank performance, such as reducing non-performing loans, enhancing asset quality, and supporting borrowers in financial distress.
- **No Positive Impact (42%):** The majority of the experts (42%) believe that loan rescheduling has no positive impact on bank performance. They might see rescheduling as a temporary solution that does not address the root causes of borrowers' financial difficulties or that may lead to adverse effects on the bank's performance indicators.
- **Partial Positive Impact (20%):** 20% of the experts believe that loan rescheduling has a partial positive impact on bank performance. This indicates that they recognize some positive aspects of rescheduling, but they also acknowledge limitations or challenges that prevent it from having a full positive impact.

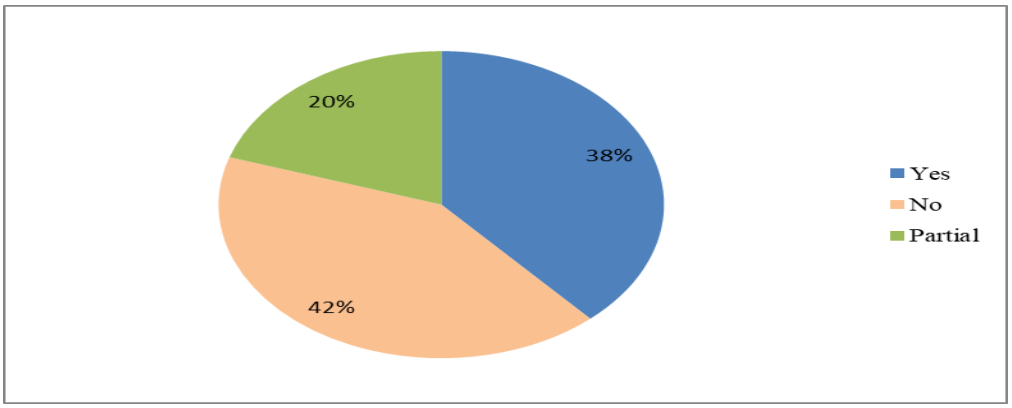


Figure 4.53: The Experts' Belief on the Effectiveness of the Loan Rescheduling

The findings from Figure 4.53 reveal a diverse range of opinions among the experts, indicating that there is no clear consensus on the overall impact of loan rescheduling on bank performance. The following implications can be drawn from these results:

- **Complexity of Rescheduling Impact:** The varying opinions suggest that the impact of loan rescheduling on bank performance is complex and multifaceted. It depends on numerous factors, including the financial institution's practices, borrowers' behavior, and the economic environment.
- **Need for Comprehensive Evaluation:** The diverse perspectives underscore the importance of conducting comprehensive evaluations of loan rescheduling efforts. A deeper analysis of the outcomes and implications of rescheduling can provide more clarity on its effectiveness.
- **Importance of Context:** The impact of loan rescheduling may be context-specific, as different financial institutions and borrower profiles may respond differently to rescheduling measures. Considering the specific context is vital in assessing the potential impact on bank performance.
- **Addressing Limitations:** For those experts who believe in a partial positive impact or no positive impact, addressing the limitations of loan rescheduling is crucial. Identifying and mitigating potential challenges can help improve the effectiveness of rescheduling efforts.
- **Balancing Risks and Benefits:** The mixed opinions indicate that financial institutions must carefully weigh the risks and benefits of loan rescheduling. Implementing a balanced approach that considers the long-term implications on bank performance is essential.

Then, the experts were asked-

- Why do you think that loan rescheduling is effective?
- Why do you think that loan rescheduling is not effective?
- How will loan rescheduling be more effective?

The coding of the experts' opinions was mapped by Nvivo software shown in Figure 4.542.

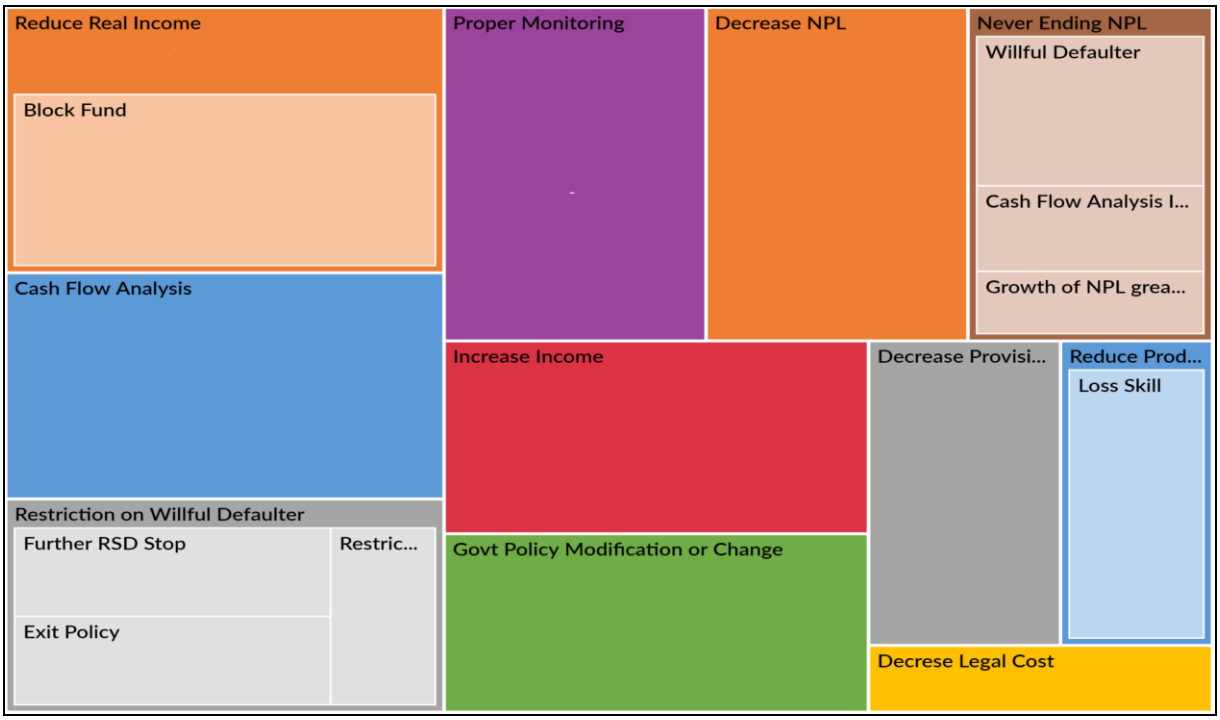


Figure 4.54: The Experts' Opinion- Coding Summary

4.18 How the Loan Rescheduling is Effective on Bank Performance

From the experts, 38% have opinioned that loan rescheduling has a positive impact on bank performance. Figure 4.55 shows the cluster analysis of how loan rescheduling has a positive impact on bank performance. Cluster analysis is a statistical technique used to group similar data points into clusters or segments based on their similarities. In the context of loan rescheduling, cluster analysis is employed to identify patterns and similarities in the expert opinions on the impact, effectiveness, and suggestions related to loan rescheduling. The ultimate model derived from cluster analysis helps in categorizing expert opinions and understanding the common themes and perspectives associated with loan rescheduling for decision-making, policy formulation, and designing effective loan rescheduling strategies that align with the goals of banks and borrowers. Here expert opinions are continually validated and updated to ensure the model's accuracy and relevance.

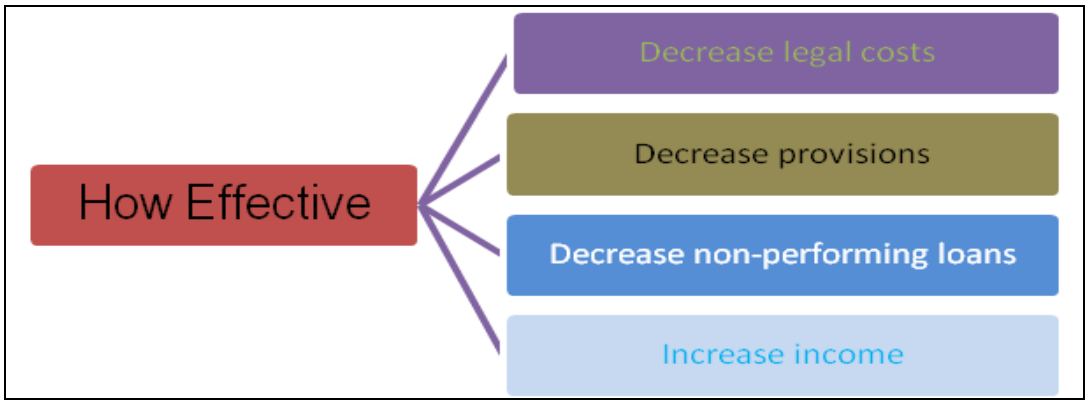


Figure 4.55: The Experts' Opinion- How the Loan Rescheduling is Effective

The concept mapping (in Figure 4.55) shows that loan rescheduling has a positive effect on bank performance. The logics are-

- Decrease legal costs
- Decrease non-performing loans
- Decrease provisions
- Increase income

The clustering of coding similarities in Figure 4.56 highlights the common themes and positive outcomes associated with loan rescheduling, as perceived by the positivist experts. The clustering groups similar viewpoints together based on the mentioned positive outcomes of loan rescheduling. Cluster 1 likely includes experts who believe that loan rescheduling can effectively lead to a decrease in non-performing loans and a reduction in the provisions for expected credit losses. The experts in this cluster argue that by rescheduling loans and providing borrowers with more manageable repayment terms, the financial institution can improve the borrowers' ability to meet their obligations, reducing the number of non-performing loans. Additionally, the decrease in provisions for expected credit losses indicates a positive impact on the financial institution's asset quality and profitability. Cluster 2 views loan rescheduling as a positive measure that can lead to a decrease in legal costs and an increase in the financial institution's income. The decrease in legal costs may be attributed to the resolution of potential legal disputes or litigations related to loan defaults.

The increase in income might be a result of borrowers' improved ability to repay their loans after rescheduling, leading to higher interest income for the financial institution.

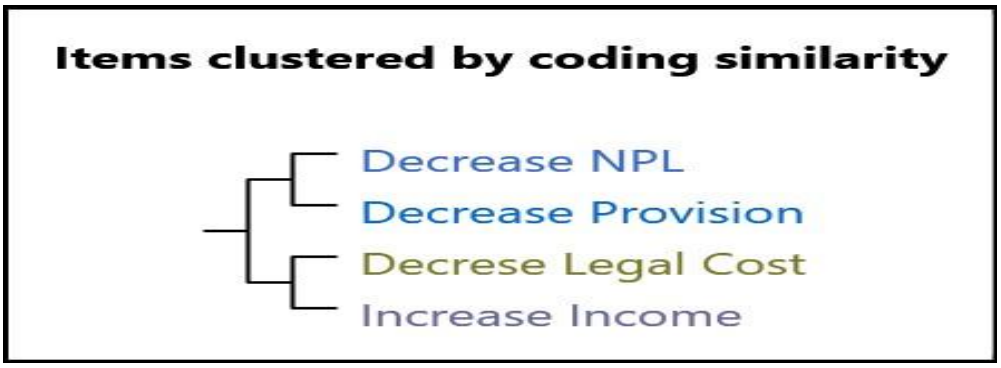


Figure 4.56: Cluster Analysis- How the Loan Rescheduling is Effective

Figure 4.57 shows the ranking of the opinions of the experts.

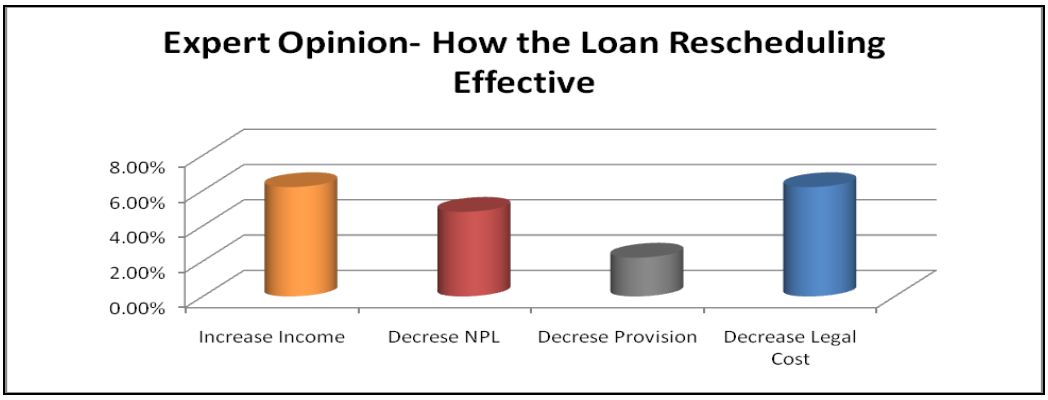


Figure 4.57: Ranking – How the Loan Rescheduling is Effective

The coding Figure 4.57 shows that rankings include increase income, decrease NPL, decrease provision, decrease legal cost. Based on the ranking, the factors are discussed below:

4.18.1 Positive impact of the loan rescheduling: increase income

If the loan becomes classified as non-performing, the interest accrued cannot be taken as income. Then it needs to be kept in a suspense account but when a NPL is rescheduled, it is turned from a bad to a good loan, and suspense interest can be transferred to income. This increases the banks' profit and decreases the NPL. If a client has an installment-based loan and becomes classified then the bank cannot transfer interest to income.

Through rescheduling, those loans become regular and interest is transferred to income. From rescheduling loans, the bank earns income rather than classified loans. Through rescheduling, the defaulter client starts paying the dues and the investment becomes regular for a certain period hence, increasing the income and reducing the non-performing of the bank. The irregular loan becomes regular, which creates the opportunity to recover the irregular loan, less amount preserved for provision, and sometimes income generated. Rescheduling the loan decreases the operating cost and increases employment opportunities. It also reduces the supervision and legal costs of the bank and increases management skills. At the same, the bank itself has also extensively benefited as its profitability goes up for the time being. With banks' rising profits, bankers also receive increased amounts of incentives (bonuses/increments/promotions). It also gives a positive message to the stakeholders as a whole.

4.18.2 Positive impact of the loan rescheduling: decrease the non-performing loans

The prime objective of loan rescheduling is to reduce the NPLs. Actually, it is a strategic approach used by lenders to help borrowers face financial difficulties in meeting their loan obligations. When implemented appropriately, loan rescheduling can lead to several positive outcomes, including a decrease in Non-Performing Loans. It reduces the classified loan and helps the bank to preserve less provision against the loan. The loan rescheduling provides borrowers with an opportunity to restructure their debts and align their repayment schedules with their current financial capabilities. This rehabilitation approach can lead to increased chances of borrowers successfully repaying their loans and transitioning from non-performing to performing status. With a reduction in NPL, the overall loan portfolio performance improves. A healthier loan portfolio is a positive indicator of the financial institution's stability and ability to manage credit risk effectively. Successful loan rescheduling and on-time repayments can have a positive impact on borrowers' credit scores. A better credit score can open up access to credit in the future, enabling borrowers to regain financial stability. Loan rescheduling allows financial institutions to work closely with borrowers to find mutually beneficial solutions. By preserving customer relationships, institutions can foster loyalty and trust, potentially leading to long-term customer retention. A decrease in NPL through successful rescheduling can contribute to overall economic stability by reducing the burden of distressed debt on both borrowers and financial institutions.

Thus, it decreases the operating cost and increases the employment opportunities. At the same, the bank itself has also extensively benefited as its profitability goes up for the time being. The decreased NPL also gives a positive message to the stakeholders as a whole. In this way, the risk-weighted asset becomes less.

4.18.3 Positive impact of the loan rescheduling: decrease the provisions

The positive impact of loan rescheduling on decreasing provisions is a significant benefit for banks. Loan rescheduling can lead to several positive outcomes related to provisions. Adequate provisioning is a crucial aspect of regulatory compliance for financial institutions. Successful loan rescheduling that leads to a reduction in provisions ensures that the institution meets regulatory requirements while managing credit risk effectively.

By effectively rescheduling loans, banks can improve the borrowers' ability to meet their revised repayment terms. As a result, the probability of loan defaults decreases, reducing the need for setting aside provisions for those loans. Rescheduling loans for borrowers who are facing temporary financial challenges can help mitigate credit risk exposure. The timely and structured repayment schedules can enhance the likelihood of successful loan recoveries, leading to a lower requirement for provisions. As the success of loan rescheduling leads to a decrease in non-performing loans, the overall asset quality of the financial institution's loan portfolio improves. A reduction in provisions positively impacts the financial institution's profitability. When provisions decrease, the banks' net income increases. As provisions decrease, the banks' capital adequacy improves. With fewer provisions required, banks can allocate resources more efficiently to other areas of operations or invest in growth opportunities. So, lowering the NPL through loan rescheduling, the provision expenditure reduces.

To reduce classified investment and avoid keeping huge provisioning, rescheduling loans has improved the healthy position of the bank. Rescheduling the loan/investment decreases the operating cost and increases employment opportunities. Also, provision requirements, less pressure on capital structure requirement of the bank having the loan disbursement capacity acceleration, and ultimately clients can run business smoothly. The bank should follow all legal procedures to recover the loan alternative of rescheduling. Loan Rescheduling reduces the supervision and legal costs of the bank and increases management skills.

4.18.4 Positive impact of the loan rescheduling: decrease the legal costs

Bank should follow all legal procedures to recover loan alternative of rescheduling. Loan Rescheduling reduces the supervision and legal cost of the bank and increases the management skill. In this way, rescheduling has positive impact in the asset quality of the bank. At the same, the bank itself is also extensively benefited as its profitability goes up for the time being.

4.19 Why the Loan Rescheduling is not Effective on Bank Performance

From the experts, 42% have opinioned that the loan rescheduling has no positive impact on bank performance. Figure 4.58 shows why the loan rescheduling has no positive impact on bank performance.

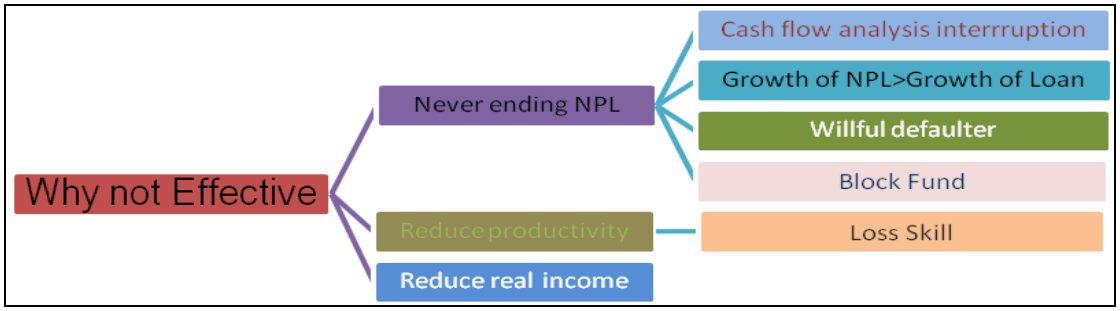


Figure 4.58: The Experts' Opinion- Why the Loan Rescheduling is not Effective

The concept mapping (in Figure 4.58) shows that the loan rescheduling has no positive effect on bank performance due to-

- Never-ending non-performing loan
  - ✓ Cash flow analysis interruption
  - ✓ The growth of non-performing loan is greater than the growth of loan rescheduling
  - ✓ Willful defaulter
  - ✓ Block fund
- Reduce productivity
  - ✓ Loss skill
- Reduce real income

Figure 4.59 presents the clustering of coding similarities related to the negativist views on the impact of loan rescheduling. The clustering groups similar viewpoints together based on the mentioned negative outcomes and challenges associated with loan rescheduling. Cluster 1 includes experts who believe that loan rescheduling may lead to a loss of skill and a reduction in real income for the financial institution. The loss of skill refers to the challenges faced by financial institutions in effectively managing rescheduled loans and addressing the complexities of distressed borrowers.

The reduction in real income may result from factors such as increased provisions for credit losses or additional administrative costs related to rescheduling.

Cluster 2 includes cash flow analysis interruption, growth of non-performing loans greater than the growth of rescheduling, and willful defaulter experts. This cluster views loan rescheduling as problematic, as it can lead to interruptions in cash flow analysis, where the financial institution faces challenges in accurate assessment of its cash flow due to rescheduled loans. They also argue that the growth of non-performing loans surpasses the growth of rescheduling efforts, potentially indicating the limited effectiveness of rescheduling in reducing non-performing loans. Furthermore, they may highlight the risk of borrowers intentionally defaulting on their rescheduled loans, becoming willful defaulters. Cluster 3 includes never-ending non-performing loans which reduces productivity. This cluster includes experts who believe that loan rescheduling can lead to the persistence of non-performing loans, creating a never-ending cycle of distressed loans. They also suggest that rescheduling efforts could potentially reduce the productivity of the financial institution, as it diverts resources and attention from other income-generating activities.

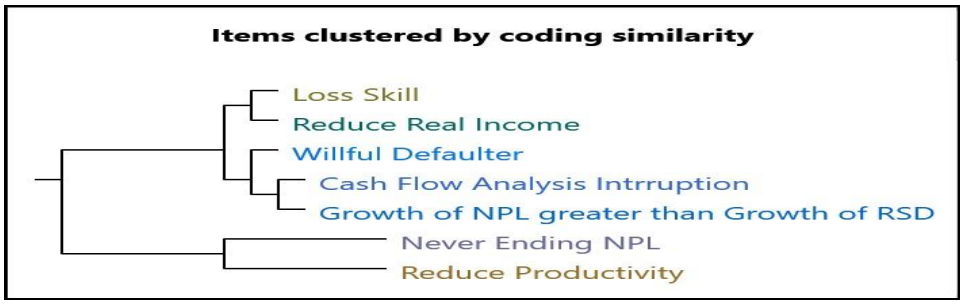


Figure 4.59: Cluster Analysis- Why the Loan Rescheduling is not Effective

Figure 4.60 shows the ranking of the opinions of the experts.

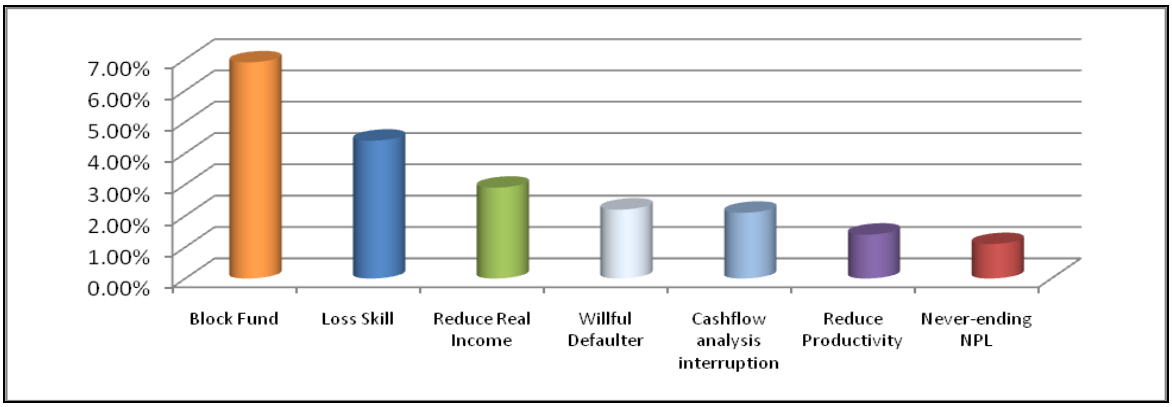


Figure 4.60: Ranking - Why the Loan Rescheduling is not effective

The coding Figure 4.60 shows that rankings comprise block fund, loss skill, reduced real income, willful defaulter, cash flow analysis interruption, and growth of non-performing loan greater than rescheduling. Based on the ranking, the factors are discussed below:

4.19.1 Negative impact of the loan rescheduling: block funds

The loans are normally rescheduled based on additional interest/income. But this is not possible in Islamic Banking to charge additional income. If the installments are rescheduled, no additional amount can be charged for rescheduling. In this consideration, the fund is blocked creating the problem of deterioration of liquidity problem, a decline in asset quality, and a capital adequacy problem. Overall, management efficiency becomes a question of performance. As rescheduling blocks the bank's fund, the bank cannot invest this amount as a fresh loan and cannot refinance the fund as the bank fails to attract new clients. Also, it has an impact on depositors as well as all stakeholders. This hampers the liquidity of the bank as well as a risk-weighted asset by deteriorating the asset quality of the bank. Without investing new loan, the income reduction results in a negative impact on management efficiency as well as the earnings of the respective bank or financial institution. For the longer time blocking of the fund, the real income of the bank will decline. Therefore, the asset quality deteriorates. Negative cash inflow and the clients' performance are overstated. In this consideration, the loan rescheduling is nothing but a never-ending NPL.

4.19.2 Negative impact of the loan rescheduling: loss skill of the employees

The fund is blocked through loan rescheduling, creating the problem of deterioration of liquidity problem, a decline in asset quality, and a capital adequacy problem. Overall, the management efficiency becomes a question of performance. The negative impact of loan rescheduling on the loss of employee skills is an important consideration for financial institutions. When loan rescheduling is implemented, it can potentially lead to challenges and negative consequences for the institution's employees. The process of loan rescheduling can be complex and time-consuming. Employees involved in the rescheduling process need to be well-trained and have skills in risk assessment, financial analysis, negotiation, and customer relationship management.

The increased workload and pressure during rescheduling efforts may lead to burnout and impact employee morale. Effective loan rescheduling requires a deep understanding of borrowers' financial situations and the ability to devise appropriate restructuring plans. If employees lack the necessary expertise or training, it can lead to suboptimal rescheduling decisions and potentially increase the risk of loan defaults. Rescheduling loans may require significant resources, diverting employee time and effort from other critical tasks and responsibilities. This can strain the institution's capacity to handle routine operations and impact overall efficiency. The challenges and pressures associated with loan rescheduling may lead to increased employee turnover, particularly if employees feel overwhelmed or unsupported during the process. Employee turnover can disrupt continuity, cause knowledge loss, and lead to recruitment and training costs.

The extra workload and pressure during loan rescheduling efforts may adversely affect employee productivity. Employees may need more time to focus on other crucial tasks, leading to potential delays in other areas of the institution's operations. If financial institutions need to hire new employees with specialized skills for loan rescheduling, it can result in additional training and development costs. Without investing in new loans, the income reduction results in a negative impact on management efficiency. It creates a great challenge to maintain capital adequacy meaning that rescheduling is ultimately a window dressing of the asset’s quality of the bank. All of the matter creates a question of management efficiency that has not properly focused on the income-expenditure ratio. Performance is overstated leading to wrong indicators of decision-making and destroying capacity and skills in some cases.

4.19.3 Negative impact of the loan rescheduling: reduce real incomes

Rescheduling the loan decreases real income as the income of irregular continuous and demand loans in Islamic banks cannot be used as income of the bank. Also, for a long time repayment schedule, the fund has to stick up. Moreover, rescheduling has a negative impact on the repayment behavior of the client which creates liquidity problems. For the longer time blocking of the fund (for a longer time), the real income of the bank will decline. Loan rescheduling leads to an increase in provisions for potential loan losses.

When loans are rescheduled, there is a chance that some borrowers might still face difficulties in repaying their obligations, resulting in higher expected credit losses and consequently, higher provisions. Loan rescheduling often involves modifying interest rates or extending loan terms, which can result in lower interest income for the financial institution. This can impact the NIE and overall profitability. The process of loan rescheduling may incur additional administrative costs for the financial institution, further impacting earnings. The time and resources spent on managing rescheduled loans might divert attention from other income-generating activities, potentially affecting overall earnings. Negative perceptions from investors or depositors regarding loan rescheduling practices might lead to decreased confidence in the financial institution, impacting its funding costs and overall performance. External economic conditions can also influence the impact of loan rescheduling. If the broader economic environment remains challenging, borrowers' ability to repay even after rescheduling might be limited, affecting the financial institution's earnings. Therefore, the asset quality becomes deterioration.

4.19.4 Negative impact of the loan rescheduling: willful defaulters

Considering a client's willingness and ability to pay is essential when rescheduling loans. Financial institutions must thoroughly analyze the business's prospects, revenue earnings, and cash-generating ability to determine if loan rescheduling is a viable solution. If the borrower is deemed a willful defaulter, and their business prospects appear unattractive, it may not be prudent to lengthen the recovery process through rescheduling.

Categorizing borrowers as willful defaulters and truly depreciated traders allows the financial institution to differentiate between borrowers who may genuinely face financial challenges and those who intentionally default on their obligations. This categorization enables a more targeted and appropriate approach to dealing with each group. In cases where a borrower is identified as a willful defaulter and their business prospects are deemed unattractive, it might not be in the best interest of the financial institution to reconsider the rescheduling or down payment system for that borrower. Instead, the institution may need to explore other measures, such as legal action or collateral enforcement, to address the default situation.

The goal of loan rescheduling is to provide a realistic path for borrowers facing financial difficulties to repay their obligations. However, it is crucial for financial institutions to exercise sound judgment and consider the overall financial health and future prospects of the borrower's business. Rescheduling loans for willful defaulters with unattractive business prospects may not be a prudent financial decision and may not lead to successful debt recovery. So, while loan rescheduling can be an effective tool in assisting borrowers with genuine financial challenges, it should be implemented with careful consideration of the borrower's willingness and ability to repay, as well as the prospects of their business. Categorizing borrowers based on their default behavior and business prospects allows for a more targeted approach, ensuring that rescheduling efforts are focused on those who genuinely require assistance. However, rescheduling may not be the appropriate solution for willful defaulters with unattractive business prospects, and other recovery strategies may need to be pursued in such cases.

4.19.5 Negative impact of the loan rescheduling: cash flow analysis interruptions

Cash flow analysis is a decisive factor in the loan sanctioning process. Cash flow analysis helps banks assess the ability of the borrowers to generate adequate cash to meet the repayments of the loan. This analysis becomes crucial for consideration of loan rescheduling which informs whether the borrower's financial situation can realistically support the revised terms of the repayment. The failure to analyze cash flow properly can have several negative consequences in the next process of recovery. If the banks agree to reschedule terms without a proper cash flow analysis, it will not be feasible for recovery.

Consequently, the borrower may continue to struggle with repayments, ultimately leading to a failure of the rescheduling effort. Insufficient cash flow analysis can lead to rescheduling loans for borrowers who do not have the capacity to meet the new repayment terms increasing the risk of future NPLs.

4.19.6 Negative impact of the loan rescheduling: the growth of non-performing loans is greater than the growth of loan rescheduling

The portfolio of loans is increasing along with non-performing loans and loan rescheduling over the years. The growth of NPL is greater than that of the growth of loan rescheduling in a never-ending process. Several unexpected consequences occur due to the ineffective loan rescheduling efforts due to the unaddressed root causes of financial distress. As loan rescheduling decisions are not based on thorough risk assessments and borrowers' repayment capacity, there is a higher risk of rescheduling loans for borrowers. This results in a higher likelihood of NPL increasing over time. The rescheduling process is not carried out promptly with appropriate restructuring strategies and the underlying financial challenges faced by the borrowers resulted in the continuation of the growth of NPL despite the attempted rescheduling efforts. In some cases, borrowers may view rescheduling as an opportunity to delay or avoid repayment without genuine efforts to improve their financial situation. This moral hazard can lead to borrowers taking advantage of rescheduling without a commitment to meeting their obligations. A growing number of NPLs can erode the asset quality of the financial institution's loan portfolio. This can lead to increased provisioning needs, impacting the institution's profitability and capital adequacy.

4.20 How the Loan Rescheduling can be Effective on Bank Performance

From the experts, 42% have opinioned that the loan rescheduling has no positive impact on bank performance and 20% have opinioned that the loan rescheduling has a partial impact on bank performance. Thus, they were asked how the loan rescheduling could be effective. Figure 4.61 shows why the loan rescheduling does not have a positive impact on bank performance.

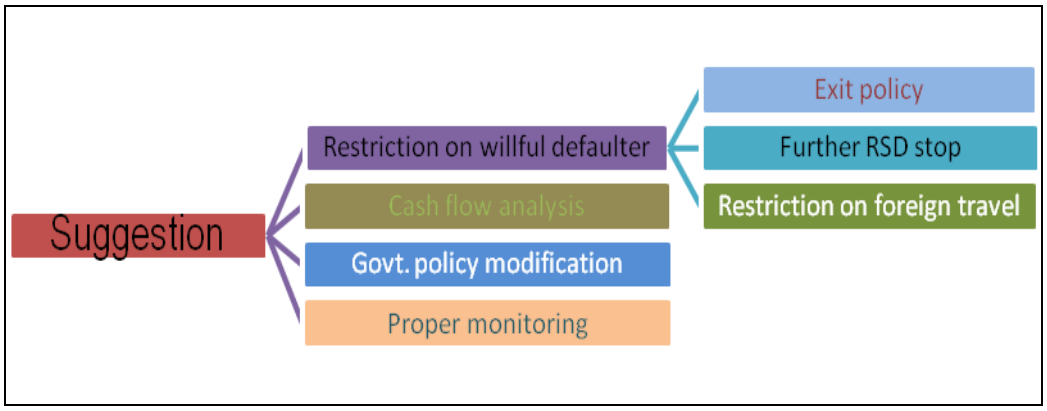


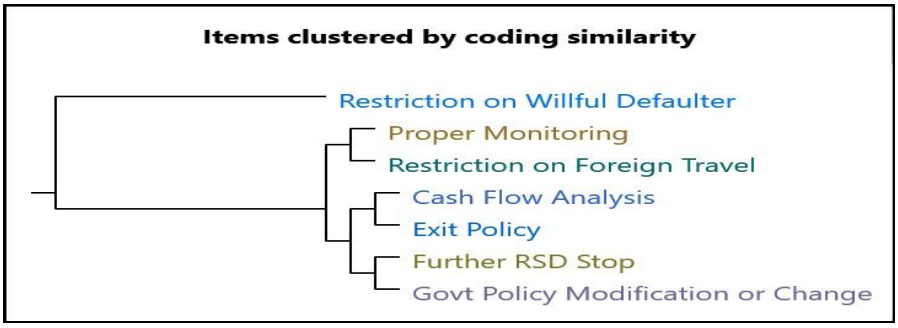
Figure 4.61: The Experts' Opinion- How the Loan Rescheduling can be Effective

The concept mapping (in Figure 4.61) shows how loan rescheduling can be effective on bank performance -

- Cash flow analysis
- Government policy modification or change
- Proper monitoring
- Restriction on willful defaulters
  - ✓ Exit policy
  - ✓ Further rescheduling stop
  - ✓ Restriction on foreign travel

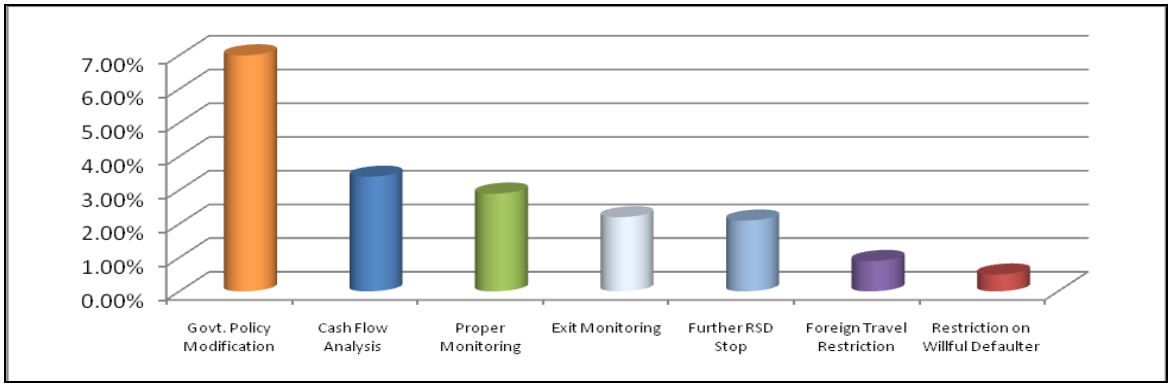
Figure 4.62 presents the clustering of coding similarities related to the suggestions regarding loan rescheduling. The clustering groups similar suggestions together based on their common themes. Cluster 1 includes proper monitoring and restriction on foreign travel. This cluster includes suggestions that advocate for proper monitoring of rescheduled loans and the implementation of restrictions on foreign travel for borrowers. Proper monitoring ensures that borrowers adhere to the revised repayment terms, reducing the risk of potential defaults. Restricting foreign travel may serve as a measure to encourage borrowers to prioritize loan repayments. Cluster 2 includes cash flow analysis interruption and exit policy. This cluster comprises suggestions related to the potential issues of cash flow analysis interruption and the importance of having an exit policy. Cash flow analysis interruption refers to the challenges financial institutions may face in accurately assessing borrowers' cash flows after rescheduling.

Having a well-defined exit policy helps in handling situations where rescheduling is not effective, and alternative recovery measures need to be considered. Cluster 3 includes further rescheduling stops and government policy modifications. This cluster includes suggestions calling for a stop to further rescheduling actions and proposing modifications to government policies related to loan rescheduling. This may indicate a concern about the potential risks associated with repeated rescheduling and the need for changes in the regulatory framework to ensure more effective rescheduling practices. Cluster 4 includes restrictions on willful defaulters. The suggestion related to the restriction on willful defaulters forms a separate cluster. This indicates the significance of addressing willful defaulters separately from other borrowers, potentially through more stringent measures or legal actions.



4.62: Cluster Analysis- How the Loan Rescheduling can be Effective

Figure 4.63 shows the ranking of the opinion of the experts.



4.63: Ranking- How the Loan Rescheduling can be Effective

The coding Figure 4.63 shows that rankings include government policy modification, cash flow analysis, proper monitoring, exit policy, further rescheduling stop, and restriction on foreign travel. Based on the ranking the factors are discussed below:

4.20.1 Fruitfulness of the loan rescheduling: government policy modification

The banking sector becomes busy alongside the election commission, government administration, and law enforcing agencies. Most of the contesting candidates are directly or indirectly involved with business enterprises having NPL which needs to be rescheduled. It can be shown in the nomination papers that the candidate has no NPL with the bank. On the contrary, businessmen cum politicians have immensely benefited from this provision which has made it easy to mark themselves as clean borrowers instead of loan defaulters.

The Bank may partially benefit from rescheduling investment by getting a certain percentage of the down payment as the precondition of loan rescheduling. In some cases, the bank may get new collateral to minimize the risk level of its investment. Members of the Board need to understand the risk management activities. The suggestion of forming a Nationalized Asset Management Company (NAMC) as a separate legal entity to facilitate the liquidation of companies for the realization of bank dues is a proactive approach to managing non-performing loans. The creation of a specialized entity can help financial institutions address the challenges associated with distressed assets more effectively.

However, it is essential to recognize potential challenges in implementing this suggestion, such as financial and operational considerations, governance structure, and coordination with existing regulatory frameworks. Careful planning and stakeholder engagement will be crucial in successfully establishing and operating the NAMC.

In conclusion, forming a NAMC as a separate legal entity can be a valuable approach to managing non-performing loans and realizing bank dues. By dedicating resources and expertise to the resolution of distressed assets, NAMC can help financial institutions navigate challenging economic conditions and strengthen the overall financial system. To ensure the effectiveness of this approach, NAMC should operate with strict adherence to regulations, transparency, and a commitment to fair debt resolution practices.

4.20.2 Fruitfulness of the loan rescheduling: cash flow analysis

Proper cash flow analysis should be analyzed and fund flow should be spread up to increase the liquidity of the bank. In this consideration, the bank itself as well as BB as a regulator must be mostly serious. Without proper analysis of the cash flow of the NPL client, the rescheduling must be stopped and other ways of recovery should be taken. Therefore, banks must address the following issues to ensure the effectiveness of loan rescheduling for loan recovery:

- **Strengthening Risk Assessment:** Implement robust risk assessment processes that include comprehensive cash flow analysis when considering loan rescheduling. This will help identify borrowers who genuinely can meet the revised repayment terms.
- **Financial Counseling and Education:** Provide financial counseling and education to borrowers to help them better understands their cash flow and financial obligations. This can improve their financial management skills and enhance the likelihood of successful loan repayment.
- **Tailored Rescheduling Plans:** Develop customized rescheduling plans that consider each borrower's specific cash flow situation and financial challenges. This will increase the chances of borrowers adhering to the new repayment terms.
- **Monitoring and Review:** Continuously monitor the performance of rescheduled loans and regularly review borrowers' cash flow to ensure they remain capable of meeting the revised repayment terms.

By taking these steps, financial institutions can increase the effectiveness of loan rescheduling as a tool for loan recovery in the long-run. Proper client selection through comprehensive cash flow analysis is fundamental to achieving the intended outcomes of loan rescheduling while safeguarding the financial institution's stability and asset quality.

4.20.3 Fruitfulness of the loan rescheduling: proper monitoring

Fruitfulness of loan largely depends on proper monitoring and oversight. When a loan is rescheduled, the borrower is given new repayment terms. Proper monitoring helps to ensure the borrowers adhere to these new terms and make timely repayments. Without monitoring, there is a risk that borrowers may default again, leading to the failure of the rescheduling efforts.

Effective monitoring allows lenders to spot early warning signs of potential payment difficulties. By analyzing repayment patterns and financial indicators, lenders can intervene early and provide assistance or guidance to borrowers facing difficulties in meeting their obligations. Moral hazard is the risk that borrowers may take on more risk or act irresponsibly if they believe they will be bailed out by the lender. With proper monitoring, lenders can hold borrowers accountable for their actions and maintain discipline in the lending process. Monitoring data provides valuable insights into the performance of rescheduled loans. Lenders can use this information to assess the effectiveness of their rescheduling strategies and make informed decisions on future loan rescheduling requests.

Without proper monitoring, there is a possibility that borrowers may take on additional loans from different sources, leading to over-indebtedness. Monitoring helps lenders assess the borrower's overall financial health and capacity to take on new debt responsibly. Transparent monitoring processes build trust between borrowers and lenders. Borrowers are more likely to cooperate when they understand that their loan rescheduling is being monitored and they are held accountable for their repayment obligations. Financial institutions must adhere to regulatory guidelines when conducting loan rescheduling. Proper monitoring ensures that these regulations are followed, reducing the risk of potential legal and compliance issues. Data obtained through monitoring allows lenders to track trends, assess the success of various rescheduling strategies, and identify areas for improvement. This data-driven approach can lead to better outcomes for both borrowers and lenders.

Lastly, the fruitfulness of loan rescheduling relies heavily on proper monitoring. By actively tracking borrowers' repayment behavior and financial status, lenders can manage risks, prevent defaults, and promote responsible borrowing and lending practices. Effective monitoring also enhances transparency, accountability, and compliance, fostering a healthier lending environment.

4.20.4 Fruitfulness of the loan rescheduling: exit policy

The exit policy in the context of loan rescheduling refers to a structured plan that outlines the conditions and procedures under which a borrower can exit or complete the rescheduling process successfully. A well-defined and effective exit policy is crucial for ensuring the fruitfulness of loan rescheduling. An exit policy provides clarity to both the borrower and the lender on the terms and conditions required to complete the rescheduling process. It sets clear goals and milestones for the borrower to achieve, creating a sense of certainty and direction throughout the rescheduling period. A well-designed exit policy can include incentives for borrowers to meet their obligations promptly. For example, it may outline reduced interest rates or additional benefits once the borrower successfully completes the rescheduling plan. These incentives motivate borrowers to repay their loans diligently. An exit policy typically defines specific goals and targets that borrowers must meet during the rescheduling period.

These goals could include making regular payments for a specified period or reaching a certain level of repayment. This goal-oriented approach helps borrowers focus on achieving financial stability and ultimately exiting the rescheduling process. An exit policy sets a timeline for the rescheduling process, ensuring that it does not drag on indefinitely. Time-bound objectives keep the borrower accountable and prevent the rescheduling from becoming a prolonged solution that hinders their financial progress. By having a structured exit policy, lenders can manage the risks associated with loan rescheduling. It allows them to monitor the progress of borrowers and take corrective actions if needed. Additionally, the policy may define circumstances in which the rescheduling can be terminated if the borrower fails to meet the agreed-upon terms. The exit policy aims to enable borrowers to transition from a state of financial distress to a position of sustainable debt management. By providing a clear path toward debt resolution, the policy promotes responsible financial behavior and the eventual return to regular loan repayment. An exit policy ensures that all borrowers seeking rescheduling are treated fairly and consistently. The criteria and conditions for exiting the rescheduling process are applied uniformly to avoid any perception of favoritism or discrimination. Monitoring the outcomes of the exit policy can provide valuable insights into the effectiveness of loan rescheduling strategies. Lenders can learn from successful cases and identify areas for improvement in their future rescheduling efforts.

Therefore, an exit policy is a vital component of loan rescheduling as it provides a structured framework for borrowers to successfully complete the rescheduling process and achieve financial stability. It offers clarity, incentives, and time-bound goals, promoting responsible borrowing and lending practices while mitigating risks for both parties involved.

4.20.5 Fruitfulness of the loan rescheduling: restriction on foreign travel

Restricting foreign travel can be a measure taken by lenders as part of the loan rescheduling process to ensure the fruitfulness of the arrangement. This restriction is imposed on borrowers who have undergone loan rescheduling and is intended to provide additional incentives for borrowers to adhere to the newly agreed-upon repayment terms. By restricting foreign travel, borrowers may be encouraged to prioritize their financial responsibilities, including timely loan repayments.

The inability to travel abroad can act as a deterrent to overspending or neglecting repayment obligations. International travel can be costly, and by restricting it during the rescheduling period, borrowers are less likely to spend money on non-essential expenses. This measure helps them allocate funds toward loan repayments, increasing the chances of successful debt resolution. Agreeing to the restriction on foreign travel can demonstrate the borrower's commitment to repaying the loan. It shows a willingness to make sacrifices and take the rescheduling process seriously, which may positively impact the lender's perception of the borrower's creditworthiness. Loan rescheduling is often a result of financial difficulties, and lenders may view the borrower with a certain degree of skepticism. Accepting and adhering to a restriction on foreign travel can help rebuild trust between the borrower and lender, as it indicates a genuine intention to improve the financial situation. Rescheduled loans involve some level of risk for lenders. Restricting foreign travel can be seen as a risk management measure to reduce the likelihood of the borrower defaulting on the new repayment terms and to prevent the potential flight of assets.

However, it's essential to note that while restricting foreign travel may be a well-intentioned approach, it also raises ethical considerations. Such restrictions may be perceived as intrusive or overly controlling, especially if the borrower's financial difficulties were not the result of irresponsible behavior.

Moreover, the effectiveness of this measure depends on the individual borrower's financial situation and spending habits. If a restriction on foreign travel is considered as part of a loan rescheduling agreement, it should be communicated clearly and should align with applicable laws and regulations. Lenders should also consider alternative ways to support borrowers in meeting their repayment obligations, such as financial education or counseling, to address the underlying financial challenges that led to the rescheduling in the first place. Ultimately, the fruitfulness of loan rescheduling relies on a comprehensive and tailored approach that addresses the borrower's specific financial circumstances, promotes responsible financial behavior, and offers support for sustainable debt management.

The results of the expert opinion have been summarized in Table 4.63.

Table 4.63: Summary of the Experts' Opinion

Opinion	**Factors**	**Rational with VECM/ VAR Model**
How improved performance	Decrease NPL	Improving factors ***implies*** the effect of RSD on NPL but the other factors infer the loss of earnings, asset quality, management efficiency and liquidity
	Increase reinvestment capability	
	Reduce Legal Expenditure	
	Increase Income (not for IB)	
Why not effective efficiently	Reduce Real Income (Block fund)	
	Reduce Productivity (Loss Skill)	
	Never ending NPL	
	Willful defaulter (Cash flow analysis)	
How can be effective	Cash flow analysis	
	Proper monitoring	
	Restricted to willful defaulter (exit policy, further RSD stop, restriction on foreign travel, exit policy)	
	Govt. policy modification/change	

CHAPTER FIVE: DISCUSSIONS OF THE RESULTS

The chapter four has depicted the analysis of the data with results. The data has been analysed on the basis of specific objective targeting to find out the ultimate broad objective of investigating the effectiveness of loan rescheduling on performance of commercial banks in Bangladesh. This chapter elaborately explains the findings aligning with the existing research and hypothesis of this study. This chapter also triangulates the results of the different parts of the chapter four. Basically, it revisits the objectives and then presents major findings on each objective that focuses on the association with the previous researches.

5.1 The Non-Performing Loans Policy and Status in Bangladesh

Loans are classified into categories such as UC, SMA, SS, DF, and BL based on their recovery and the banks should have to preserve provisions based on the category especially higher for those in riskier categories like SS, DF, and BL. These SS, DF, and BL loans are considered defaulted loans, and interest income has to be preserved as suspense until the loan that is recovered or becomes a regular loan. Additionally, the banks have to pay interest on the deposit but no income is generated for the NPL. There has been a continuous increase in the number or proportion of NPLs in the banking sector of Bangladesh over the specified period (1997-2021). Despite the positive decrease in the ratio of NPL to total loans, the key concern is that the ratio of NPL to total loans remains high. This implies that relative to the total loan portfolio, the proportion of NPLs is a significant issue with several implications for the banking sector. The more concerning aspect is that the increase in NPLs is higher for SCBs and PCBs compared to DFIs and FCBs, and the trend of increasing NPLs in SCBs and PCBs is causing significant concern within the banking sector. Lata (2015) as well as daily news of Bangladesh mentioned that the SCBs of Bangladesh are especially suffering from the excessiveness of NPLs. High levels of NPLs in SCBs and PCBs can have broader implications for the instability of the banking sector. Roy and Aktar (2018); Rahman and Jahan (2018); Towhid et al. (2019); Chowdhury and Jannah (2020); Kumar et al. (2020); Zhang et al. (2020); Akhter (2023); Chowdhury et al. (2023), Bhuiya et al. (2023); Hania and Himel (2023) support the same outcome for the banking sector of Bangladesh due to the NPL.

5.2 The Loan Rescheduling Policy and Status in Bangladesh

The loan rescheduling process in Bangladesh involves adherence to Bangladesh Bank circulars and the implementation of stricter internal policies by commercial banks. The focus is on comprehensive financial analysis and risk management to ensure that rescheduling is done in a manner that is financially sustainable for both the borrower and the bank. The policy suggests an emphasis on risk mitigation, preventing a cycle of repeated rescheduling for borrowers with poor repayment capacity. The overall repayment capacity of the borrower is highlighted as a crucial factor in the rescheduling process. This involves a comprehensive assessment that takes into account various financial indicators, including liabilities with other banks and financial institutions, cash flow statements, audited balance sheets, income statements, and other financial statements.

The lines representing the ratios of rescheduled loans to total deposits and total loans are positively increasing from 2011 to 2021 which suggests that the relationship between rescheduled loans and non-performing loans has been more variable or unpredictable in recent years. This implies that the proportion of rescheduled loans relative to total deposits and total loans is on the rise over the specified period. The amount of rescheduled loans has varied, and this variation is attributed to policy changes in classification and rescheduling inferring that policy changes have a significant impact on the accounting and handling of rescheduled loans. In summary, the trends in ratios related to rescheduled loans suggest a dynamic environment influenced by policy changes, economic conditions, and the interaction between rescheduled loans and non-performing loans. Tchistyi and Piskorski (2008); Patwary and Tasneem (2019), Sianipar and Talib (2023), Banerjee et al. (2023) recommended for the controlled rescheduling which supports policy of rescheduling in Bangladesh but has question in practice.

From analysis of the data, it is observed that private commercial banks have a major share in rescheduled loans, exceeding 50%, while SCBs have a share of around 35%. DFIs and FCBs have smaller shares. The percentage share of rescheduled loans for PCBs is positively increasing. In contrast, the rescheduled loan share of SCBs is decreasing after 2019.

This indicates a shift in the distribution of rescheduled loans away from SCBs during this period. This decrease for the period of 2018-2021 may occur due to the flexible condition of the COVID-19 situation. Rescheduled loans for DFIs and FCBs are at a steady level during the specified period. Interestingly, SCBs and DFIs have a proportion of rescheduled loans to their total portfolios ranging from 20% to 25%, indicating that the proportion of rescheduled loans to their total portfolios falls within this range, and private commercial banks have a slightly lower ratio range of 10% - 20%. The ratio of rescheduled loans for FCBs is noted to be nearly 5%. This indicates a relatively lower proportion of rescheduled loans in their portfolio compared to other types of banks. The increasing share of rescheduled loans in PCBs might suggest a higher exposure to risk or challenges in loan management within this sector. The decreasing trend in rescheduled loans for SCBs after 2019 could raise questions about the effectiveness of their loan management strategies or the economic conditions affecting their borrowers. The steady levels of rescheduled loans for DFIs and FCBs suggest a more consistent approach or a relatively stable economic environment for these institutions.

5.3 Impact of the Loan Rescheduling on Performance Indicators of the Commercial Banks in Bangladesh

In the dynamic regression model, seven regression equations were formulated to evaluate the effectiveness of rescheduling loans with relevant variables from the CAMEL model which results are discussed below:

5.3.1 Impact of the loan rescheduling on the non-performing loans

The VECM results indicate that the null hypothesis Ho_1 can be rejected inferring that rescheduled loans have a negative impact on non-performing loan in the long-run. The coefficient of rescheduled loans' lag_1 is not statistically significant and coefficient lag_2 is statistically significant at a 5% confidence level but coefficient lag_3 is statistically significant at a 10% confidence level. Therefore, the long-run effect of rescheduled loans on the non-performing loans is not as expected. As coefficient ce_1 is negative and statistically significant having the coefficient of ECT (Error Correction Term) is -1.40 suggesting that the previous year's error (or

deviation from the long-run equation) is corrected for within the current year at a convergent speed of 1.40 times. Therefore, it can be concluded that there is long-run causality between the dependent and independent variables. Thus it can be inferred that the long-run effect of rescheduled loans on the non-performing loans is not as expected though there is long-run causality between the dependent and independent variables. It seems that the expectation or intention of reducing NPL through loan rescheduling is not being achieved in the long-run. The model indicates that the constant is not statistically significant. The lag_1 and lag_2 of npl; lag_2 and lag_3 of rsd; lag_1 of roa; lag_1 and lag_3 of lr are statistically significant. So, there is an impact of other controlled variables in the model meaning that the non-performing loan has an impact on its previous year's non-performing loan, rescheduled loan, return on asset, and liquidity ratios which support Messai and Jouini (2013); Bardhan and Mukherjee (2016); Waqas et al. (2017); Zheng, et al. (2019). This could be due to various factors such as ineffective restructuring terms, economic challenges faced by borrowers, or weaknesses in the implementation of the rescheduling process. However, the findings suggest that merely rescheduling loans may not be sufficient to address the NPL issue. It implies the need for a more comprehensive approach that considers factors such as asset quality, liquidity, and the effectiveness of the rescheduling process.

The short-run causality test results indicate the presence of short-run causal relationships between non-performing loans and rescheduled loans. Probabilities with values suggest statistical significance, indicating the observed short-run causality is statistically significant at a conventional significance level. The short-run causality running from the independent variables individually and altogether suggests that each variable, taken separately, as well as both variables combined, has a short-term impact on the other.

5.3.2 Impact of the loan rescheduling on the risk-weighted assets

From the VECM results, we cannot reject the H_{02} inferring that rescheduled loans have no impact on risk-weighted assets in the long-run. As no coefficient of lag of independent variables is statistically significant, the ultimate model cannot be determined. At the same time, the coefficient of cointegration (ce_1) is also not statistically significant and the value is not negative, it cannot be concluded whether there is long-run causality between the dependent and independent variables.

The lack of a significant impact of rescheduled loans on risk-weighted assets suggests that based on the model and data, changes in the volume or structure of rescheduled loans do not lead to notable variations in risk-weighted assets over the long-term. Although Aiyar et al. (2015); Zogjani et al. (2016); Islam and Yasmin (2021); Anastasiou (2023) mentioned that risk-weighted has impact on non-performing assets ultimately on the performance of the banks; this research finds that loan rescheduling is not effective as desired. It may be implied that the rescheduling of loans does not have a substantial impact on the risk-weighted asset composition in the long-run. The results of the short-run causality test indicate the existence of short-run causal relationships; it implies that changes in the independent variables have an immediate impact on the dependent variable. The short-run causalities suggest that adjustments to the independent variables, including rescheduled loans, lead to changes in the dependent variable in the short-term.

5.3.3 Impact of the loan rescheduling on the expenditure-income ratios

The result of VECM indicates that we cannot reject the H_{03} meaning that rescheduled loans have no impact on the expenditure-income ratio. As no coefficient of lag of independent variables is statistically significant, the ultimate model cannot be determined. As the coefficient of cointegration (ce_1) is also not statistically significant and the value is not negative, it cannot be concluded whether there is long-run causality between the dependent and independent variables. But the results of the short-run causality test indicate that there are short-run causalities in this model which signifies short-run causality running from the independent variables individually and altogether. This implies that although there is a relationship between the variables over the long-term, the impact of rescheduled loans on the expenditure-income ratio is not statistically significant. Berger and De Young (1997); Fukuyama and Matousek (2016); Barr (2017) found that non-recovery of the disbursed loans within the scheduled time frame results the inefficiency of the banks which ultimately impact the expenditure-income ratio. Additionally, short-run causality tests indicate that there are short-term causal relationships between the independent variables like rescheduled loans individually and collectively and the dependent variable.This suggests that changes in the independent variables have immediate effects on the dependent variable in the short-term.

5.3.4 Impact of the loan rescheduling on the return on assets

The VECM results indicate that the null hypothesis Ho_4 can be rejected inferring that the rescheduled loans have an impact on returns on assets but the rescheduled loan has a negative impact on return on assets; as it was expected that the rescheduled loan has a positive impact on return on asset. The fund flow interruption may create this situation. The coefficient of ce_1 is negative but not statistically significant suggesting that the previous year's error (or deviation from the long-run equation) is not corrected for within the current year at a specific convergent speed. Therefore, it can be concluded that it cannot determine the long-run causality between the dependent and independent variables. The model indicates that the constant is not statistically significant. Only the coefficient of lag_2 of roa and lag_1 of rsd is statistically significant. So, there is no impact of other controlled variables in the model meaning that return on the asset has the impact of the previous year's returns on the asset and rescheduled loan though (2016) revealed that debt restructuring mechanism improves the profitability.

Additinally, Islam et al. (2019); Anastasiou (2023); Amir and Choudhury (2023) revealed that NPL reduces the profitability where this research found that the loan rescheduling reduces the profitability. This may happen due to the long-term blockage of the fund for loan rescheduling hinders profitibilty of the banks. If rescheduled loans are associated with interruptions or disruptions in fund flows, it could negatively impact returns on assets. This interruption might lead to increased costs, delayed investments, or other factors that adversely affect asset returns. If there are delays or uncertainties in the recovery of funds related to reschedule loans, it could impact the timely utilization of these funds, thereby affecting returns on assets. It could contribute to a negative impact on returns if rescheduling is associated with higher interest rates, fees, or additional requirements. If these loans are granted to entities with higher credit risk, it could contribute to lower returns on assets. Broader economic and market conditions as well as qualitative insights through interviews or surveys with relevant stakeholders and external factors such as economic downturns or changes in interest rates could influence the impact of rescheduled loans on returns on assets.

In summary, while the negative impact of rescheduled loans on returns on assets may be unexpected, exploring the reasons behind this outcome and considering factors such as fund flow interruption can provide valuable insights with a combination of quantitative analysis, and qualitative research.

The model suggests that it cannot determine long-run causality between the dependent variable (return on assets) and the independent variables. The constant in the model is not statistically significant, indicating that other controlled variables do not have a significant impact in the long-run. It is mentioned that the return on assets is influenced by the previous year's return on assets and rescheduled loans. This implies a kind of autoregressive effect and a persistent impact from rescheduled loans. The post-estimation test probabilities indicate short-run causality, with impacts running from the independent variables (return on assets and rescheduled loans) individually and collectively. The conclusion suggests that returns on assets and rescheduled loans have a short-run impact on themselves and on each other in the aggregate. It seems there are immediate effects of return on assets and rescheduled loans on each other.

5.3.5 Impact of the loan rescheduling on the return on equity

The result of VECM indicates that the null hypotheses Ho_5 can be rejected inferring that the rescheduled loan has an impact on returns on equity but the rescheduled loan has a negative impact on return on equity which is inverse of H_{a5} as it was expected that the rescheduled loan has a positive impact on return on equity. The fund flow interruption may create this situation. The coefficient of ce_1 is negative but not statistically significant suggesting that the previous year's error (or deviation from the long-run equation) is not corrected for within the current year at a specific convergent speed. Therefore, it can be concluded that there cannot be determined the long-run causality between the dependent and independent variables. The model indicates that the constant is not statistically significant. Only the coefficient of lag_1 of rsd is statistically significant. So, there is no impact of other controlled variables in the model meaning that return on equity has an impact on the previous year's rescheduled loan. The VECM results suggest that rescheduled loans have a negative impact on returns on equity. This is contrary to the expected assumption.

The negative impact is hypothesized to be due to the possibility that rescheduled loans result in a blockage of the fund flow for the long-run, subsequently affecting the equity of the banks. The model suggests that the constant is not statistically significant, and none of the controlled variables, except for the first lag coefficient of rescheduled loans, have a significant impact. The significant lag_1 coefficient of rescheduled loans implies that the returns on equity are influenced by the previous year's rescheduled loans and the non-significant coefficients of other controlled variables suggest that, in the model, there is no significant impact of these variables on returns on equity.

Post-estimation test probabilities imply that there is short-run causality running from the independent variables (returns on equity and rescheduled loans) individually and collectively. It infers that returns on equity and rescheduled loans have a short-run impact on themselves altogether suggesting a dynamic relationship between these variables in the short-term.

5.3.6 Impact of the loan rescheduling on the net interest margins

The result of VAR indicates that the null hypothesis Ho_6 can be rejected inferring that rescheduled loan has no impact on the net interest margin. The coefficient of ce_1 is negative but not statistically significant suggesting that the previous year's error (or deviation from the long-run equation) is not corrected for within the current year at a specific convergent speed. Therefore, it can be concluded that it cannot determine the long-run causality between the dependent and independent variables. Only the coefficient of lag_1 of NIM is statistically significant. So, there is no impact of other controlled variables in the model meaning that the net interest margin has an impact on the previous year's rescheduled loan. The inability to determine long-run causality suggests that the relationship between NIM and rescheduled loans may be complex and influenced by various factors. The constant in the model is not statistically significant, suggesting that other controlled variables do not have a significant impact. However, the net interest margin has an impact on the previous year's rescheduled loans. The post-estimation test results indicate statistically significant short-run causality between NIM and rescheduled loans. This implies that there is short-run causality running from the independent variables (net interest margin and rescheduled loans) individually and collectively.

It can be concluded that net interest margin and rescheduled loans have short-run impacts on themselves and altogether suggest a dynamic relationship between these variables in the short-term. The IRF function of the VAR model which infers that all the values of the functions move around zero but the rescheduled loans divergence are flatter than others. A flatter IRF for rescheduled loans means that the response of rescheduled loans to a shock is more stable or less variable over the forecast horizon compared to other variables. The flatter IRF for rescheduled loans could indicate that rescheduled loans are less sensitive to shocks or disturbances in the system, resulting in a smoother and more predictable response. Comparatively, other variables might exhibit more pronounced and dynamic responses to shocks, leading to a steeper and less stable IRF. The stability of the response to rescheduled loans could have implications for policy and decision-making.

5.3.7 Impact of the loan rescheduling on the liquidity ratios

The result of VAR indicates that we cannot reject the H_{07} meaning that the rescheduled loans have no impact on liquidity ratio. The model indicates that the constant is not statistically significant at a tolerable confidence level. At the same time, no lagged values except lag_1 of LR of the variables are statistically significant. The constant in the model is not statistically significant at a tolerable confidence level. This suggests that the intercept or baseline value in the model is not significantly different from zero. Except for the first lag of the LR, no other lagged values of the variables are statistically significant which implies that only the previous period's liquidity ratio has a statistically significant impact on the current liquidity ratio. Based on the VAR estimation, it can be concluded that there is no long-run causality between the dependent variable (liquidity ratio) and the independent variable (rescheduled loans). Therefore, the results of the VAR model suggest that within the specified model properties, rescheduled loans do not have a significant impact on the LR, and there is no long-run causality between these variables.

The post-estimation test results indicate statistically significant short-run causality between liquidity ratio and rescheduled loans. This implies that there is short-run causality running from the independent variables individually and collectively. It can be concluded that liquidity ratio and rescheduled loans have short-run impacts on themselves and altogether suggest a dynamic relationship between these variables in the short-term.

The IRF values for rescheduled loans are flatter than those for other variables, which implies that the response of rescheduled loans to shocks is less pronounced or less volatile compared to the other variables in the VAR model. A flatter IRF for rescheduled loans suggests thatin response to a shock; the values of rescheduled loans do not deviate as much from the baseline (zero) over the forecast horizon compared to other variables. The flatter divergence indicates that rescheduled loans exhibit a more stable or less volatile response to shocks. The responses tend to be more gradual, and the variability around the baseline is lower. Compared to other variables, rescheduled loans seem to be less affected by the shocks, showing a more tempered and steady response over the forecast period. It suggests that rescheduled loans may be less susceptible to large and immediate fluctuations due to external shocks.

5.4 Ultimate Recovery of the Rescheduled Loans

By systematically analyzing the recovery data for accounts first-time rescheduled in 2016 and tracking their outcomes until 2019, it is tried to gain valuable insights into the practical implications of loan rescheduling in the banking context. A comparison of the empirical findings from the recovery data with the predictions of the dynamic models was conducted to assess whether the observed recovery outcomes align with the long-run impacts identified in the models.

The results of the SCBs' data show that the down payment and installment repayment are 1.73% and 33.60%. Therefore, 35.30% amount has been recovered during 2016-2019 from the rescheduling of Tk. 173734.84 million from 60 accounts. The results also show that 25% of accounts were adjusted, 23% of accounts are continuing regularly through installment repayment/second or third-time rescheduling, and 52% of accounts were classified again.

The results of the conventional PCBs' data show that the down payment and installment repayment are 9.10% and 46.01%. So, 55.11% of the amount has been recovered during 2016 - 2019 from the rescheduling of Tk. 1550.38 million from 20 accounts. The results also show that 20% of accounts were adjusted, 35% of accounts are continuing regularly through installment repayment/second or third-time rescheduling, and 45% of accounts were classified again.

The results of the Islamic PCBs' data show that the down payment and installment repayment are 12.48% and 39.83%. So, 52.32% of the amount has been recovered during 2016-2019 from the rescheduling of Tk.7097.03 million from 20 accounts. The results also show that 55% of accounts were adjusted, 35% of accounts are continuing regularly through installment repayment/second or third-time rescheduling, and 10% of accounts were classified again.

The results of all PCBs' (including conventional and Islamic) data show that the down payment and installment repayment are 11.88% and 40.94%. So, 52.82% amount has been recovered during 2016-2019 from the rescheduling of Tk. 8647.41 million from 40 accounts. The results also show that 48% of accounts were adjusted, 34% of accounts are continuing regular through installment repayment/second or third-time rescheduling, and 18% of accounts were classified again.

The results of the conventional commercial banks' (including state-owned and private) data show that the down payment and installment repayment are 1.79% and 33.68%. So, 35.48% of the amount has been recovered during 2016-2019 from the rescheduling of Tk.175285.22 million from 80 accounts. The results also show that 30% of accounts were adjusted, 26% of accounts are continuing regular through installment repayment/second or third-time rescheduling, and 44% of accounts were classified again.

The results of all commercial banks' data show that the down payment and installment repayment are 2.21% and 33.92%. So, 36.13% of the amount has been recovered during 2016-2019 from the rescheduling of Tk. 182382.25 million from 100 accounts. The results also show that 35% of accounts were adjusted, 27% of accounts are continuing regular through installment repayment/second or third-time rescheduling, and 38% of accounts were classified again.

The comparison between conventional private bank and Islamic banks shows that the conventional private banks have more efficiency than the Islamic Banks in reference to installment recovery ultimately total recovery. The logic behind that throughout the years, the second time and third time rescheduling of the Islamic Banks is less than that of the conventional private banks.

In the ultimate recovery, 15% of accounts are regular through the second-time and third-time rescheduling of the conventional private banks but 5% of accounts are regular through the second-time and third-time rescheduling of the Islamic private banks. At the same time, 20% of accounts are regular through installment payments from conventional private banks whereas 30% of accounts are regular through installment payments from Islamic private banks. In addition, 45% of accounts are paid off by conventional private banks whereas 55% of accounts are paid off by Islamic private banks. Finally, 20% of accounts belonging to conventional private banks are classified again whereas 10% of accounts belonging to Islamic private banks are classified again. The again classified accounts of conventional private banks are worse than the Islamic banks but the total recovery of conventional private banks is better than that of the Islamic banks because the large loan recovery of the conventional private banks is better than that of the Islamic banks.

The comparison between the conventional private banks and the SCBs shows that the CPBs are more efficient than the SCBs in the context of down payment and installment recovery ultimately total recovery. Though the SCBs hold more portfolios of NPLs, the ultimate recovery is also not satisfied through rescheduling. In the ultimate recovery, 15% of accounts are regular through second-time and third-time rescheduling of the conventional private banks but only 3% of accounts are regular through second-time and third-time rescheduling of the state-owned banks but 20% of both banks' accounts are regular through installment payment meaning that the SCBs having largely sized loans without minimum down payment for which instant recovery from the rescheduling is not satisfactory at all.

At the same time, 45% of accounts are paid off by conventional private banks whereas only 25% of accounts are paid off by SCBs and for this reason; the classification of the rescheduled accounts is also high for the SCBs. It is observed that 20% of accounts of conventional private banks are classified again, but on the contrary, 52% of accounts of SCBs are classified again.

The comparison of the Islamic Banks with the SCBs shows that the efficiency of SCBs is remarkably less than that of the Islamic Banks in the context of down payment and installment recovery ultimately total recovery. As the SCBs hold more portfolios of NPLs, the ultimate recovery is also not satisfied through rescheduling.

In the ultimate recovery, 3% of accounts are regular through second-time and third-time rescheduling of the SCBs whereas 5% of accounts are regular through second-time and third-time rescheduling of the IBs but 20% of accounts are regular through installment payments of the SCBs whereas 30% accounts are regular through installment payment of the Islamic banks. At the same time, 25% of accounts are paid off by SCBs whereas 55% of accounts are paid off by IBs and for this reason; the classification of the rescheduled accounts is also high for the SCBs. It is observed that 10% of accounts belonging to IBs are classified again, but in the contrary, 52% of accounts belonging to SCBs are classified again.

The comparison between the conventional banks and the Islamic Banks shows that the efficiency of conventional banks is remarkably less than that of the Islamic Banks in the context of down payment and installment recovery ultimately total recovery. As the SCBs hold more portfolio of NPLs which comprises a large portion of the conventional banks' portfolio, the ultimate recovery is also not satisfied through rescheduling although the recovery of the Islamic banks and conventional private banks are more or less similar. In the ultimate recovery, 6% of accounts are regular through second-time and third-time rescheduling of the conventional banks whereas 5% of accounts are regular through second-time and third-time rescheduling of the IBs but 20% of accounts are regular through installment payment of the conventional banks whereas 30% accounts are regular through installment payment of the IBs.

At the same time, 30% of accounts are paid off by conventional private banks whereas 55% of accounts are paid off by Islamic banks and for this reason; the classification of the rescheduled accounts is also high for the conventional banks. It is observed that 10% of accounts of Islamic banks are classified again but in the contrary, 44% of accounts of conventional banks are classified again.

Recovery status on loan size of all commercial banks shows that from the 100 accounts, 35 accounts are paid off where more than 1 billion are 4 accounts, 50 million - 1 billion is 1 account, 1 million - 50 million are 9 accounts and less than 1 million are 21 accounts focuses that the repayment of small accounts is performing more than that of large accounts.

At the same time, 27 accounts are regular through second-time and third-time rescheduling and installment repayment where more than 1 billion are 11 accounts, 50 million - 1 billion are 7 accounts, 1 million - 50 million are 4 accounts and less than 1 million are 5 accounts focuses that the repayment of small accounts is performing more than that of large accounts. In the classification status, 38 accounts are classified again where more than 1 billion are 12 accounts, 50 million - 1 billion is 1 account, 1 million- 50 million are 2 accounts and less than 1 million are 23 accounts. In summary, it can be concluded that most of the paid-off and regular accounts comprise loan sizes belonging to less than a billion amount but the classified accounts belong to more than a billion amounts. Thus, the percentage of the number of accounts classified is less than that of the percentage of unrecovered amounts. Comparing the percentage of accounts classified with the percentage of unrecovered amounts is insightful.

The fact that classified accounts belong to more significant amounts implies that a relatively small number of larger loans contribute to a significant portion of unrecovered amounts. The concentration of classified accounts in the more than a billion categories highlights potential risk concentration in larger loans. The insight that the percentage of accounts classified is less than the percentage of unrecovered amounts suggests that larger loans contribute disproportionately to the total unrecovered amount. Additionally, the accounts that are regular through second-time and third-time rescheduling have a real income reduction, and this reduction is associated with a decrease in risk-weighted assets, earnings, management efficiency, and liquidity.

5.5 The Experts' Opinion on the Rescheduled Loans

The findings from the dynamic model and case study suggest that while loan rescheduling actions may aid in recovery, they also have adverse effects on various crucial aspects of a financial institution's performance which highlights the complex trade-offs associated with multiple rescheduling actions and emphasize the need for a holistic approach to managing these processes within financial institutions. The inclusion of semi-structured interviews with experts is conducted adding depth and qualitative insights to the research on the effectiveness of loan rescheduling which likely provides nuanced insights into the perceived effectiveness of loan rescheduling to assess whether the expert opinions align or differ from the results of the dynamic models and case study.

Integrating these insights with quantitative findings is expected to enhance the comprehensiveness and applicability of the research. The largest group, comprising 42% of experts, believes that loan rescheduling has no positive impact on bank performance. This viewpoint could be influenced by concerns about the challenges, risks, or limitations associated with rescheduling practices. The fact that 38% of experts believe in a positive impact suggests that a substantial portion recognizes the potential benefits of loan rescheduling. This positive perception may be associated with factors such as improved recovery rates or borrower financial stability. The 20% of experts who believe in a partial positive impact provide a nuanced perspective. Their acknowledgment of some positive aspects implies a balanced view that recognizes both the benefits and constraints of loan rescheduling. The distribution of opinions reflects the complexities surrounding the effectiveness of loan rescheduling. Recognizing both positive and non-positive impacts suggests that experts are attuned to the multifaceted nature of this financial strategy.

The positivist on loan rescheduling believes that this process has a positive impact through decreasing legal costs, decreasing non-performing loans, decreasing provision, and increasing income which aligns with the outcomes of the dynamic model and case study. The positivist perspective on loan rescheduling provides a constructive view of its impact on asset quality aspects of bank performance.

The negativist perspective provides a critical examination of the potential drawbacks of loan rescheduling. The belief that loan rescheduling accelerates never-ending NPL suggests a concern that the process may not effectively address the underlying issues leading to defaults. The concern about cash flow analysis interruption implies that rescheduling may disrupt the normal cash flow assessment process, making it challenging to accurately evaluate the financial health of borrowers. The perception that the growth of non-performing loans is greater than the growth of loan rescheduling indicates skepticism about the effectiveness of rescheduling in containing the increase in distressed loans. The reference to willful defaulters suggests a concern that some borrowers may intentionally default, exploiting the rescheduling process.

5.6 The Triangulations of the Results

The dynamic model results indicate that loan rescheduling has a long-run impact on asset quality and earnings but not on capital adequacy, management efficiency, and liquidity. The observed long-run impact on asset quality and earnings suggests that, over time, loan rescheduling has consequences for the quality of assets and the profitability of the banks. The lack of long-run impact on capital adequacy, management efficiency, and liquidity implies that according to the model, changes in these factors are not persistently affected by loan rescheduling over an extended period. Therefore, the researcher collected real data to further investigate and validate the results of the dynamic models.

The case study results indicate that smaller accounts, particularly those with loan sizes less than 1 million, have a higher repayment performance compared to larger accounts. This is observed in both the accounts that are paid off and those under regular installment repayment. The fact that a significant portion of accounts that are paid off falls in the category of less than 1 million suggests that smaller loans may have better repayment behavior. The data also indicates that smaller accounts continue to perform well even through second-time and third-time rescheduling, with a notable number of accounts regularly repaying their installments. The observation that larger accounts, especially those with more than 1 billion, have a lower repayment may suggest increased challenges or complexities associated with managing and recovering larger loans.

The consistency between the empirical results of the case study and the VECM/VAR model findings strengthens the validity of the model. This alignment supports the reliability of the model in capturing the dynamics of the system. The negative impact of rescheduling on non-performing loans is a positive outcome, aligning with expectations. This implies that, despite the challenges associated with rescheduling, it contributes to reducing the level of non-performing loans. The observation of a negative impact on earnings, contrary to the initial hypothesis, prompts a deeper exploration as well as non-impact on risk-weighted assets, management efficiency, and liquidity. The alignment between the case study results and the model results provides robustness to the findings.

The mention of blocked funds may imply concerns about the allocation of financial resources for rescheduling, possibly diverting funds from other critical areas. The belief that loan rescheduling reduces productivity and leads to skill loss emphasizes the potential negative impact on the efficiency and skill set of financial institutions. This aligns with concerns about operational challenges associated with rescheduling. The perception that loan rescheduling leads to reduced real income suggests a concern about the overall financial health and profitability of financial institutions following the rescheduling process. The alignment among i) the negativist perspective, ii) the outcomes of the dynamic model, and iii) the case study, particularly regarding the non-impact of rescheduling on risk-weighted assets, management efficiency, and liquidity, validated the consistency of the findings.

CHAPTER SIX: CONCLUSIONS

The main purpose of this research has been to explore the effectiveness of the loan rescheduling on the performance of commercial banks in Bangladesh. The first three chapters of this report have structured the background; works of literature; problem statement; research gap analysis; and methodologies. The latter two chapters have depicted the analysis of the data with results and discussions. The results of the data analysis have been validated with data, facts, and analysis. In this chapter, the summary of the research has been described. Then the research contribution with the limitations and recommendations for practitioners are elaborated. Lastly, prospects of future research are also recommended.

6.1 Summary of the Research

The banking sector of Bangladesh has to face various fundamental problems whereas NPL are considered the topmost of these problems. The growth of this problem has led banks to face acute capital deficiency, liquidity crisis, operational efficiency deterioration, and asset quality management worsening. With the upsurge of NPL, banks also need to keep up higher provisions which ultimately create pressure on the fund flow capacity of the banking channel. Addressing these challenges often requires a multi-faceted approach, including effective risk management, improved credit assessment, and enhanced regulatory oversight. Additionally, this problem distresses the economic factors, regulatory policies, and the overall business atmosphere. Rescheduling of bad loans, often referred to as loan restructuring, is indeed one of the strategies commonly employed by banks to address non-performing loans. The process involves renegotiating the terms of a loan to provide the borrower with more favorable conditions, such as extended repayment periods, lower interest rates, or even a temporary suspension of payments. Successful rescheduling can contribute to the improvement of asset quality on the bank's balance sheet. It allows the bank to avoid classifying the loan as a NPA and making provisions against it. The implication of loan rescheduling on bank performance is indeed a topic that has been explored in the academic literature, although the extent of research may vary.

Examining the impact of loan rescheduling on bank performance involves considering various financial and operational aspects. The nature and scope of research on this topic may evolve banking productiveness. Therefore, this research tries to find the degree of the effectiveness of loan recovery through loan rescheduling results in the reduction of the NPLto the performance of the commercial banks in Bangladesh.

The main objective of the study is to enhance understanding of the practical activities of the loan rescheduling process and its impact on the performance of commercial banks in Bangladesh. Through the study of worldwide literature study, the gap in the analysis of the effectiveness of loan rescheduling on the performance of the commercial bank has been identified. The researcher believes that it not only will help in searching for new knowledge on banking sector performance and activities but also step into the professional exposure for policy implication. The study has the broad objective to evaluate the effectiveness of loan rescheduling on the performance of commercial banks in Bangladesh with four specific objectives i) to analyze elaborately the loan rescheduling process adopted by the banks and its trend; ii) to investigate the short and long-run impact of the rescheduled loan on performance; iii) to track the rescheduling loan to determine their ultimate recovery rate; and iv) to identify whether any differences among type-wise banks in their loan recovery through rescheduling.

This research was conducted as a mixed-methods approach by combining both qualitative and quantitative methodologies. Firstly, the NPL and rescheduling policy were incorporated to find out the policy implication in the data over the period. The quantitative part was revealed by the aggregate data of the banking sector in Bangladesh for the period of 1997 to 2021 through descriptive statistics and dynamic models like VECM and VAR. The result of this VECM and VAR models was validated by the case study analysis of 100 rescheduled accounts recovery status. Lastly, integrating expert opinions into the study, it is tried to enhance the depth and applicability of the research findings, ultimately leading to more robust recommendations for addressing the identified problems in the banking sector as it is considered that expert opinions through a semi-structured questionnaire are a valuable approach to complement quantitative and qualitative data in a study and also engaging experts can provide insights that are grounded in practical experience and industry knowledge.

The VECM and VAR model analyses and the results suggest that rescheduled loans have a long-run negative impact on asset quality, earnings (ROA and ROE) in the context of the part of the CAMEL model. But, there is no long-run impact of the NIM (another component of earnings) on rescheduled loans. As expected, the results indicate that rescheduled loans have a long-run negative impact on asset quality. This implies that, over the long-term, an increase in rescheduled loans is associated with the development of asset quality. The findings that rescheduled loans have long-run negative impacts on both ROA and ROE suggest that an increase in rescheduled loans is associated with lower profitability in the long-run. The absence of a long-run impact of the NIM on rescheduled loans indicates that changes in the NIM do not have a persistent effect on the level of rescheduled loans over the long-term. According to the VAR and VECM results, capital adequacy, management efficiency, and liquidity of the CAMEL model do not have a long-run impact on rescheduled loans. The lack of a long-run impact suggests that changes in capital adequacy, management efficiency, and liquidity do not have a persistent effect on the level of rescheduled loans over the long-term. Non-significant long-run effects imply that these components of the CAMEL model are not key determinants of the long-run dynamics of rescheduled loans.

The observation is interesting that all the components of the CAMEL model have a short-run impact on rescheduled loans, both individually and collectively. This implies that changes in capital adequacy, asset quality, management efficiency, liquidity, and sensitivity to market risk, collectively captured in the CAMEL model, have immediate effects on the level of rescheduled loans. The short-run impact suggests that adjustments or changes in the CAMEL components have immediate effects on rescheduled loans. This could reflect the sensitivity of rescheduled loans to changes in various aspects of bank performance. The CAMEL model's components are interconnected, and their collective impact on rescheduled loans highlights the complexity and interdependence of various factors influencing the banking system.

IRF and VDF for rescheduled loans concerning net interest margin and liquidity indicates that the response of rescheduled loans to a shock is less pronounced or less volatile over the forecast horizon compared to other variables. This flatter response may indicate a certain level of stability in rescheduled loans, suggesting that they are less susceptible to large and immediate fluctuations due to shocks in net interest margin and liquidity.

From the results of the recovery status on loan size of all commercial banks shows that from the 100 number of accounts only 35% accounts are totally paid off but number of large amount is insignificant focusing the repayment of small accounts is performing more than that of large accounts. At the same time, 27% accounts are regular through second-time and third-time rescheduling which also focuses that the repayment of small accounts is performing more than that of large accounts. In the classification status, 38% accounts are classified again where large amount accounts are capturing the NPLs portfolio.

It is observed that most of the paid-off and regular accounts comprise loan sizes belonging to less than a billion amount but the classified accounts belong to more than a billion amounts. Thus, the percentage of the number of accounts classified is less than that of the percentage of unrecovered amounts. The accounts are regular through second-time and third-time rescheduling for which the real income reduction infers to the reduction of risk-weighted assets, earnings, management efficiency, and liquidity. The dynamic models also infer that rescheduling has a negative impact only on asset quality but no impact on risk-weighted asset, management efficiency and liquidity ratio. Additonally, blockage of the fund for the large accounts NPL, the profitability of the banks are tremendously deteriorating. Therefore, there is an alignment between the results of the case study and the dynamic model.

The results from the practitioners's opinion, it is observed that 42% of the experts believe that loan rescheduling has no positive impact on bank performance. At the same time, 20% of the experts believe that loan rescheduling has a partially positive impact on bank performance. As per the non-positivist and partially-positivist, the loan is not effective due to the cash flow analysis interruption; the growth of non-performing loan is greater than the growth of loan rescheduling, willful defaulter, blockage of the fund, loss of the employees' skill, reduction of the real income. These problems result negative impact on real income, risk-weighted asset, earnings, management efficiency, and liquidity. All the results have the similiraty of the outcomes.

6.2 Contributions of the Research

This research contributes to NPL resolution specifically loan rescheduling policy-related literature in multiple ways. This is one of the few studies in the world specifically in Bangladesh that has undertaken a comprehensive analysis of loan rescheduling practices. Most other researchers reviewed only from the viewpoint of the demand side (Okoye et al., 2020; Wanyoike et al., 2022; Ragoobur, 2023). The studies of Kithinji (2017); Pande (2021); Dzingirai and Baporikar (2022); Mulwa and Onguso (2022); Dzingirai and Baporikar (2022) mentioned that commercial banks have a positive impact on financial restructuring but Tchistyi and Piskorski (2008), Alam et al (2015), Patwary and Tasneem (2019), Coelho et al. (2020) found the inverse result. The study conducted by Sunny and Tang (2022) on the CDR effectiveness on the reduction of the NPLs in Bangladesh based on BRPD Circular no. 04/2015 is insufficient to analyze the overall effectiveness of loan rescheduling on the performance of the banking sector in Bangladesh. Chowdhury et al. (2017) examined the implication of loan rescheduling and write-offs on the performance of banks in Bangladesh through semi-structured questionnaires and secondary data from annual reports of different banks from 2010 to 2014 which does not focus on the long-term implications of loan rescheduling. Banerjee et al. (2021) and Banerjee et al. (2023) investigated the effectiveness of NPL policies, specifically the rescheduled loan but these studies show only the rescheduling loan tendency in Bangladesh without mentioning the effectiveness of this policy.

This research not only enriches previous research in several ways but also paves the way for future investigations in related areas contributing to the evolution of knowledge in the field and providing practical insights for industry practitioners and policymakers. This research combines qualitative and quantitative methodologies by employing descriptive statistics and dynamic models, case studies, and expert opinions, providing a well-structured comprehensive approach to understanding the effectiveness of loan rescheduling on the performance of commercial banks in Bangladesh. The integration of both qualitative and quantitative methodologies strengthens the robustness of the research. The use of dynamic models provides a quantitative foundation for the research which allows for the systematic analysis of the impact of loan rescheduling on various performance metrics, contributing to the empirical validity of the findings.

The inclusion of a case study adds depth and context to the research. Case studies provide an opportunity to explore real- scenarios, offering insights into the practical implications of loan rescheduling within the specific context of commercial banks in Bangladesh. Incorporating expert opinions adds a qualitative dimension to the research. The diverse perspectives obtained through semi-structured interviews contribute valuable insights into how practitioners and industry experts perceive the effectiveness of loan rescheduling. The differing opinions among experts may have direct policy implications which can be used to refine regulations and guidelines related to loan rescheduling.

The alignment of results across the dynamic model, case study, and expert opinions enhances the validity of the findings. Consistency in outcomes strengthens the credibility of the research and supports the adaptability of the conclusions. The combination of quantitative and qualitative methods enhances the real-world applicability of the research. This is particularly valuable for informing decision-makers within commercial banks and policymakers in Bangladesh. Loan rescheduling is a complex phenomenon, and the research methodology appears well-suited to address this complexity. The use of different methods allows for a nuanced exploration of both the positive and negative aspects of loan rescheduling. The integration of expert opinions can provide valuable insights for policymakers. The nuanced understanding obtained through qualitative methods can inform the development of policies that are contextually relevant and effective. Combining multiple methodologies, this research contributes to the academic literature by offering a comprehensive analysis of the effectiveness of loan rescheduling. This can be valuable for researchers interested in similar topics. The research outcomes can serve as practical guidance for commercial banks in Bangladesh. Decision-makers can use the insights to refine strategies for managing distressed loans and improving overall financial performance. Given the dynamic nature of the financial industry, this research approach allows for continuous monitoring and adaptation of strategies based on both quantitative metrics and qualitative insights.

In summary, the researcher believes that the research design, which integrates descriptive measurements, dynamic models, case studies, and expert opinions, is well-structured to provide a comprehensive understanding of the effectiveness of loan rescheduling in the context of commercial banks in Bangladesh. These findings have direct policy implications for financial institutions. Strategies for managing the impact of rescheduling on various financial metrics may need to be refined based on the observed outcomes. These findings have implications for risk management strategies. Financial institutions may need to tailor their risk assessment and recovery strategies based on the size of the loans.

6.3 Recommendations for the Practitioners

The observed reduction in risk-weighted assets suggests potential challenges in managing and maintaining a diversified and healthy portfolio. This could impact the institution's capital adequacy and risk management. The adverse effects on earnings, as indicated by the findings, have implications for the institution's profitability. Examining the specific components of earnings affected (e.g., return on assets, return on equity) can provide more nuanced insights. The reduction in management efficiency suggests operational challenges associated with multiple rescheduling actions. This could be related to increased administrative burdens, costs, or complexity in managing these processes. The reduction in liquidity is a critical concern as liquidity is essential for the day-to-day operations and stability of financial institutions. Assessing the extent of this reduction and its potential consequences is important.The findings highlighting the delicate balance financial institutions must strike between facilitating recovery through rescheduling and maintaining their overall financial health. Balancing these aspects is critical for long-term sustainability. Strategies for managing rescheduling actions may need to be re-evaluated to minimize adverse effects on financial performance. These findings have implications for risk management strategies. Banks may need to tailor their risk assessment and recovery strategies based on the size of the loans and might consider revisiting their risk management strategies for larger loans, especially those above a billion, based on the observed patterns. Given that smaller accounts have better recovery outcomes, understanding the factors contributing to the success of recovery in these accounts can inform the development of effective recovery strategies.

The expert opinions provide valuable insights into alternative effective ways for NPL recovery. Emphasizing the importance of proper cash flow analysis suggests that experts view a thorough understanding of the borrower's financial position and cash flow as crucial for effective NPL recovery. This may involve assessing the borrower's ability to generate income and meet financial obligations. The mention of government policy modification or change indicates that experts recognize the role of regulatory and policy frameworks in influencing NPL recovery. Suggestions for modifications or changes may involve creating an environment that supports efficient and effective recovery processes. The emphasis on proper monitoring highlights the need for continuous oversight of borrowers, particularly those with NPL. This may involve monitoring their financial activities, performance, and adherence to repayment plans. Effective monitoring can facilitate early intervention in case of issues. Experts propose several measures to address willful defaulters. Implementing an exit policy suggests a strategy for managing willful defaulters by potentially exiting them from the lending relationship, preventing further exposure to risk. Restricting further rescheduling for willful defaulters implies a halt to extending additional rescheduling options, signaling a firm approach to addressing repeated defaults. Imposing restrictions on foreign travel for willful defaulters is a more punitive measure that aims to limit their mobility and potentially compel them to address their financial obligations. These alternative strategies align with industry best practices and regulatory approaches aimed at enhancing NPL recovery.

The Podgorica Approach, as proposed by the World Bank Financial Sector Advisory Centre, suggests combining financial restructuring, corporate restructuring, and business restructuring as an alternative way for NPL recovery, may be introduced to address the problem in Bangladesh. This integrated approach acknowledges the interconnected nature of financial health, corporate governance, and overall business viability (Stijepovic, 2014; Balgova et al., 2017; Khan et al., 2020; Hassan et al., 2022; Anastasiou, 2023). Financial Restructuring addresses financial challenges and improves the financial health of the borrowing to make repayment more feasible with the renegotiation of terms, interest rates, or maturity dates and recapitalization to strengthen the financial structure.

Corporate restructuring focuses on the corporate governance and organizational structure of the borrowing entity to enhance transparency and accountability in the way of management restructuring or changes to improve efficiency through legal and regulatory compliance assessments. Business restructuring addresses operational challenges and improves the overall business model through operational efficiency improvements, diversification of revenue streams, strategic business planning, and repositioning. By addressing financial, corporate, and business aspects simultaneously, the approach takes a holistic view of the factors contributing to NPL.The integrated nature of the approach aims not only at short-term recovery but also at ensuring the long-term viability of the borrowing entity (Stijepovic, 2014). Effective implementation may require collaboration between Bangladesh Bank, commercial banks, and the borrowing entities. Implementing such a comprehensive approach may necessitate a multidisciplinary team with expertise in finance, corporate governance, and business strategy though the effectiveness of the approach may be influenced by the broader economic context and industry-specific factors.

The SDR Scheme in India is similar to the Podgorica Approach which allows banks to convert debt into equity of defaulting companies in the way of exercising control over the management of inefficient and dishonest companies or changing the present management by appointing new promoters to whom their equity to be transferred (Kaveri, 2016; Sharma, 2016). Pande (2021) investigated the impact of restructuring in the Indian banking sector and found that gross non-performing assets and gross loans were highly statistically positively significant with the total number of restructured loans.

The suggestion to establish a NAMC as a separate legal entity for facilitating the liquidation of companies to realize bank dues is indeed a proactive approach to managing NPL. The purpose of establishing a NAMC is to specialize in managing and liquidating distressed assets to recover bank dues efficiently as a separate independent legal entity, free from the complexities and constraints. NAMC can concentrate on maximizing the recovery value of distressed assets; and can streamline the process of liquidating companies with distressed assets. This is also prescribed for Bangladesh by many international development organizations like the World Bank (WB), International Monetary Fund (IMF), and Asian Development Bank (ADB) as well as national and international practitioners.

Banerjee, et al. (2023) broadly deliberated on the AMC as a way out to solve NPL Problem in Bangladesh. Asset Management Companies like KAMCO in Korea, Danaharta in Malaysia, Indonesian Bank Restructuring Agency (IBRA) in Indonesia, TAMC in Thailand, CHAMC in China, RCC in Japan, National Asset Reconstruction Company Ltd (NARCL) in India, Resolution Trust Corporation (RTC) in the USA, Securum in Sweden, UK Asset Resolution Limited (UKAR) in UK, National Asset Management Company (NAMA) in Ireland, FMS Wert management in Germany, SAREB in Spainare the examples of asset management companies (Park, 1999; Ohashi and Singh, 2004; Fu and Heffernan, 2009; Zeng, 2012; Jassaud and Kang, 2015; Fell et al., 2017; Dreyer, 2020; Pirgaip and Uysal, 2022; Banerjee et al., 2023). Additionaly, corporate governance development is essential for the development of the banking sector (Cornett et al., 2009; Hajer and Anis, 2018).

Recommendations for Bangladesh Bank

The Bangladesh Bank (BB) plays a crucial role in determining and implementing banking sector policies within Bangladesh. As the central bank of the country, it has the authority to regulate commercial banks and other financial institutions. Through its regulatory framework, BB sets guidelines and standards to ensure stability, transparency, and efficiency in the banking sector. This oversight helps maintain the integrity of financial transactions, safeguards consumer interests, and fosters a healthy banking environment conducive to economic growth.

The suggestion is for the BB to reconsider its current loan rescheduling policy and explore alternative approaches. By reassessing the loan rescheduling policy and considering alternatives like the Podgorica Approach and SDR policy, the Bangladesh Bank can potentially enhance its effectiveness in managing loan defaults. Implementing restrictions against defaulters, increasing transparency through data publication, and establishing an Asset Management Company could all contribute to a more efficient and transparent banking sector in Bangladesh. These recommendations aim to address the challenges identified in the current loan rescheduling practices and improve overall outcomes for banks and borrowers alike.

Recommendations for Commercial Banks in Bangladesh

The research highlights some significant challenges with loan rescheduling in the banking sector of Bangladesh. The absence of adequate cash flow analysis seems to be a key factor in the inefficacy of the policy. It suggests that banks need to adhere strictly to the loan rescheduling policy, particularly by conducting thorough cash flow analyses before proceeding.
Additionally, implementing an exit policy could be a beneficial strategy for managing willful defaulters, potentially removing them from the lending relationship to mitigate further risk exposure. This approach could help address the shortcomings identified in the current loan rescheduling practices.

This study emphasizes the importance of commercial banks adhering strictly to the loan rescheduling policy, particularly by conducting cash flow analyses before proceeding. Additionally, it suggests implementing an exit policy as a fruitful strategy for managing willful defaulters, potentially removing them from the lending relationship to mitigate further risk exposure. This dual approach aims to address the shortcomings identified in the current loan rescheduling practices while minimizing future risks for the banks.

Possible Lessons for other Countries

The international kinds of literature also show that different countries are adversely suffering from the NPLs problem (Salas and Jesus, 2002; Fukuyama and Matousek, 2016; Zogjani et al., 2016; Onofrei et al., 2018; Duong et al., 2020; Dietsch and Lozano-Vivas,2000; Diallo, 2021; Tölö and Virén, 2021; Thaker et al.,2022). These countries also follow the loan rescheduling policy to address the problem (Gilson et al., 1990; Kwaning et al. 2014; Nafi'ah and Widyianingsih, 2021; Pande, 2021; Dzingirai and Baporikar, 2022). But many literature frustrated that the policy is not as effective as expected (Alderson and Betker, 1999; Rastogi and Mazumdar, 2016; Coelho et al., 2020; Espahbodi et al., 2000; Johari, 2022). Therefore, it is expected that this research may be an alternative result for other countries. In this regard, other countries may focus more on the research of this policy and/or implement the proposed recommendations of this study.

6.4 Limitations of the Research

The research is limited by the unavailability of bank-wise annual data on rescheduled loans and their recovery only relying on aggregate data from BB. Additionally, BB has not been publishing rescheduled loan data for an extended period. Only the annual Financial Stability Reports publishes the data on rescheduled loans from 2012. At the same time, the case study lacks the data of foreign commercial banks, development financial institutions, and fourth-generation banks. Foreign banks generally do not share the rescheduled loan-related data. The fourth generation banks started operation after 2010s for which time period of operation is short time. The development financial institutions' loan amount is smaller in size. Therefore, these banks' account is absent in the case study analysis.

The absence of data from foreign commercial banks, development financial institutions, and fourth-generation banks indeed presents a limitation in the case study. Foreign banks often do not share rescheduled loan-related data, which can hinder a comprehensive analysis of the banking sector. Additionally, fourth-generation banks, being relatively new to the industry, may lack sufficient historical data for meaningful long-term trend analysis. Furthermore, the loan amounts from development financial institutions tend to be smaller in comparison, which may impact the overall scope and generalizability of the findings.

Indeed, while a sample size of 60 experts may be considered relatively small in some contexts, it can still provide valuable insights, especially when coupled with qualitative methods like semi-structured interviews. The strength of this approach lies in its ability to capture diverse perspectives and experiences. By conducting interviews with experts from various backgrounds and with different levels of experience, the study aims to cover a broad range of insights related to the topic. The use of open-ended interview questions further enhances the depth of the data collected. This allows experts to freely share their experiences and insights, potentially uncovering practices or strategies that might not have been apparent with more structured approaches. Overall, while the sample size may be limited, the qualitative nature of the study and the diversity of perspectives sought through interviews can still yield valuable findings and recommendations.

6.5 Directions for the Future Study

The limitations section suggests the avenues for future research that could overcome these data constraints. This demonstrates a forward-looking approach to exploring similar topics in the future. Examining external factors like economic conditions, regulatory changes, or shifts in market dynamics that can influence the outcomes associated with multiple rescheduling actions, might contribute to the observed impacts of this research. As the alignment between empirical results and model findings is promising, further analysis and exploration of specific components and factors contributing to the observed impacts will enhance the depth and applicability of the research.

Conducting a more granular analysis within each rescheduled loan category to understand other factors contributing to the observed repayment behavior may be another potentiality of future research. In this regard, industry, collateral, loan purpose may be incorporated for the further research.

Exploring potential mitigating factors and evaluating alternative rescheduling strategies can contribute significantly to a more comprehensive understanding of the challenges associated with rescheduled loans in the banking sector. Broadly exploration of the Podgorica Approach or SDR methods may be the future research area of study as the alternative prospective process of the NPL resolution.

Exploring the establishment and effectiveness of an AMC in managing distressed assets provides a promising avenue for future research. Assessment of the regulatory policies and effectiveness with funding mechanisms including capitalization, sources of funds, and the role of stakeholders such as government, banks, and private investors for AMC also have the promising aspect of further research.

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APPENDICES

APPENDIX I: SURVEY QUESTIONNAIRE

(Data for the Rescheduled Loan Recovery)

This survey is being conducted solely for academic purposes. The data collected will be used only in aggregate form. Respondents' privacy will be maintained duly. The researcher will provide code number for the bank and the clients of the respective banks.

Bank Name:
Bank Code:
(Will be provided by the researcher)

Recovery Trend of Selected Clients through Rescheduling which was Rescheduled First Time in 2016

(in million BDT)

Sl No	Name of the client	Client code (Will be provided by the researcher)	Type of RSD Loan	RSD amount in 2016	Recovery in 2016		RSD amount in 2017	Recovery in 2017		RSD amount in 2018	Recovery in 2018		RSD amount in 2019	Recovery in 2019		If RSD not effective which method applied
					Down Payment	Installment		Down Payment	Installment		Down Payment	Installment		Down Payment	Installment	
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

Guidelines:

1. The selected accounts will be selected for first time rescheduled in 2016.
2. The selected accounts will be combination of SME (Except retail) and corporate including continuous, demand and term loan.
3. The recovery data will be provided for recovery up to 2019 including further time rescheduling.
4. Additional Sheet(s) may be attached.

Thank You!

APPENDIX II: SURVEY QUESTIONNAIRE

(Semi-Structured Questionnaire for the Experts' Opinion)

This survey is being conducted solely for academic purposes. The data collected will be used only in aggregate form. Respondents' privacy will be maintained duly. The researcher will provide code number for each of the respondent.

Your Name:
Your Role:
Bank Name:
Expert Code:
(Will be provided by the researcher)

Question-1: How many years have you experience in recovery?

□ 1-5 years □ 6- 10 years □ More than 10 years

Question-2: Do you think the Rescheduled loans/ investments have improved the performance of your bank?

□Yes □ No □ Partial

Question-3: If yes, briefly explain how the rescheduled loans/investments help in improving performance.

Question-4: If no/partial, briefly explain why the loan/investment rescheduling is not fruitful.

Question-5: Please, explain how the loan/investment rescheduling can be made effective.

Additional Sheet(s) may be attached.

Thank You!

APPENDIX III: DATA FOR THE DYNAMIC MODEL

Yr	NPL to TL	RSD to TL	RWA	EIR	ROA	ROE	NIM	LR
1997	0.42	0.11	7.53	95.3	0.42	6.98	0.90	23.33
1998	0.46	0.12	7.33	95.4	0.34	6.59	0.87	25.24
1999	0.45	0.12	7.37	96.64	0.23	5.24	0.82	27.02
2000	0.38	0.10	6.69	99.94	0.01	0.25	0.76	26.08
2001	0.34	0.09	6.65	91.15	0.70	15.90	1.05	25.27
2002	0.26	0.07	7.50	93.26	0.50	11.60	0.93	27.15
2003	0.24	0.06	8.40	93.90	0.50	9.80	1.10	24.70
2004	0.20	0.05	8.70	90.90	0.70	13.00	1.06	23.40
2005	0.16	0.04	5.60	92.10	0.60	12.40	1.73	21.70
2006	0.15	0.04	6.70	91.40	0.80	14.10	1.84	21.50
2007	0.15	0.04	9.60	90.40	0.90	13.80	1.98	23.20
2008	0.12	0.03	10.10	87.90	1.20	15.60	2.14	24.80
2009	0.11	0.03	11.60	72.60	1.40	21.70	2.05	20.60
2010	0.09	0.02	9.30	70.80	1.80	21.00	2.51	23.00
2011	0.07	0.02	11.40	68.60	1.50	17.00	3.48	25.40
2012	0.11	0.01	10.50	74.00	0.60	8.20	2.79	27.10
2013	0.09	0.04	11.50	77.80	0.90	11.10	2.00	32.50
2014	0.10	0.02	11.30	76.10	0.64	8.09	3.60	32.70
2015	0.10	0.03	10.80	76.30	0.77	10.51	3.30	26.50
2016	0.09	0.02	10.80	76.60	0.68	9.42	3.10	24.90
2017	0.09	0.02	10.80	74.70	0.74	10.60	3.20	19.90
2018	0.10	0.03	12.10	76.60	0.25	3.86	3.20	18.20
2019	0.09	0.05	11.60	78.00	0.43	6.83	3.10	19.90
2020	0.08	0.01	12.50	79.20	0.25	4.28	2.70	26.20
2021	0.42	0.01	12.00	77.00	0.25	4.44	2.50	25.40

APPENDIX IV: POLICIES ON THE LOAN CLASSIFICATION AND PROVISIONING

Appendix IV-A: Classification & Provision Criteria as per BCD Circular no. 12/1995

Circular Subject	Classification	Base for Provision	Remarks
Loan classification and provision related amended Rules	For new loan after 01.01.1995 **UC:** Overdue less than 6 months **SS:** Overdue more than 6 months but less than 12 months **DF:** Overdue more than 12 months but less than 24 months **BL:** Overdue more than 24 months For loan before 01.01.1995 **UC:** Overdue less than 9 months **SS:** Overdue more than 9 months but less than 24 months **DF:** Overdue more than 24 months but less than 36 months **BL:** Overdue more than 36 months	For new loan after 01/01/1995 UC: 1% SS: 15% DF: 50% BL: 100% For loan before 01/01/1995 UC: 1% SS: 10% DF: 50% BL: 100%	Unchanged other terms and conditions of BCD 34/1989 and BCD 20/1994
UC: Unclassified SS: Sub-Standard DF: Doubtful BL: BAD/Loss BCD: Banking Control Division			

Appendix IV-B: Classification & Provision Criteria as per BRPD Circular no. 12/1995

Circular Subject	Category of Loan	Classification	Base for Provision*	Remarks
Loan Classification and Provision related amended Rules	Continuous Loan	**UC:** Overdue less than 3 months **SS:** Overdue more than 3 months but less than 6 months **DF:** Overdue more than 6 months but less than 12 months **BL:** Overdue more than 12 months	UC:1% SS: 20% DF: 50% BL:100%	
	Demand Loan	**UC:** Overdue less than 3 months **SS:** Overdue more than 3 months but less than 6 months **DF:** Overdue more than 6 months but less than 12 months **BL:** Overdue more than 12 months		
	Term Loan	<u>Term Loan having repayment less than 05 years:</u> **UC:** Installment overdue less than 6 months **SS:** Installment overdue more than 6 months **DF:** Installment overdue more than 12 months **BL:** Installment overdue more than 18 months <u>Term Loan having repayment more than 05 years:</u> **UC:** Installment overdue less than 12 months **SS:** Installment overdue more than 12 months **DF:** Installment overdue more than 18 months **BL:** Installment overdue more than 24 months		
	Short-Term Agricultural and Micro-credit	**UC:** Overdue less than 12 months **SS:** Overdue less than 36 months **DF:** Overdue less than 60 months **BL:** Overdue more than 60 months	UC: 5% SS: 5% DF: 5% BL:100%	

*Provision will be calculated after deduction of the interest suspense and eligible securities.
Therefore, Provision= Classified Loan-(Interest Suspense- Eligible Securities).
The eligible securities will be considered as:

- ✓ Liened deposit:100%
- ✓ Present market value of the reserved gold or gold ornaments at bank: 100%
- ✓ Liened govt. bond/sanchaypatra: 100%
- ✓ Govt. or Bangladesh Bank Guarantee: 100%
- ✓ Bank controlled marketable goods (pledge): 50%
- ✓ Market value of the mortgaged land/building: 50%

As per qualitative judgment, any continuous, demand or term loan can be classified any time if any uncertainty or doubt arises in respect of recovery of the loan.

Appendix IV-C: Classification & Provision Criteria as per BRPD Circular no. 05/2006

Circular Subject	Category of Loan	Classification	Base for Provision*	Remarks
Master circular-Loan Classification and Provisioning	Continuous Loan	**UC:** Overdue less than 3 months **SMA:** Overdue more than 3 months but less than 6 months **SS:** Overdue more than 6 months but less than 9 months **DF:** Overdue more than 9 months but less than 12 months **BL:** Overdue more than 12 months	UC:1% (Other than Small Enterprise and Consumer Financing, SMA) UC:2% (Small Enterprise) UC:5% (Consumer Financing, SMA) SS: 20% DF: 50% BL:100%	
	Demand Loan	**UC:** Overdue less than 3 months **SMA:** Overdue more than 3 months but less than 6 months **SS:** Overdue more than 6 months but less than 9 months **DF:** Overdue more than 9 months but less than 12 months **BL:** Overdue more than 12 months		
	Term Loan	<u>Term Loan having repayment less than 05 years:</u> **UC:** Installment overdue less than 3 months **SMA:** Installment overdue more than 3 months less than 6 months **SS:** Installment overdue more than 6 months less than 12 months **DF:** Installment overdue more than 12 months less than 18 months **BL:** Installment overdue more than 18 months <u>Term Loan having repayment more than 05 years:</u> **UC:** Installment overdue less than 3 months **SMA:** Installment overdue more than 3 months less than 12 months **SS:** Installment overdue more than 12 months less than 18 months **DF:** Installment overdue more than 18 months less than 24 months **BL:** Installment overdue more than 24 months		
	Short-Term Agricultural and Micro-credit	**UC:** Overdue less than 12 months **SS:** Overdue less than 12 months **DF:** Overdue less than 36 months **BL:** Overdue more than 60 months	UC: 5% SS: 5% DF: 5% BL:100%	

*Provision will be calculated after deduction of the interest suspense and eligible securities. Therefore, Provision= Classified Loan-(Interest Suspense- Eligible Securities).
The eligible securities will be considered as:

- ✓ Liened deposit:100%
- ✓ Liened govt. bond/sanchaypatra: 100%
- ✓ Govt. or Bangladesh Bank Guarantee: 100%
- ✓ Present market value of the reserved gold or gold ornaments at bank: 100%
- ✓ Bank controlled marketable goods (pledge): 50%
- ✓ Market value of the mortgaged land/building: 50%
- ✓ Average market value or face value whichever is less, of the share traded in stock market: 50%

Qualitative Judgment: As per the qualitative judgment, any continuous, demand, or term loan can be classified at any time if any uncertainty or doubt arises in respect of recovery of the loan. Besides, if any loan is illogically or repeatedly re-scheduled or the norms of the re-scheduling are violated or instances of frequently exceeding the loan limit are noticed or legal action is lodged for recovery of the loan, or the loan is extended without the approval of the competent authority, it will have to be classified based on qualitative judgment. The classification will be followed as per:
SS: If there is an existence of hope for change by resorting to proper steps.
DF: Even if after resorting to the proper steps, there exists no certainty of total recovery of the loan.
BL: Even after exerting an all-out effort, there exists no chance of recovery.

BRPD Circular no. 10/2007 introduced the general provision of 1% for the off-balance sheet exposure and this general provision would be treated as supplementary capital (Tier-2).

Appendix IV-D: Classification &Provision Criteria as per BRPD Circular no. 07/2012

Circular Subject	Category of Loan	Classification	Base for Provision*	Remarks
Master circular-Loan Classification and Provisioning	Continuous Loan	**UC:** Overdue less than 2 months **SMA:** Overdue more than 2 months but less than 3 months **SS:** Overdue more than 3 months but less than 6 months **DF:** Overdue more than 6 months but less than 9 months **BL:** Overdue more than 9 months	UC:1% (Other than Consumer Financing, Merchant Banks loans, SMA) UC:2% (Merchant Banks loans) UC:5% (Consumer Financing, SMA) UC:1% (Off-Balance sheet items) SS: 20% DF: 50% BL:100%	
	Demand Loan	**UC:** Overdue less than 2 months **SMA:** Overdue more than 2 months but less than 3 months **SS:** Overdue more than 3 months but less than 6 months **DF:** Overdue more than 6 months but less than 9 months **BL:** Overdue more than 9 months		
	Term Loan	**UC:** Installment overdue less than 2 months **SMA:** Installment overdue more than 2 months less than 3 months **SS:** Installment overdue more than 3 months less than 6 months **DF:** Installment overdue more than 6 months less than 9 months **BL:** Installment overdue more than 9 months		
	Short-Term Agricultural and Micro-credit	**UC:** Overdue less than 12 months **SS:** Overdue less than 12 months **DF:** Overdue less than 36 months **BL:** Overdue more than 60 months	UC: 5% SS: 5% DF: 5% BL:100%	

*Provision will be calculated after deduction of the interest suspense and eligible securities.
Therefore, Provision= Classified Loan-(Interest Suspense- Eligible Securities).
The eligible securities will be considered as like BRPD Circular no. 05/2006.

As per the qualitative judgment, any continuous, demand, or term loan can be classified at any time if any uncertainty or doubt arises in respect of recovery of the loan and the classification status will be done like this:

SMA: The loan was not made in compliance with the bank's internal policy or failure to maintain adequate and enforceable securities or poor control over collateral or below-average/declining profitability, barely acceptable liquidity, problems in strategic planning, etc.

SS: Recurrent overdrawn, low account turnover or competitive difficulties or very low profitability or weak management or cash flow less than repayment principal or conflict in corporate interest, or primary sources of repayment are insufficient to service the debt or without adequate documentation of the obligor's net worth, profitability, liquidity, and cash flow, etc.

DF: Permanent overdrawn, location in an industry with poor aggregate earnings or loss of markets or serious competitive problems or failure of key products or operational losses or illiquidity or including the necessity to sell assets to meet operating expenses or cash flow less than required interest payment or very poor management or non-cooperative/hostile management or doubts about true ownership or complete absence of faith in financial statements, etc.

BL: The obligor seeks new loans to finance operational losses or location in an industry that is disappearing or location in the bottom quartile of its industry in terms of profitability or technological obsolescence or very high losses or assets sales at a loss to meet operational expenses, cash flow less than production costs or no repayment source except liquidation or presence of money laundering or fraud or embezzlement or other criminal activity or no further support by owners, etc.

Appendix IV-E: Classification & Provision Criteria as per BRPD Circular no. 14/2012

Circular Subject	Category of Loan	Classification	Base for Provision*	Remarks
Master circular-Loan Classification and Provisioning	Continuous Loan	**UC:** Overdue less than 2 months **SMA:** Overdue more than 2 months but less than 3 months **SS:** Overdue more than 3 months but less than 6 months **DF:** Overdue more than 6 months but less than 9 months **BL:** Overdue more than 9 months	UC:1% (Other than SME, Consumer Financing, Merchant Banks loans, SMA) UC:0.25% (SME) UC:2% (Merchant Banks loans) UC:5% (Consumer Financing, SMA) UC:1% (Off-Balance sheet items) SS: 20% DF: 50% BL:100%	
	Demand Loan	**UC:** Overdue less than 2 months **SMA:** Overdue more than 2 months but less than 3 months **SS:** Overdue more than 3 months but less than 6 months **DF:** Overdue more than 6 months but less than 9 months **BL:** Overdue more than 9 months		
	Term Loan	**UC:** Installment overdue less than 2 months **SMA:** Installment overdue more than 2 months less than 3 months **SS:** Installment overdue more than 3 months less than 6 months **DF:** Installment overdue more than 6 months less than 9 months **BL:** Installment overdue more than 9 months		
	Short-Term Agricultural and Micro-credit	**UC:** Overdue less than 12 months **SS:** Overdue less than 12 months **DF:** Overdue less than 36 months **BL:** Overdue more than 60 months	UC: 5% SS: 5% DF: 5% BL:100%	

*Provision will be calculated after deduction of the interest suspense and eligible securities. Therefore, Provision= Classified Loan-(Interest Suspense- Eligible Securities).
The eligible securities will be considered as like BRPD Circular no. 05/2006.

As per the qualitative judgment, any continuous, demand, or term loan can be classified at any time if any uncertainty or doubt arises in respect of recovery of the loan and the classification status will be done like this:

SMA: The loan was not made in compliance with the bank's internal policy or failure to maintain adequate and enforceable securities or poor control over collateral or below-average/declining profitability, barely acceptable liquidity, problems in strategic planning, etc.

SS: Recurrent overdrawn, low account turnover or competitive difficulties or very low profitability or weak management or cash flow less than repayment principal or conflict in corporate interest, or primary sources of repayment are insufficient to service the debt or without adequate documentation of the obligor's net worth, profitability, liquidity, and cash flow, etc.

DF: Permanent overdrawn, location in an industry with poor aggregate earnings or loss of markets or serious competitive problems or failure of key products or operational losses or illiquidity or including the necessity to sell assets to meet operating expenses or cash flow less than required interest payment or very poor management or non-cooperative/hostile management or doubts about true ownership or complete absence of faith in financial statements, etc.

BL: The obligor seeks new loans to finance operational losses or location in an industry that is disappearing or location in the bottom quartile of its industry in terms of profitability or technological obsolescence or very high losses or assets sales at a loss to meet operational expenses, cash flow less than production costs or no repayment source except liquidation or presence of money laundering or fraud or embezzlement or other criminal activity or no further support by owners, etc.

The amendment of BRPD circular no. 14/2012 was done by BRPD circular no. 19/2012 where the classification status for the fixed-term loans except for short-term agriculture and micro-credit was changed.

a) Fixed-term loans except short-term agriculture and micro-credit amounting up to Tk.10.00 lacs will be classified as:
   i) SS: Installment(s) due within 06 (six) months
   ii) DF: Installment(s) due within 09 (nine) months
   iii) BL: Installment(s) due within 12 (twelve) months
b) Fixed-term loans except for short-term agriculture and micro-credit more than Tk.10.00 lacs will be classified as:
   i) SS: Installment(s) due within 03 (three) months
   ii) DF: Installment(s) due within 06 (six) months
   iii) BL: Installment(s) due within 09 (nine) months

Appendix IV-F: Amendments for Provision for BRPD Circular no. 14/2012

Classification of Loan	Provision as per BRPD Circular no. 14/2012	Provision as per BRPD Circular no. 16/2014
All unclassified Credit (irregular and regular)	5%	2.5%
Classified as SS and DF	5%	5%
Classified as BL	100%	100%

Subsequant amendments:

The amendment of BRPD circular no. 14/2012 was done by BRPD circular no. 12/2017 where provisions for credit card loan unclassified loans required 2% provision instead of 5% as like consumer financing.

The amendment of BRPD circular no. 16/2014 was done by BRPD circular no. 15/2017 where provisions for short-term agricultural and micro-credits unclassified loans required 1% provision instead of 2.5%.

The amendment of BRPD circular no. 14/2012 was done by BRPD circular no. 01/2018 where provisions for housing finance unclassified loans required 1% provision instead of 2%.

The amendment of BRPD circular no. 14/2012 was done by BRPD circular no. 07/2018 where banks were given exemption from maintaining any provision for those guarantees against which the counter-guarantees are issued only by the Multilateral Development Banks (MDBs) or International Banks having a BB rating grade “1”.

Appendix IV-G: Classification & Provision Criteria as per BRPD Circular no. 03/2019

Circular Subject	Category of Loan	Classification	Base for Provision*	Remarks
Loan Classification and Provisioning	Continuous and Demand Loan	**UC:** Overdue less than 6 months **SMA:** Overdue more than 2 months but less than 3 months **SS:** Overdue more than 3 months but less than 9 months **DF:** Overdue more than 9 months but less than 12 months **BL:** Overdue more than 12 months	UC:1% (Other than SME, Consumer Financing, Merchant Banks loans, SMA) UC:0.25% (SME) UC:2% (Merchant Banks loans) UC:5% (Consumer Financing, SMA) UC:1% (Off-Balance sheet items) SS: 20% DF: 50% BL:100%	
	Term Loan	**UC:** Installment overdue less than 6 months **SMA:** Installment overdue more than 2 months less than 3 months **SS:** Installment overdue more than 6 months less than 9 months **DF:** Installment overdue more than 9 months less than 12 months **BL:** Installment overdue more than 12 months		

*Provision will be calculated after deduction of the interest suspense and eligible securities. Therefore, Provision= Classified Loan-(Interest Suspense- Eligible Securities).
The eligible securities will be considered as like BRPD Circular no. 05/2006.

**As per the qualitative judgment, any continuous, demand or term loan can be classified at any time if any uncertainty or doubt arises in respect of recovery of the loan, and the classification status will be done as per BRPD Circular no 14/2012.

*** Loans have to be treated as defaulted a portion of SS loans as per section 5(GaGa) of the Banking Companies Act, 1991 where the DF loans had to be treated as defaulted loans as per BRPD Circular no 14/2012.

Appendix IV-H: Loan Classification during the COVID-19 period

1. BRPD Circular no 04/2020: The classification will be unchanged for the period of 30.06.2020 as like 01.01.2020 but the classification may be done any position upgraded.
2. BRPD Circular no 13/2020: The classification will be unchanged for the period of 30.09.2020 as like 01.01.2020 but the classification may be done any position upgraded. The due of the installments of the fixed-term loan (including short-term agricultural loan and micro-credit) from 01.01.2020 to 30.09.2020 will be deferred to the following period and the amount of installment(s) will be rescheduled with October 2020. The due amount of the continuous and demand loan from 01.01.2020 to 31.05.2020 will be deferred for 09 months and/or 31.12.2020 whichever is earlier.
3. BRPD Circular no 17/2020: The classification will be unchanged for the period of 31.12.2020 as like 01.01.2020 but the classification may be done for any position upgraded. The due of the installments of the fixed-term loan (including short-term agricultural loan and micro-credit) from 01.01.2020 to 31.12.2020 will be deferred to the following period and the amount of installment(s) will be rescheduled with January 2021. The due amount of the continuous and demand loan from 01.01.2020 to 30.09.2020 will be deferred for 12 months and/or 31.12.2020 whichever is earlier.
4. BRPD Circular no 52/2020: The provisioning has been changed from a 5% general provision to a 2% general provision against unclassified loans of all categories under consumer financing and credit cards excluding house finance. All other provision-related criteria will remain unchanged as per BRPD Circular no 05/2013 and BRPD Circular no 12/2017.
5. BRPD Circular no 59/2020: The due of the rescheduled installments/special exit of the loan as per BRPD Circular no 05/2019 will be deferred for 12 months but for the special exit loan the exit period will be deferred for 180 days.
6. BRPD Circular no 63/2020: The banks are advised to submit detailing of the CL statements within 15 days of each quarter and to ensure correct and timely submission of the statement failing to which penalty may be imposed against the concerned bank.
7. BRPD Circular no 03/2021: The repayment schedule of the unclassified term loan will be rescheduled for a 50% time extension (not more than 02 years).
8. BRPD Circular no 05/2021: The classification will be unchanged for the period of 30.06.2021 as like 01.01.2021 but the classification may be done any position upgraded. The due of the installments of the fixed-term loan (including short-term agricultural loan and micro-credit) from 01.01.2021 to 30.06.2021 will be deferred to the following period and the amount of

installment(s) will be rescheduled with July 2021. The due amount of the continuous and demand loan from 01.01.2021 to 31.03.2021 will be deferred for 03 months.

9. BRPD Circular no 13/2021: The amount will not be adversely classified if 20% of the total installment(s) up to June 2021 is repaid within August 2021.
10. BRPD Circular no 19/2021: The amount will not be adversely classified if 25% of the total installment(s) up to December 2021 is repaid within December 2021. The remaining installment(s) will be deferred to the following period and the amount of installment(s) will be rescheduled with January 2022 but should be rescheduled for the next 01 year from the expiry date of the existing schedule.
11. BRPD Circular no 45/2021: The special exit loan will exist if the amount is repaid within December 2021 as per BRPD Circular no 05/2019 and BRPD Circular no 59/2020.
12. BRPD Circular no 51/2021: The amount will not be adversely classified of the CMSME loan(s) if 15% repaid instead of 25% repayment (as per BRPD Circular no 19/2021) up to December 2021 repaid within December 2021. The remaining amount/installment(s) will be deferred to the following period.
13. BRPD Circular no 53/2021: The amount will not be adversely classified of all categories of loan(s) if 15% is repaid instead of 25% repayment (as per BRPD Circular no 19/2021) up to December 2021 repaid within December 2021. The remaining amount/ installment(s) will be deferred to the following period. But 2% additional general provision maintenance is required for such types of loan(s).
14. BRPD Circular no 14/2022: The amount of the term loan(s) of large industry will not be adversely classified if 50% of April 2022 to June 2022, 60% of July 2022 to September 2022 and 75% of October 2022 to December 2022 which has been repaid within the last date of the respective quarter but the loans must be unclassified up to April 2022 as per previous circulars. The amount of the CSMEs and agricultural loan(s) will not be adversely classified if 25% of April 2022 to June 2022, 30% of July 2022 to September 2022, and 40% of October 2022 to December 2022 which has been repaid within the last date of the respective quarter but the loans must be unclassified up to April 2022 as per previous circulars. The amount of the demand loan(s) will not be adversely classified if 3 installments from June 2022 to December 2022 have been repaid within December 2022 but the loans must be unclassified up to April 2022 as per previous circulars.
15. BRPD Circular no 51/2022: The amount will not be adversely classified of the term loan(s) if 50% repaid instead of 75% repayment from October 2022 to December 2022 repaid within December 2022. The remaining amount/installment(s) will be deferred to the following period but not more than 01 years of the existing expiry date.

APPENDIX V: POLICIES ON THE LOAN RESCHEDULING

Appendix V-A: Policy of Loan Rescheduling as per BRPD Circular no. 01/2003

Circular Subject	Direction for Considering Application	Down Payment	Period	Remarks
Policy of Loan Rescheduling	• Habitual or diverted fund-related NPL will not be considered for RSD. • Other bank liabilities repayment will be considered. • Cash flow statements, audited balance sheets, income statements, and other financial statements will be scrutinized to analyze the repayment of the RSD. • Physical inspection is required to ensure the real condition of the borrower and the report will be preserved for the future. • Failure of the above situations, the bank will follow another legal method of recovery as well as a reserve of provision. • The process must be done within legible time frame. • RSD approval authority must be informed of what will impact the process. • The RSD borrower will not get a direct or indirect new loan facility before 01 year or repayment of the entire RSD loan (whichever is earlier). • No prior approval from BB is essential except for directors' (and/or interested) loans or large loans. • CIB report must be done for RSD.	**For Continuous and Demand Loan** 1st time RSD: Up to BDT 1 crore: 15%. BDT 1 crore to BDT 5 crore: 10% (not less than BDT 15 lac). More than BDT 5 crore: 5% (not less than BDT 50 lac). 2nd time RSD: 20% overdue or 30% of inst. (whichever is less). Rest time RSD: 30% overdue or 50% of inst. (whichever is less). **For Term Loan** 1st time RSD: 10% overdue or 15% of inst. (whichever is less). 2nd time RSD: 20% overdue or 30% of inst. (whichever is less). Rest time RSD: 30% overdue or 50% of inst. (whichever is less).	minimum eligible time period	Cancelled terms and conditions of RSD related previous circulars
Abbreviation Inst.: installment				

Appendix V-B: Amendments of the BRPD Circular no. 01/2003 of the Loan Rescheduling

1. The BRPD Circular no. 04/2003: The rescheduled loan borrower would not get a direct or indirect new loan facility before 01 years or repayment of the entire RSD loan (whichever is earlier).
2. The BRPD Circular no. 02/2006: It reviewed the new loan facility policy. The summary of the reviewed policy for a new loan facility for the rescheduled loan borrower is given below:
   a) The borrower who has availed interest waiver must settle at least 15% of the compromise amount excluding the rescheduled time down payment. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a No Objection Certificate (NOC) from the rescheduling bank(s).
   b) Export borrowers may be allowed further loan facility (not willful defaulter) at least 7.50% of the compromise amount excluding the rescheduled time down payment.
   c) No fresh facility will be allowed till the full settlement of the compromise amount for the principal waiver (as well as/instead of interest waiver).
   d) Prior approval from BB is essential for a director/ex-directors (and/or interested) loan from a bank.
   e) All other terms and conditions of BRPD Circular no. 01/2003 will remain unchanged.

3. The BRPD Circular no. 03/2006: It clarified that fresh facility will be allowed with the settlement of the compromise amount for the principal waiver also.
4. The BRPD Circular no. 08/2006: It circulated to strictly follow all terms of the BRPD Circular no. 01/2003 otherwise it would be considered a punishable offense.
5. The BRPD Circular no. 03/2009: It relaxed the down payment recovery for the export-related industry, especially frozen food, leather, and leather goods, jute and jute goods, textile (including spinning), and ready-made garments (RMG) due to negative impact of world economic crisis. The facility would be allowable as per the bank-client relationship up to September 2009.
6. The BRPD Circular no. 09/2009: It clarified the down payment for the short-term agricultural loan. As the short-term agricultural loan(s) is as like a term loan(s), the required down payment would be considered like a term loan. So the required down payment for a short-term agricultural loan would be:

   1st time RSD:10% overdue or 15% of inst. (whichever is less).
   2nd time RSD: 20% overdue or 30% of inst. (whichever is less).
   Rest time RSD: 30% overdue or 50% of inst. (whichever is less).

7. The BRPD Circular no. 03/2009: It relaxed the down payment recovery up to September 2009 for the export-related industry, especially frozen food, leather, and leather goods, jute and jute goods, textile (including spinning), and ready-made garments (RMG) due to negative impact of world economic crisis. The BRPD Circular no. 17/2009 relaxed the down payment recovery for such industry up to June 2010.
8. The BRPD Circular no. 21/2009: It relaxed the down payment recovery for the industry which adversely affected different measures of the caretaker government like the country leaves, self-concealment, imprisonment of the businessmen and industrialists. The facility would be allowable as per the bank-client relationship up to September 2009.

Appendix V-C: Policy of the Loan Rescheduling as per BRPD Circular no. 08/2012

Circular Subject	Direction for Considering Application	Down Payment	Period	Remarks
Master Circular on Loan Rescheduling	• The bank must have its policy stricter than BB circular to control routine or repeat RSD specifically for unproductive sectors or unprofitable business organizations. • The bank shall meticulously scrutinize the cause of becoming a loan as NPL. Habitual or diverted fund-related defaulters will not be considered for RSD. • Only the cash amount (even any cheque or pay order or any other instrument must ensure encashment) at a time will be considered as a down payment and the application must be considered within three months of deposit. • Overall repayment capacity of the borrower taking into account the borrower's liability with other banks and financial institutions. • Cash flow statements, audited balance sheets, income statements, and other financial statements will be scrutinized to analyze the repayment of the RSD and/or existing liability. • Physical inspection is required to ensure the real condition of the borrower and the report will be preserved for the future. • RSD must be justified by the bank's credit committee by giving logic of long-run profitability and capital adequacy of the bank as well as the impact of RSD on the bank's liquidity position and the needs of other customers. Failure of the above situations, the bank will follow another legal method of recovery as well as a reserve of provision. • No prior approval from BB is essential except for directors' (and/or interested) loans or large loans.	**For Continuous and Demand Loan** 1st time RSD: Up to BDT 1 crore: 15%. BDT 1 crore to BDT 5 crore: 10% (not less than BDT 15 lac). More than BDT 5 crore: 5% (not less than BDT 50 lac). 2nd time RSD: 20% overdue or 30% of inst. (whichever is less). 3rd time RSD: 30% overdue or 50% of inst. (whichever is less). **For Term Loan, Short-term Agricultural and Micro-Credit** 1st time RSD: 10% overdue or 25% of inst. (whichever is less). 2nd time RSD: 20% overdue or 30% of inst. (whichever is less). 3rd time RSD: 30% overdue or 50% of inst. (whichever is less).	Time limit is given in Apendix V-D.	Cancelled terms and conditions of RSD related previous circulars

Appendix V-D: Time limit for the Loan the Rescheduling as per BRPD Circular no. 08/2012

Frequency	Type of Loan	Classified as SS	Classified as DF	Classified as BL
1st time RSD	CL DL FTL SAMC	Maximum 18 months Maximum 12 months Maximum 24 months Not exceed two years from the expiry	Maximum 18 months Maximum 09 months Maximum 18 months Not exceed two years from the expiry	Maximum 18 months Maximum 09 months Maximum 18 months Not exceed two years from the expiry
2nd time RSD	CL DL FTL SAMC	Maximum 12 months Maximum 09 months Maximum 18 months Maximum 12 months from the date of 1st rescheduling	Maximum 09 months Maximum 06 months Maximum 12 months Maximum 12 months from the date of 1st rescheduling	Maximum 09 months Maximum 06 months Maximum 12 months Maximum 12 months from the date of 1st rescheduling
3rd time RSD	CL DL FTL SAMC	Maximum 06months Maximum06 months Maximum 12 months Maximum 6 months from the date of 2nd rescheduling	Maximum 06 months Maximum 06 months Maximum 09 months Maximum 6 months from the date of 2nd rescheduling	Maximum 06months Maximum 06 months Maximum 09 months Maximum 6 months from the date of 2nd rescheduling

Abbreviation
SS: Sub-Standard
DF: Doubtful
BL: Bad/Loss
CL: Continuous Loan
DL: Demand Loan
FTL: Fixed Term Loan
STAMC: Short-term Agricultural and Micro-Credit

Remarks
For Fixed Term Loan: The rescheduled time limit will be added with the expiry date of the loan. RSD amount must be repaid in monthly/ quarterly installments and six monthly/ two quarterly installments defaulted amount will be classified as BL.
For Continuous and Demand Loan: RSD amount must be repaid in monthly installments and three installments defaulted amount will be classified as BL.

The BRPD Circular no. 08/2012 directed for the new loan or enhanced credit facility subject to fulfillment of the following conditions:

- The borrower must settle at least 15% of the outstanding balance excluding the rescheduled time down payment as a compromise amount. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a No Objection Certificate (NOC) from the rescheduling bank(s).
- Export borrowers may be allowed further loan facility (not willful defaulter) subject to payment of at least 7.50% of the outstanding balance excluding the rescheduled time down payment as a compromise amount. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a No Objection Certificate

(NOC) from the rescheduling bank(s).

- Prior approval from BB is essential for a director loan from any bank.
- The number of rescheduling must be mentioned in the sanction letter. Information on such rescheduled loan accounts shall be reported to the Credit Information Bureau (CIB) and the rescheduled loans/advances should be shown as RS-1 for 1st time rescheduling, RS-2 for 2nd time rescheduling and RS-3 for 3rd time rescheduling. RSIW-1 for 1st time rescheduling, RSIW-2 for 2nd time rescheduling and RSIW-3 for 3rd time rescheduling will be reported if rescheduling facility is availed through an interest waiver.

This Circular relaxed the down payment recovery for the export-oriented garments industry or knit garments factory due to stock lot. The sales or export proceeds from the stock lot must be used to repay the loan. A fertilizer importer loan may be rescheduled without a down payment if such a loan becomes adversely classified due to delay in government subsidy receipts and payment of subsidy bill. The government subsidy must be used to repay the loan.

This Circular also formulated a policy of the maturity date extension of up to 25% of the current remaining time to maturity of the performing (unclassified: standard or SMA) term loan.

Appendix V-E: Policy of the Loan Rescheduling as per BRPD Circular no. 15/2012

Circular Subject	Direction for Considering Application	Down Payment	Period	Remarks
Master Circular on Loan Rescheduling	• The bank must have its policy stricter than BB circular to control routine or repeat RSD specifically for unproductive sectors or unprofitable business organizations. • The bank shall meticulously scrutinize the cause of becoming a loan as NPL. Habitual or diverted fund-related defaulters will not be considered for RSD. • Only the cash amount (even any cheque or pay order or any other instrument must ensure encashment) at a time will be considered as a down payment and the application must be considered within three months of deposit. • Overall repayment capacity of the borrower taking into account the borrower's liability with other banks and financial institutions. • Cash flow statements, audited balance sheets, income statements, and other financial statements will be scrutinized to analyze the repayment of the RSD and/or existing liability. • Physical inspection is required to ensure the real condition of the borrower and the report will be preserved for the future. • RSD must be justified by the bank's credit committee by giving logic of long-run profitability and capital adequacy of the bank as well as the impact of RSD on the bank's liquidity position and the needs of other customers. Failure of the above situations, the bank will follow another legal method of recovery as well as a reserve of provision. • No prior approval from BB is essential except for directors' (and/or interested) loans or large loans.	**For Continuous and Demand Loan** 1st time RSD: Up to BDT 1 crore: 15%. BDT 1 crore to BDT 5 crore: 10% (not less than BDT 15 lac). More than BDT 5 crore: 5% (not less than BDT 50 lac). 2nd time RSD: 20% overdue or 30% of inst. (whichever is less). 3rd time RSD: 30% overdue or 50% of inst. (whichever is less). **For Term Loan, Short-term Agricultural and Micro-Credit** 1st time RSD: 10% overdue or 25% of inst. (whichever is less). 2nd time RSD: 20% overdue or 30% of inst. (whichever is less). 3rd time RSD: 30% overdue or 50% of inst. (whichever is less).	Time limit is given in Appendix V-F.	Cancelled terms and conditions of RSD related previous circulars

Appendix V-F: Time limit for the Loan Rescheduling as per BRPD Circular no. 15/2012

Frequency	Type of Loan	Classified as SS	Classified as DF	Classified as BL
1st time RSD	CL DL FTL SAMC	Maximum 18 months Maximum 12 months Maximum 24 months Not exceed two years from the expiry	Maximum 12 months Maximum 09 months Maximum 18 months Not exceed two years from the expiry	Maximum 12 months Maximum 09 months Maximum 18 months Not exceed two years from the expiry
2nd time RSD	CL DL FTL SAMC	Maximum 12 months Maximum 09 months Maximum 18 months Maximum 12 months from the date of 1st rescheduling	Maximum 09 months Maximum 06 months Maximum 12 months Maximum 12 months from the date of 1st rescheduling	Maximum 09 months Maximum 06 months Maximum 12 months Maximum 12 months from the date of 1st rescheduling
3rd time RSD	CL DL FTL SAMC	Maximum 06months Maximum06 months Maximum 12 months Maximum 6 months from the date of 2nd rescheduling	Maximum 06 months Maximum 06 months Maximum 09 months Maximum 6 months from the date of 2nd rescheduling	Maximum 06months Maximum 06 months Maximum 09 months Maximum 6 months from the date of 2nd rescheduling

Abbreviation
SS: Sub-Standard
DF: Doubtful
BL: Bad/Loss
CL: Continuous Loan
DL: Demand Loan
FTL: Fixed Term Loan
STAMC: Short-term Agricultural and Micro-Credit

Remarks

For Fixed Term Loan: The rescheduled time limit will be added with the expiry date of the loan. RSD amount must be repaid in monthly/ quarterly installments and six monthly/ two quarterly installments defaulted amount will be classified as BL.

For Continuous and Demand Loan: RSD amount must be repaid in monthly installments and three installments defaulted amount will be classified as BL.

The borrower will be treated as a habitual loan defaulter if the loan becomes default after the third rescheduling and the bank shall not consider further loan rescheduling. Approval of the loan rescheduling cannot be made below the level at which it was originally sanctioned.

The BRPD Circular no. 15/2012 directed for the new loan or enhanced credit facility subject to fulfillment of the following conditions:

- The borrower must pay at least 15% of the outstanding balance excluding the rescheduled time down payment as a compromise amount. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a NOC from the rescheduling bank(s).

- Export borrowers may be allowed further loan facility (not willful defaulter) subject to payment of at least 7.50% of the outstanding balance excluding the rescheduled time down payment as a compromise amount. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a NOC from the rescheduling bank(s).
- Prior approval from BB is essential for a director loan from any bank.
- Several rescheduling must be mentioned in the sanction letter. Information on such rescheduled loan accounts shall be reported to the CIB and the rescheduled loans/advances should be shown as RS-1 for 1st time rescheduling, RS-2 for 2nd time rescheduling and RS-3 for 3rd time rescheduling. RSIW-1 for 1st time rescheduling, RSIW-2 for 2nd time rescheduling and RSIW-3 for 3rd time rescheduling will be reported if rescheduling facility is availed through an interest waiver.

This Circular relaxed the down payment recovery for the export-oriented garments industry or knit garments factory due to stock lot. The sales or export proceeds from the stock lot must be used to repay the loan. The loan may be rescheduled without the required down payment based on recovery probability and banker-customer relationship if any such loan account remains unadjusted even after repaying the loan with sales/export proceeds of the stock lot. But the facility will not be allowed for forced loans, project loans, or term loans in this sector. Only the forced loan backed by the stock lot will be applicable for such facilities. A fertilizer importer loan may be rescheduled without a down payment if such a loan becomes adversely classified due to delay in government subsidy receipts and payment of subsidy bill. The government subsidy must be used to repay the loan. The loan may be rescheduled without the required down payment based on recovery probability and banker-customer relationship if any such loan account remains unadjusted even after repaying the loan with a government subsidy. This Circular also conveyed the policy of the maturity date extension of up to 25% of the current remaining time to maturity of the performing (unclassified: standard or SMA) term loan.

Appendix V-G: Time limit for the Loan Rescheduling Fixed Term Loan as per BRPD Circular no.06/2013

Frequency	Classified as SS	Classified as DF	Classified as BL
1st time RSD	Maximum 36 months instead of 24 months	Maximum 24 months instead of 18 months	Maximum 24 months instead of 18 months
2nd time RSD	Maximum 24 months instead of 18 months	Maximum 18 months instead of 12 months	Maximum 18 months instead of 12 months
3rd time RSD	Maximum 12 months instead of 18 months	Maximum 12 months instead of 09 months	Maximum 12 months instead of 09 months

Remarks

The rescheduled time limit will be added to the expiry date of the loan. RSD amount must be repaid in monthly/ quarterly installments and six monthly/ two quarterly installments defaulted amount will be classified as BL.

Appendix V-H: Policy of the Large Loan Restructuring as per BRPD Circular no. 04/2015

<table>
<tr><th>Circular Subject</th><th>Direction for Considering Application</th><th>Down Payment</th><th>Period</th><th>Remarks</th></tr>
<tr><td rowspan="2">Large Loan Restructuring</td><td rowspan="2">• The bank(s) must focus on the grounds of restructuring including the business plan, financial justification, cash flow projection (certified by a renowned chartered accountant firm), and viability analysis considering overall repayment capability detailing the laTest liability position of another bank (s).
• The bank(s) credit committee(s) will prepare an assessment for approval from BB recommended by the approval authority of the respective bank(s) detailing the short and long-run impact on liquidity, profitability, asset quality, and capital adequacy of the bank(s) as well as strength of primary and secondary collaterals with laTest valuation.
• The account(s) will be reported as SMA (RST) in the CIB report. Must be paid on a quarterly installment basis. Failure of two installments will be considered as default and the facility will be cancelled.
• A special monitoring cell shall have to be formed and a quarterly report to be submitted to BB.
• Physical inspection is required to ensure the real condition of the borrower and the report will be preserved for the future.</td><td>Up to BDT 1,000 crore: 1%.</td><td>For Fixed Term Loan: 12 years including 12 months moratorium period</td><td rowspan="2">Single time circular effective up to 15.6.2015 to implement</td></tr>
<tr><td>More than BDT 1,000 crore: 2%</td><td>For Continuous and Demand Loan: 6 years including 12 months moratorium period</td></tr>
</table>

The BRPD Circular no. 04/2015 Dated 29.05.2015 directed for the new loan or enhanced credit facility subject to Section 26Kha of the Bank Company Act, 1991 with the following terms and manner:

- The borrower must comply with all the terms and conditions of the restructuring and repayment of the installment(s) in time.
- Working capital finance may be enhanced by 50% of the last sanctioned amount within 3 years of restructuring and after that time the fresh term finance may be allowed based on the banker-customer relationship.

Appendix V-I: Ammendments of the BRPD Circular no. 15/2012 for Loan Rescheduling

1. The BRPD Circular no 05/2015: It circulates to implement the government's farmer-friendly policy to boost agricultural production as well as recovery of the agricultural loan. As per this circular, the required down payment for rescheduling the short-term agricultural loan was relaxed and the new loan was allowed to disburse without any compromise amount. Credit could be rescheduled during the trial period after withdrawing or settling the certificate case through Solenama (mutual agreement) with the customer if any certificate case was filed. The validity of the circular was up to December 2015.
2. The BRPD Circular no 13/2017: Another circular was issued to facilitate the short-term agricultural, micro-credit, and SME due to the adverse effect of the flood to implement the rehabilitation of flood-affected borrowers for the continuation of normal economic activities. As per this circular, the required down payment for rescheduling of the short-term agricultural, micro-credit, and SME was relaxed. A new loan was allowed to disburse without any compromise amount. If any certificate case was filed, credit could be rescheduled during the trial period after withdrawing or settling the certificate case through Solenama (mutual agreement) with the customer. The validity of the circular was up to June 2018.
3. The BRPD Circular no 17/2018: It was iddues for the continuation of the normal economic activities and rural employment activities of the natural disaster (flood, drought, flow tide, heavy rain, etc.) affected short-term, agricultural borrowers. As per this circular, the required down payment for rescheduling the short-term agricultural loan was relaxed and the new loan was allowed to disburse without any compromise amount. Credit could be rescheduled during the trial period after withdrawing or settling the certificate case through Solenama (mutual agreement) with the customer if any certificate case was filed. The validity of the circular was up to December 2019.
4. The BRPD Circular no. 05/2019: It was a supplementary circular of BRPD Circular no. 15/2012. As per this circular, the only Bad/Loss (BL) classified borrowers of the trading sector (wheat, food items, refinery, and edible oil), ship industry (ship-breaking and ship-building), iron and ispat industry, and import-export related industry of non-agricultural sector financed by specialized banks, and default without the loan activity would be eligible for loan rescheduling and one-time exit subject to the banker-client relationship. As with other circulars the following measures would be taken to facilitate such borrowers:
    - The facility will be allowed based on the liability as of 31.12.2018.
    - For rescheduling and one-time exit, 2% own payment recovery is essential. No previous adjustment is allowed as a down payment.
    - Single-time circular effective up to 90 days from the date of issuance.
    - The tenure of the facility is 10 years including 12 months grace period.
    - Interest suspense may be exempted but must be blocked up to adjustment of whole liability and after adjustment, the exemption will be effective.

- Rescheduled client(s) may be allowed new loan facility based on banker-customer relationship but strictly follow the credit policy and failure of repayment of the new credit in time will be a condition for cancellation of the rescheduled facility.
- Must be paid on a monthly or quarterly installment basis. Failure of 6 out of 9 monthly installments or 2 out of 3 quarterly installments will be considered as Bad/Loss (BL) and the facility will be canceled.
- The trail may be deferred through Solenama (mutual agreement) with the customer during the trial period within 90 days of the facility allowed if any case was filed. Violation of any condition is appropriate to continue the trial again.
- The account(s) will be reported as SMA in the CIB report and mentioned as Special RSDL or Special Exit. A 1% provision reservation is required for this type of borrower's outstanding.

5. BRPD Circular no. 06/2019: It was issued modifying BRPD Circular no. 05/2019 and instructed to report as SMA in CIB but reserve provision as per classification status as of 31.12.2018 instead of 1%. Without recovery of the loan, the reserved provision was prohibited to transfer as income of the bank. The provision amount as consideration of SMA would be preserved as "General Provision" and the rest amount of the provision would be preserved as "Specific Provision". But through BRPD Circular no. 07/2019 Bangladesh Bank stood still the BRPD Circular no. 05/2019 up to 24.06.2019 as per status quo of the Honorable High Court Division of Supreme Court of Bangladesh on 21.05.2019. Bangladesh Bank again stagnates the BRPD Circular no. 05/2019 through BRPD Circular no. 14/2019 for further two months as per status quo of the Honorable High Court Division of Supreme Court of Bangladesh on 24.06.2019. Again Bangladesh Bank languished the BRPD Circular no. 05/2019 through BRPD Circular no. 15/2019 for further two months as per the stay order of the Honorable Appellate Division of Supreme Court of Bangladesh on 08.07.2019. As per the Supreme Court of Bangladesh's decision, the implementation of BRPD Circular No. 05/2019 was deferred. So, Bangladesh Bank deferred the acceptance of an application for rescheduling and one-time exit up to 07.09.2019 through BRPD Circular no. 17/2019, and further time was extended up to 20.10.2019 vide BRPD Circular no. 19/2019 but the policy to further finance facility for such type of borrower was canceled. As per the judgment of the Honorable High Court Division of the Supreme Court of Bangladesh on 03.11.2019, Bangladesh Bank has issued BRPD Circular no. 24/2019 to implement BRPD Circular no. 05/2019 with the following additional condition:
   - The borrower will be eligible for application within the next 90 days from the date of circular issuance.
   - The borrower must pay at least 15% of the outstanding balance excluding the rescheduled time down payment as a compromise amount for further finance. Export borrowers may be allowed further loan facility (not willful defaulter) subject to payment of at least 7.50% of the outstanding balance excluding the rescheduled time down payment as a compromise amount for further finance. The further finance facility will be allowed subject to the needs of the client and bank-client relationship. In case of

borrowing from another bank (s), the same rule will be applicable subject to the submission of a No Objection Certificate (NOC) from the rescheduling bank(s).

- Bad/Loss (BL) classified borrowers of the textiles and garments (in addition to the trading sector, ship industry, iron and ispat industry, import-export related industry of non-agricultural sector financed by specialized banks, and default without the loan activity) will also be eligible for reschedule or one time exit.
- The reschedule or one-time exit proposal must be approved by the board of directors of the respective bank(s).
- All other terms and conditions of BRPD Circular no. 05/2019 dated 16.05.2019 will remain unchanged.

6. The BRPD Circular no. 10/2021 was issued modifying BRPD Circular no. 05/2019 due to facilitate the agricultural sector's impact of COVID-19 to boost the agricultural production through continuous credit facility as well as recovery of the agricultural loan. As per this circular, the required down payment for rescheduling the short-term agricultural loan was relaxed and the tenure of the rescheduled loan was re-fixed for 02 years. A new loan was also allowed to disburse without any further compromise amount. Credit could be rescheduled during the trial period after withdrawing or settling the certificate case through Solenama (mutual agreement) with the customer if any certificate case was filed. The validity of the circular was up to March 2022.
7. The BRPD Circular no. 05/2022: The validity of the circular was extended up to December 2022. In addition, the tenure of the rescheduled loan for the agricultural sector was re-fixed from 02 years to 03 years including 06 months grace period.
8. A number of circulars was also issued during the COVID-19 time which modified the classification and provision related circular as well as master circular for loan rescheduling like BRPD Circular no 04/2020, BRPD Circular no 04/2020, BRPD Circular no 13/2020, BRPD Circular no 17/2020, BRPD Circular no 52/2020, BRPD Circular no 59/2020, BRPD Circular no 63/2020, BRPD Circular no 03/2021, BRPD Circular no 05/2021, BRPD Circular no 13/2021, BRPD Circular no 19/2021, BRPD Circular no 45/2021, BRPD Circular no 51/2021, BRPD Circular no 53/2021, BRPD Circular no 14/2022 and BRPD Circular no 51/2022. Although this amendment was done all other terms and conditions (except the terms and conditions of respective circulars) of BRPD Circular no 15/2012 dated 23.09.2012 would remain unchanged.

Appendix V-J: Policy of the Loan Rescheduling and Restructuring as per BRPD Circular no. 16/2022

Circular Subject	Direction for Considering Application	Down Payment	Remarks
Master Circular on Loan Rescheduling and Restructuring	• The bank must have its policy stricter than BB circular to control routine or repeat RSD specifically for the unproductive sectors or unprofitable business organizations approved by the board of directors of the respective bank(s). • The bank shall meticulously scrutinize the cause of becoming a loan as NPL. Habitual or diverted fund-related defaulters will not be considered for RSD. • Only the cash amount (even any cheque or pay order or any other instrument must ensure encashment) at a time will be considered as a down payment and the application must be considered within three months of deposit and application. • The overall repayment capacity of the borrower of the borrower's liability with other banks and financial institutions must be scrutinized. • Cash flow statements, audited balance sheets, income statements, and other financial statements will be scrutinized to analyze the repayment of the RSD installment and/or existing liability. • Physical inspection is required to ensure the real condition of the borrower and the report will be preserved for the future (if necessary). • RSD must be justified by the bank's credit committee by giving logic of long-run profitability and capital adequacy of the bank as well as the impact of RSD on the bank's liquidity position and the needs of other customers. Failure of the above situations, the bank will follow another legal method of recovery as well as a reserve of provision. • Maximum three times rescheduling is allowable but fourth time rescheduling may be allowed with special consideration to recovery of the classified loan. After the 4th time RSD, the bank(s) must take legal action. • No prior approval from BB is essential except for directors' (and/or interested) loans.	**For Continuous and Demand Loan** 1st and 2nd time RSD: Up to BDT 50 crore: 4.00%. BDT 50 crore to BDT 300 crore: 3.00% (not less than BDT 2.00 crore). More than BDT 300 crore: 2.50% (not less than BDT 9.00 crore). 3rd and 4th time RSD: 1% more than the 1st and 2nd time RSD **For Term Loan, Short-term Agricultural and Micro-Credit** 1st and 2nd time RSD: Up to BDT 100.00 crore: 7.00% overdue or 4.50% of inst. (whichever is less). From BDT 100.00 crore to BDT 500.00 crore: 6.00% overdue or 3.50% of inst. (whichever is less). More than BDT 500.00 crore: 5.00% overdue or 2.50% of inst. (whichever is less). 3rd and 4th time RSD: 1% more than the 1st and 2nd time RSD	Cancelled terms and conditions of RSD related previous circulars

Appendix V-K: Time limit for the Loan Rescheduling as per BRPD Circular no. 16/2022

Frequency	Loan Type	Outstanding Loan Amount	Maximum Tenure (Including Grace Period)	Grace Period
1st and 2nd time RSD	FTL	Up to BDT 100.00 crore	6 years	06 months but 12 months may be considering loss of the borrower
		From BDT 100.00 crore to BDT 500.00 crore	7 years	
		More than BDT 500.00 crore	8 years	
	CL/DL	Up to BDT 50.00 crore	5 years	
		From BDT 50.00 crore to BDT 300.00 crore	6 years	
		More than BDT 300.00 crore	7 years	
	SAMC	Any amount for 1st time RSD Any amount for 2nd time RSD	3 years 2 years 06 months	
3rd and 4th time RSD	01 year less than the 1st and 2nd time RSD for CL/DL/FTL but 2 years 06 months for SAMC loan.			

Remarks

- The maximum time limit will not be allowable for all borrowers but the time limit will be set considering the actual loss of the borrower. The time limit will be set through the approval of the board of directors or executive committee of the respective bank(s).
- Approval of the loan rescheduling for 1st and 2nd time rescheduling cannot be made below the level at which it was originally sanctioned but 3rd and 4th time rescheduling must be made by the board of directors.
- Prior approval from BB is essential for directors' (and/or interested) loans as per sections 26GaGa and 27 of the Bank Company Act, 1991.
- Regular (Unclassified: Standard or SMA) term loans (not converted the continuous or demand or other type of loan) may be restructured for a single time by a 50% time extension of the maturity without recovery of any down payment subject to approval from the board of directors or executive committee of the respective bank(s). But rescheduled loan(s) will not be allowable for such kind of restructuring.

The BRPD Circular no. 16/2022 dated 18.07.2022 directed for the new loan or enhanced credit facility subject to fulfillment of the following conditions:

- The borrower must pay at least 3% (but 2% for the exporter) of the outstanding balance excluding the rescheduled time down payment as a compromise amount. In case of borrowing from another bank (s), the same rule will be applicable subject to the submission of a No Objection Certificate (NOC) from the rescheduling bank(s). Bank must be highest cautious about the new loan or enhanced credit facility for the long-time defaulted borrower(s).
- Several rescheduling must be mentioned in the sanction letter. Classification status will be decided with the consideration of the present solvency and ability of the repayment of the loan. Information on such rescheduled loan accounts shall be reported to the Credit Information Bureau (CIB) and the rescheduled loans/advances should be shown as RS-1 for 1st time rescheduling, RS-2 for 2nd time rescheduling, RS-3 for 3rd time rescheduling, and RS-4 for 4th time rescheduling. RSIW-1 for 1st time rescheduling, RSIW-2 for 2nd time rescheduling and RSIW-3 for 3rd time rescheduling, and RS-4 for 4th time rescheduling will be reported if the rescheduling facility is availed through interest waiver.

Appendix V-L: Amendments of the BRPD Circular no. 16/2022 for Loan Rescheduling

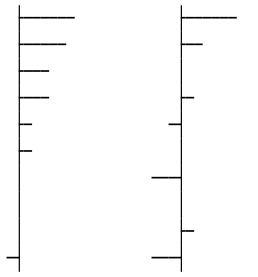
1. The BRPD Circular no. 33/2022: Amended BRPD Circular no. 16/2022 with the following replacements:
   - Banks must be ensured of the repayment capacity of the rescheduled loan installment or existing liability from the cash flow statement and audited balance sheet in addition to analysis of such kinds of statements.
   - Banks may reschedule the loan based on logical analysis with due diligence of banking practice of repayment capability of the defaulter. Otherwise, the bank will take relevant all types of legal action to recover the loan and preserve the provision as per the rule.
   - The credit committee will prepare a NOC describing the long-run profitability and capital adequacy of the bank as well as the impact of RSD on the bank's liquidity position and the needs of other customers.
   - Islamic Shariah-based bank(s) will follow the Shariah-based rules for rescheduling and restructuring.
   - Classified loans may be eligible for rescheduling three times but a fourth time rescheduling may be allowed with special consideration to the recovery of the classified loan. After the 4^{th} time RSD, the bank(s) must take legal action and preserve the provision as per the rule. Taking over rescheduled loan of another bank will be a decided number of rescheduling of the previous bank(s).
   - The rescheduled amount including principal and interest must be repaid in monthly/ quarterly installments and six monthly/ two quarterly installments defaulted amount will be classified as BL directly.
   - The interest accrued will not be transferrable to the income of the bank till recovery of the interest. In addition, reserved provisions for the 3^{rd} and 4^{th} time rescheduling of the BL defaulter must not be transferrable to the income of the bank till recovery.
   - Prior approval from Bangladesh Bank is not essential. The rescheduling and restructuring must be approved by at least one step upgraded approval authority and the board of directors' approval will be considered as the highest approval authority. For the 3^{rd} and 4^{th} time approval, the board of directors' approval is essential for rescheduling for all types of loans except agricultural, SME, and micro-credit loans. Registered bank(s) outside Bangladesh will approve such facility from the country management team or a responsible similar committee/team.
2. The BRPD Circular no. 38/2022: It was issued for agricultural loan rescheduling. As per this circular, the required down payment for rescheduling of short-term agricultural loans was relaxed and the new loan was also allowed to disburse without any further compromise amount. Credit could be rescheduled during the trial period after withdrawing or settling the certificate case through Solenama (mutual agreement) with the customer if any certificate case was filed. The validity of the circular was up to December 2022.
3. The BRPD Circular no. 52/2022: It clarifies short-term agricultural and micro-credit loans to short-term agricultural, cottage, and micro-credit loan where the 1^{st} time rescheduling tenure was declared maximum three years and 2^{nd} time and subsequent time rescheduling tenure was declared maximum two years six months.

APPENDIX VI: STATIONARY TEST

Appendix VI-A: Stationary Test for Data of the Rescheduled Loan

Appendix VI-A1: Correlogram of the Rescheduled Loans (RSD) at I(0)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.8191	0.8653	18.871	0.0000		
2	0.6511	0.2642	31.311	0.0000		
3	0.4997	0.0442	38.974	0.0000		
4	0.3763	0.1858	43.526	0.0000		
5	0.2274	-0.1429	45.27	0.0000		
6	0.1421	0.0803	45.988	0.0000		
7	0.0295	-0.4568	46.021	0.0000		
8	-0.0298	0.0024	46.056	0.0000		
9	-0.0625	0.2214	46.221	0.0000		
10	-0.1301	-0.4987	46.982	0.0000		



Appendix VI-A2: Lag Selection Criteria of the Rescheduled Loans (RSD) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	52.2011				.000446	-4.8763	-4.8655	-4.82656
1	62.829	21.256	1	0.000	.000179	-5.79324	-5.77165	-5.69376
2	64.8624	4.0667*	1	0.044	.000162*	-5.89165*	-5.85927*	-5.74244*
3	65.138	.55128	1	0.458	.000174	-5.82267	-5.77949	-5.62371
4	65.5517	.82744	1	0.363	.000185	-5.76683	-5.71286	-5.51813

Endogenous: rsd
Exogenous: _cons

Appendix VI-A3: ADF Test of of the Rescheduled Loans (RSD) at I(0)

Augmented Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-2.150	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.2249

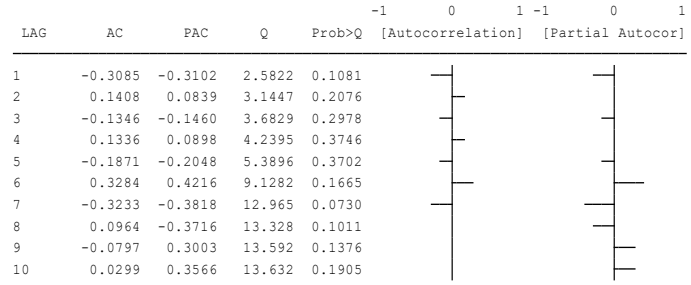
Appendix VI-A4: P-P Test of of the Rescheduled Loans (RSD) at I(0)

Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-2.530	-17.200	-12.500	-10.200
Z(t)	-1.574	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.4968

Appendix VI-A5: Correlogram of the Rescheduled Loans (RSD) at I(1)



Appendix VI-A6: Lag Selection Criteria of the Rescheduled Loans (RSD) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	56.1166				.000237	-5.51166	-5.50194	-5.46187*
1	57.5367	2.8402	1	0.092	.000227*	-5.55367*	-5.53423*	-5.45409
2	57.7231	.37297	1	0.541	.000247	-5.47231	-5.44316	-5.32295
3	57.7804	.11455	1	0.735	.000272	-5.37804	-5.33917	-5.1789
4	57.829	.09707	1	0.755	.000301	-5.2829	-5.2343	-5.03396

Endogenous: drsd
Exogenous: _cons

Appendix VI-A7: ADF Test of the Rescheduled Loans (RSD) at I(1)

Augmented Dickey-Fuller test for unit root Number of obs = 22

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-3.084	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0278

Appendix VI-A8: P-P Test of the Rescheduled Loans (RSD) at I(1)

Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-30.524	-17.200	-12.500	-10.200
Z(t)	-6.424	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-B: Stationary Test for the Non- Performing Loan (NPL)

Appendix VI-B1: Correlogram of the Non- Performing Loans (NPL) at I(0)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.8855	0.9128	22.051	0.0000		
2	0.7216	-0.1271	37.331	0.0000		
3	0.5429	-0.1440	46.374	0.0000		
4	0.3900	-0.1680	51.264	0.0000		
5	0.2523	0.0291	53.413	0.0000		
6	0.1501	-0.0665	54.213	0.0000		
7	0.0531	-0.1524	54.319	0.0000		
8	-0.0194	0.0239	54.334	0.0000		
9	-0.0782	-0.0276	54.592	0.0000		
10	-0.1340	-0.2995	55.401	0.0000		

Appendix VI-B2: Lag Selection Criteria of the Non- Performing Loans (NPL) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	26.398				.005213	-2.41886	-2.40807	-2.36912
1	58.175	63.554	1	0.000	.000278	-5.35	-5.32841	-5.25052
2	60.6039	4.8579*	1	0.028	.000243*	-5.48609*	-5.4537*	-5.33687*
3	60.6672	.12659	1	0.722	.000267	-5.39688	-5.3537	-5.19792
4	61.9131	2.4918	1	0.114	.000262	-5.4203	-5.36632	-5.1716

Endogenous: npl
Exogenous: _cons

Appendix VI-B3: ADF Test of the Non- Performing Loans (NPL) at I(0)

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-1.959	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.3047

Appendix VI-B4: P-P Test of the Non- Performing Loans (NPL) at I(0)

Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-2.140	-17.200	-12.500	-10.200
Z(t)	-2.018	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.2787

Appendix VI-B5: Correlogram of the Non- Performing Loans (NPL) at I(1)

LAG	AC	PAC	Q	Prob>Q	-1 0 1 [Autocorrelation]	-1 0 1 [Partial Autocor]
1	0.2371	0.2380	1.5248	0.2169		
2	0.2080	0.1567	2.7518	0.2526		
3	0.1705	0.0417	3.6151	0.3061		
4	-0.0981	-0.2550	3.9153	0.4176		
5	0.1006	-0.0196	4.2474	0.5144		
6	0.0288	0.0348	4.2762	0.6394		
7	-0.1587	-0.1729	5.2002	0.6355		
8	0.0283	-0.0656	5.2314	0.7326		
9	0.0521	0.1947	5.3444	0.8033		
10	-0.2891	-0.4862	9.0684	0.5256		

Appendix VI-B6: Lag Selection Criteria of the Non- Performing Loans (NPL) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	46.659				.000609	-4.5659	-4.55618	-4.51611
1	47.2976	1.2772	1	0.258	.000632	-4.52976	-4.51032	-4.43019
2	50.3601	6.125*	1	0.013	.000515	-4.73601	-4.70685	-4.58665*
3	51.0698	1.4194	1	0.233	.000532	-4.70698	-4.6681	-4.50783
4	52.5884	3.0373	1	0.081	.000508*	-4.75884*	-4.71025*	-4.50991

Endogenous: dnpl
Exogenous: _cons

Appendix VI-B7: ADF Test of the Non- Performing Loans (NPL) at I(1)

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-3.911	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0020

Appendix VI-B8: P-P Test of the Non- Performing Loans (NPL) at I(1)

Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-19.586	-17.200	-12.500	-10.200
Z(t)	-4.002	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0014

Appendix VI-C: Stationary Test for the Risk Weighted Asset (RWA)

Appendix VI-C1: Correlogram of the Risk Weighted Assets (RWA) at I(0)

LAG	AC	PAC	Q	Prob>Q	-1 0 1 [Autocorrelation]	-1 0 1 [Partial Autocor]
1	0.7704	0.8213	16.693	0.0000		
2	0.6260	0.2308	28.193	0.0000		
3	0.4986	0.0525	35.819	0.0000		
4	0.4578	0.4039	42.555	0.0000		
5	0.4197	0.3044	48.499	0.0000		
6	0.2621	-0.2673	50.939	0.0000		
7	0.1875	0.1470	52.258	0.0000		
8	0.0529	-0.1271	52.369	0.0000		
9	-0.0417	0.0997	52.442	0.0000		
10	-0.1422	0.2271	53.352	0.0000		

Appendix VI-C2: Lag Selection Criteria of the Risk Weighted Assets (RWA) at I(0)

Selection-order criteria
Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-43.9028				4.215	4.27645	4.28725	4.32619
1	-34.1003	19.605*	1	0.000	1.82362*	3.43812*	3.45971*	3.5376*
2	-33.5909	1.0186	1	0.313	1.91352	3.48485	3.51724	3.63407
3	-33.5585	.06481	1	0.799	2.10399	3.577	3.62018	3.77596
4	-31.7148	3.6875	1	0.055	1.9505	3.49665	3.55062	3.74534

Endogenous: rwa
Exogenous: _cons

Appendix VI-C3: ADF Test of the Risk Weighted Assets (RWA) at I(0)

Augmented Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-1.017	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.7469

Appendix VI-C4: P-P Test of the Risk Weighted Assets (RWA) at I(0)

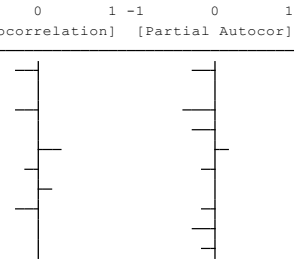
Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-3.367	-17.200	-12.500	-10.200
Z(t)	-1.251	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.6514

Appendix VI-C5: Correlogram of the Risk Weighted Assets (RWA) at I(1)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	-0.3086	-0.3130	2.5845	0.1079		
2	-0.0096	-0.1165	2.5871	0.2743		
3	-0.3413	-0.4482	6.0477	0.1093		
4	0.0510	-0.3338	6.1289	0.1897		
5	0.3596	0.2431	10.376	0.0652		
6	-0.2027	-0.1787	11.801	0.0666		
7	0.1327	0.0849	12.447	0.0868		
8	-0.3261	-0.2092	16.595	0.0346		
9	0.1131	-0.3382	17.127	0.0468		
10	-0.0221	-0.2012	17.149	0.0711		



Appendix VI-C6: Lag Selection Criteria of the Risk Weighted Assets (RWA) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-34.455				2.02934	3.5455	3.55522	3.59529*
1	-33.2633	2.3834	1	0.123	1.99198	3.52633	3.54577	3.62591
2	-33.0628	.40099	1	0.527	2.16125	3.60628	3.63544	3.75564
3	-30.579	4.9677*	1	0.026	1.86916	3.4579	3.49678	3.65705
4	-29.3631	2.4318	1	0.119	1.83906*	3.43631*	3.4849*	3.68524

Endogenous: drwa
Exogenous: _cons

Appendix VI-C7: ADF Test of the Risk Weighted Assets (RWA) at I(1)

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-6.304	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-C8: P-P Test of the Risk Weighted Assets (RWA) at I(1)

Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

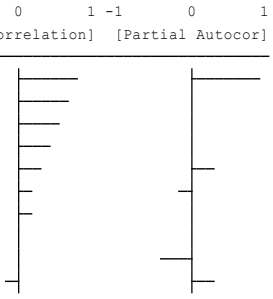
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-27.931	-17.200	-12.500	-10.200
Z(t)	-6.562	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-D: Stationary Test for the Expenditure-Income Ratio (EIR)

Appendix VI-D1: Correlogram of the Expenditure-Income Ratio (EIR) at I(0)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.8670	0.8879	21.139	0.0000		
2	0.7294	-0.0757	36.753	0.0000		
3	0.5769	-0.0538	46.963	0.0000		
4	0.4191	0.0526	52.61	0.0000		
5	0.3461	0.2527	56.653	0.0000		
6	0.2448	-0.1932	58.781	0.0000		
7	0.1367	0.0029	59.481	0.0000		
8	0.0403	0.1062	59.546	0.0000		
9	-0.1146	-0.4244	60.1	0.0000		
10	-0.2355	0.3402	62.596	0.0000		



Appendix VI-D2: Lag Selection Criteria of the Expenditure-Income Ratio (EIR) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-74.0595				74.4937	7.14852	7.15931	7.19826
1	-58.1502	31.819*	1	0.000	18.0166*	5.72859*	5.75018*	5.82807*
2	-58.1062	.08808	1	0.767	19.7613	5.81963	5.85202	5.96885
3	-58.0598	.09262	1	0.761	21.6996	5.91046	5.95364	6.10942
4	-58.0248	.07017	1	0.791	23.8981	6.00236	6.05633	6.25105

Endogenous: eir
Exogenous: _cons

Appendix VI-D3: ADF Test of the Expenditure-Income Ratio (EIR) at I(0)

Augmented Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-1.350	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.6059

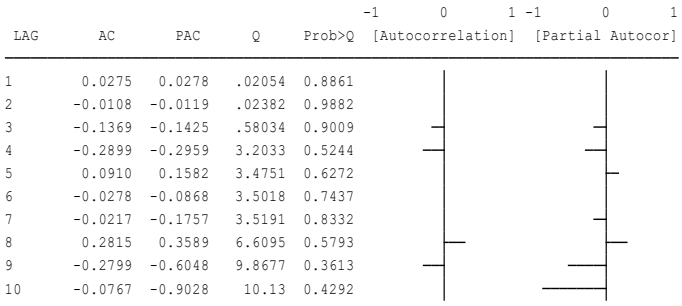
Appendix VI-D4: P-P Test of the Expenditure-Income Ratio (EIR) at I(0)

Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-2.859	-17.200	-12.500	-10.200
Z(t)	-1.300	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.6293

Appendix VI-D5: Correlogram of the Expenditure-Income Ratio (EIR) at I(1)



LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.0275	0.0278	.02054	0.8861		
2	-0.0108	-0.0119	.02382	0.9882		
3	-0.1369	-0.1425	.58034	0.9009		
4	-0.2899	-0.2959	3.2033	0.5244		
5	0.0910	0.1582	3.4751	0.6272		
6	-0.0278	-0.0868	3.5018	0.7437		
7	-0.0217	-0.1757	3.5191	0.8332		
8	0.2815	0.3589	6.6095	0.5793		
9	-0.2799	-0.6048	9.8677	0.3613		
10	-0.0767	-0.9028	10.13	0.4292		

Appendix VI-D6: Lag Selection Criteria of the Expenditure-Income Ratio (EIR) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-56.0193				17.5339*	5.70193*	5.71165*	5.75172*
1	-55.9217	.19521	1	0.659	19.201	5.79217	5.81161	5.89174
2	-55.9163	.01076	1	0.917	21.2432	5.89163	5.92079	6.04099
3	-55.7294	.37387	1	0.541	23.1161	5.97294	6.01182	6.17209
4	-54.5986	2.2616	1	0.133	22.9384	5.95986	6.00846	6.2088

Endogenous: deir
Exogenous: _cons

Appendix VI-D7: ADF Test of the Expenditure-Income Ratio (EIR) at I(1)

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-4.449	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0002

Appendix VI-D8: P-P Test of the Expenditure-Income Ratio (EIR) at I(1)

Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-22.163	-17.200	-12.500	-10.200
Z(t)	-4.446	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0002

Appendix VI-E: Stationary Test for the Return on Assets (ROA)

Appendix VI-E1: Correlogram of the Return on Assets (ROA) at I(0)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.6999	0.7317	13.778	0.0002		
2	0.5107	0.0800	21.432	0.0000		
3	0.3069	-0.1304	24.321	0.0000		
4	0.1010	-0.1396	24.649	0.0001		
5	0.0163	-0.0324	24.658	0.0002		
6	-0.0439	0.0047	24.726	0.0004		
7	-0.1766	-0.2806	25.896	0.0005		
8	-0.3492	-0.3721	30.737	0.0002		
9	-0.4135	-0.0831	37.949	0.0000		
10	-0.5870	-0.7102	53.453	0.0000		

Appendix VI-E2: Lag Selection Criteria of the Return on Assets (ROA) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-10.6062				.17685	1.10535	1.11615	1.15509
1	-4.20991	12.793*	1	0.000	.105835*	.59142*	.613009*	.690898*
2	-4.16201	.09581	1	0.757	.116041	.682096	.71448	.831314
3	-3.9545	.41502	1	0.519	.125482	.757571	.80075	.956528
4	-3.74063	.42773	1	0.513	.135862	.832441	.886415	1.08114

Endogenous: roa
Exogenous: _cons

Appendix VI-E3: ADF Test of the Return on Assets (ROA) at I(0)

Augmented Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-1.482	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.5424

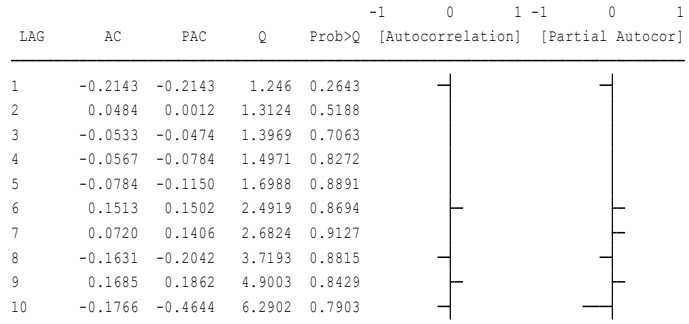
Appendix VI-E4: P-P Test of the Return on Assets (ROA) at I(0)

Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-6.363	-17.200	-12.500	-10.200
Z(t)	-1.779	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.3908

Appendix VI-E5: Correlogram of the Return on Assets (ROA) at I(1)



LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	-0.2143	-0.2143	1.246	0.2643		
2	0.0484	0.0012	1.3124	0.5188		
3	-0.0533	-0.0474	1.3969	0.7063		
4	-0.0567	-0.0784	1.4971	0.8272		
5	-0.0784	-0.1150	1.6988	0.8891		
6	0.1513	0.1502	2.4919	0.8694		
7	0.0720	0.1406	2.6824	0.9127		
8	-0.1631	-0.2042	3.7193	0.8815		
9	0.1685	0.1862	4.9003	0.8429		
10	-0.1766	-0.4644	6.2902	0.7903		

Appendix VI-E6: Lag Selection Criteria of the Return on Assets (ROA) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-4.3601				.10008*	.53601*	.545729*	.585797*
1	-4.00353	.71314	1	0.398	.106794	.600353	.619791	.699927
2	-3.98421	.03864	1	0.844	.117988	.698421	.727578	.847781
3	-3.97997	.00848	1	0.927	.130757	.797997	.836872	.997143
4	-3.90992	.14009	1	0.708	.144271	.890992	.939587	1.13993

Endogenous: droa
Exogenous: _cons

Appendix VI-E7: ADF Test of the Return on Assets (ROA) at I(1)

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-5.704	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-E8: P-P Test of the Return on Assets (ROA) at I(1)

Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-27.764	-17.200	-12.500	-10.200
Z(t)	-5.712	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-F: Stationary Test for the Return on Equity (ROE)

Appendix VI-F1: Correlogram of the Return on Equity (ROE) at I(0)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.5722	0.6051	9.2086	0.0024		
2	0.4031	0.1589	13.977	0.0009		
3	0.2419	-0.0258	15.773	0.0013		
4	0.0811	-0.0721	15.985	0.0030		
5	0.0446	-0.0393	16.052	0.0067		
6	-0.0013	-0.0155	16.052	0.0135		
7	-0.0962	-0.1344	16.399	0.0217		
8	-0.1825	-0.0691	17.722	0.0234		
9	-0.3661	-0.3397	23.375	0.0054		
10	-0.5261	-0.3936	35.83	0.0001		

Appendix VI-F2: Lag Selection Criteria of the Return on Equity (ROE) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-62.8612				25.6417	6.08202	6.09282	6.13176
1	-59.4405	6.8416*	1	0.009	20.3723*	5.85147*	5.87306*	5.95095*
2	-59.2772	.32658	1	0.568	22.0928	5.93116	5.96354	6.08038
3	-59.2459	.06262	1	0.802	24.2945	6.02342	6.06659	6.22237
4	-59.1874	.11699	1	0.732	26.6962	6.11308	6.16706	6.36178

Endogenous: roe
Exogenous: _cons

Appendix VI-F3: ADF Test of the Return on Equity (ROE) at I(0)

Augmented Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-1.602	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.4826

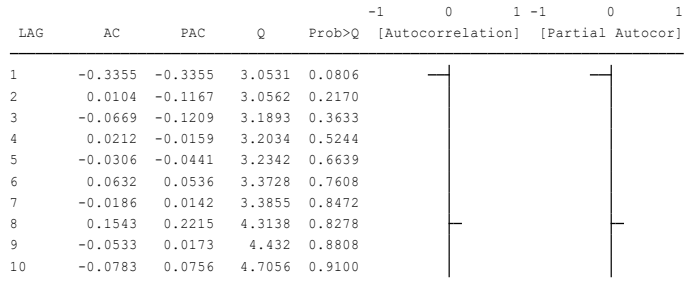
Appendix VI-F4: P-P Test of the Return on Equity (ROE) at I(0)

Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-8.940	-17.200	-12.500	-10.200
Z(t)	-2.197	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.2072

Appendix VI-F5: Correlogram of the Return on Equity (ROE) at I(1)



LAG	AC	PAC	Q	Prob>Q	-1 0 1 [Autocorrelation]	-1 0 1 [Partial Autocor]
1	-0.3355	-0.3355	3.0531	0.0806		
2	0.0104	-0.1167	3.0562	0.2170		
3	-0.0669	-0.1209	3.1893	0.3633		
4	0.0212	-0.0159	3.2034	0.5244		
5	-0.0306	-0.0441	3.2342	0.6639		
6	0.0632	0.0536	3.3728	0.7608		
7	-0.0186	0.0142	3.3855	0.8472		
8	0.1543	0.2215	4.3138	0.8278		
9	-0.0533	0.0173	4.432	0.8808		
10	-0.0783	0.0756	4.7056	0.9100		

Appendix VI-F6: Lag Selection Criteria of the Return on Equity (ROE) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-53.6283				13.8051*	5.46283*	5.47255*	5.51262*
1	-52.729	1.7987	1	0.180	13.953	5.4729	5.49234	5.57247
2	-52.7133	.03131	1	0.860	15.4211	5.57133	5.60049	5.72069
3	-52.5921	.24246	1	0.622	16.8913	5.65921	5.69809	5.85836
4	-52.5876	.0091	1	0.924	18.7596	5.75876	5.80735	6.00769

Endogenous: droe
Exogenous: _cons

Appendix VI-F7: ADF Test of the Return on Equity (ROE) at I(1)

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-5.704	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-F8: P-P Test of the Return on Equity (ROE) at I(1)

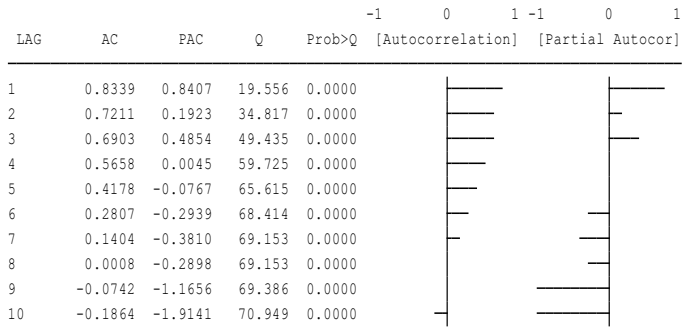
Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-29.214	-17.200	-12.500	-10.200
Z(t)	-6.675	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-G: Stationary Test for the Net Interest Margin (NIM)

Appendix VI-G1: Correlogram of the Net Interest Margin (NIM) at I(0)



Appendix VI-G2: Lag Selection Criteria of the Net Interest Margin (NIM) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-26.0148				.767229	2.57283	2.58363	2.62257
1	-14.1139	23.802	1	0.000	.271812	1.53465	1.55624	1.63413
2	-13.6806	.86658	1	0.352	.287284	1.58863	1.62101	1.73784
3	-10.5674	6.2264*	1	0.013	.235558*	1.38737*	1.43055*	1.58633*
4	-10.5672	.00043	1	0.983	.260287	1.48259	1.53656	1.73128

Endogenous: nim
Exogenous: _cons

Appendix VI-G3: ADF Test of the Net Interest Margin (NIM) at I(0)

Augmented Dickey-Fuller test for unit root Number of obs = 21

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-1.520	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.5236

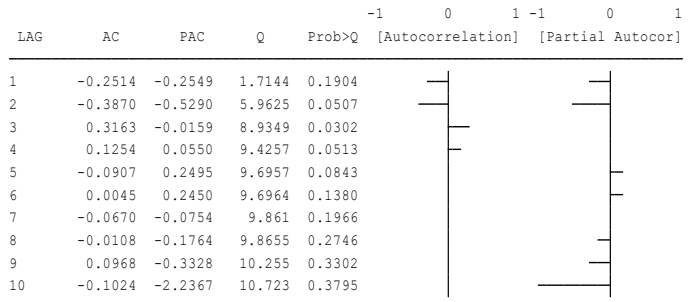
Appendix VI-G4: P-P Test of the Net Interest Margin (NIM) at I(0)

Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-2.530	-17.200	-12.500	-10.200
Z(t)	-1.372	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.5958

Appendix VI-G5: Correlogram of the Net Interest Margin (NIM) at I(1)



LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	-0.2514	-0.2549	1.7144	0.1904		
2	-0.3870	-0.5290	5.9625	0.0507		
3	0.3163	-0.0159	8.9349	0.0302		
4	0.1254	0.0550	9.4257	0.0513		
5	-0.0907	0.2495	9.6957	0.0843		
6	0.0045	0.2450	9.6964	0.1380		
7	-0.0670	-0.0754	9.861	0.1966		
8	-0.0108	-0.1764	9.8655	0.2746		
9	0.0968	-0.3328	10.255	0.3302		
10	-0.1024	-2.2367	10.723	0.3795		

Appendix VI-G6: Lag Selection Criteria of the Net Interest Margin (NIM) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-15.679				.310401	1.6679	1.67762	1.71769
1	-14.9984	1.3612	1	0.243	.320663	1.69984	1.71928	1.79941
2	-11.8924	6.2119*	1	0.013	.260188*	1.48924*	1.5184*	1.6386*
3	-11.8915	.00184	1	0.966	.288443	1.58915	1.62803	1.7883
4	-11.8675	.048	1	0.827	.319724	1.68675	1.73535	1.93569

Endogenous: dnim
Exogenous: _cons

Appendix VI-G7: ADF Test of the Net Interest Margin (NIM) at I(1)

Augmented Dickey-Fuller test for unit root Number of obs = 22

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-5.973	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-G8: P-P Test of the Net Interest Margin (NIM) at I(1)

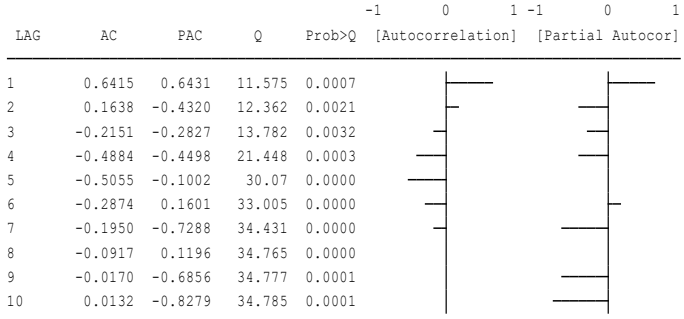
Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-23.855	-17.200	-12.500	-10.200
Z(t)	-6.584	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

Appendix VI-H: Stationary Test for the Liquidity Ratio (LR)

Appendix VI-H1: Correlogram of the Liquidity Ratio (LR) at I(0)



LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.6415	0.6431	11.575	0.0007		
2	0.1638	-0.4320	12.362	0.0021		
3	-0.2151	-0.2827	13.782	0.0032		
4	-0.4884	-0.4498	21.448	0.0003		
5	-0.5055	-0.1002	30.07	0.0000		
6	-0.2874	0.1601	33.005	0.0000		
7	-0.1950	-0.7288	34.431	0.0000		
8	-0.0917	0.1196	34.765	0.0000		
9	-0.0170	-0.6856	34.777	0.0001		
10	0.0132	-0.8279	34.785	0.0001		

Appendix VI-H2: Lag Selection Criteria of the Liquidity Ratio (LR) at I(0)

Sample: 2001 - 2021 Number of obs = 21

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-56.7533				14.3322	5.50031	5.51111	5.55005
1	-51.0515	11.404	1	0.001	9.16349	5.05253	5.07411	5.152
2	-48.9748	4.1534*	1	0.042	8.28189	4.94998	4.98236	5.0992*
3	-48.2924	1.3647	1	0.243	8.55971	4.98023	5.02341	5.17919
4	-46.6448	3.2953	1	0.069	8.08484*	4.91855*	4.97252*	5.16725

Endogenous: lr
Exogenous: _cons

Appendix VI-H3: ADF Test of the Liquidity Ratio (LR) at I(0)

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-1.867	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.3477

Appendix VI-H4: P-P Test of the Liquidity Ratio (LR) at I(0)

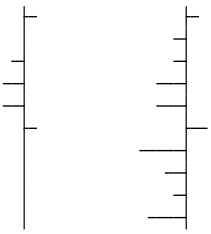
Phillips-Perron test for unit root Number of obs = 24
Newey-West lags = 2

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-11.011	-17.200	-12.500	-10.200
Z(t)	-2.451	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.1279

Appendix VI-H5: Correlogram of the Liquidity Ratio (LR) at I(1)

LAG	AC	PAC	Q	Prob>Q	[Autocorrelation]	[Partial Autocor]
1	0.1772	0.1783	.85195	0.3560		
2	-0.1009	-0.1835	1.1408	0.5653		
3	-0.1455	-0.1421	1.7698	0.6215		
4	-0.3712	-0.4610	6.0681	0.1941		
5	-0.3383	-0.4857	9.8271	0.0803		
6	0.1545	0.3525	10.654	0.0997		
7	-0.0517	-0.7188	10.753	0.1498		
8	0.0251	-0.3194	10.777	0.2147		
9	0.0797	-0.2153	11.041	0.2729		
10	-0.0670	-0.5884	11.242	0.3390		



Appendix VI-H6: Lag Selection Criteria of the Liquidity Ratio (LR) at I(1)

Sample: 2002 - 2021 Number of obs = 20

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-51.0466				10.6639*	5.20466*	5.21438*	5.25445*
1	-50.7453	.60259	1	0.438	11.4424	5.27453	5.29397	5.3741
2	-50.5225	.44557	1	0.504	12.3871	5.35225	5.38141	5.50161
3	-50.3617	.32155	1	0.571	13.5145	5.43617	5.47505	5.63532
4	-48.5089	3.7057	1	0.054	12.4764	5.35089	5.39948	5.59982

Endogenous: dlr
Exogenous: _cons

Appendix VI-H7: ADF Test of the Liquidity Ratio (LR) at I(1)

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(t)	-3.853	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0024

Appendix VI-H8: P-P Test of the Liquidity Ratio (LR) at I(1)

Phillips-Perron test for unit root Number of obs = 23
Newey-West lags = 2

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		Interpolated Dickey-Fuller		
Z(rho)	-18.262	-17.200	-12.500	-10.200
Z(t)	-3.830	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0026

APPENDIX VII: STRUCTURAL BREAK TEST

Appendix VII-A: Structural Break Test for Data of the Rescheduled Loans (RSD)

Appendix VII-A1: Sup-Wald Test for Structural Break Test for Data of the Rescheduled Loans (RSD)

```
. estat sbsingle
──────┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                             Number of obs =         25

Full sample:                 1997 - 2021
Trimmed sample:              2001 - 2018
Estimated break date:        2007
Ho: No structural break

     Test            Statistic          p-value
─────────────────────────────────────────────────
     swald            53.9416           0.0000
─────────────────────────────────────────────────
Exogenous variables:          t
Coefficients included in test: t _cons
```

Appendix VII-A2: Chow Test Test for Structural Break Test for Data of the Rescheduled Loans (RSD)

Variable	RSS	RSS_1 (if t<11*)	RSS_2 (if t>=11)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
RSD	0.009	0.009	0.002	-0.001	0.001	-2.100	3.385

*The data of the rescheduled loans shows that there is an abrupt change in 2007. Therefore, the known date was selected for the year 2007 for Chow Test.
** n=25.
***k=2.
***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-B: Structural Break Test for Data of the Non-Performing Loans (NPL)

Appendix VII-B1: Sup-Wald Test for Structural Break Test for Data of the Non-Performing Loans (NPL)

```
. estat sbsingle
──┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
..................

Test for a structural break: Unknown break date

                             Number of obs =         25

Full sample:                 1997 - 2021
Trimmed sample:              2001 - 2018
Estimated break date:        2007
Ho: No structural break

     Test            Statistic          p-value
─────────────────────────────────────────────────
     swald           167.6264           0.0000
─────────────────────────────────────────────────
Exogenous variables:           t
Coefficients included in test: t _cons
```

Appendix VII-B2: Chow Test Test for Structural Break Test for Data of the Non-Performing Loans (NPL)

Variable	RSS	RSS_1 (if t<11*)	RSS_2 (if t>=11)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
NPL	0.100	0.127	0.005	0.011	0.006	1.712	3.385

*The data of the non-performing loans shows that there is an abrupt change in 2007. Therefore, the known date was selected for the year 2007 for Chow Test.
** n=25.
***k=2.
***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-C: Structural Break Test for Data of the Risk-Weighted Assets (RWA)

Appendix VII-C1: Sup-Wald Test for Structural Break Test for Data of the Risk-Weighted Assets (RWA)

```
. estat sbsingle
──────┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                             Number of obs =         25

Full sample:                 1997 - 2021
Trimmed sample:              2001 - 2018
Estimated break date:        2007
Ho: No structural break

     Test            Statistic          p-value
─────────────────────────────────────────────────
     swald            21.0785           0.0007
─────────────────────────────────────────────────
Exogenous variables:          t
Coefficients included in test: t _cons
```

Appendix VII-C2: Chow Test Test for Structural Break Test for Data of the Risk-Weighted Assets (RWA)

Variable	RSS	RSS_1 (if t<11*)	RSS_2 (if t>=11)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
RWA	25.922	7.285	7.285	1.581	0.694	2.279	3.385

*The data of the risk weigted assets shows that there is an abrupt change in 2007. Therefore, the known date was selected for the year 2007 for Chow Test.
** n=25.
***k=2.
***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-D: Structural Break Test for Data of the Expenditure-Income Ratios (EIR)

Appendix VII-D1: Sup-Wald Test for Structural Break Test for Data of the Expenditure-Income Ratios (EIR)

```
. estat sbsingle
──┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                          Number of obs =        25

Full sample:              1997 - 2021
Trimmed sample:           2001 - 2018
Estimated break date:     2009
Ho: No structural break

    Test          Statistic         p-value
─────────────────────────────────────────────
    swald         148.6763          0.0000
─────────────────────────────────────────────
Exogenous variables:         t
Coefficients included in test: t _cons
```

Appendix VII-D2: Chow Test Test for Structural Break Test for Data of the Expenditure-Income Ratios (EIR)

Variable	RSS	RSS_1 (if t<13*)	RSS_2 (if t>=13)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
EIR	644.722	116.876	111.112	36.267	10.857	3.341	3.385

*The data of the expenditure-income ratios shows that there is an abrupt change in 2009. Therefore, the known date was selected for the year 2009 for Chow Test.

** n=25.

***k=2.

***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-E: Structural Break Test for Data of the Return on Assets (ROA)

Appendix VII-E1: Sup-Wald Test for Structural Break Test for Data of the Return on Assets (ROA)

```
. estat sbsingle
──┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                        Number of obs =        25

Full sample:            1997 - 2021
Trimmed sample:         2001 - 2018
Estimated break date:   2012
Ho: No structural break

    Test          Statistic        p-value
─────────────────────────────────────────
    swald          79.2553         0.0000
─────────────────────────────────────────
Exogenous variables:         t
Coefficients included in test: t _cons
```

Appendix VII-E2: Chow Test Test for Structural Break Test for Data of the Return on Assets (ROA)

Variable	RSS	RSS_1 (if t<16*)	RSS_2 (if t>=16)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
ROA	4.338	3.554	0.519	0.376	0.194	1.938	3.385

*The data of the return on assets shows that there is an abrupt change in 2012. Therefore, the known date was selected for the year 2012 for Chow Test.

** n=25.

***k=2.

***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-F: Structural Break Test for Data of the Return on Equity (ROE)

Appendix VII-F1: Sup-Wald Test for Structural Break Test for Data of the Return on Equity (ROE)

```
. estat sbsingle
──┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                             Number of obs =        25

Full sample:                 1997 - 2021
Trimmed sample:              2001 - 2018
Estimated break date:        2012
Ho: No structural break

    Test           Statistic         p-value
─────────────────────────────────────────────
    swald           53.4004          0.0000
─────────────────────────────────────────────
Exogenous variables:          t
Coefficients included in test: t _cons
```

Appendix VII-F2: Chow Test Test for Structural Break Test for Data of the Return on Equity (ROE)

Variable	RSS	RSS_1 (if t<16*)	RSS_2 (if t>=16)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
ROE	667.361	478.659	69.042	54.572	26.081	2.092	3.385

*The data of the Return on Equity shows that there is an abrupt change in 2012. Therefore, the known date was selected for the year 2012 for Chow Test.

** n=25.

***k=2.

***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-G: Structural Break Test for Data of the Net Interest Margin (NIM)

Appendix VII-G1: Sup-Wald Test for Structural Break Test for Data of the Net Interest Margin (NIM)

```
. estat sbsingle
──┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                        Number of obs =        25

Full sample:            1997 - 2021
Trimmed sample:         2001 - 2018
Estimated break date:   2014
Ho: No structural break

    Test          Statistic         p-value
─────────────────────────────────────────────
    swald          23.8874          0.0002
─────────────────────────────────────────────
Exogenous variables:          t
Coefficients included in test: t _cons
```

Appendix VII-G2: Chow Test Test for Structural Break Test for Data of the Net Interest Margin (NIM)

Variable	RSS	RSS_1 (if t<18*)	RSS_2 (if t>=18)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
NIM	5.116	10.243	0.829	0.731	0.527	1.387	3.385

*The data of the net interest margin shows that there is an abrupt change in 2014. Therefore, the known date was selected for the year 2014 for Chow Test.

** n=25.

***k=2.

***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

Appendix VII-H: Structural Break Test for Data of the Liquidity Ratios (LR)

Appendix VII-H1: Sup-Wald Test for Structural Break Test for Data of the Liquidity Ratios (LR)

```
. estat sbsingle
──┼── 1 ──┼── 2 ──┼── 3 ──┼── 4 ──┼── 5
.................

Test for a structural break: Unknown break date

                        Number of obs =        25

Full sample:                1997 - 2021
Trimmed sample:             2001 - 2018
Estimated break date:       2017
Ho: No structural break

    Test           Statistic         p-value
─────────────────────────────────────────────
    swald           10.9546           0.0642
─────────────────────────────────────────────
Exogenous variables:          t
Coefficients included in test: t _cons
```

Appendix VII-H2: Chow Test Test for Structural Break Test for Data of the Liquidity Ratios (LR)

Variable	RSS	RSS_1 (if t<21*)	RSS_2 (if t>=21)	{RSS-(RSS_1+RSS_2)}/k	(RSS_1+RSS_2)/(t-k)	F_c	F_s (n,k)
LR	282.387	185.734	52.428	22.291	11.341	1.966	3.385

*The data of the net interest margin shows that there is an abrupt change in 2021. Therefore, the known date was selected for the year 2021 for Chow Test.

** n=25.

***k=2.

***F_c=[{RSS-(RSS_1+RSS_2)}/k]/[(RSS_1+RSS_2)/(t-k)].

APPENDIX VIII: DIAGNOSTICS OF THE VECM & VAR MODEL

Appendix VIII-A: Diagnostics of the VECM of the Non-Performing Loans Model

Appendix VIII-A1: Short-Run Causality Test for the Non-Performing Loans Model

```
. test (LD.npl L2D.npl L3D.npl)

 ( 1)  [D_npl]LD.npl = 0
 ( 2)  [D_rsd]LD.npl = 0
 ( 3)  [D_roa]LD.npl = 0
 ( 4)  [D_lr]LD.npl = 0
 ( 5)  [D_npl]L2D.npl = 0
 ( 6)  [D_rsd]L2D.npl = 0
 ( 7)  [D_roa]L2D.npl = 0
 ( 8)  [D_lr]L2D.npl = 0
 ( 9)  [D_npl]L3D.npl = 0
 (10)  [D_rsd]L3D.npl = 0
 (11)  [D_roa]L3D.npl = 0
 (12)  [D_lr]L3D.npl = 0
       Constraint 2 dropped
       Constraint 6 dropped
       Constraint 10 dropped

           chi2(  9) =   69.19
         Prob > chi2 =    0.0000

. test (LD.rsd L2D.rsd L3D.rsd)

 ( 1)  [D_npl]LD.rsd = 0
 ( 2)  [D_rsd]LD.rsd = 0
 ( 3)  [D_roa]LD.rsd = 0
 ( 4)  [D_lr]LD.rsd = 0
 ( 5)  [D_npl]L2D.rsd = 0
 ( 6)  [D_rsd]L2D.rsd = 0
 ( 7)  [D_roa]L2D.rsd = 0
 ( 8)  [D_lr]L2D.rsd = 0
 ( 9)  [D_npl]L3D.rsd = 0
 (10)  [D_rsd]L3D.rsd = 0
 (11)  [D_roa]L3D.rsd = 0
 (12)  [D_lr]L3D.rsd = 0
       Constraint 2 dropped
       Constraint 6 dropped
       Constraint 10 dropped

           chi2(  9) =   31.44
         Prob > chi2 =    0.0002

. test (LD.roa L2D.roa L3D.roa)

 ( 1)  [D_npl]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roa]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_npl]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roa]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0
 ( 9)  [D_npl]L3D.roa = 0
 (10)  [D_rsd]L3D.roa = 0
 (11)  [D_roa]L3D.roa = 0
 (12)  [D_lr]L3D.roa = 0
       Constraint 2 dropped
       Constraint 6 dropped
       Constraint 10 dropped

           chi2(  9) =   95.87
         Prob > chi2 =    0.0000


. test (LD.lr L2D.lr L3D.lr)

 ( 1)  [D_npl]LD.lr = 0
 ( 2)  [D_rsd]LD.lr = 0
 ( 3)  [D_roa]LD.lr = 0
 ( 4)  [D_lr]LD.lr = 0
 ( 5)  [D_npl]L2D.lr = 0
 ( 6)  [D_rsd]L2D.lr = 0
 ( 7)  [D_roa]L2D.lr = 0
 ( 8)  [D_lr]L2D.lr = 0
 ( 9)  [D_npl]L3D.lr = 0
 (10)  [D_rsd]L3D.lr = 0
 (11)  [D_roa]L3D.lr = 0
 (12)  [D_lr]L3D.lr = 0
       Constraint 2 dropped
       Constraint 6 dropped
       Constraint 10 dropped

           chi2(  9) =   84.51
         Prob > chi2 =    0.0000
```

```
. test (LD.npl L2D.npl L3D.npl) (LD.rsd L2D.rsd L3D.rsd) (LD.roa L2D.roa L3D.roa) (LD.lr L2D.lr L3D.lr)

 ( 1)  [D_npl]LD.npl = 0
 ( 2)  [D_rsd]LD.npl = 0
 ( 3)  [D_roa]LD.npl = 0
 ( 4)  [D_lr]LD.npl = 0
 ( 5)  [D_npl]L2D.npl = 0
 ( 6)  [D_rsd]L2D.npl = 0
 ( 7)  [D_roa]L2D.npl = 0
 ( 8)  [D_lr]L2D.npl = 0
 ( 9)  [D_npl]L3D.npl = 0
 (10)  [D_rsd]L3D.npl = 0
 (11)  [D_roa]L3D.npl = 0
 (12)  [D_lr]L3D.npl = 0
 (13)  [D_npl]LD.rsd = 0
 (14)  [D_rsd]LD.rsd = 0
 (15)  [D_roa]LD.rsd = 0
 (16)  [D_lr]LD.rsd = 0
 (17)  [D_npl]L2D.rsd = 0
 (18)  [D_rsd]L2D.rsd = 0
 (19)  [D_roa]L2D.rsd = 0
 (20)  [D_lr]L2D.rsd = 0
 (21)  [D_npl]L3D.rsd = 0
 (22)  [D_rsd]L3D.rsd = 0
 (23)  [D_roa]L3D.rsd = 0
 (24)  [D_lr]L3D.rsd = 0
 (25)  [D_npl]LD.roa = 0
 (26)  [D_rsd]LD.roa = 0
 (27)  [D_roa]LD.roa = 0
 (28)  [D_lr]LD.roa = 0
 (29)  [D_npl]L2D.roa = 0
 (30)  [D_rsd]L2D.roa = 0
 (31)  [D_roa]L2D.roa = 0
 (32)  [D_lr]L2D.roa = 0
 (33)  [D_npl]L3D.roa = 0
 (34)  [D_rsd]L3D.roa = 0
 (35)  [D_roa]L3D.roa = 0
 (36)  [D_lr]L3D.roa = 0
 (37)  [D_npl]LD.lr = 0
 (38)  [D_rsd]LD.lr = 0
 (39)  [D_roa]LD.lr = 0
 (40)  [D_lr]LD.lr = 0
 (41)  [D_npl]L2D.lr = 0
 (42)  [D_rsd]L2D.lr = 0
 (43)  [D_roa]L2D.lr = 0
 (44)  [D_lr]L2D.lr = 0
 (45)  [D_npl]L3D.lr = 0
 (46)  [D_rsd]L3D.lr = 0
 (47)  [D_roa]L3D.lr = 0
 (48)  [D_lr]L3D.lr = 0
       Constraint 2 dropped
       Constraint 6 dropped
       Constraint 10 dropped
       Constraint 14 dropped
       Constraint 18 dropped
       Constraint 22 dropped
       Constraint 26 dropped
       Constraint 30 dropped
       Constraint 34 dropped
       Constraint 38 dropped
       Constraint 42 dropped
       Constraint 46 dropped

           chi2( 36) =  244.93
         Prob > chi2 =    0.0000
```

Appendix VIII-A2: Lagrange-Multiplier Test for the Non-Performing Loans Model

Lagrange-multiplier test

lag	chi2	df	Prob > chi2
1	20.8386	16	0.18480
2	15.5093	16	0.48770

H0: no autocorrelation at lag order

Appendix VIII-A3: Normality Test for the Non-Performing Loans (NPL) Model

```
. vecnorm, jbera skewness kurtosis
```

Jarque-Bera test

Equation	chi2	df	Prob > chi2
D_npl	0.178	2	0.91471
D_rsd	0.462	2	0.79364
D_roa	0.907	2	0.63532
D_lr	0.123	2	0.94035
ALL	1.671	8	0.98950

Skewness test

Equation	Skewness	chi2	df	Prob > chi2
D_npl	.21816	0.167	1	0.68318
D_rsd	.24827	0.216	1	0.64232
D_roa	-.23349	0.191	1	0.66224
D_lr	.16867	0.100	1	0.75234
ALL		0.673	4	0.95465

Kurtosis test

Equation	Kurtosis	chi2	df	Prob > chi2
D_npl	3.1157	0.012	1	0.91379
D_rsd	2.4692	0.247	1	0.61954
D_roa	2.0951	0.716	1	0.39732
D_lr	2.8363	0.023	1	0.87833
ALL		0.998	4	0.91008

Appendix VIII-A4: Eigenvalue Stability Condition Test for the Non-Performing Loans (NPL) Model

Eigenvalue stability condition

Eigenvalue	Modulus
-.05225496 + 1.124792*i*	1.12601
-.05225496 - 1.124792*i*	1.12601
.5824142 + .9385698*i*	1.10459
.5824142 - .9385698*i*	1.10459
.9632525 + .4683194*i*	1.07106
.9632525 - .4683194*i*	1.07106
-1.046635	1.04664
1	1
1	1
-.6720004 + .6646226*i*	.94515
-.6720004 - .6646226*i*	.94515
-.329895 + .7228029*i*	.794528
-.329895 - .7228029*i*	.794528
.7114214	.711421
-.4535317	.453532
.2697293	.269729

The VECM specification imposes 2 unit moduli.

Appendix VIII-B: Diagnostics of the VECM of the Risk-Weighted Assets Model

Appendix VIII-B1: Short-Run Causality Test for the Risk-Weighted Assets Model

```
. test (LD.rwa L2D.rwa)

 ( 1)  [D_rwa]LD.rwa = 0
 ( 2)  [D_rsd]LD.rwa = 0
 ( 3)  [D_roa]LD.rwa = 0
 ( 4)  [D_lr]LD.rwa = 0
 ( 5)  [D_rwa]L2D.rwa = 0
 ( 6)  [D_rsd]L2D.rwa = 0
 ( 7)  [D_roa]L2D.rwa = 0
 ( 8)  [D_lr]L2D.rwa = 0

           chi2(  8) =   30.34
         Prob > chi2 =    0.0002
```

```
. test (LD.lr L2D.lr)

 ( 1)  [D_rwa]LD.lr = 0
 ( 2)  [D_rsd]LD.lr = 0
 ( 3)  [D_roa]LD.lr = 0
 ( 4)  [D_lr]LD.lr = 0
 ( 5)  [D_rwa]L2D.lr = 0
 ( 6)  [D_rsd]L2D.lr = 0
 ( 7)  [D_roa]L2D.lr = 0
 ( 8)  [D_lr]L2D.lr = 0

           chi2(  8) =   33.11
         Prob > chi2 =    0.0001



. test (LD.rsd L2D.rsd)

 ( 1)  [D_rwa]LD.rsd = 0
 ( 2)  [D_rsd]LD.rsd = 0
 ( 3)  [D_roa]LD.rsd = 0
 ( 4)  [D_lr]LD.rsd = 0
 ( 5)  [D_rwa]L2D.rsd = 0
 ( 6)  [D_rsd]L2D.rsd = 0
 ( 7)  [D_roa]L2D.rsd = 0
 ( 8)  [D_lr]L2D.rsd = 0

           chi2(  8) =   16.30
         Prob > chi2 =    0.0383


. test (LD.roa L2D.roa)

 ( 1)  [D_rwa]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roa]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_rwa]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roa]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0

           chi2(  8) =   14.48
         Prob > chi2 =    0.0701

. test (LD.rwa L2D.rwa) (LD.rsd L2D.rsd) (LD.roa L2D.roa) (LD.lr L2D.lr)

 ( 1)  [D_rwa]LD.rwa = 0
 ( 2)  [D_rsd]LD.rwa = 0
 ( 3)  [D_roa]LD.rwa = 0
 ( 4)  [D_lr]LD.rwa = 0
 ( 5)  [D_rwa]L2D.rwa = 0
 ( 6)  [D_rsd]L2D.rwa = 0
 ( 7)  [D_roa]L2D.rwa = 0
 ( 8)  [D_lr]L2D.rwa = 0
 ( 9)  [D_rwa]LD.rsd = 0
 (10)  [D_rsd]LD.rsd = 0
 (11)  [D_roa]LD.rsd = 0
 (12)  [D_lr]LD.rsd = 0
 (13)  [D_rwa]L2D.rsd = 0
 (14)  [D_rsd]L2D.rsd = 0
 (15)  [D_roa]L2D.rsd = 0
 (16)  [D_lr]L2D.rsd = 0
 (17)  [D_rwa]LD.roa = 0
 (18)  [D_rsd]LD.roa = 0
 (19)  [D_roa]LD.roa = 0
 (20)  [D_lr]LD.roa = 0
 (21)  [D_rwa]L2D.roa = 0
 (22)  [D_rsd]L2D.roa = 0
 (23)  [D_roa]L2D.roa = 0
 (24)  [D_lr]L2D.roa = 0
 (25)  [D_rwa]LD.lr = 0
 (26)  [D_rsd]LD.lr = 0
 (27)  [D_roa]LD.lr = 0
 (28)  [D_lr]LD.lr = 0
 (29)  [D_rwa]L2D.lr = 0
 (30)  [D_rsd]L2D.lr = 0
 (31)  [D_roa]L2D.lr = 0
 (32)  [D_lr]L2D.lr = 0

           chi2( 32) =   97.49
         Prob > chi2 =    0.0000
```

Appendix VIII-C: Diagnostics of the VECM of the Expenditure-Income Ratio Model

Appendix VIII-C1: Short-Run Causality Test for the Expenditure-Income Ratio Model

```
. test (LD.eir L2D.eir)

 ( 1)  [D_eir]LD.eir = 0
 ( 2)  [D_rsd]LD.eir = 0
 ( 3)  [D_roa]LD.eir = 0
 ( 4)  [D_lr]LD.eir = 0
 ( 5)  [D_eir]L2D.eir = 0
 ( 6)  [D_rsd]L2D.eir = 0
 ( 7)  [D_roa]L2D.eir = 0
 ( 8)  [D_lr]L2D.eir = 0

           chi2(  8) =  179.65
         Prob > chi2 =    0.0000

. test (LD.rsd L2D.rsd)

 ( 1)  [D_eir]LD.rsd = 0
 ( 2)  [D_rsd]LD.rsd = 0
 ( 3)  [D_roa]LD.rsd = 0
 ( 4)  [D_lr]LD.rsd = 0
 ( 5)  [D_eir]L2D.rsd = 0
 ( 6)  [D_rsd]L2D.rsd = 0
 ( 7)  [D_roa]L2D.rsd = 0
 ( 8)  [D_lr]L2D.rsd = 0

           chi2(  8) =  104.39
         Prob > chi2 =    0.0000

. test (LD.roa L2D.roa)

 ( 1)  [D_eir]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roa]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_eir]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roa]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0

           chi2(  8) =  124.73
         Prob > chi2 =    0.0000

. test (LD.lr L2D.lr)

 ( 1)  [D_eir]LD.lr = 0
 ( 2)  [D_rsd]LD.lr = 0
 ( 3)  [D_roa]LD.lr = 0
 ( 4)  [D_lr]LD.lr = 0
 ( 5)  [D_eir]L2D.lr = 0
 ( 6)  [D_rsd]L2D.lr = 0
 ( 7)  [D_roa]L2D.lr = 0
 ( 8)  [D_lr]L2D.lr = 0

           chi2(  8) =   53.14
         Prob > chi2 =    0.0000

. test (LD.eir L2D.eir) (LD.rsd L2D.rsd) (LD.roa L2D.roa) (LD.lr L2D.lr)

 ( 1)  [D_eir]LD.eir = 0
 ( 2)  [D_rsd]LD.eir = 0
 ( 3)  [D_roa]LD.eir = 0
 ( 4)  [D_lr]LD.eir = 0
 ( 5)  [D_eir]L2D.eir = 0
 ( 6)  [D_rsd]L2D.eir = 0
 ( 7)  [D_roa]L2D.eir = 0
 ( 8)  [D_lr]L2D.eir = 0
 ( 9)  [D_eir]LD.rsd = 0
 (10)  [D_rsd]LD.rsd = 0
 (11)  [D_roa]LD.rsd = 0
 (12)  [D_lr]LD.rsd = 0
 (13)  [D_eir]L2D.rsd = 0
 (14)  [D_rsd]L2D.rsd = 0
 (15)  [D_roa]L2D.rsd = 0
 (16)  [D_lr]L2D.rsd = 0
 (17)  [D_eir]LD.roa = 0
 (18)  [D_rsd]LD.roa = 0
 (19)  [D_roa]LD.roa = 0
 (20)  [D_lr]LD.roa = 0
 (21)  [D_eir]L2D.roa = 0
 (22)  [D_rsd]L2D.roa = 0
 (23)  [D_roa]L2D.roa = 0
 (24)  [D_lr]L2D.roa = 0
 (25)  [D_eir]LD.lr = 0
 (26)  [D_rsd]LD.lr = 0
 (27)  [D_roa]LD.lr = 0
 (28)  [D_lr]LD.lr = 0
 (29)  [D_eir]L2D.lr = 0
 (30)  [D_rsd]L2D.lr = 0
 (31)  [D_roa]L2D.lr = 0
 (32)  [D_lr]L2D.lr = 0

           chi2( 32) =  636.31
         Prob > chi2 =    0.0000
```

Appendix VIII-D: Diagnostics of the VECM of the Return on Assets Model

Appendix VIII-D1: Short-Run Causality Test for the Return on Assets Model

```
. test (LD.roa L2D.roa)

 ( 1)  [D_roa]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roe]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_roa]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roe]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0

           chi2(  8) =   40.51
         Prob > chi2 =    0.0000

. test (LD.rsd L2D.rsd)

 ( 1)  [D_roa]LD.rsd = 0
 ( 2)  [D_rsd]LD.rsd = 0
 ( 3)  [D_roe]LD.rsd = 0
 ( 4)  [D_lr]LD.rsd = 0
 ( 5)  [D_roa]L2D.rsd = 0
 ( 6)  [D_rsd]L2D.rsd = 0
 ( 7)  [D_roe]L2D.rsd = 0
 ( 8)  [D_lr]L2D.rsd = 0

           chi2(  8) =   30.99
         Prob > chi2 =    0.0001


. test (L2D.lr LD.lr)

 ( 1)  [D_roa]L2D.lr = 0
 ( 2)  [D_rsd]L2D.lr = 0
 ( 3)  [D_roe]L2D.lr = 0
 ( 4)  [D_lr]L2D.lr = 0
 ( 5)  [D_roa]LD.lr = 0
 ( 6)  [D_rsd]LD.lr = 0
 ( 7)  [D_roe]LD.lr = 0
 ( 8)  [D_lr]LD.lr = 0

           chi2(  8) =   15.62
         Prob > chi2 =    0.0482


. test (LD.roe L2D.roe)

 ( 1)  [D_roa]LD.roe = 0
 ( 2)  [D_rsd]LD.roe = 0
 ( 3)  [D_roe]LD.roe = 0
 ( 4)  [D_lr]LD.roe = 0
 ( 5)  [D_roa]L2D.roe = 0
 ( 6)  [D_rsd]L2D.roe = 0
 ( 7)  [D_roe]L2D.roe = 0
 ( 8)  [D_lr]L2D.roe = 0

           chi2(  8) =   27.98
         Prob > chi2 =    0.0005

. test (LD.roa L2D.roa) (LD.rsd L2D.rsd) (LD.roe L2D.roe) (L2D.lr LD.lr)

 ( 1)  [D_roa]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roe]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_roa]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roe]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0
 ( 9)  [D_roa]LD.rsd = 0
 (10)  [D_rsd]LD.rsd = 0
 (11)  [D_roe]LD.rsd = 0
 (12)  [D_lr]LD.rsd = 0
 (13)  [D_roa]L2D.rsd = 0
 (14)  [D_rsd]L2D.rsd = 0
 (15)  [D_roe]L2D.rsd = 0
 (16)  [D_lr]L2D.rsd = 0
 (17)  [D_roa]LD.roe = 0
 (18)  [D_rsd]LD.roe = 0
 (19)  [D_roe]LD.roe = 0
 (20)  [D_lr]LD.roe = 0
 (21)  [D_roa]L2D.roe = 0
 (22)  [D_rsd]L2D.roe = 0
 (23)  [D_roe]L2D.roe = 0
 (24)  [D_lr]L2D.roe = 0
 (25)  [D_roa]L2D.lr = 0
 (26)  [D_rsd]L2D.lr = 0
 (27)  [D_roe]L2D.lr = 0
 (28)  [D_lr]L2D.lr = 0
 (29)  [D_roa]LD.lr = 0
 (30)  [D_rsd]LD.lr = 0
 (31)  [D_roe]LD.lr = 0
 (32)  [D_lr]LD.lr = 0

           chi2( 32) =   86.44
         Prob > chi2 =    0.0000
```

Appendix VIII-D2: Lagrange-Multiplier Test for the Return on Assets Model

Lagrange-multiplier test

lag	chi2	df	Prob > chi2
1	11.6211	16	0.76963
2	16.6574	16	0.40809

H0: no autocorrelation at lag order

Appendix VIII-D3: Normality Test for the Return on Assets Model

Jarque-Bera test

Equation	chi2	df	Prob > chi2
D_roa	0.164	2	0.92144
D_rsd	1.443	2	0.48598
D_roe	5.363	2	0.06845
D_lr	0.491	2	0.78236
ALL	7.461	8	0.48781

Skewness test

Equation	Skewness	chi2	df	Prob > chi2
D_roa	-.01794	0.001	1	0.97323
D_rsd	-.62447	1.365	1	0.24269
D_roe	-1.0598	3.931	1	0.04740
D_lr	-.02433	0.002	1	0.96370
ALL		5.299	4	0.25794

Kurtosis test

Equation	Kurtosis	chi2	df	Prob > chi2
D_roa	2.569	0.163	1	0.68685
D_rsd	2.7009	0.078	1	0.77963
D_roe	4.2793	1.432	1	0.23143
D_lr	2.2526	0.489	1	0.48446
ALL		2.162	4	0.70606

Appendix VIII-D4: Eigenvalue Stability Condition Test for the Return on Assets Model

Eigenvalue stability condition

Eigenvalue	Modulus
1	1
1	1
1	1
.3369004 + .7191753*i*	.794176
.3369004 - .7191753*i*	.794176
-.489002 + .4086584*i*	.637279
-.489002 - .4086584*i*	.637279
.6254765	.625476
-.2218615 + .5756086*i*	.616886
-.2218615 - .5756086*i*	.616886
-.06918741 + .1434785*i*	.159289
-.06918741 - .1434785*i*	.159289

The VECM specification imposes 3 unit moduli.

Appendix VIII-E: Diagnostics of the VECM of the Return on Equity Model

Appendix VIII-E1: Short-Run Causality Test for the Return on Equity Model

```
. test (L2D.lr LD.lr)

 ( 1)  [D_roa]L2D.lr = 0
 ( 2)  [D_rsd]L2D.lr = 0
 ( 3)  [D_roe]L2D.lr = 0
 ( 4)  [D_lr]L2D.lr = 0
 ( 5)  [D_roa]LD.lr = 0
 ( 6)  [D_rsd]LD.lr = 0
 ( 7)  [D_roe]LD.lr = 0
 ( 8)  [D_lr]LD.lr = 0

           chi2(  8) =   15.62
         Prob > chi2 =    0.0482

. test (LD.roe L2D.roe)

 ( 1)  [D_roe]LD.roe = 0
 ( 2)  [D_rsd]LD.roe = 0
 ( 3)  [D_roa]LD.roe = 0
 ( 4)  [D_lr]LD.roe = 0
 ( 5)  [D_roe]L2D.roe = 0
 ( 6)  [D_rsd]L2D.roe = 0
 ( 7)  [D_roa]L2D.roe = 0
 ( 8)  [D_lr]L2D.roe = 0

           chi2(  8) =   27.98
         Prob > chi2 =    0.0005

. test (LD.rsd L2D.rsd)

 ( 1)  [D_roa]LD.rsd = 0
 ( 2)  [D_rsd]LD.rsd = 0
 ( 3)  [D_roe]LD.rsd = 0
 ( 4)  [D_lr]LD.rsd = 0
 ( 5)  [D_roa]L2D.rsd = 0
 ( 6)  [D_rsd]L2D.rsd = 0
 ( 7)  [D_roe]L2D.rsd = 0
 ( 8)  [D_lr]L2D.rsd = 0

           chi2(  8) =   30.99
         Prob > chi2 =    0.0001


. test (LD.roa L2D.roa)

 ( 1)  [D_roa]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roe]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_roa]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roe]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0

           chi2(  8) =   40.51
         Prob > chi2 =    0.0000

. test (LD.roa L2D.roa) (LD.rsd L2D.rsd) (LD.roe L2D.roe) (L2D.lr LD.lr)

 ( 1)  [D_roa]LD.roa = 0
 ( 2)  [D_rsd]LD.roa = 0
 ( 3)  [D_roe]LD.roa = 0
 ( 4)  [D_lr]LD.roa = 0
 ( 5)  [D_roa]L2D.roa = 0
 ( 6)  [D_rsd]L2D.roa = 0
 ( 7)  [D_roe]L2D.roa = 0
 ( 8)  [D_lr]L2D.roa = 0
 ( 9)  [D_roa]LD.rsd = 0
 (10)  [D_rsd]LD.rsd = 0
 (11)  [D_roe]LD.rsd = 0
 (12)  [D_lr]LD.rsd = 0
 (13)  [D_roa]L2D.rsd = 0
 (14)  [D_rsd]L2D.rsd = 0
 (15)  [D_roe]L2D.rsd = 0
 (16)  [D_lr]L2D.rsd = 0
 (17)  [D_roa]LD.roe = 0
 (18)  [D_rsd]LD.roe = 0
 (19)  [D_roe]LD.roe = 0
 (20)  [D_lr]LD.roe = 0
 (21)  [D_roa]L2D.roe = 0
 (22)  [D_rsd]L2D.roe = 0
 (23)  [D_roe]L2D.roe = 0
 (24)  [D_lr]L2D.roe = 0
 (25)  [D_roa]L2D.lr = 0
 (26)  [D_rsd]L2D.lr = 0
 (27)  [D_roe]L2D.lr = 0
 (28)  [D_lr]L2D.lr = 0
 (29)  [D_roa]LD.lr = 0
 (30)  [D_rsd]LD.lr = 0
 (31)  [D_roe]LD.lr = 0
 (32)  [D_lr]LD.lr = 0

           chi2( 32) =   86.44
         Prob > chi2 =    0.0000
```

Appendix VIII-E2: Lagrange-Multiplier Test for the Return on Equity Model

Lagrange-multiplier test

lag	chi2	df	Prob > chi2
1	11.6211	16	0.76963
2	16.6574	16	0.40809

H0: no autocorrelation at lag order

Appendix VIII-E3: Normality Test for the Return on Equity Model

Jarque-Bera test

Equation	chi2	df	Prob > chi2
D_roe	0.242	2	0.88591
D_rsd	1.315	2	0.51802
D_roa	8.766	2	0.01249
D_lr	0.491	2	0.78236
ALL	10.814	8	0.21244

Skewness test

Equation	Skewness	chi2	df	Prob > chi2
D_roe	.16839	0.099	1	0.75274
D_rsd	-.5756	1.160	1	0.28155
D_roa	1.2602	5.558	1	0.01839
D_lr	-.02433	0.002	1	0.96370
ALL		6.819	4	0.14575

Kurtosis test

Equation	Kurtosis	chi2	df	Prob > chi2
D_roe	2.5957	0.143	1	0.70528
D_rsd	2.5779	0.156	1	0.69298
D_roa	4.9146	3.207	1	0.07331
D_lr	2.2526	0.489	1	0.48446
ALL		3.995	4	0.40668

Appendix VIII-E4: Eigenvalue Stability Condition Test for the Return on Equity Model

Eigenvalue stability condition

Eigenvalue	Modulus
1	1
1	1
1	1
.3369004 + .7191753*i*	.794176
.3369004 - .7191753*i*	.794176
-.489002 + .4086584*i*	.637279
-.489002 - .4086584*i*	.637279
.6254765	.625476
-.2218615 + .5756086*i*	.616886
-.2218615 - .5756086*i*	.616886
-.06918741 + .1434785*i*	.159289
-.06918741 - .1434785*i*	.159289

The VECM specification imposes 3 unit moduli.

Appendix VIII-F: Diagnostics of the VAR of the Net Interest Margin Model

Appendix VIII-F1: Short-Run Causality Test for the Net Interest Margin Model

```
. test (L.nim)

 ( 1)  [nim]L.nim = 0
 ( 2)  [rsd]L.nim = 0
 ( 3)  [roa]L.nim = 0
 ( 4)  [lr]L.nim = 0

           chi2(  4) =   18.57
         Prob > chi2 =    0.0010

. test (L.rsd)

 ( 1)  [nim]L.rsd = 0
 ( 2)  [rsd]L.rsd = 0
 ( 3)  [roa]L.rsd = 0
 ( 4)  [lr]L.rsd = 0

           chi2(  4) =   32.83
         Prob > chi2 =    0.0000
. test (L.roa)

 ( 1)  [nim]L.roa = 0
 ( 2)  [rsd]L.roa = 0
 ( 3)  [roa]L.roa = 0
 ( 4)  [lr]L.roa = 0

           chi2(  4) =   19.61
         Prob > chi2 =    0.0006
. test (L.lr)

 ( 1)  [nim]L.lr = 0
 ( 2)  [rsd]L.lr = 0
 ( 3)  [roa]L.lr = 0
 ( 4)  [lr]L.lr = 0

           chi2(  4) =   26.21
         Prob > chi2 =    0.0000
. test (L.nim) (L.rsd) (L.roa) (L.lr)

 ( 1)  [nim]L.nim = 0
 ( 2)  [rsd]L.nim = 0
 ( 3)  [roa]L.nim = 0
 ( 4)  [lr]L.nim = 0
 ( 5)  [nim]L.rsd = 0
 ( 6)  [rsd]L.rsd = 0
 ( 7)  [roa]L.rsd = 0
 ( 8)  [lr]L.rsd = 0
 ( 9)  [nim]L.roa = 0
 (10)  [rsd]L.roa = 0
 (11)  [roa]L.roa = 0
 (12)  [lr]L.roa = 0
 (13)  [nim]L.lr = 0
 (14)  [rsd]L.lr = 0
 (15)  [roa]L.lr = 0
 (16)  [lr]L.lr = 0

           chi2( 16) =  300.97
         Prob > chi2 =    0.0000
```

Appendix VIII-F2: Granger Causality Wald Tests for the Net Interest Margin Model

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
nim	rsd	1.7926	1	0.181
nim	roa	1.8017	1	0.180
nim	lr	.59985	1	0.439
nim	ALL	7.5991	3	0.055
rsd	nim	.29247	1	0.589
rsd	roa	2.646	1	0.104
rsd	lr	.07108	1	0.790
rsd	ALL	2.727	3	0.436
roa	nim	7.6647	1	0.006
roa	rsd	8.1764	1	0.004
roa	lr	.21526	1	0.643
roa	ALL	8.9222	3	0.030
lr	nim	.00946	1	0.923
lr	rsd	.2626	1	0.608
lr	roa	1.0242	1	0.312
lr	ALL	1.51	3	0.680

Appendix VIII-F3: Lagrange-Multiplier Test for the Net Interest Margin Model

Lagrange-multiplier test

lag	chi2	df	Prob > chi2
1	23.7630	16	0.09481
2	21.1104	16	0.17430

H0: no autocorrelation at lag order

Appendix VIII-F4: Normality Test for the Net Interest Margin Model

Jarque-Bera test

Equation	chi2	df	Prob > chi2
nim	2.538	2	0.28113
rsd	4.363	2	0.11287
roa	0.128	2	0.93794
lr	0.388	2	0.82352
ALL	7.417	8	0.49234

Skewness test

Equation	Skewness	chi2	df	Prob > chi2
nim	.39797	0.607	1	0.43587
rsd	-.63113	1.527	1	0.21657
roa	.05115	0.010	1	0.92022
lr	.26092	0.261	1	0.60945
ALL		2.405	4	0.66171

Kurtosis test

Equation	Kurtosis	chi2	df	Prob > chi2
nim	4.4194	1.931	1	0.16467
rsd	4.7203	2.836	1	0.09217
roa	2.6489	0.118	1	0.73109
lr	3.3645	0.127	1	0.72119
ALL		5.012	4	0.28604

Appendix VIII-F5: Eigenvalue Stability Condition Test for the Net Interest Margin Model

Eigenvalue stability condition

Eigenvalue	Modulus
.8671874	.867187
.6698507 + .1799367*i*	.693597
.6698507 - .1799367*i*	.693597
.3419658	.341966

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.

Appendix VIII-G6: Wald Lag Exclusion Statistics Test for Net Interest Margin Model

. varwle

Equation: nim

lag	chi2	df	Prob > chi2
1	106.7606	4	0.000

Equation: rsd

lag	chi2	df	Prob > chi2
1	148.5966	4	0.000

Equation: roa

lag	chi2	df	Prob > chi2
1	41.7062	4	0.000

Equation: lr

lag	chi2	df	Prob > chi2
1	25.71161	4	0.000

Equation: All

lag	chi2	df	Prob > chi2
1	300.9728	16	0.000

Appendix VIII-G: Diagnostics of the VAR of the Liquidity Ratios Model

Appendix VIII-G1: Short-Run Causality Test for the Liquidity Ratios Model

```
. test (L.lr)

 ( 1)  [lr]L.lr = 0
 ( 2)  [rsd]L.lr = 0
 ( 3)  [roa]L.lr = 0

           chi2(  3) =   25.03
         Prob > chi2 =    0.0000

. test (L.rsd)

 ( 1)  [lr]L.rsd = 0
 ( 2)  [rsd]L.rsd = 0
 ( 3)  [roa]L.rsd = 0

           chi2(  3) =   89.09
         Prob > chi2 =    0.0000

. test (L.roa)

 ( 1)  [lr]L.roa = 0
 ( 2)  [rsd]L.roa = 0
 ( 3)  [roa]L.roa = 0

           chi2(  3) =   20.15
         Prob > chi2 =    0.0002

. test (L.lr) (L.rsd) (L.roa)

 ( 1)  [lr]L.lr = 0
 ( 2)  [rsd]L.lr = 0
 ( 3)  [roa]L.lr = 0
 ( 4)  [lr]L.rsd = 0
 ( 5)  [rsd]L.rsd = 0
 ( 6)  [roa]L.rsd = 0
 ( 7)  [lr]L.roa = 0
 ( 8)  [rsd]L.roa = 0
 ( 9)  [roa]L.roa = 0

           chi2(  9) =  220.82
         Prob > chi2 =    0.0000
```

Appendix VIII-G2: Granger Causality Wald Tests for the Liquidity Ratios Model

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
lr	rsd	1.1877	1	0.276
lr	roa	1.1427	1	0.285
lr	ALL	1.4999	2	0.472
rsd	lr	.07059	1	0.790
rsd	roa	2.3443	1	0.126
rsd	ALL	2.404	2	0.301
roa	lr	.16418	1	0.685
roa	rsd	.7313	1	0.392
roa	ALL	.9432	2	0.624

Appendix VIII-G3: Lagrange-Multiplier Test for the Liquidity Ratios Model

Lagrange-multiplier test

lag	chi2	df	Prob > chi2
1	16.8876	9	0.05051
2	9.6226	9	0.38189

H0: no autocorrelation at lag order

Appendix VIII-G4: Normality Test for the Liquidity Ratios Model

Jarque-Bera test

Equation	chi2	df	Prob > chi2
lr	3.909	2	0.14160
rsd	15.696	2	0.00039
roa	0.103	2	0.94983
ALL	19.708	6	0.00312

Skewness test

Equation	Skewness	chi2	df	Prob > chi2
lr	.58804	1.326	1	0.24961
rsd	-1.2582	6.069	1	0.01376
roa	-.08946	0.031	1	0.86096
ALL		7.425	3	0.05952

Kurtosis test

Equation	Kurtosis	chi2	df	Prob > chi2
lr	4.642	2.584	1	0.10795
rsd	6.1695	9.627	1	0.00192
roa	3.2746	0.072	1	0.78806
ALL		12.284	3	0.00647

Appendix VIII-G5: Eigenvalue Stability Condition Test for the Liquidity Ratios Model

Eigenvalue stability condition

Eigenvalue	Modulus
.8897511	.889751
.6250012 + .09664892*i*	.63243
.6250012 - .09664892*i*	.63243

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.

Appendix VIII-G6: Wald Lag Exclusion Statistics Test for the Liquidity Ratios Model

Equation: lr

lag	chi2	df	Prob > chi2
1	25.69158	3	0.000

Equation: rsd

lag	chi2	df	Prob > chi2
1	146.442	3	0.000

Equation: roa

lag	chi2	df	Prob > chi2
1	25.53273	3	0.000

Equation: All

lag	chi2	df	Prob > chi2
1	220.8249	9	0.000

APPENDIX IX: RESCHEDULED LOAN ACCOUNTS DATA

Appendix IX-A: Rescheduled Loan Accounts Data of the State-Owned Banks

Appendix IX-A1: Rescheduled Loan Accounts Data of the State-Owned Banks (Bank-1)

Bank Code: SB1

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rteco very	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	SB1/1	52162.80	521.63	5397.48	5919.11	0.00	0.00	5520.63	5520.63	0.00	0.00	4600.53	4600.53	0.00	0.00	2361.84	2361.84	52162.80	18402.10	35.28	Continue
2	SB1/2	17758.30	177.58	1753.93	1931.52	0.00	0.00	1807.80	1807.80	0.00	0.00	1506.50	1506.50	0.00	0.00	780.18	780.18	17758.30	6026.00	33.93	Continue
3	SB1/3	16845.30	168.45	3464.97	3633.42	0.00	0.00	3258.75	3258.75	0.00	0.00	2715.63	2715.63	0.00	0.00	1254.70	1254.70	16845.30	10862.50	64.48	Continue
4	SB1/4	11527.50	115.28	0.00	115.28	0.00	0.00	331.62	331.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11527.50	446.90	3.88	Classified
5	SB1/5	10944.90	109.45	1045.69	1155.14	0.00	0.00	1083.93	1083.93	0.00	0.00	903.28	903.28	0.00	0.00	470.76	470.76	10944.90	3613.10	33.01	Continue
6	SB1/6	8734.90	87.35	1272.34	1359.69	0.00	0.00	1240.32	1240.32	0.00	0.00	1033.60	1033.60	0.00	0.00	500.79	500.79	8734.90	4134.40	47.33	Continue
7	SB1/7	8117.50	81.18	125.12	206.30	0.00	0.00	122.21	122.21	0.00	0.00	82.13	82.13	0.00	0.00	-82.13	-82.13	8117.50	328.50	4.05	Classified
8	SB1/8	6422.90	64.23	934.35	998.58	0.00	0.00	910.98	910.98	0.00	0.00	759.15	759.15	0.00	0.00	367.89	367.89	6422.90	3036.60	47.28	Continue
9	SB1/9	5941.10	59.41	92.10	151.51	0.00	0.00	237.29	237.29	0.00	0.00	138.51	138.51	0.00	0.00	0.00	0.00	5941.10	527.30	8.88	Classified
10	SB1/10	5767.10	57.67	1692.72	1750.39	0.00	0.00	1549.77	1549.77	0.00	0.00	1291.48	1291.48	0.00	0.00	574.26	574.26	5767.10	5165.90	89.58	Continue
11	SB1/11	5229.80	52.30	33.72	86.02	0.00	0.00	26.38	26.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5229.80	112.40	2.15	Classified
		149452.10	**1494.52**	**15812.43**	**17306.95**	**0.00**	**0.00**	**16089.67**	**16089.67**	**0.00**	**0.00**	**13030.78**	**13030.78**	**0.00**	**0.00**	**6228.30**	**6228.30**	**149452**	**52655.70**	**35.23**	

Appendix IX-A2: Rescheduled Loan Accounts Data of the State-Owned Banks (Bank-2)

Bank Code: SB2

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	SB2/1	25.30	6.50	20.01	26.51	93.12	5.00	89.07	94.07	271.71	4.34	112.03	116.37	0.00	0.00	138.09	138.09	390.13	375.04	96.13	Adiusted
2	SB2/2	76.88	27.22	3.75	30.97	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	76.88	42.22	54.92	Continue
3	SB2/3	46.12	1.73	3.30	5.03	0.00	0.00	3.30	3.30	0.00	0	3.30	3.30	0.00	0.00	3.3	3.30	46.12	14.93	32.37	Continue
4	SB2/4	187.35	0.00	4.75	4.75	0.00	0.00	0	0.00	4.39	0.00	2.90	2.90	0.00	0.00	0.00	0.00	191.74	7.65	3.99	Classified
5	SB2/5	6.43	1.22	2.00	3.22	0.00	0.00	2.50	2.50	0.00	0.00	2.5	2.50	75.98	15.20	12.5	27.70	82.41	35.92	43.58	Continue
6	SB2/6	25.72	7.72	2.25	9.97	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	25.72	16.72	65.01	Continue
7	SB2/7	21.60	2.50	1.75	4.25	0.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.60	6.00	27.78	Classified
8	SB2/8	21187.69	982.12	1200.00	2182.12	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	21187.69	5782.12	27.29	Continue
9	SB2/9	26.97	5.60	10.12	15.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.97	15.72	58.29	Classified
10	SB2/10	48.85	5.00	11.50	16.50	0.00	0.00	0.00	0.00	11.50	2.65	11.50	14.15	0.00	0.00	15.00	15.00	60.35	45.65	75.63	Continue
11	SB2/11	122.33	6.32	39.50	45.82	0.00	0.00	35.50	35.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.33	81.32	66.48	Classified
		21775.24	**1045.93**	**1298.93**	**2344.86**	**93.12**	**5.00**	**1338.12**	**1343.12**	**287.60**	**6.99**	**1338.23**	**1345.22**	**75.98**	**15.20**	**1374.89**	**1390.09**	**22231.94**	**6423.28**	**28.89**	

Appendix IX-A3: Rescheduled Loan Accounts Data of the State-Owned Banks (Bank-3)

Bank Code: SB3

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	SB3/1	1792.90	268.93	131.72	400.66	0.00	0.00	1270.00	1270.00	0.00	0.00	131.72	131.72	0.00	0.00	0.00	0.00	1792.90	1802.38	100.53	Adjusted
2	SB3/2	95.57	14.34	1.00	15.34	0.00	0.00	17.49	17.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.57	32.83	34.35	Classified
3	SB3/3	285.03	42.75	95.50	138.25	0.00	0.00	95.50	95.50	0.00	46	46.00	92.00	0.00	0.00	0	0.00	285.03	325.75	114.29	Adjusted
4	SB3/4	189.83	28.47	0.30	28.77	0.00	0.00	2.92	2.92	4.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.22	31.69	16.32	Classified
5	SB3/5	137.87	20.68	0.00	20.68	0.00	0.00	20.34	20.34	0.00	0.00	0	0.00	75.98	15.20	0	15.20	213.85	56.22	26.29	Continue
6	SB3/6	0.32	0.05	0.25	0.29	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.00	0.00	0.06	0.06	0.32	0.45	142.21	Adjusted
7	SB3/7	0.30	0.04	0.04	0.08	0.01	0.00	0.06	0.06	0.30	0.06	0.07	0.13	0.00	0.00	0.10	0.10	0.61	0.37	61.58	Adjusted
8	SB3/8	0.28	0.04	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.12	44.25	Classified
9	SB3/9	0.26	0.04	0.02	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.07	26.00	Classified
10	SB3/10	0.25	0.04	0.05	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.04	0.04	0.25	0.31	123.04	Adjusted
11	SB3/11	0.25	0.04	0.20	0.24	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.29	Adjusted
12	SB3/12	0.25	0.04	0.18	0.22	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.91	Adjusted
13	SB3/13	0.25	0.04	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	22.48	Classified
14	SB3/14	0.24	0.04	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.05	22.42	Classified
15	SB3/15	0.24	0.04	0.11	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.14	58.46	Classified
16	SB3/16	0.24	0.04	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.08	31.23	Classified

17	SB3/17	0.21	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.05	22.95	Classified
18	SB3/18	0.21	0.03	0.12	0.15	0.00	0.00	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	131.25	Adjusted
19	SB3/19	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	27.00	Classified
20	SB3/20	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	25.92	Classified
21	SB3/21	0.18	0.03	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.04	20.29	Classified
22	SB3/22	0.18	0.03	0.14	0.17	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.19	106.35	Adjusted
23	SB3/23	0.17	0.03	0.07	0.09	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.17	0.18	104.67	Adjusted
24	SB3/24	0.16	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.02	15.00	Classified
25	SB3/25	0.16	0.02	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.08	51.53	Classified
26	SB3/26	0.16	0.02	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.04	26.68	Classified
27	SB3/27	0.16	0.02	0.12	0.14	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.17	105.91	Adjusted
28	SB3/28	0.14	0.02	0.09	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.11	78.96	Classified
29	SB3/29	0.14	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.10	71.66	Classified
30	SB3/30	0.14	0.02	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	36.35	Classified
31	SB3/31	0.14	0.02	0.24	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.26	189.53	Classified
32	SB3/32	0.14	0.02	0.06	0.08	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.14	0.20	146.60	Adjusted
33	SB3/33	0.13	0.02	0.03	0.05	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00.	0.00	0.03	0.03	0.13	0.14	107.42	Adjusted
34	SB3/34	0.13	0.02	0.04	0.06	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.08	61.15	Classified
35	SB3/35	0.13	0.02	0.05	0.07	0.00	0.00	0.05	0.05	0.13	0.01	0.10	0.11	0.00	0.00	0.10	0.10	0.26	0.33	125.38	Adjusted
36	SB3/36	0.12	0.02	0.01	0.03	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	40.00	Classified
37	SB3/37	0.12	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.10	81.67	Classified
38	SB3/38	0.12	0.02	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.07	56.25	Classified
		2507.50	**376.12**	**230.86**	**606.99**	**0.01**	**0.00**	**1406.90**	**1406.90**	**4.82**	**46.07**	**178.15**	**224.22**	**75.98**	**15.20**	**0.36**	**15.56**	**2588.31**	**2253.66**	**87.07**	

Appendix IX-A4: Rescheduled Loan Accounts Data of all the State-Owned Banks

Fig in million BDT

Sl No.	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	SB1/1	52162.80	521.63	5397.48	5919.11	0.00	0.00	5520.63	5520.63	0.00	0.00	4600.53	4600.53	0.00	0.00	2361.84	2361.84	52162.80	18402.10	35.28	Continue
2	SB1/2	17758.30	177.58	1753.93	1931.52	0.00	0.00	1807.80	1807.80	0.00	0.00	1506.50	1506.50	0.00	0.00	780.18	780.18	17758.30	6026.00	33.93	Continue
3	SB1/3	16845.30	168.45	3464.97	3633.42	0.00	0.00	3258.75	3258.75	0.00	0.00	2715.63	2715.63	0.00	0.00	1254.70	1254.70	16845.30	10862.50	64.48	Continue
4	SB1/4	11527.50	115.28	0.00	115.28	0.00	0.00	331.62	331.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11527.50	446.90	3.88	Classified
5	SB1/5	10944.90	109.45	1045.69	1155.14	0.00	0.00	1083.93	1083.93	0.00	0.00	903.28	903.28	0.00	0.00	470.76	470.76	10944.90	3613.10	33.01	Continue
6	SB1/6	8734.90	87.35	1272.34	1359.69	0.00	0.00	1240.32	1240.32	0.00	0.00	1033.60	1033.60	0.00	0.00	500.79	500.79	8734.90	4134.40	47.33	Continue
7	SB1/7	8117.50	81.18	125.12	206.30	0.00	0.00	122.21	122.21	0.00	0.00	82.13	82.13	0.00	0.00	-82.13	-82.13	8117.50	328.50	4.05	Classified
8	SB1/8	6422.90	64.23	934.35	998.58	0.00	0.00	910.98	910.98	0.00	0.00	759.15	759.15	0.00	0.00	367.89	367.89	6422.90	3036.60	47.28	Continue
9	SB1/9	5941.10	59.41	92.10	151.51	0.00	0.00	237.29	237.29	0.00	0.00	138.51	138.51	0.00	0.00	0.00	0.00	5941.10	527.30	8.88	Classified
10	SB1/10	5767.10	57.67	1692.72	1750.39	0.00	0.00	1549.77	1549.77	0.00	0.00	1291.48	1291.48	0.00	0.00	574.26	574.26	5767.10	5165.90	89.58	Continue
11	SB1/11	5229.80	52.30	33.72	86.02	0.00	0.00	26.38	26.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5229.80	112.40	2.15	Classified
12	SB2/1	25.30	6.50	20.01	26.51	93.12	5.00	89.07	94.07	271.71	4.34	112.03	116.37	0.00	0.00	138.09	138.09	390.13	375.04	96.13	Adiusted
13	SB2/2	76.88	27.22	3.75	30.97	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	76.88	42.22	54.92	Continue
14	SB2/3	46.12	1.73	3.30	5.03	0.00	0.00	3.30	3.30	0.00	0	3.30	3.30	0.00	0.00	3.3	3.30	46.12	14.93	32.37	Continue
15	SB2/4	187.35	0.00	4.75	4.75	0.00	0.00	0	0.00	4.39	0.00	2.90	2.90	0.00	0.00	0.00	0.00	191.74	7.65	3.99	Classified

16	SB2/5	6.43	1.22	2.00	3.22	0.00	0.00	2.50	2.50	0.00	0.00	2.5	2.50	75.98	15.20	12.5	27.70	82.41	35.92	43.58	Continue
17	SB2/6	25.72	7.72	2.25	9.97	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	25.72	16.72	65.01	Continue
18	SB2/7	21.60	2.50	1.75	4.25	0.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.60	6.00	27.78	Classified
19	SB2/8	21187.69	982.12	1200.00	2182.12	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	21187.69	5782.12	27.29	Continue
20	SB2/9	26.97	5.60	10.12	15.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.97	15.72	58.29	Classified
21	SB2/10	48.85	5.00	11.50	16.50	0.00	0.00	0.00	0.00	11.50	2.65	11.50	14.15	0.00	0.00	15.00	15.00	60.35	45.65	75.63	Continue
22	SB2/11	122.33	6.32	39.50	45.82	0.00	0.00	35.50	35.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.33	81.32	66.48	Classified
23	SB3/1	1792.90	268.93	131.72	400.66	0.00	0.00	1270.00	1270.00	0.00	0.00	131.72	131.72	0.00	0.00	0.00	0.00	1792.90	1802.38	100.53	Adjusted
24	SB3/2	95.57	14.34	1.00	15.34	0.00	0.00	17.49	17.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.57	32.83	34.35	Classified
25	SB3/3	285.03	42.75	95.50	138.25	0.00	0.00	95.50	95.50	0.00	46	46.00	92.00	0.00	0.00	0	0.00	285.03	325.75	114.29	Adjusted
26	SB3/4	189.83	28.47	0.30	28.77	0.00	0.00	2.92	2.92	4.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.22	31.69	16.32	Classified
27	SB3/5	137.87	20.68	0.00	20.68	0.00	0.00	20.34	20.34	0.00	0.00	0	0.00	75.98	15.20	0	15.20	213.85	56.22	26.29	Continue
28	SB3/6	0.32	0.05	0.25	0.29	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.00	0.00	0.06	0.06	0.32	0.45	142.21	Adjusted
29	SB3/7	0.30	0.04	0.04	0.08	0.01	0.00	0.06	0.06	0.30	0.06	0.07	0.13	0.00	0.00	0.10	0.10	0.61	0.37	61.58	Adjusted
30	SB3/8	0.28	0.04	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.12	44.25	Classified
31	SB3/9	0.26	0.04	0.02	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.07	26.00	Classified
32	SB3/10	0.25	0.04	0.05	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.04	0.04	0.25	0.31	123.04	Adjusted
33	SB3/11	0.25	0.04	0.20	0.24	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.29	Adjusted
34	SB3/12	0.25	0.04	0.18	0.22	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.91	Adjusted
35	SB3/13	0.25	0.04	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	22.48	Classified
36	SB3/14	0.24	0.04	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.05	22.42	Classified
37	SB3/15	0.24	0.04	0.11	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.14	58.46	Classified

38	SB3/16	0.24	0.04	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.08	31.23	Classified
39	SB3/17	0.21	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.05	22.95	Classified
40	SB3/18	0.21	0.03	0.12	0.15	0.00	0.00	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	131.25	Adjusted
41	SB3/19	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	27.00	Classified
42	SB3/20	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	25.92	Classified
43	SB3/21	0.18	0.03	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.04	20.29	Classified
44	SB3/22	0.18	0.03	0.14	0.17	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.19	106.35	Adjusted
45	SB3/23	0.17	0.03	0.07	0.09	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.17	0.18	104.67	Adjusted
46	SB3/24	0.16	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.02	15.00	Classified
47	SB3/25	0.16	0.02	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.08	51.53	Classified
48	SB3/26	0.16	0.02	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.04	26.68	Classified
49	SB3/27	0.16	0.02	0.12	0.14	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.17	105.91	Adjusted
50	SB3/28	0.14	0.02	0.09	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.11	78.96	Classified
51	SB3/29	0.14	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.10	71.66	Classified
52	SB3/30	0.14	0.02	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	36.35	Classified
53	SB3/31	0.14	0.02	0.24	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.26	189.53	Classified
54	SB3/32	0.14	0.02	0.06	0.08	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.14	0.20	146.60	Adjusted
55	SB3/33	0.13	0.02	0.03	0.05	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00.	0.00	0.03	0.03	0.13	0.14	107.42	Adjusted
56	SB3/34	0.13	0.02	0.04	0.06	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.08	61.15	Classified
57	SB3/35	0.13	0.02	0.05	0.07	0.00	0.00	0.05	0.05	0.13	0.01	0.10	0.11	0.00	0.00	0.10	0.10	0.26	0.33	125.38	Adjusted
58	SB3/36	0.12	0.02	0.01	0.03	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	40.00	Classified
59	SB3/37	0.12	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.10	81.67	Classified
60	SB3/38	0.12	0.02	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.07	56.25	Classified
Total		**173734.84**	**2916.58**	**17342.22**	**20258.80**	**93.13**	**5.00**	**18834.69**	**18839.69**	**292.42**	**53.05**	**14547.16**	**14600.21**	**151.96**	**30.39**	**7603.55**	**7633.94**	**174272.35**	**61332.64**	**35.19**	

Appendix IX-B: Rescheduled Loan Accounts Data of the Private Conventional Banks

Appendix IX-B1: Rescheduled Loan Accounts Data of the Private Conventional Banks (Bank-1)

Bank Code: PB1

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	PB1/1	115.51	24.90	58.11	83.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.51	83.02	71.87	Classified
2	PB1/2	76.85	4.44	10.36	14.80	65.07	5.01	11.69	16.70	60.98	3.036	7.08	10.12	68.05	4.761	11.109	15.87	270.95	57.49	21.22	Continue
3	PB1/3	112.03	3.91	9.13	13.05	112.12	4.53	10.57	15.1	19.99	4.11	9.59	13.70	198.96	4.491	10.479	14.97	443.10	56.82	12.82	Continue
4	PB1/4	15.69	3.66	8.54	12.20	0.00	0.00	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.69	17.92	114.21	Adjusted
5	PB1/5	26.19	3.13	7.30	10.43	17.82	5.80	13.52	19.32	33.06	5.253	12.257	17.51	27.66	0	33.06	33.06	104.73	80.32	76.69	Adjusted
6	PB1/6	10.77	3.03	7.08	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.77	10.11	93.86	Adjusted
7	PB1/7	66.13	2.92	6.81	9.73	50.44	3.17	7.40	10.57	49.90	2.934	6.846	9.78	53.81	3.036	7.084	10.12	220.28	40.20	18.25	Continue
8	PB1/8	909.62	2.88	6.71	9.59	486.06	3.77	8.80	12.57	95.18	3.81	8.89	12.7	0.00	4.794	11.186	15.98	1490.86	50.84	3.41	Continue
9	PB1/9	16.44	1.98	4.62	6.60	8.65	1.84	4.28	6.12	1.32	0.33	0.77	1.1	2.00	0.00	2.24	2.24	28.41	16.06	56.52	Adjusted
10	PB1/10	17.14	1.74	4.06	5.80	11.18	1.73	4.04	5.77	25.35	2.343	5.467	7.81	14.23	0.00	15.87	15.87	67.89	35.25	51.91	Adjusted
Total		**1366.38**	**52.60**	**122.72**	**175.32**	**751.33**	**25.85**	**66.03**	**91.87**	**285.78**	**21.82**	**50.90**	**72.72**	**364.71**	**17.08**	**91.03**	**108.11**	**2768.20**	**448.02**	**16.18**	

Appendix IX-B2: Rescheduled Loan Accounts Data of the Private Conventional Banks (Bank-2)

Bank Code: PB2

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	PB2/1	91.67	13.75	43.20	56.95	0.00	0.00	43.30	43.30	0.00	0.00	43.20	43.20	0.00	0.00	97.28	97.28	91.67	240.73	262.60	Adjusted
2	PB2/2	59.76	2.99	65.40	68.39	19.44	1.94	28.62	30.56	0.00	0.00	28.62	28.62	0.00	0.00	28.62	28.62	79.20	156.19	197.22	Continue
3	PB2/3	25.31	3.80	0.25	4.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	25.31	4.07	16.10	Continue
4	PB2/4	4.73	0.71	0.93	1.63	0.00	0.00	0.24	0.24	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	4.73	2.87	60.78	Classified
5	PB2/5	0.11	0.02	0.50	0.51	1.06	0.16	0.04	0.20	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.04	1.17	0.79	67.79	Continue
6	PB2/6	0.67	0.10	0.12	0.22	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.67	0.58	86.82	Adjusted
7	PB2/7	0.55	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.08	15.00	Classified
8	PB2/8	0.47	0.07	0.12	0.19	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.47	0.55	118.07	Adjusted
9	PB2/9	0.38	0.06	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.09	24.72	Classified
10	PB2/10	0.35	0.05	0.13	0.18	0.02	0.01	0.13	0.14	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.37	0.45	122.57	Adjusted
		184.00	**21.62**	**110.68**	**132.30**	**20.52**	**2.11**	**72.58**	**74.69**	**0.00**	**0.00**	**73.24**	**73.24**	**0.00**	**0.00**	**126.19**	**126.19**	**204.51**	**406.42**	**198.73**	

Appendix IX-B3: Rescheduled Loan Accounts Data of all the Private Conventional Banks

Fig in million BDT

Sl No.	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	PB1/1	115.51	24.90	58.11	83.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.51	83.02	71.87	Classified
2	PB1/2	76.85	4.44	10.36	14.80	65.07	5.01	11.69	16.70	60.98	3.036	7.08	10.12	68.05	4.761	11.109	15.87	270.95	57.49	21.22	Continue
3	PB1/3	112.03	3.91	9.13	13.05	112.12	4.53	10.57	15.1	19.99	4.11	9.59	13.70	198.96	4.491	10.479	14.97	443.10	56.82	12.82	Continue
4	PB1/4	15.69	3.66	8.54	12.20	0.00	0.00	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.69	17.92	114.21	Adjusted
5	PB1/5	26.19	3.13	7.30	10.43	17.82	5.80	13.52	19.32	33.06	5.253	12.257	17.51	27.66	0	33.06	33.06	104.73	80.32	76.69	Adjusted
6	PB1/6	10.77	3.03	7.08	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.77	10.11	93.86	Adjusted
7	PB1/7	66.13	2.92	6.81	9.73	50.44	3.17	7.40	10.57	49.90	2.934	6.846	9.78	53.81	3.036	7.084	10.12	220.28	40.20	18.25	Continue
8	PB1/8	909.62	2.88	6.71	9.59	486.06	3.77	8.80	12.57	95.18	3.81	8.89	12.7	0.00	4.794	11.186	15.98	1490.86	50.84	3.41	Continue
9	PB1/9	16.44	1.98	4.62	6.60	8.65	1.84	4.28	6.12	1.32	0.33	0.77	1.1	2.00	0.00	2.24	2.24	28.41	16.06	56.52	Adjusted
10	PB1/10	17.14	1.74	4.06	5.80	11.18	1.73	4.04	5.77	25.35	2.343	5.467	7.81	14.23	0.00	15.87	15.87	67.89	35.25	51.91	Adjusted
11	PB2/1	91.67	13.75	43.20	56.95	0.00	0.00	43.30	43.30	0.00	0.00	43.20	43.20	0.00	0.00	97.28	97.28	91.67	240.73	262.60	Adjusted
12	PB2/2	59.76	2.99	65.40	68.39	19.44	1.94	28.62	30.56	0.00	0.00	28.62	28.62	0.00	0.00	28.62	28.62	79.20	156.19	197.22	Continue
13	PB2/3	25.31	3.80	0.25	4.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	25.31	4.07	16.10	Continue
14	PB2/4	4.73	0.71	0.93	1.63	0.00	0.00	0.24	0.24	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	4.73	2.87	60.78	Classified
15	PB2/5	0.11	0.02	0.50	0.51	1.06	0.16	0.04	0.20	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.04	1.17	0.79	67.79	Continue
16	PB2/6	0.67	0.10	0.12	0.22	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.67	0.58	86.82	Adjusted
17	PB2/7	0.55	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.08	15.00	Classified
18	PB2/8	0.47	0.07	0.12	0.19	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.47	0.55	118.07	Adjusted
19	PB2/9	0.38	0.06	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.09	24.72	Classified
20	PB2/10	0.35	0.05	0.13	0.18	0.02	0.01	0.13	0.14	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.37	0.45	122.57	Adjusted
Total		**1550.38**	**74.22**	**233.40**	**307.62**	**771.84**	**27.96**	**138.60**	**166.56**	**285.78**	**21.82**	**124.14**	**145.96**	**364.71**	**17.08**	**217.22**	**234.30**	**2972.71**	**854.44**	**28.74**	

Appendix IX-C: Rescheduled Loan Accounts Data of the Private Islamic Banks

Appendix IX-C1: Rescheduled Loan Accounts Data of the Private Islamic Banks (Bank-1)

Bank Code: IB1

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the recovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	IB1/1	10.13	2.03	6.12	8.15	0.00	0.00	3.24	3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.13	11.39	112.40	Adjusted
2	IB1/2	3.12	0.29	0.67	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	3.12	3.84	123.08	Continue
3	IB1/3	508.41	50.84	102.23	153.07	731.10	109.67	47.62	157.29	338.83	67.766	77.12	144.89	22.79	0.00	25.12	25.12	1601.13	480.36	30.00	Adjusted
4	IB1/4	0.23	0.07	0.12	0.19	0.00	0.00	0.1	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.29	126.09	Adjusted
5	IB1/5	5.33	1.60	0.12	1.72	0.00	0.04	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0	0.36	0.36	5.33	2.32	43.53	Adjusted
6	IB1/6	805.78	120.87	60.71	181.58	694.52	138.90	56.68	195.58	172.92	51.88	40.67	92.55	0.00	0.00	58.10	58.10	1673.22	527.81	31.54	Continue
7	IB1/7	2.19	0.22	101.16	101.38	0.00	0.00	50.59	50.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	151.97	6939.22	Adjusted
8	IB1/8	1.41	0.42	0.00	0.42	602.29	120.46	0.00	120.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	603.70	120.88	20.02	Classified
9	IB1/9	561.56	7.92	15.26	23.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	561.56	23.18	4.13	Classified
10	IB1/10	281.52	31.32	2.93	34.25	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	281.52	43.04	15.29	Continue
Total		**2179.68**	**215.57**	**289.32**	**504.89**	**2027.91**	**369.06**	**162.24**	**531.27**	**511.75**	**119.64**	**121.80**	**241.44**	**22.79**	**0.00**	**87.47**	**87.47**	**4742.13**	**1365.07**	**28.79**	

Appendix IX-C2: Rescheduled Loan Accounts Data of the Private Islamic Banks (Bank-2)

Bank Code: IB2

Fig in million BDT

Sl No	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	IB2/1	434.69	50.00	3.02	53.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	62.08	14.28	Continue
2	IB2/2	1496.52	7.00	28.32	35.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	1496.52	120.28	8.04	Continue
3	IB2/3	447.26	1.00	37.27	38.27	0.00	0.00	0.00	0.00	0.00	0.00	436.43	436.43	0.00	0.00	0.00	0.00	447.26	474.70	106.14	Adjusted
4	IB2/4	11.53	2.05	0.71	2.76	0.00	0.00	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.53	4.75	41.20	Adjusted
5	IB2/5	475.40	18.73	3.50	22.23	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	475.40	32.73	6.88	Continue
6	IB2/6	434.69	0.81	3.02	3.83	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	12.89	2.97	Continue
7	IB2/7	423.03	8.60	8.60	17.20	0.00	0.00	432.23	432.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	423.03	449.43	106.24	Adjusted
8	IB2/8	589.11	14.22	10.26	24.48	0.00	0.00	577.82	577.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	589.11	602.30	102.24	Adjusted
9	IB2/9	244.13	5.61	6.90	12.51	0.00	0.00	200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	244.13	212.51	87.05	Adjusted
10	IB2/10	360.99	73.66	230.20	303.86	0.00	0.00	72.30	72.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	360.99	376.16	104.20	Adjusted
Total		**7097.03**	**397.25**	**621.12**	**1018.37**	**2027.91**	**369.06**	**1484.44**	**1853.47**	**511.75**	**119.64**	**596.09**	**715.73**	**22.79**	**0.00**	**125.33**	**125.33**	**9659.48**	**3712.90**	**38.44**	

Appendix IX-C3: Rescheduled Loan Accounts Data of all the Islamic Banks

Fig in million BDT

Sl No.	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	IB1/1	10.13	2.03	6.12	8.15	0.00	0.00	3.24	3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.13	11.39	112.40	Adjusted
2	IB1/2	3.12	0.29	0.67	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	3.12	3.84	123.08	Continue
3	IB1/3	508.41	50.84	102.23	153.07	731.10	109.67	47.62	157.29	338.83	67.766	77.12	144.89	22.79	2.28	22.841	25.12	1601.13	480.36	30.00	Adjusted
4	IB1/4	0.23	0.07	0.12	0.19	0.00	0.00	0.1	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.29	126.09	Adjusted
5	IB1/5	5.33	1.60	0.12	1.72	0.00	0.04	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0	0.36	0.36	5.33	2.32	43.53	Adjusted
6	IB1/6	805.78	120.87	60.71	181.58	694.52	138.90	56.68	195.58	172.92	49.60	40.67	90.27	0.00	0.00	58.10	58.10	1673.22	525.53	31.41	Continue
7	IB1/7	2.19	0.22	101.16	101.38	0.00	0.00	50.59	50.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	151.97	6939.22	Adjusted
8	IB1/8	1.41	0.42	0.00	0.42	602.29	120.46	0.00	120.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	603.70	120.88	20.02	Classified
9	IB1/9	561.56	7.92	15.26	23.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	561.56	23.18	4.13	Classified
10	IB1/10	281.52	31.32	2.93	34.25	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	281.52	43.04	15.29	Continue
11	IB2/1	434.69	50.00	3.02	53.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	62.08	14.28	Continue
12	IB2/2	1496.52	7.00	28.32	35.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	1496.52	120.28	8.04	Continue
13	IB2/3	447.26	1.00	37.27	38.27	0.00	0.00	0.00	0.00	0.00	0.00	436.43	436.43	0.00	0.00	0.00	0.00	447.26	474.70	106.14	Adjusted
14	IB2/4	11.53	2.05	0.71	2.76	0.00	0.00	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.53	4.75	41.20	Adjusted
15	IB2/5	475.40	18.73	3.50	22.23	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	475.40	32.73	6.88	Continue
16	IB2/6	434.69	0.81	3.02	3.83	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	12.89	2.97	Continue
17	IB2/7	423.03	8.60	8.60	17.20	0.00	0.00	432.23	432.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	423.03	449.43	106.24	Adjusted
18	IB2/8	589.11	14.22	10.26	24.48	0.00	0.00	577.82	577.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	589.11	602.30	102.24	Adjusted
19	IB2/9	244.13	5.61	6.90	12.51	0.00	0.00	200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	244.13	212.51	87.05	Adjusted
20	IB2/10	360.99	73.66	230.20	303.86	0.00	0.00	72.30	72.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	360.99	376.16	104.20	Adjusted
Total		**7097.03**	**397.25**	**621.12**	**1018.37**	**2027.91**	**369.06**	**1484.44**	**1853.47**	**511.75**	**117.36**	**596.09**	**713.45**	**22.79**	**2.28**	**123.05**	**125.33**	**9659.48**	**3710.62**	**38.41**	

Appendix IX-D: Rescheduled Loan Accounts Data of all the Private Banks (Islamic & Conventional)

Fig in million BDT

Sl No.	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	PB1/1	115.51	24.90	58.11	83.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.51	83.02	71.87	Classified
2	PB1/2	76.85	4.44	10.36	14.80	65.07	5.01	11.69	16.70	60.98	3.036	7.08	10.12	68.05	4.761	11.109	15.87	270.95	57.49	21.22	Continue
3	PB1/3	112.03	3.91	9.13	13.05	112.12	4.53	10.57	15.1	19.99	4.11	9.59	13.70	198.96	4.491	10.479	14.97	443.10	56.82	12.82	Continue
4	PB1/4	15.69	3.66	8.54	12.20	0.00	0.00	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.69	17.92	114.21	Adjusted
5	PB1/5	26.19	3.13	7.30	10.43	17.82	5.80	13.52	19.32	33.06	5.253	12.257	17.51	27.66	0	33.06	33.06	104.73	80.32	76.69	Adjusted
6	PB1/6	10.77	3.03	7.08	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.77	10.11	93.86	Adjusted
7	PB1/7	66.13	2.92	6.81	9.73	50.44	3.17	7.40	10.57	49.90	2.934	6.846	9.78	53.81	3.036	7.084	10.12	220.28	40.20	18.25	Continue
8	PB1/8	909.62	2.88	6.71	9.59	486.06	3.77	8.80	12.57	95.18	3.81	8.89	12.7	0.00	4.794	11.186	15.98	1490.86	50.84	3.41	Continue
9	PB1/9	16.44	1.98	4.62	6.60	8.65	1.84	4.28	6.12	1.32	0.33	0.77	1.1	2.00	0.00	2.24	2.24	28.41	16.06	56.52	Adjusted
10	PB1/10	17.14	1.74	4.06	5.80	11.18	1.73	4.04	5.77	25.35	2.343	5.467	7.81	14.23	0.00	15.87	15.87	67.89	35.25	51.91	Adjusted
11	PB2/1	91.67	13.75	43.20	56.95	0.00	0.00	43.30	43.30	0.00	0.00	43.20	43.20	0.00	0.00	97.28	97.28	91.67	240.73	262.60	Adjusted
12	PB2/2	59.76	2.99	65.40	68.39	19.44	1.94	28.62	30.56	0.00	0.00	28.62	28.62	0.00	0.00	28.62	28.62	79.20	156.19	197.22	Continue
13	PB2/3	25.31	3.80	0.25	4.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	25.31	4.07	16.10	Continue
14	PB2/4	4.73	0.71	0.93	1.63	0.00	0.00	0.24	0.24	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	4.73	2.87	60.78	Classified
15	PB2/5	0.11	0.02	0.50	0.51	1.06	0.16	0.04	0.20	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.04	1.17	0.79	67.79	Continue
16	PB2/6	0.67	0.10	0.12	0.22	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.67	0.58	86.82	Adjusted
17	PB2/7	0.55	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.08	15.00	Classified
18	PB2/8	0.47	0.07	0.12	0.19	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.47	0.55	118.07	Adjusted
19	PB2/9	0.38	0.06	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.09	24.72	Classified

20	PB2/10	0.35	0.05	0.13	0.18	0.02	0.01	0.13	0.14	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.37	0.45	122.57	Adjusted
21	IB1/1	10.13	2.03	6.12	8.15	0.00	0.00	3.24	3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.13	11.39	112.40	Adjusted
22	IB1/2	3.12	0.29	0.67	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	3.12	3.84	123.08	Continue
23	IB1/3	508.41	50.84	102.23	153.07	731.10	109.67	47.62	157.29	338.83	67.766	77.12	144.89	22.79	0.00	25.12	25.12	1601.13	480.36	30.00	Adjusted
24	IB1/4	0.23	0.07	0.12	0.19	0.00	0.00	0.1	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.29	126.09	Adjusted
25	IB1/5	5.33	1.60	0.12	1.72	0.00	0.04	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0	0.36	0.36	5.33	2.32	43.53	Adjusted
26	IB1/6	805.78	120.87	60.71	181.58	694.52	138.90	56.68	195.58	172.92	51.88	40.67	92.55	0.00	0.00	58.10	58.10	1673.22	527.81	31.54	Continue
27	IB1/7	2.19	0.22	101.16	101.38	0.00	0.00	50.59	50.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	151.97	6939.22	Adjusted
28	IB1/8	1.41	0.42	0.00	0.42	602.29	120.46	0.00	120.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	603.70	120.88	20.02	Classified
29	IB1/9	561.56	7.92	15.26	23.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	561.56	23.18	4.13	Classified
30	IB1/10	281.52	31.32	2.93	34.25	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	281.52	43.04	15.29	Continue
31	IB2/1	434.69	50.00	3.02	53.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	62.08	14.28	Continue
32	IB2/2	1496.52	7.00	28.32	35.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	1496.52	120.28	8.04	Continue
33	IB2/3	447.26	1.00	37.27	38.27	0.00	0.00	0.00	0.00	0.00	0.00	436.43	436.43	0.00	0.00	0.00	0.00	447.26	474.70	106.14	Adjusted
34	IB2/4	11.53	2.05	0.71	2.76	0.00	0.00	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.53	4.75	41.20	Adjusted
35	IB2/5	475.40	18.73	3.50	22.23	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	475.40	32.73	6.88	Continue
36	IB2/6	434.69	0.81	3.02	3.83	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	12.89	2.97	Continue
37	IB2/7	423.03	8.60	8.60	17.20	0.00	0.00	432.23	432.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	423.03	449.43	106.24	Adjusted
38	IB2/8	589.11	14.22	10.26	24.48	0.00	0.00	577.82	577.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	589.11	602.30	102.24	Adjusted
39	IB2/9	244.13	5.61	6.90	12.51	0.00	0.00	200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	244.13	212.51	87.05	Adjusted
40	IB2/10	360.99	73.66	230.20	303.86	0.00	0.00	72.30	72.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	360.99	376.16	104.20	Adjusted
Total		**8647.41**	**471.47**	**854.52**	**1325.99**	**2799.75**	**397.02**	**1623.04**	**2020.03**	**797.53**	**141.46**	**720.23**	**861.69**	**387.50**	**17.08**	**342.55**	**359.63**	**12632.19**	**4567.34**	**36.16**	

Appendix IX-E: Rescheduled Loan Accounts Data of all the Conventional Banks (State-Owned & Private)

Fig in million BDT

Sl No.	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	PB1/1	115.51	24.90	58.11	83.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.51	83.02	71.87	Classified
2	PB1/2	76.85	4.44	10.36	14.80	65.07	5.01	11.69	16.70	60.98	3.036	7.08	10.12	68.05	4.761	11.109	15.87	270.95	57.49	21.22	Continue
3	PB1/3	112.03	3.91	9.13	13.05	112.12	4.53	10.57	15.1	19.99	4.11	9.59	13.70	198.96	4.491	10.479	14.97	443.10	56.82	12.82	Continue
4	PB1/4	15.69	3.66	8.54	12.20	0.00	0.00	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.69	17.92	114.21	Adjusted
5	PB1/5	26.19	3.13	7.30	10.43	17.82	5.80	13.52	19.32	33.06	5.253	12.257	17.51	27.66	0	33.06	33.06	104.73	80.32	76.69	Adjusted
6	PB1/6	10.77	3.03	7.08	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.77	10.11	93.86	Adjusted
7	PB1/7	66.13	2.92	6.81	9.73	50.44	3.17	7.40	10.57	49.90	2.934	6.846	9.78	53.81	3.036	7.084	10.12	220.28	40.20	18.25	Continue
8	PB1/8	909.62	2.88	6.71	9.59	486.06	3.77	8.80	12.57	95.18	3.81	8.89	12.7	0.00	4.794	11.186	15.98	1490.86	50.84	3.41	Continue
9	PB1/9	16.44	1.98	4.62	6.60	8.65	1.84	4.28	6.12	1.32	0.33	0.77	1.1	2.00	0.00	2.24	2.24	28.41	16.06	56.52	Adjusted
10	PB1/10	17.14	1.74	4.06	5.80	11.18	1.73	4.04	5.77	25.35	2.343	5.467	7.81	14.23	0.00	15.87	15.87	67.89	35.25	51.91	Adjusted
11	PB2/1	91.67	13.75	43.20	56.95	0.00	0.00	43.30	43.30	0.00	0.00	43.20	43.20	0.00	0.00	97.28	97.28	91.67	240.73	262.60	Adjusted
12	PB2/2	59.76	2.99	65.40	68.39	19.44	1.94	28.62	30.56	0.00	0.00	28.62	28.62	0.00	0.00	28.62	28.62	79.20	156.19	197.22	Continue
13	PB2/3	25.31	3.80	0.25	4.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	25.31	4.07	16.10	Continue
14	PB2/4	4.73	0.71	0.93	1.63	0.00	0.00	0.24	0.24	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	4.73	2.87	60.78	Classified
15	PB2/5	0.11	0.02	0.50	0.51	1.06	0.16	0.04	0.20	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.04	1.17	0.79	67.79	Continue
16	PB2/6	0.67	0.10	0.12	0.22	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.67	0.58	86.82	Adjusted
17	PB2/7	0.55	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.08	15.00	Classified
18	PB2/8	0.47	0.07	0.12	0.19	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.47	0.55	118.07	Adjusted
19	PB2/9	0.38	0.06	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.09	24.72	Classified
20	PB2/10	0.35	0.05	0.13	0.18	0.02	0.01	0.13	0.14	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.37	0.45	122.57	Adjusted
21	SB1/1	52162.80	521.63	5397.48	5919.11	0.00	0.00	5520.63	5520.63	0.00	0.00	4600.53	4600.53	0.00	0.00	2361.84	2361.84	52162.80	18402.1	35.28	Continue

22	SB1/2	17758.30	177.58	1753.93	1931.52	0.00	0.00	1807.80	1807.80	0.00	0.00	1506.50	1506.50	0.00	0.00	780.18	780.18	17758.30	6026.00	33.93	Continue
23	SB1/3	16845.30	168.45	3464.97	3633.42	0.00	0.00	3258.75	3258.75	0.00	0.00	2715.63	2715.63	0.00	0.00	1254.70	1254.70	16845.30	10862.5	64.48	Continue
24	SB1/4	11527.50	115.28	0.00	115.28	0.00	0.00	331.62	331.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11527.50	446.90	3.88	Classified
25	SB1/5	10944.90	109.45	1045.69	1155.14	0.00	0.00	1083.93	1083.93	0.00	0.00	903.28	903.28	0.00	0.00	470.76	470.76	10944.90	3613.10	33.01	Continue
26	SB1/6	8734.90	87.35	1272.34	1359.69	0.00	0.00	1240.32	1240.32	0.00	0.00	1033.60	1033.60	0.00	0.00	500.79	500.79	8734.90	4134.40	47.33	Continue
27	SB1/7	8117.50	81.18	125.12	206.30	0.00	0.00	122.21	122.21	0.00	0.00	82.13	82.13	0.00	0.00	-82.13	-82.13	8117.50	328.50	4.05	Classified
28	SB1/8	6422.90	64.23	934.35	998.58	0.00	0.00	910.98	910.98	0.00	0.00	759.15	759.15	0.00	0.00	367.89	367.89	6422.90	3036.60	47.28	Continue
29	SB1/9	5941.10	59.41	92.10	151.51	0.00	0.00	237.29	237.29	0.00	0.00	138.51	138.51	0.00	0.00	0.00	0.00	5941.10	527.30	8.88	Classified
30	SB1/10	5767.10	57.67	1692.72	1750.39	0.00	0.00	1549.77	1549.77	0.00	0.00	1291.48	1291.48	0.00	0.00	574.26	574.26	5767.10	5165.90	89.58	Continue
31	SB1/11	5229.80	52.30	33.72	86.02	0.00	0.00	26.38	26.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5229.80	112.40	2.15	Classified
32	SB2/1	25.30	6.50	20.01	26.51	93.12	5.00	89.07	94.07	271.71	4.34	112.03	116.37	0.00	0.00	138.09	138.09	390.13	375.04	96.13	Adiusted
33	SB2/2	76.88	27.22	3.75	30.97	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	76.88	42.22	54.92	Continue
34	SB2/3	46.12	1.73	3.30	5.03	0.00	0.00	3.30	3.30	0.00	0	3.30	3.30	0.00	0.00	3.3	3.30	46.12	14.93	32.37	Continue
35	SB2/4	187.35	0.00	4.75	4.75	0.00	0.00	0	0.00	4.39	0.00	2.90	2.90	0.00	0.00	0.00	0.00	191.74	7.65	3.99	Classified
36	SB2/5	6.43	1.22	2.00	3.22	0.00	0.00	2.50	2.50	0.00	0.00	2.5	2.50	75.98	15.20	12.5	27.70	82.41	35.92	43.58	Continue
37	SB2/6	25.72	7.72	2.25	9.97	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	25.72	16.72	65.01	Continue
38	SB2/7	21.60	2.50	1.75	4.25	0.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.60	6.00	27.78	Classified
39	SB2/8	21187.69	982.12	1200.00	2182.12	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	21187.69	5782.12	27.29	Continue
40	SB2/9	26.97	5.60	10.12	15.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.97	15.72	58.29	Classified
41	SB2/10	48.85	5.00	11.50	16.50	0.00	0.00	0.00	0.00	11.50	2.65	11.50	14.15	0.00	0.00	15.00	15.00	60.35	45.65	75.63	Continue
42	SB2/11	122.33	6.32	39.50	45.82	0.00	0.00	35.50	35.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.33	81.32	66.48	Classified
43	SB3/1	1792.90	268.93	131.72	400.66	0.00	0.00	1270.00	1270.00	0.00	0.00	131.72	131.72	0.00	0.00	0.00	0.00	1792.90	1802.38	100.53	Adjusted
44	SB3/2	95.57	14.34	1.00	15.34	0.00	0.00	17.49	17.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.57	32.83	34.35	Classified
45	SB3/3	285.03	42.75	95.50	138.25	0.00	0.00	95.50	95.50	0.00	46	46.00	92.00	0.00	0.00	0	0.00	285.03	325.75	114.29	Adjusted
46	SB3/4	189.83	28.47	0.30	28.77	0.00	0.00	2.92	2.92	4.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.22	31.69	16.32	Classified
47	SB3/5	137.87	20.68	0.00	20.68	0.00	0.00	20.34	20.34	0.00	0.00	0	0.00	75.98	15.20	0	15.20	213.85	56.22	26.29	Continue
48	SB3/6	0.32	0.05	0.25	0.29	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.00	0.00	0.06	0.06	0.32	0.45	142.21	Adjusted
49	SB3/7	0.30	0.04	0.04	0.08	0.01	0.00	0.06	0.06	0.30	0.06	0.07	0.13	0.00	0.00	0.10	0.10	0.61	0.37	61.58	Adjusted
50	SB3/8	0.28	0.04	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.12	44.25	Classified
51	SB3/9	0.26	0.04	0.02	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.07	26.00	Classified

52	SB3/10	0.25	0.04	0.05	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.04	0.04	0.25	0.31	123.04	Adjusted
53	SB3/11	0.25	0.04	0.20	0.24	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.29	Adjusted
54	SB3/12	0.25	0.04	0.18	0.22	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.91	Adjusted
55	SB3/13	0.25	0.04	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	22.48	Classified
56	SB3/14	0.24	0.04	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.05	22.42	Classified
57	SB3/15	0.24	0.04	0.11	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.14	58.46	Classified
58	SB3/16	0.24	0.04	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.08	31.23	Classified
59	SB3/17	0.21	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.05	22.95	Classified
60	SB3/18	0.21	0.03	0.12	0.15	0.00	0.00	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	131.25	Adjusted
61	SB3/19	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	27.00	Classified
62	SB3/20	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	25.92	Classified
63	SB3/21	0.18	0.03	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.04	20.29	Classified
64	SB3/22	0.18	0.03	0.14	0.17	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.19	106.35	Adjusted
65	SB3/23	0.17	0.03	0.07	0.09	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.17	0.18	104.67	Adjusted
66	SB3/24	0.16	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.02	15.00	Classified
67	SB3/25	0.16	0.02	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.08	51.53	Classified
68	SB3/26	0.16	0.02	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.04	26.68	Classified
69	SB3/27	0.16	0.02	0.12	0.14	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.17	105.91	Adjusted
70	SB3/28	0.14	0.02	0.09	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.11	78.96	Classified
71	SB3/29	0.14	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.10	71.66	Classified
72	SB3/30	0.14	0.02	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	36.35	Classified
73	SB3/31	0.14	0.02	0.24	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.26	189.53	Classified
74	SB3/32	0.14	0.02	0.06	0.08	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.14	0.20	146.60	Adjusted
75	SB3/33	0.13	0.02	0.03	0.05	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00.	0.00	0.03	0.03	0.13	0.14	107.42	Adjusted
76	SB3/34	0.13	0.02	0.04	0.06	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.08	61.15	Classified
77	SB3/35	0.13	0.02	0.05	0.07	0.00	0.00	0.05	0.05	0.13	0.01	0.10	0.11	0.00	0.00	0.10	0.10	0.26	0.33	125.38	Adjusted
78	SB3/36	0.12	0.02	0.01	0.03	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	40.00	Classified
79	SB3/37	0.12	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.10	81.67	Classified
80	SB3/38	0.12	0.02	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.07	56.25	Classified
Total		**175285.22**	**2990.79**	**17575.62**	**20566.42**	**864.97**	**32.96**	**18973.30**	**19006.25**	**578.20**	**74.87**	**14671.30**	**14746.17**	**516.67**	**47.47**	**7820.77**	**7868.24**	**177245.06**	**62187.08**	**35.09**	

Appendix IX-F: Rescheduled Loan Accounts Data of all the Banks

Fig in million BDT

Sl No.	Client code	RSD amount in 2016	Recovery in 2016			RSD amount in 2017	Recovery in 2017			RSD amount in 2018	Recovery in 2018			RSD amount in 2019	Recovery in 2019			Total RSD over the year	Total Recovery over the year	% of the rtecovery	If RSD not effective which method applied
			Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery		Down Payment	Installment	Total Recovery				
1	PB1/1	115.51	24.90	58.11	83.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.51	83.02	71.87	Classified
2	PB1/2	76.85	4.44	10.36	14.80	65.07	5.01	11.69	16.70	60.98	3.036	7.08	10.12	68.05	4.761	11.109	15.87	270.95	57.49	21.22	Continue
3	PB1/3	112.03	3.91	9.13	13.05	112.12	4.53	10.57	15.1	19.99	4.11	9.59	13.70	198.96	4.491	10.479	14.97	443.10	56.82	12.82	Continue
4	PB1/4	15.69	3.66	8.54	12.20	0.00	0.00	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.69	17.92	114.21	Adjusted
5	PB1/5	26.19	3.13	7.30	10.43	17.82	5.80	13.52	19.32	33.06	5.253	12.257	17.51	27.66	0	33.06	33.06	104.73	80.32	76.69	Adjusted
6	PB1/6	10.77	3.03	7.08	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.77	10.11	93.86	Adjusted
7	PB1/7	66.13	2.92	6.81	9.73	50.44	3.17	7.40	10.57	49.90	2.934	6.846	9.78	53.81	3.036	7.084	10.12	220.28	40.20	18.25	Continue
8	PB1/8	909.62	2.88	6.71	9.59	486.06	3.77	8.80	12.57	95.18	3.81	8.89	12.7	0.00	4.794	11.186	15.98	1490.86	50.84	3.41	Continue
9	PB1/9	16.44	1.98	4.62	6.60	8.65	1.84	4.28	6.12	1.32	0.33	0.77	1.1	2.00	0.00	2.24	2.24	28.41	16.06	56.52	Adjusted
10	PB1/10	17.14	1.74	4.06	5.80	11.18	1.73	4.04	5.77	25.35	2.343	5.467	7.81	14.23	0.00	15.87	15.87	67.89	35.25	51.91	Adjusted
11	PB2/1	91.67	13.75	43.20	56.95	0.00	0.00	43.30	43.30	0.00	0.00	43.20	43.20	0.00	0.00	97.28	97.28	91.67	240.73	262.60	Adjusted
12	PB2/2	59.76	2.99	65.40	68.39	19.44	1.94	28.62	30.56	0.00	0.00	28.62	28.62	0.00	0.00	28.62	28.62	79.20	156.19	197.22	Continue
13	PB2/3	25.31	3.80	0.25	4.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	25.31	4.07	16.10	Continue
14	PB2/4	4.73	0.71	0.93	1.63	0.00	0.00	0.24	0.24	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	4.73	2.87	60.78	Classified
15	PB2/5	0.11	0.02	0.50	0.51	1.06	0.16	0.04	0.20	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.04	1.17	0.79	67.79	Continue
16	PB2/6	0.67	0.10	0.12	0.22	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.67	0.58	86.82	Adjusted
17	PB2/7	0.55	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.08	15.00	Classified
18	PB2/8	0.47	0.07	0.12	0.19	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	0.12	0.47	0.55	118.07	Adjusted
19	PB2/9	0.38	0.06	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.09	24.72	Classified
20	PB2/10	0.35	0.05	0.13	0.18	0.02	0.01	0.13	0.14	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.37	0.45	122.57	Adjusted
21	IB1/1	10.13	2.03	6.12	8.15	0.00	0.00	3.24	3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.13	11.39	112.40	Adjusted

22	IB1/2	3.12	0.29	0.67	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	0.00	0.00	0.96	0.96	3.12	3.84	123.08	Continue
23	IB1/3	508.41	50.84	102.23	153.07	731.10	109.6	47.62	157.29	338.83	67.766	77.12	144.89	22.79	0.00	25.12	25.12	1601.13	480.36	30.00	Adjusted
24	IB1/4	0.23	0.07	0.12	0.19	0.00	0.00	0.1	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.29	126.09	Adjusted
25	IB1/5	5.33	1.60	0.12	1.72	0.00	0.04	0.12	0.12	0.00	0.00	0.12	0.12	0.00	0	0.36	0.36	5.33	2.32	43.53	Adjusted
26	IB1/6	805.78	120.87	60.71	181.58	694.52	138.9	56.68	195.58	172.92	51.88	40.67	92.55	0.00	0.00	58.10	58.10	1673.22	527.81	31.54	Continue
27	IB1/7	2.19	0.22	101.16	101.38	0.00	0.00	50.59	50.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	151.97	6939.2	Adjusted
28	IB1/8	1.41	0.42	0.00	0.42	602.29	120.4	0.00	120.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	603.70	120.88	20.02	Classified
29	IB1/9	561.56	7.92	15.26	23.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	561.56	23.18	4.13	Classified
30	IB1/10	281.52	31.32	2.93	34.25	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	0.00	0.00	2.93	2.93	281.52	43.04	15.29	Continue
31	IB2/1	434.69	50.00	3.02	53.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	62.08	14.28	Continue
32	IB2/2	1496.52	7.00	28.32	35.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	0.00	0.00	28.32	28.32	1496.52	120.28	8.04	Continue
33	IB2/3	447.26	1.00	37.27	38.27	0.00	0.00	0.00	0.00	0.00	0.00	436.43	436.43	0.00	0.00	0.00	0.00	447.26	474.70	106.14	Adjusted
34	IB2/4	11.53	2.05	0.71	2.76	0.00	0.00	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.53	4.75	41.20	Adjusted
35	IB2/5	475.40	18.73	3.50	22.23	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	0.00	0.00	3.50	3.50	475.40	32.73	6.88	Continue
36	IB2/6	434.69	0.81	3.02	3.83	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	0.00	0.00	3.02	3.02	434.69	12.89	2.97	Continue
37	IB2/7	423.03	8.60	8.60	17.20	0.00	0.00	432.23	432.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	423.03	449.43	106.24	Adjusted
38	IB2/8	589.11	14.22	10.26	24.48	0.00	0.00	577.82	577.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	589.11	602.30	102.24	Adjusted
39	IB2/9	244.13	5.61	6.90	12.51	0.00	0.00	200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	244.13	212.51	87.05	Adjusted
40	IB2/10	360.99	73.66	230.20	303.86	0.00	0.00	72.30	72.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	360.99	376.16	104.20	Adjusted
41	SB1/1	52162.80	521.63	5397.48	5919.11	0.00	0.00	5520.63	5520.63	0.00	0.00	4600.53	4600.53	0.00	0.00	2361.84	2361.84	52162.80	18402.10	35.28	Continue
42	SB1/2	17758.30	177.58	1753.93	1931.52	0.00	0.00	1807.80	1807.80	0.00	0.00	1506.50	1506.50	0.00	0.00	780.18	780.18	17758.30	6026.00	33.93	Continue
43	SB1/3	16845.30	168.45	3464.97	3633.42	0.00	0.00	3258.75	3258.75	0.00	0.00	2715.63	2715.63	0.00	0.00	1254.70	1254.70	16845.30	10862.50	64.48	Continue
44	SB1/4	11527.50	115.28	0.00	115.28	0.00	0.00	331.62	331.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11527.50	446.90	3.88	Classified
45	SB1/5	10944.90	109.45	1045.69	1155.14	0.00	0.00	1083.93	1083.93	0.00	0.00	903.28	903.28	0.00	0.00	470.76	470.76	10944.90	3613.10	33.01	Continue
46	SB1/6	8734.90	87.35	1272.34	1359.69	0.00	0.00	1240.32	1240.32	0.00	0.00	1033.60	1033.60	0.00	0.00	500.79	500.79	8734.90	4134.40	47.33	Continue
47	SB1/7	8117.50	81.18	125.12	206.30	0.00	0.00	122.21	122.21	0.00	0.00	82.13	82.13	0.00	0.00	-82.13	-82.13	8117.50	328.50	4.05	Classified
48	SB1/8	6422.90	64.23	934.35	998.58	0.00	0.00	910.98	910.98	0.00	0.00	759.15	759.15	0.00	0.00	367.89	367.89	6422.90	3036.60	47.28	Continue
49	SB1/9	5941.10	59.41	92.10	151.51	0.00	0.00	237.29	237.29	0.00	0.00	138.51	138.51	0.00	0.00	0.00	0.00	5941.10	527.30	8.88	Classified
50	SB1/10	5767.10	57.67	1692.72	1750.39	0.00	0.00	1549.77	1549.77	0.00	0.00	1291.48	1291.48	0.00	0.00	574.26	574.26	5767.10	5165.90	89.58	Continue

51	SB1/11	5229.80	52.30	33.72	86.02	0.00	0.00	26.38	26.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5229.80	112.40	2.15	Classified
52	SB2/1	25.30	6.50	20.01	26.51	93.12	5.00	89.07	94.07	271.71	4.34	112.03	116.37	0.00	0.00	138.09	138.09	390.13	375.04	96.13	Adjusted
53	SB2/2	76.88	27.22	3.75	30.97	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	0.00	0.00	3.75	3.75	76.88	42.22	54.92	Continue
54	SB2/3	46.12	1.73	3.30	5.03	0.00	0.00	3.30	3.30	0.00	0	3.30	3.30	0.00	0.00	3.3	3.30	46.12	14.93	32.37	Continue
55	SB2/4	187.35	0.00	4.75	4.75	0.00	0.00	0	0.00	4.39	0.00	2.90	2.90	0.00	0.00	0.00	0.00	191.74	7.65	3.99	Classified
56	SB2/5	6.43	1.22	2.00	3.22	0.00	0.00	2.50	2.50	0.00	0.00	2.5	2.50	75.98	15.20	12.5	27.70	82.41	35.92	43.58	Continue
57	SB2/6	25.72	7.72	2.25	9.97	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	0.00	0.00	2.25	2.25	25.72	16.72	65.01	Continue
58	SB2/7	21.60	2.50	1.75	4.25	0.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.60	6.00	27.78	Classified
59	SB2/8	21187.69	982.12	1200.00	2182.12	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	0.00	0.00	1200.00	1200.00	21187.69	5782.12	27.29	Continue
60	SB2/9	26.97	5.60	10.12	15.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.97	15.72	58.29	Classified
61	SB2/10	48.85	5.00	11.50	16.50	0.00	0.00	0.00	0.00	11.50	2.65	11.50	14.15	0.00	0.00	15.00	15.00	60.35	45.65	75.63	Continue
62	SB2/11	122.33	6.32	39.50	45.82	0.00	0.00	35.50	35.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.33	81.32	66.48	Classified
63	SB3/1	1792.90	268.93	131.72	400.66	0.00	0.00	1270.00	1270.00	0.00	0.00	131.72	131.72	0.00	0.00	0.00	0.00	1792.90	1802.38	100.53	Adjusted
64	SB3/2	95.57	14.34	1.00	15.34	0.00	0.00	17.49	17.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.57	32.83	34.35	Classified
65	SB3/3	285.03	42.75	95.50	138.25	0.00	0.00	95.50	95.50	0.00	46	46.00	92.00	0.00	0.00	0	0.00	285.03	325.75	114.29	Adjusted
66	SB3/4	189.83	28.47	0.30	28.77	0.00	0.00	2.92	2.92	4.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.22	31.69	16.32	Classified
67	SB3/5	137.87	20.68	0.00	20.68	0.00	0.00	20.34	20.34	0.00	0.00	0	0.00	75.98	15.20	0	15.20	213.85	56.22	26.29	Continue
68	SB3/6	0.32	0.05	0.25	0.29	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.00	0.00	0.06	0.06	0.32	0.45	142.21	Adjusted
69	SB3/7	0.30	0.04	0.04	0.08	0.01	0.00	0.06	0.06	0.30	0.06	0.07	0.13	0.00	0.00	0.10	0.10	0.61	0.37	61.58	Adjusted
70	SB3/8	0.28	0.04	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.12	44.25	Classified
71	SB3/9	0.26	0.04	0.02	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.07	26.00	Classified
72	SB3/10	0.25	0.04	0.05	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.09	0.09	0.00	0.00	0.04	0.04	0.25	0.31	123.04	Adjusted
73	SB3/11	0.25	0.04	0.20	0.24	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.29	Adjusted
74	SB3/12	0.25	0.04	0.18	0.22	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.26	103.91	Adjusted
75	SB3/13	0.25	0.04	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	22.48	Classified
76	SB3/14	0.24	0.04	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.05	22.42	Classified
77	SB3/15	0.24	0.04	0.11	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.14	58.46	Classified
78	SB3/16	0.24	0.04	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.08	31.23	Classified
79	SB3/17	0.21	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.05	22.95	Classified

80	SB3/18	0.21	0.03	0.12	0.15	0.00	0.00	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	131.25	Adjusted
81	SB3/19	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	27.00	Classified
82	SB3/20	0.18	0.03	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.05	25.92	Classified
83	SB3/21	0.18	0.03	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.04	20.29	Classified
84	SB3/22	0.18	0.03	0.14	0.17	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.19	106.35	Adjusted
85	SB3/23	0.17	0.03	0.07	0.09	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.17	0.18	104.67	Adjusted
86	SB3/24	0.16	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.02	15.00	Classified
87	SB3/25	0.16	0.02	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.08	51.53	Classified
88	SB3/26	0.16	0.02	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.04	26.68	Classified
89	SB3/27	0.16	0.02	0.12	0.14	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.17	105.91	Adjusted
90	SB3/28	0.14	0.02	0.09	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.11	78.96	Classified
91	SB3/29	0.14	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.10	71.66	Classified
92	SB3/30	0.14	0.02	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.05	36.35	Classified
93	SB3/31	0.14	0.02	0.24	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.26	189.53	Classified
94	SB3/32	0.14	0.02	0.06	0.08	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.14	0.20	146.60	Adjusted
95	SB3/33	0.13	0.02	0.03	0.05	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00.	0.00	0.03	0.03	0.13	0.14	107.42	Adjusted
96	SB3/34	0.13	0.02	0.04	0.06	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.08	61.15	Classified
97	SB3/35	0.13	0.02	0.05	0.07	0.00	0.00	0.05	0.05	0.13	0.01	0.10	0.11	0.00	0.00	0.10	0.10	0.26	0.33	125.38	Adjusted
98	SB3/36	0.12	0.02	0.01	0.03	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	40.00	Classified
99	SB3/37	0.12	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.10	81.67	Classified
100	SB3/38	0.12	0.02	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.07	56.25	Classified
Total		**182382.25**	**3388.05**	**18196.74**	**21584.79**	**2892.88**	**402.02**	**20457.74**	**20859.72**	**1089.95**	**194.51**	**15267.39**	**15461.90**	**539.46**	**47.47**	**7946.10**	**7993.57**	**186904.54**	**65899.98**	**35.26**	