

Report On

**Impact of Fintech adoption on Operating Performance: A
Study on Commercial Banks in Bangladesh**

By

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An internship report submitted to BRAC Business School, BRAC University in partial
fulfillment of the requirements for the degree of
Bachelor of Business Administration

BRAC Business School
BRAC University
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Declaration

It is hereby declared that

1. The internship report submitted is my own original work while completing degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Letter of Transmittal

Dr. H.M. Arif

Assistant Professor

BRAC Business School

BRAC University

66 Mohakhali, Dhaka-1212

Subject: Submission of internship report on “Assessing the Impact of Fintech adoption on Financial Performance: A Study on Commercial Banks in Bangladesh”

Dear Sir

This is to inform you with profound respect that I, Md. Shurid Chowdhury of BRAC Business School, bearing ID number 18104252, have materialized my research report on the aforementioned topic as part of my three month internship placement at Community Bank Bangladesh PLC from September 20, 2023 to December 20, 2023. Creating this report was necessary for the completion of my “BUS400: Internship” course which is a requisite for the fulfilment of my bachelor’s degree in Business administration.

I would like to add that the structure and format of this report has been prepared in full compliance to the directives and instructions provided by BRAC Business School. Any sort of error or discrepancy on my part however is subject to scrutiny and further clarification.

Sincerely yours,

Md. Shurid Chowdhury

18104252

BRAC Business School

BRAC University

28.12.2023

Non-Disclosure Agreement

This agreement is made and entered into by and between Community Bank Bangladesh PLC and the undersigned student at Brac University Md. Shurid Chowdhury.

Acknowledgement

I would like to take this opportunity to extend my gratitude to two very stalwart professionals. The first individual is Dr. H.M. Arif, assistant professor of BRAC business School. Dr. Arif has been my academic supervisor for this course who has actively helped me and my fellow interns to formulate the topics and conduct out research in a steadfast, ethical and professional manner. Without his tireless supervision and guidance, this project would have never reached fruition.

Secondly, I would like to thank Md. Kamruzzaman FCCA, ABE, Senior Principal Officer of the Finance and Accounts Division of Community Bank Bangladesh PLC, Head Office, who was my on-site internship supervisor at Community Bank. Mr. Kamruzzaman assisted me with expert industry insights related to banking, taxes and investment which helped me acquire important, hands-on, practical business acumen that bolstered my knowledge on the subjects and complemented my overall academic learning.

Executive Summary:

This report is a comprehensive three part study conducted as part of the internship requirement at BRAC Business School, BRAC University. The contents are organized into three chapters. The first chapter contains an overview of the work experience at the Finance and Accounts Department (FAD) of **Community Bank Bangladesh PLC**. Next, the second chapter provides an organizational overview of the bank. Lastly, chapter three focuses on an independent research designed to assess the impact of the adoption of financial technology solutions on the operating performance of commercial banks in Bangladesh.

In the first chapter, the experiences gathered over the internship period at the FAD have been highlighted which includes accounting practices like data entry and bookkeeping, asset monitoring as well as documentation, filing and maintaining registries of bills. The second chapter then proceeds to give an overview of the company and its various departments along with the organizational practices and policies of the company. The chapter also investigates the external business environment of the company as well as its internal financial performance through various analytical frameworks such as ratio, common size and horizontal analyses of its financial statements.

The third chapter consists of an extensive study which aims to understand the impact of fintech adoption on the Return on Asset ratios of banks, a key indicator of profitability. The data has been collected through secondary research from the annual reports of ten commercial banks over a period of five years. Quantitative methodology was followed to assess the econometric relationship between the variables under study using IBM SPSS software. The analysis revealed that fintech adoption has a significant impact on Return on Asset with a moderate positive correlation. The study also provides recommendations for sustainable digital growth and further reveals future research directions on the subject.

Keywords: FAD, Community Bank Bangladesh PLC, Fintech, Fintech adoption, ROA.

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List of Acronyms:

AML: Anti Money Laundering

API: Application Processing Interface

BEFTN: Bangladesh Electronic Fund Transfer Network

CBBPLC: Community Bank Bangladesh Private Limited Company

CFT: Combatting the Finance of Terrorism

CRM: Cash Retail Machine

DPS: Deposit Pension Scheme

FAD: Finance and Accounts Division

FDR: Fixed Deposit Receipt

HRD: Human Resources Division

MFS: Mobile Financial Services

ROA: Return on Assets

ROE: Return on Equity

RTGS: Real Time Gross Settlement

SND: Special Notice Deposit

VAT: Value Added Tax

WEF: World Economic Forum

Chapter 1: Overview of Internship

1.1 Student Information:

Name: Md. Shurid Chowdhury

ID number: 18104252

Program: Bachelor of Business Administration

Major/Specialization: Finance

Minor: Economics

1.2 Internship Information:

1.2.1 Company Profile:

Period of Internship: Three months or ninety days from 20.09.2023 to 20.12.2023.

Company Name: Community Bank Bangladesh PLC

Department: Finance and Accounts Division (FAD)

Address: Police Plaza Concord (Level 10, Tower 2) Plot 2, Road 144, Gulshan 1, Dhaka 1212,
Bangladesh.

Official Logo:



1.2.2. On-site Supervisor's Informaton:

Name: Md. Kamruzzaman FCCA, ABE

Designation: Senior Principal Officer (SPO)

1.2.3 Job Scope:

The functionalities of the finance and accounts division of a commercial bank primarily involve managing finances, maintaining accounts, making investment decisions, financial reporting and analysis, cost management and ensuring compliance with tax laws, financial regulations and accounting standards. The FAD of Community Bank Bangladesh PLC accomplishes these functions by allocating specific aspects of the task to an individual or group of officers according to their respective skillset and designation, so that each of them can specialize in that particular field and be more productive.

For myself, being designated as “Intern”, I was tasked with the following duties and responsibilities for the duration of my tenure:

- I. Data Entry and Bookkeeping: Making entries of the bank's business transactions into a centralized, general ledger on an accounting software named Finacle.

- II. Documentation and Filing: Compiling all the papers associated with a certain transaction, sorting them correctly into ring files and organizing the files properly in the archive room.

- III. Issuing Certificates of Tax and VAT to Suppliers: Issuing Tax certificates to various vendors/suppliers on the income they earn by selling to the bank. Additionally, certificates of VAT, namely Mushak 6.3 and 6.6 (National Board of Revenue, 2023) are also issued by the bank if and whenever it is applicable.
- IV. Monitoring Assets: Assisting in monitoring fixed assets of the bank, especially premises, furniture and fixtures by attaching QR tags on the equipment.
- V. Maintaining a Registry of Monthly Bills: Creating data sheets on excel to keep track of the local conveyance bills for the month.
- VI. Reconciliation: Aiding in reconciling bank statements with internal records.
- VII. Ad-Hoc Functions: Taking additional responsibilities on behalf of the officers when needed.

1.3 Internship Outcomes:

1.3.1 Student's Contribution to the Company:

Although being an intern meant that I was subject to limited responsibilities owing to the magnitude and sensitivity of the work, they were by no means any less significant in adding value to the overall productivity of the division. According to my supervisor Md Kamruzzaman, I was a distinguished gentleman with excellent work ethics who is not only open minded to both praise and criticism, but also flexible enough to never shy away from

challenges. On my first day, I was summoned at HR to sign my appointment letter and receive orders to join the FAD team. Upon making my way to the FAD, I was greeted by my supervisor, a professional cost accountant and an ACCA fellow, working as a senior principal officer at the department. One by one, the remaining officers extended me their courtesy and the nervousness I had felt when walking in initially was completely gone. I was amidst a pool of stalwart individuals, each with one or more professional certifications in areas such as accounting and banking.

Next, I was designated a workstation, between my on-site supervisor and Assistant Vice President, Md. Shariful Islam Kadir, who was effectively, the second in command of the division right after the CFO. At the onset, I was given some rudimentary accounting tasks like looking for discrepancies in the utility bills forwarded by General Banking, before they were entered into the ledger by the FAD. Not long after did I begin to feel the pressure of the workload as more and more tasks were being delegated to me. Having demonstrated my attention to detail and strong grasp of fundamental accounting concepts, I was entrusted with the responsibility of making entries in the general ledger on a banking software named Finacle. However, as this was a time-sensitive task with zero room for error, my supervisor felt that I needed the exposure only and decided my exploits would be best utilized if I was rotated between different roles instead of doing the same, stressful thing every day. In that regard, I was referred to Mr. Ibrahim, a principal officer of the division and one of the most diligent men I have ever met, to teach me how to do taxes. Under his tutelage, I was tasked with providing income tax certificates to the various suppliers (vendors in banking term) who the bank conducts transactions with on a regular basis. Also, I used to issue VAT certificates to these vendors on purchases made from them by the bank. It is worth mentioning that the deadline for filing tax returns for corporate clients in Bangladesh, according to the National Board of Revenue, was

30 November, a timeframe that happened to have fallen in between my internship period. Regardless, I had managed to issue every single receipt to a total of 33 different companies within the due date, despite palpable traffic and workload.

Another role I was given, was overseeing and assisting the support staff in filing documents. Often overlooked as grunt work, this role gave me the opportunity to learn basic library science and familiarize myself with various types of bills, cheques, invoices and receipts used by businesses for transaction purposes. Actively, we had managed to archive two years' worth of documents (2021 and 2022) in the span of three months as well as sort the running year's files till the month of August. As a result, the division was able to ship the organized files in cardboard boxes to a third party storage facility ahead of the year end, freeing up considerable space in the archive room for new documents to come through.

Furthermore, I contributed in keeping track of assets that would ultimately be reported in the bank's financial statements. In particular, I was tasked with tagging certain fixed assets which falls under the property, plant and equipment heading in the balance sheet, e.g. IT hardware, office appliances and furniture. By cross checking the serial numbers and other necessary data supplied to me, I would attach QR code embedded sticker tags on these assets, which would later on be scanned by our division for the purpose of reporting depreciation expenses accumulated against these assets.

Moreover, I assisted in the reporting of other expenses as well. I was given the directive to maintain a database of the local conveyance bills and the utility bills of the head office for the month and update them on a regular basis. This would ultimately make sure that the right figures make it into the financial statements at the end of the accounting period.

In addition, one of the most important tasks I performed, was reconciling intra-branch transaction data. By making sure all the debit entries are equal in value to their corresponding credits on the bank's server, I aided in reconciling bank statements with internal records to facilitate accurate representation of information.

I had also, from time to time, lend effort to various ad-hoc functions, whenever it was needed of me. For example, we maintained a database on the various vendors in an excel file called "supplier database" which we had to revise and update each month to reflect the latest information. This responsibility was given to me, wherein I used to load the rates of tax and VAT in the right formulas against each applicable transaction and also, create fresh data sheets for any new vendors entering into business with the bank.

By discharging these above mentioned duties in a steadfast, professional and timely manner, I had made my contributions to the FAD in line with the overarching goals of the bank.

1.3.2 Benefits to the Student:

During my three month internship period at the Community Bank FAD, I was benefited remarkably through the acquisition of new skills, being exposed to a practical, real life, corporate setting. Below, I have highlighted a few of the things I learnt

- **Improvement of Communication Skills:** Personally, I suffer from poor interpersonal communication skills. This problem was met with cordial open-mindedness from my supervisor and colleagues who taught me how to communicate more effectively at a fast paced, busy environment, by discarding the need to impress people and getting straight to the main idea first as clearly and concisely as possible.
- **Increased Adaptability/Flexibility:** Being rotated between a multitude of different jobs, I quickly learned to step out of my comfort zone and adapt to whatever role that was prescribed to me. As such, I can confidently claim that I have become more flexible now than I previously was, before this experience.
- **Improvement of Technical Skills:** I had considered myself very knowledgeable on MS Office programs, especially MS Word and Excel. This assumption was challenged when I came face to face with the sheer scale of data an officer at the FAD has to work with. However, with continued practice, I started becoming more efficient. I also learnt advanced excel functions like data validation, consolidation and power query along with a number of new shortcuts, courtesy of my supervisor and Mr. Ibrahim.
- **Knowledge on Various Taxes:** By issuing tax certificates, I was able to gather regulatory knowledge on various types of taxes, their practical differences, effective rates and exemption laws, through hands-on experience, listening to Mr. Ibrahim's instructions and referring to the official guidebook on taxes supplemented by the National Board of Revenue of Bangladesh.
- **Other Benefits:** In addition to the benefits highlighted above, other important qualities that I picked up while working as an intern are the ability to manage time under pressure and to work in a team alongside other people.

1.3.3 Problems/Difficulties:

In all honesty, the main difficulty I remember having was losing my attention span from time to time, due to the tedious and repetitive nature of the workload. This was a serious issue, because dealing with numbers and figures of huge amounts of money meant that a single error could have severe repercussions. But I was fortunate because no such accidents occurred. I also have got to thank my supervisor and Mr. Ibrahim, who by their very habit as accountants, double checked everything I did, despite having faith in my abilities. It really brought into perspective the commitment these men have toward their duties as professional, hardworking bankers.

1.3.4 Recommendations:

At the end of a near perfect experience, with a good work environment and the best co-workers a person could get, I am left with very little recommendations to give to the bank on hiring future interns. However, there are some issues that I believe need to be addressed, which I have listed below:

- I. Arrange Workshops: If feasible, the bank should arrange training sessions and workshops for the interns to better prepare them to take on organizational challenges.

- II. Provide Opportunities for Future Placement: The bank's policy of not allowing interns to immediately seek a position after the completion of their internship can be revised to a competitive stance, where only the best candidates can make that claim with the fullest trust of their supervising officer. Or, at the very least, the bank can extend their employment for a fixed probationary period once their three month contractual obligation has ended.

Chapter 2: Organization Part

2.1 Introduction:

Community Bank Bangladesh PLC is one of the newly scheduled commercial banks of Bangladesh. This bank is solely owned by “Bangladesh Police Welfare Trust (BPKT)” a concern of Bangladesh Police. A license application for the establishment of Community Bank Bangladesh PLC was submitted by Bangladesh Police Welfare Trust to Bangladesh Bank on May 23, 2018. In October 2018, the Bank's licensing application was accepted by Bangladesh Bank.

Community Bank Bangladesh PLC started its operations on 11 September 2019, inaugurated by the Prime Minister of Bangladesh, Sheikh Hasina. On November 4, 2018, the Bank officially went public on both Dhaka and Chittagong stock exchanges by issuing their Initial Public Offering (IPO) at a fixed price basis.

2.2 Overview of the Company:

2.2.1 Vision

Reach out to the members of different communities with innovative banking services.

2.2.2 Mission

- Deliver seamless services to the clients.
- Emphasize development of human capital
- Adopt state of the art technology to ensure transparency and accountability.

- Abide by the rules and regulations to establish the highest level of corporate governance.
- Offer services to the unbanked members of different communities to include them in the banking system gradually.

2.2.3 Brand Pillars:

Community Bank Bangladesh PLC runs on three building blocks, which are, Trust, Security and Progress.

2.2.4 Key Enablers:

The key enablers driving Community Bank Bangladesh PLC's business are:

- Technology
- People

2.2.5 Business Philosophy:

In September 2019, Community Bank Bangladesh Limited commenced its business operations with the aim of providing communities with tailor-made, secured solutions. By offering financial services and products to communities nationwide, it hopes to support the nation's economic expansion. Modern Core Banking System makes it possible for the Bank to run centrally. The three fundamental pillars of Community Bank's operations are Trust, Security, and Progress. The bank's mission is to provide cutting-edge banking services to people in diverse areas. The goal of the vision is to guarantee the financial inclusion of various communities across the country, which will contribute to the sustainable and balanced growth of the economy.

2.2.6 Principal Activities:

The Company's main operations are in the banking and related financial services sectors. Deposit mobilization, credit facility provision, trade finance, remittance services, card operations, treasury, cash management, credit cards, prepaid cards, payroll administration, bill collection, investment banking through subsidiaries, and so forth are some of these fields.

2.3 Management Practices:

2.3.1 Leadership Style:

From my personal observation and theoretical knowledge of management approaches, I have inferred that the leadership style of Community Bank PLC is a mix of bureaucratic leadership and democratic leadership.

Bureaucratic leaderships are usually prevalent in traditional organizations, especially commercial banks, and Community Bank is no exception to this either. However, being a novel bank, it retains some aspects of democratic leadership as well.

Firstly, we know that bureaucratic organizations follow a top-down hierarchical orientation where executive orders are passed down along the chain of command to the concerned department and employees. This is evident in the organizational structure of Community Bank too. At the top, resides the Chairman of the Bank, Mr. Chowdhury Abdullah Al-Mamun, IGP, Bangladesh, who is the de-facto head of the bank. Next comes the board of directors consisting of a panel of 20 members. After that, we have the Managing Director of the bank, Mr. Masihul Haque Chowdhury, who oversees the bank functions and acts as a liaison between the board and the rest of the bank. Then comes senior management consisting of the Deputy Managing

Director and 15 divisional heads who supervise and conduct the day-to-day operations of the bank. Lastly, we have the regular employees going down from senior assistant vice presidents, assistant vice presidents, first assistant vice presidents, senior principal officers, principal officers, officers, junior officers all the way to front line assistant officers who discharge the general activities of the bank with the directives and authorization of senior management.

Secondly, there are elements of democratic leadership practiced internally at Community Bank, that I have experienced first-hand. Whilst primarily a bureaucratic organization, senior management often encourages independent decision making at all levels, when it comes to reaching departmental goals. However, strict adherence to bank policies and internal control and compliance codes are a required mandate. An example of this was when the CFO came to the FAD one morning and instructed everyone to decide among a set of new MIS parameters, in order to select the one that would be the most convenient for us to work with. Another instance was when my supervisor asked me to brainstorm ways to compile all the transaction vouchers for a month into a single database, with the liberty to employ MS Excel, Power-Bi, SQL, programming or whatever process or tool I deemed suitable. Such participative trends are in practice throughout the various departments of the bank in matters pertaining to efficiency and process optimization.

Due to this mixed methods approach to leadership where bureaucratic decisions are realized with the democratic participation of employees, the bank can make claims of higher job satisfaction than its competitors. It is because, employees feel motivated and empowered when they see that their opinions are being acknowledged and taken into account by the higher-ups. As a result, they perform their duties more sincerely and strive to always provide the best ideas and solutions; which ultimately help the bank in achieving its organizational goals and objectives, smoothly and in time.

2.3.2 Human Resource Planning Process:

The human resources division of Community Bank PLC works hard to develop human resources, treat staff members fairly, and give them chances to advance and meet objectives that are in line with the bank's long-term goals. Since its inception, the bank has been recruiting the best professionals and implementing programs to develop and retain them, so as to face industry challenges and achieve the bank's vision.

2.3.2.1 Recruitment and Selection Process:

Community Bank is an equal opportunity employer. Its hiring procedures are made to draw in candidates with a good outlook and a desire to grow both personally and professionally inside the company. Discrimination on the basis of gender, religion, caste, or creed is never tolerated by the Bank. To maintain appropriate transparency in the hiring process, the bank advertises all its job openings via social media, the Bank website, online job portals, and daily newspapers. Written test exams are taken subjectively based on the available openings, followed by interview. Members of the senior management team, professionals, and academicians from prestigious public universities make up the interview panel for new hires.

Manpower of Community Bank at a glance:

Particulars	As on Dec 31, 2022	As on Dec 31, 2021
Total Manpower	523	479
Permanent Employee	313	308
Contractual Employee	210	171
Male Employee	414	385
Female Employee	109	94
Male-Female Ratio	79:21	80:20

2.3.2.2 Reward and Recognition:

One of the integral parts of an effective and efficient team is to keep employees highly engaged and motivated through healthy competition and appropriate recognition to sustain a high performance culture. In essence, to reward and acknowledge high-performing employees, who were evaluated based on three criteria: business, service, and compliance, the bank organized a half-yearly business conference in 2022. Additionally, the bank instituted the deposit campaign award to honor staff members who were able to meet their respective CASA (Current Account and Savings Account) target numbers. Employee motivation has been maintained through the use of this reward and recognition strategy, which has a good impact on both individual and team performance.

2.3.2.3 Training and Development:

Possessing the appropriate skillset is essential for advancing in any professional field and realizing the goals and objectives of an organization. In light of this significance, Community Bank Bangladesh PLC tries to enhance equitable learning and professional growth prospects for all its employees. Throughout the year 2022, the Bank provided training sessions and seminars to staff members in order to further their professional growth and education in accordance with its annual training plan. In this regard, a total of thirty-two (online and on-

campus) training programs covering various operational banking sectors such as AML & CFT, General Banking, Credit Risk Management, ISS Reporting, Retail Credit Management, Compliance Issues etc. were arranged.

2.3.2.4 Performance Appraisal System:

The Human Resource Division hands out Annual Confidential Reports (ACR) to each individual employee at year ends. These reports grade several important aspects of the employee’s performance on a four point scale which are excellent (Grade A), good (Grade B), needs improvement (Grade C) and bad (Grade D).

2.4 Marketing Practices:

2.4.1 Marketing Strategy:

Community Bank Bangladesh PLC is a commercial bank with a dedicated marketing department, headed by its Chief Marketing Officer, Mr. Mohammad Yasser Noor. The department is responsible for carrying out promotional activities and marketing campaigns to enhance brand visibility and attract potential depositors.

Below, we take a look at the Segmentation, Targeting and Positioning strategies employed by the marketing department of Community Bank Bangladesh PLC:

Segments	Targets	Positioning
Retail Banking	Individual Consumers	Product and Price Positioning
Small Business Banking	SMEs	Price Positioning

Corporate Banking	Large Organizational Clients	Brand positioning
Investment Banking	High Net Worth Individuals and Businesses	Brand positioning
School Banking	School Children	Product Positioning
Digital banking	Tech-savvy Customers	Product Positioning

2.4.1.2 Product Offerings:

- **Retail Banking:** Retail banking or consumer banking focuses on providing banking services to individual customers rather than businesses. It is a B2C (Business to consumer) arrangement where individuals can make deposits, get personalized loans, avail card services etc. The retail banking offerings of Community Bank Bangladesh PLC are as follows:

I. Accounts: Current Account for individuals, Savings Account, Payroll Account, Savings Account for Women, Ten Taka Account, Senior Citizen Account and FC Account.

II. Deposits: DPS, FDR and Millionaire Deposit Scheme.

III. Loans: Personal Loan, Car Loan, Home Loan, Secured Loan and Government Employee Loan.

IV. Cards: Debit and Credit Card services.

V. Services: Locker service, school banking booth.

- **Small Business Banking:** Under this offering, the bank provides loans and other services to novel businesses such as Small or Medium Enterprises (SMEs). Community Bank Bangladesh PLC has a dedicated SME wing for this purpose, named CMSME. The offerings of this department include the following four loan plans:

- I. Community Prottoy
 - II. Community Briddhi
 - III. Community Nibash; and
 - IV. Community Prachurjo
- **Corporate and Institutional Banking:** In contrast to retail banking, corporate and institutional banking seeks to provide banking services to large organizational clients like established businesses. The offerings included this category are listed below:
 - I. **Accounts:** Business Account, Current Account, FC Account Business and SND Account.
 - II. **Corporate Banking:** Trade Finance, Working Capital Finance, Project Finance, Lease Finance and Invoice Financing.
 - **Syndication and Structured Finance:** Special business to government (B2G) setting where the bank lends its services to the government of Bangladesh. The offerings under this section are:
 - I. Term Loan (Machineries and Equipment)
 - II. Bridge Loan
 - **Student Banking:** The student banking services offered by Community Bank Bangladesh PLC are:

- I. **Student Account:** Standard savings account for students.
- II. **Protisruti Student Account:** Insurance backed student accounts for students aged between 6 and below 18.

2.4.1.3 Distribution Channel:

Community Bank Bangladesh PLC provides services to its clients through 111 service desks, 175 ATMs, and 18 branches situated in strategic locations all across the country. In addition, the Bank operates a single school banking booth at Shahid State School, and in 2022 it established its first subsidiary branch. In the future, the Bank intends to introduce an affordable brick-and-mortar supply chain. The Bank is also steadfast in its commitment to investing in technology-based solutions, to expand its reach and satisfy the constantly evolving needs of its clientele. Currently, the bank has already entered the domain of Fintech through its app-based mobile banking platform, named “Community Cash” that accounts for an astonishing 49% of all its bank wide transactions.

2.4.1.4 Advertising and Promotion Strategies:

The marketing department of Community Bank Bangladesh PLC conducts its advertising and promotional activities via three main processes, which are as follows

- **Sponsorships:** Since its inception, the bank has been actively engaging in sponsorship activities to boost its visibility and brand outreach. The most notable one being the “Bijoynee Shommanona 2022” in association with Web Foundation, with a view to honoring 22 female entrepreneurs for their contribution to the economy of the country.

- **Digital Marketing:** The bank has made deals with several television channel companies like ATN News, NTV, Channel-i, RTV, Independent TV, Somoy TV and Maachranga TV to show commercial advertisements of Community Bank Bangladesh PLC during breaks, and also display the Bank's logo on one corner of the screen for fixed intervals.
- **Social Media Marketing:** The bank has further extended its promotional activities to every major social media platform/website till date. In Facebook and Instagram, the bank runs official pages where it posts updates concerning new developments. Moreover, the bank also sponsors suggested pop-up ads that are designed to show up on the newsfeed of Bangladeshi Facebook and Instagram users. In addition to this, the bank also promotes its brand on Youtube, in the form of short commercial advertisements played in-between videos posted by affiliate channels/accounts. Furthermore, the bank has an official LinkedIn account and an X page too where users can find and learn more about the bank.

2.4.1.5 Marketing Gaps:

Despite the fact that the bank had only started its journey four years ago, it had made significant strides in boosting its brand visibility and awareness relative to other fifth generation competitors like Citizen's Bank, Bengal Commercial Bank etc. However, the bank is still young and lacks mainstream industrial recognition like other established commercial banks. While it is a matter of time, the marketing department should still try and convince senior management to allocate funds for activities that will increase the reach of the bank among consumers. For example, it can enter partnerships with renowned businesses in various sectors.

Another marketing gap I could identify is the fact that the bank has little scope to differentiate itself from competitors due to the similarity of available offerings when it comes to financial products and services. To deal with this issue, the bank must perform well and maintain good credit ratings on a consistent basis. Additionally, it must provide satisfactory banking services to all customers indiscriminately, support them in financial queries patiently and treat them respectfully at all times so as to stand out and secure an impressionable place in their minds, compared to rivals in the industry.

2.5 Financial Performance and Accounting Practices:

2.5.1 Financial Performance:

This section examines the financial performance of Community Bank Bangladesh PLC based on the financial statements data provided in the bank’s annual reports for the years 2020, 2021 and 2022.

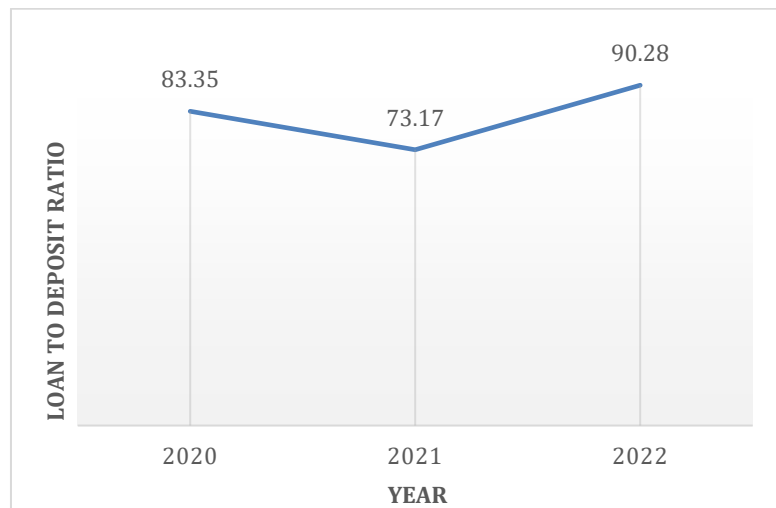
2.5.1.1 Key Ratios:

i. Liquidity:

Liquidity	2020	2021	2022
Loan to deposit ratio	83.35	73.17	90.28

- **Loan to Deposit Ratio:** Loan to deposit ratio (LDR) represents the ratio between a bank’s total loans and total deposits. The LDR of Community Bank PLC for the

three years 2020, 2021 and 2022 have been calculated, A trend analysis of the data reveals the following chart:

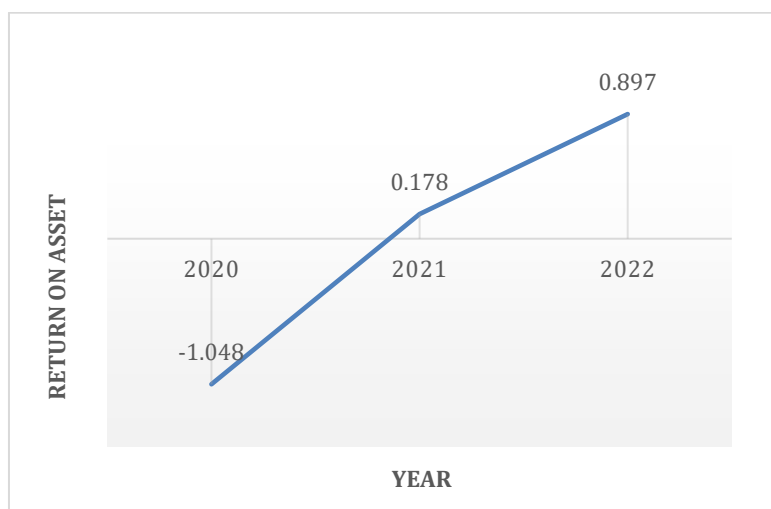


Here, we can see an overall increasing trend in the bank's LDR, which went down from 83.35% in 2020 to 73.17% in 2021 and ultimately going up to 90.28% in 2022. These values are close to 80-90 percent, which is the ideal LDR for a bank. Hence, it can be surmised that CBBPLC is doing good in terms of liquidity.

ii. Profitability:

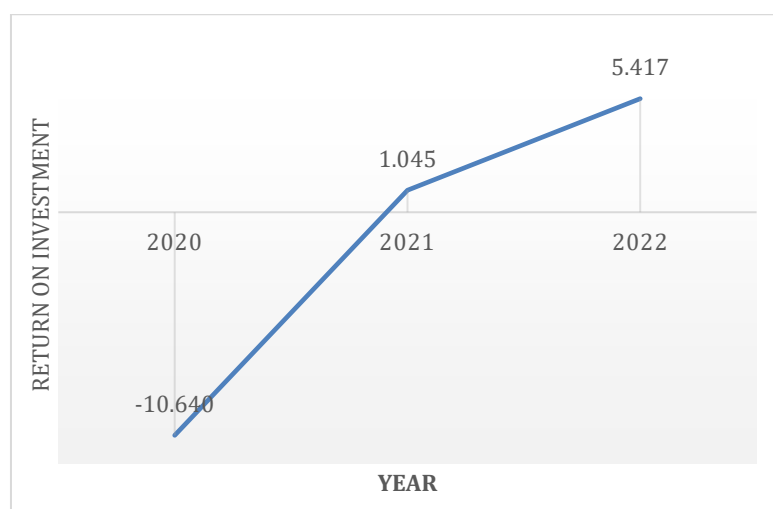
Profitability	2020	2021	2022
Return on Asset	-1.048	0.178	0.897
Return on Investment	-10.640	1.045	5.417
Return on Equity	-7.071	2.515	11.763

- **Return on Asset:** Return on assets (ROA) indicate the percentage of how lucrative a company's assets are in generating revenue. The ROA values calculated in the above table give us the following line chart:



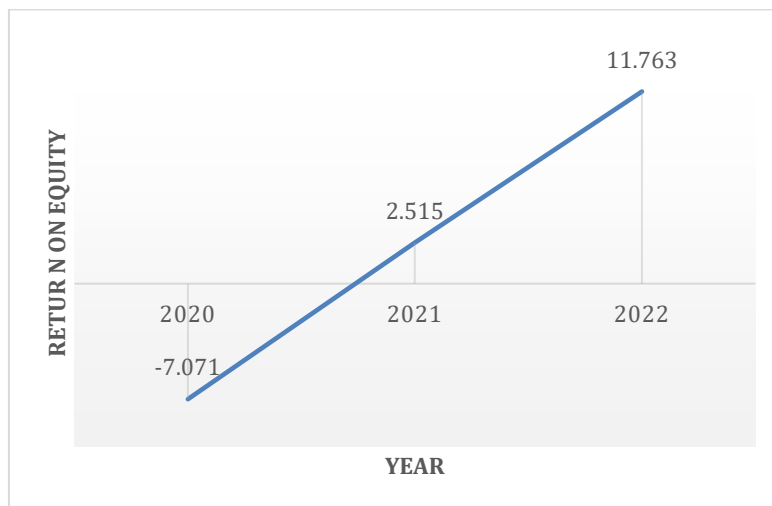
The ROA of CBBPLC increased from -1.048% in 2020 to 0.178% in 2021, further increasing to 0.897% in the year 2022, revealing a steady, upward trend.

- Return on Investment:** For a commercial bank, the return on investment ratio captures profitability in terms of total investments made by the bank in government and private securities. A trend analysis of the calculated ROI values reveal the following chart:



As can be seen, the bank's ROI is going through an upward trend too, from -10.64% in 2020 to a substantial 1.045% in 2021. This growth was maintained till 2022 where it reached 5.417%, indicative of the bank's increasing profitability.

- **Return on Equity:** The return on equity (ROE) ratio shows how efficiently a company is generating income from the equity investments of its shareholders. The ROE values calculated in the above table reveal the following line chart:

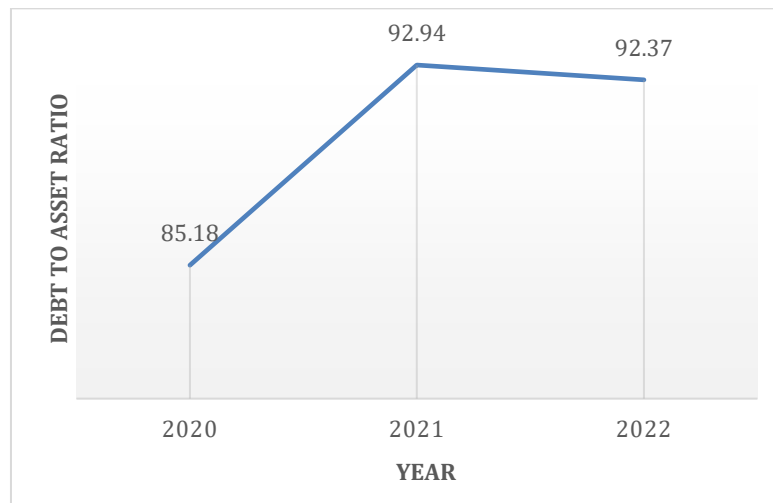


An upward trend can be observed in the ROE values of CBBPLC, increasing from -7.071% in 2020 to 2.515% in 2021, and to a significant 11.763% in 2022. This shows that the bank has been earning increasing returns with respect to its total shareholder's equity.

iii. Leverage:

Debt Management	2020	2021	2022
Debt-to-asset	85.18	92.94	92.37
Debt-to-equity	574.56	1316.21	1210.77

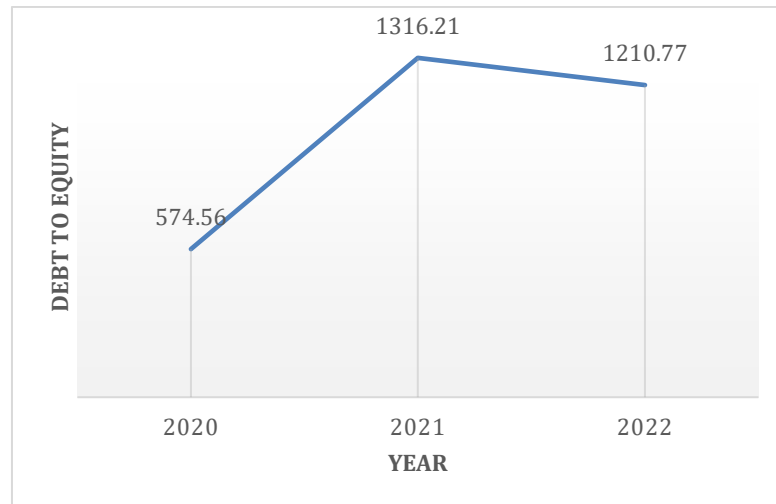
- **Debt to Asset:** The debt to asset ratio tells us the degree to which a company has used debts to finance its assets. The debt to asset ratios of CBBPLC has been calculated in the above table. The reason for the high values is because banks normally have higher debt to asset ratios compared to other sectors, primarily because of their operational policy of using debt financing over equity. As such, the higher liability value results in a high debt to asset ratio.



The trend analysis of CBBPLC’s debt to asset ratios shows that it increased from 85.18% in 2020 to 92.94% in 2021 and decreased marginally to 92.37% in 2022.

- **Debt to equity:** Like debt to assets, banks also tend to have a high debt to equity ratio. This is because the total liabilities, which include a large number of short and long term deposits, highly overweighs the total equity in terms of value. By

analyzing the obtained debt to equity ratios of CBBPLC, we get the following line chart:

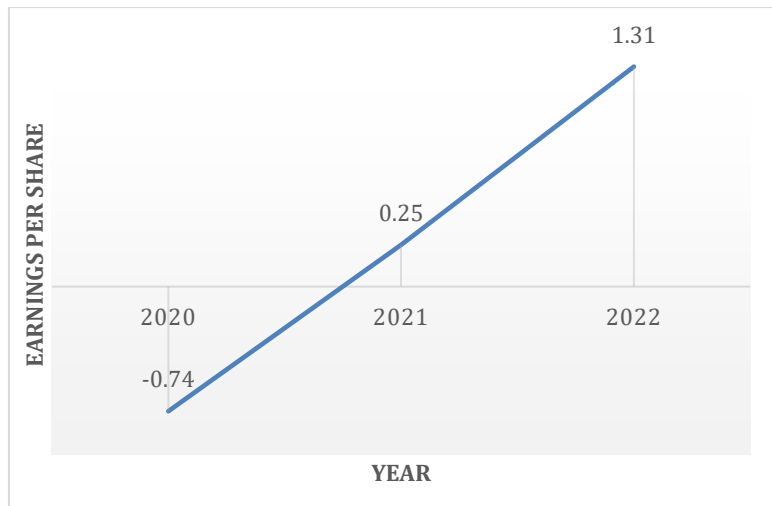


We can observe an overall increasing trend in the debt to equity ratios of CBBPLC, from 574.56% in 2020 to 1316.21% in 2021, decreasing only a little to 1210.77% in 2022.

iv. Market Value:

Market Value	2020	2021	2022
EPS	-0.74	0.25	1.31

- Earnings per Share:** The earnings per share (EPS) is a company's net profit divided by the number of common shares it has outstanding. The EPS values for CBBPLC have been obtained by taking the respective number of common shares outstanding as denominators, from the notes section of the annual reports for each year. Applying trend analysis on these values reveal the following line chart:



As evident, CBBPLC's EPS values are showing a steep, upward trend going from -0.74% in 2020 to 0.25% in 2021 and a staggering 1.31% in 2022. This means that the bank's corporate value has been growing at an increasing rate, providing more and more dividend against each share of the bank's common stock every year.

2.5.1.2 Vertical/Common-size Analysis:

- i. **Vertical Balance Sheet:** Below, a common-size balance sheet has been constructed from the usual balance sheet data where each individual component has been shown as percentage of total assets over the periods:

Assets	2020(%)	2021(%)	2022(%)
Cash	7.79	5.92	5.58
Balance with other banks and FIs	3.73	10.17	0.18
Money at call and short notice	5.30	0.20	0.84
Investments	9.85	17.00	16.57

Loans, advances and leases	67.10	63.24	73.70
Fixed assets including land, building, furniture and fixture	4.14	1.72	1.41
Other Assets	2.08	1.74	1.73
Non-banking assets			
Total assets	100.00	100.00	100.00
Liabilities and Equity	2020(%)	2021(%)	2022(%)
Borrowing from other banks, Fis and agents	0.00	2.85	6.79
Deposits and other accounts	80.51	86.43	81.63
Other liabilities	4.67	3.66	3.95
Total liabilities	85.18	92.94	92.37
Shareholder's equity	14.82	7.06	7.63
Total liabilities and shareholder's equity	100.00	100.00	100.00

- ii. **Vertical Income Statement:** Vertical analysis of income statement refers to the components of the income statement expressed as a percentage of operational income which is also known as common sizing the income statement. A vertical income statement of CBBPLC has been constructed below

Particulars	2020(%)	2021(%)	2022(%)
Interest income	124.12	209.48	195.79
Interest expenses	56.71	158.18	139.54
Net interest income	67.41	51.31	56.41
Investment income	24.72	40.76	1.47
Commission, exchange and brokerage	7.76	7.82	9.30
Other operating income	0.10	0.11	0.21
Operating income	100.00	100.00	100.00
Operating expenses	111.67	66.20	48.84
Operating profit	-11.67	33.80	51.16
Provision for loans and advances	25.49	17.18	4.88
Provision for diminution in value of investments	0.00	0.03	0.37
Provision for off-balance sheet items	2.12	1.32	1.24
Provision for investment in subsidiary	0.00	0.00	0.30

Other provision	0.01	0.00	0.07
Total provisions	27.63	18.53	6.86
Profit before tax	-39.30	15.26	44.30
Provision for taxation	0.58	7.31	18.11
Net Profit after tax	-39.88	7.96	26.19

2.5.1.3 Horizontal Analysis:

- i. **Horizontal Balance Sheet:** Horizontal analysis of CBBPLC's balance sheet taking 2021 as the base year:

Assets	2021	2022	Change	Rate of Change (%)
Cash	4,048,404,436	3,995,686,299	-52,718,137	-1.30
Balance with other banks and FIs	6,951,926,629	129,667,587	-6,822,259,042	-98.13
Money at call and short notice	140,000,000	600,000,000	460,000,000	328.57
Investments	11,616,816,337	11,863,541,353	246,725,016	2.12
Loans, advances and leases	43,224,711,086	52,782,853,044	9,558,141,958	22.11
Fixed assets including land, building, furniture and fixture	1,176,596,230	1,007,868,915	-168,727,315	-14.34
Other Assets	1,192,596,355	1,237,372,026	44,775,671	3.75
Non-banking assets				
Total assets	68,351,051,073	71,616,989,224	3,265,938,151	4.78
Liabilities and Equity	2021	2022	Change	Rate of Change (%)
Borrowing from other banks, FIs and agents	1,946,728,899	4,860,955,052	2,914,226,153	149.70
Deposits and other accounts	59,074,973,993	58,462,686,984	-612,287,009	-1.04
Other liabilities	2,503,087,880	2,829,620,540	326,532,660	13.05
Total liabilities	63,524,730,772	66,153,262,576	2,628,531,804	4.14
Shareholder's equity	4,826,320,301	5,463,726,648	637,406,347	13.21
Total liabilities and shareholder's equity	68,351,051,073	71,616,989,224	3,265,938,151	4.78

ii. **Horizontal Income Statement:** Taking 2021 as the base year, a comparative historical analysis of CBBPLC's income statement is thus undertaken:

Particulars	2021	2022	Change	Rate of Change (%)
Interest income	3,195,958,287	4,804,460,354	1,608,502,067	50.33
Interest expenses	2,413,226,392	3,424,188,091	1,010,961,699	41.89
Net interest income	782,731,895	1,384,272,263	601,540,368	76.85
Investment income	621,918,535	36,051,200	-585,867,335	-94.20
Commission, exchange and brokerage	119,247,080	228,290,368	109,043,288	91.44
Other operating income	1,745,877	5,240,447	3,494,570	200.16
Operating income	1,525,643,387	2,453,854,278	928,210,891	60.84
Operating expenses	1,010,042,813	1,198,413,022	188,370,209	18.65
Operating profit	515,600,574	1,255,441,256	739,840,682	143.49
Provision for loans and advances	262,062,604	119,828,243	-142,234,361	-54.27
Provision for diminution in value of investments	500,000	9,000,000	8,500,000	1700.00
Provision for off-balance sheet items	20,190,247	30,370,753	10,180,506	50.42
Provision for investment in subsidiary		7,446,756	7,446,756	
Other provision		1,656,846	1,656,846	
Total provisions	282,752,851	168,302,598	-114,450,253	-40.48
Profit before tax	232,847,723	1,087,138,658	854,290,935	366.89
Provision for taxation	111,475,094	444,453,522	332,978,428	298.70
Net Profit after tax	121,372,629	642,685,136	521,312,507	429.51

2.5.2 Accounting Practices:

Community bank prepares its financial statements with the collective efforts of its Finance and Accounts Division (FAD), Internal Audit and Inspection Division and the Internal Control and Compliance Division.

The entire accounting cycle is initiated and completed within the FAD. This is done with the help of the Finacle software that offers a state of the art, built-in, double entry accounting system where transactions can be directly recorded in the general ledger on a debit-credit basis, eliminating the need for maintaining separate journals, creating a trial balance and worksheet altogether, leaving only end-of-the period adjusting and closing entries to be considered.

In preparing the financial statements, several core accounting principles are followed to meet regulatory, legal and ethical requirements. Primarily, these include standards set by the IFRS (International Financial Reporting Standards), IAS (International Accounting Standards), circulars issued by Bangladesh Bank and its Banking Regulation and Policy Department (BRPD) and standards set by the Financial Reporting Council (FRC) of the ministry of Finance, Government of the People’s Republic of Bangladesh.

The bank is evaluated on a going concern basis and uses accrual method of accounting to recognize revenues and expenses. In calculating depreciation charges on fixed assets, straight-line method is used as per the following yearly rates:

Category of Fixed Assets	Rate
Furniture and fixture	10%
Office equipment, appliance and machinery	20%
Motor vehicles	20%
IT Software	20%
IT Hardware	20%

2.6 Operations Management and Information System Practices:

The bank boasts a superior IT infrastructure that helps in managing its operations. The ICT division has developed a central management information system called “Community Bank MIS” in this regard, which helps automate various business processes such as generation of Statement of Affairs, structured transaction reports, real-time monitoring of branch position as well as customer position, loan lists etc.

The bank also holds the record for being the first and only bank to implement the core banking solution “Finacle” of Infosys; a foreign core banking system (CBS) software, in a record 48 days within its inauguration. With its centralized database-management system architecture, the software allows the bank to cut costs, avoid fraud and provide real-time services to customers online by connecting all the branches to the head office, making authorizations from management an instantaneous process.

Additionally, the bank has successfully integrated with a number of leading MFS partners, utility service providers and other payment systems operating in Bangladesh by utilizing the open API specification technology.

2.7 Industry and Competitive Analysis:

2.7.1 Porter’s Five Forces Analysis:

Michael Porter’s five forces model of 1979 is a framework that analyzes the competitive forces within an industry. In light of this model, the industry competitiveness of Community Bank Bangladesh PLC can be done as follows:

I. Threat of Competitors:

High: The banking sector in Bangladesh is highly competitive with a total of 61 scheduled banks as of 2023. Additionally, banks share similarities when it comes to product offering which makes it easier for customers to switch their preferences. Moreover, due to contractual obligations and specialized assets, banks face substantial exit barriers and are likely to stay and compete within the industry. These factors imply that Community Bank Bangladesh PLC faces high threat of competition from industry rivals in terms of interest rates, service quality and uniqueness of financial products.

II. Threat of New Entrants:

Low: The banking industry in Bangladesh is regulated by Bangladesh Bank and obtaining a banking license involves meeting stringent regulatory requirements e.g. high initial capital adequacy. In addition, launching a new bank comes with a number of socio-political complexities which also act as barriers to entry. This means that Community Bank Bangladesh PLC faces low threat of potential newcomers entering in the industry.

III. Bargaining Power of Suppliers:

Low: In the context of banking, suppliers can be classified into two types. The first one is the bank's sources of capital. Since banks primarily rely on various types of customer deposits as their main sources of capital, the bargaining power of suppliers in this case is effectively low; due to the bank setting the rates and conditions for these deposits. The second category of suppliers are the various organizational vendors that the bank purchases equipment from. These suppliers also do not have bargaining power over the bank because

firstly, there are numerous other alternatives that the bank can choose from and secondly, it is much more profitable for them to stay in business with the bank owing to the large volume of purchases they make. As such, Community Bank Bangladesh PLC faces low threat with respect to the bargaining power of suppliers.

IV. Bargaining Power of Customers:

Moderate: Customers in the banking industry have some power, especially if there are numerous alternative banking options. In essence, Community Bank Bangladesh PLC needs to differentiate itself through better services, interest rates, or other customer-centric offerings to retain and attract customers.

V. Threat of Substitute Products or Services:

Low: Banking services have limited substitutes, especially for core financial functions like savings, loans, and investments. While there are alternative financial institutions, the threat of true substitutes is low. However, technological advancements and the rise of fintech companies may introduce new ways of delivering financial services.

In summary, Community Bank Bangladesh PLC is faced with high threat of competition from industry rivals, low threat of new entrants, low bargaining power of suppliers, moderate bargaining power of customers and low threat of substitute products or services.

2.7.2 SWOT Analysis:

SWOT analysis is a tool used to evaluate the internal strengths and weaknesses of a business entity as well as its external threats and market opportunities. A SWOT analysis of Community Bank Bangladesh PLC is given below where each of these components have been explored in detail:

I. Strengths:

- **Common Strength:** CBBPLC's common strength(s) relative to its industry rivals include:
 - i. **Qualified Employees:** Due to intense competition created by labor surplus and unemployment, banks in Bangladesh have tightened their recruitment policies, especially for executive roles and important entry level positions like management trainee. Community Bank, being a new entrant in the industry is also very selective of its workforce mainly due to their aggressive expansionary objectives in the short-run.

- **Imitable Strength:** CBBPLC's imitable strength(s) with respect to other banks in the industry include:
 - i. **Product Portfolio:** Because of the fact that financial products and services offered by banks are similar in nature e.g. retail banking, corporate banking etc. and the availability of information online as part of regulatory disclosures imposed upon banks, CBBPLC's product portfolio, albeit diverse, is susceptible to imitation from competitors in the industry.

- **Distinctive Strength:** CBBPLC's distinctive strength(s) in connection to its industry rivals are:

- i. Superior Technological Infrastructure:** With a heavy focus on the digital space from its inception, the bank has managed to develop a strong technological backbone, keeping with recent trends in the global financial market. This is reflected in the statistics which revealed that 98.93% of the bank’s overall transactions in the year 2022 took place digitally, where 53.73% of the transactions were generated via the bank’s digital banking app “Community Cash” and 42.21% through other electronic mediums such as ATM, cash recycling machines and point of sale services.
- ii. Robust Cybersecurity Measures:** Given their high strategic emphasis on digital banking, CBBPLC has designed effective countermeasures to deal with cybersecurity issues intrinsic to ICT. These include specialized ICT risk management policies and strategies, a centralized real time security monitoring system, a backup disaster recovery site (DRS), customized business continuity plans (BCP) for security breach scenarios and several human resource backup plans with segregation of duties for different ICT tasks.
- iii. Strong Capital Base:** Amidst a nationwide liquidity crisis, CBBPLC continues to maintain its reserves rather sustainably due to its strong capital base, owing to the leverage of its parent group, BPKT and their proven goodwill.

II. Weaknesses:

- Limited Geographic Presence:** The bank’s newness is captured in its limited branch network comprising of only 24 branches, which may restrict its reach to

rural, underprivileged customers compared to other established banks in the industry.

- **Brand Recognition:** As mentioned above, the bank is a novel player in the industry with only four years of operational experience. Compared to larger, more established industry rivals, the bank is yet to achieve countrywide brand recognition among customers as a result.

III. Opportunities:

- **Increasing Demand for Digital Banking:** In line with international market trends, the government of Bangladesh is aiming for 75% of local transactions to go digital within 2027 as part of its vision of a “Smart Bangladesh” by 2041 (Zaman, 2023). This implies that the demand for digital banking will increase significantly among consumers. With the impressive technological infrastructure it already possesses, this increased demand will be a lucrative opportunity for CBBPLC to capitalize on.
- **Fintech Collaboration:** CBBPLC’s successful integration with Infosys along with several local MFS partners and utility providers goes to show that the bank has the technological backing and expertise to collaborate with various third party information systems. In the coming years of rapid digitalization, this technological superiority will entail more collaborative opportunities for the bank.

- **Opportunities for Expansion:** With its robust capital base, the bank can further expand its branch network to include more customers from different locations of the country under its services.

IV. Threats:

- **Intense Competition:** Intense competition in general from both established traditional banks and large NBFIs in the financial services sector pose a threat to the upward trajectory of CBBPLC's growth.
- **Economic Instability:** Economic downturns and financial market volatility caused by political strife could negatively affect the bank's asset quality and overall financial performance in the coming years.
- **Interest Rate Fluctuations:** In addition, fluctuations in interest rates may also impact the bank's profitability and interest-sensitive assets.

2.8 Summary and Conclusion:

Despite being a new bank starting its journey in 2019, Community Bank Bangladesh PLC has made remarkable strides in the financial market and established itself as a promising corporate entity in just four years' time. According to the bank's Managing Director and CEO, Mr. Masihul Huq Chowdhury, the bank aims to build one of the safest and strongest balance sheets in the industry by fortifying itself on the liquidity front so that the interest of the depositors is protected and their confidence in the bank remains intact. With its strong capital base, the bank has managed to earn credit ratings of "AA-" in the long term and "ST-2" in the short term, giving the bank a "Stable Outlook" on the liquidity front.

In addition, the bank has won the “Bangladesh Innovation Award 2023” for its contributions in reaching unbanked communities of the country through a digital ecosystem and achieved the internationally acclaimed ISO 27001:2013 certification due to meeting United Kingdom Accreditation Service (UKAS) standards in its information system security management efforts and policies.

In conclusion, CBBPLC must try and sustain its current growth trajectory by staying adaptive to macroeconomic changes; if it wishes to establish itself as a front runner in the highly competitive banking sector and realize its ultimate vision of financial inclusion for communities all across the country.

Chapter 3: Project Part

Impact of Fintech Adoption on Operating Performance

3.1 Introduction:

With the advent of the internet, several industries have remodeled their business practices towards a more tech oriented infrastructure focusing on easier and faster access to information and the digitalization of business processes. This phenomenon, coined as ‘the fourth industrial revolution’ by WEF founder Klaus Martin Schwab (Effoduh, 2016), has paved the way for “Fintech”, a portmanteau of two distinct terms “Finance” and “Technology”, which refers to the use and adoption of contemporary technological advances (e.g. internet, cloud computing, blockchain, cryptocurrency etc.) in established business activities and processes (e.g. lending, transaction etc.) of the financial services industry (Gomber et al., 2017). As such, it is transforming the way customers, investors and banks exchange financial services, through the digitalization and automation of conventional practices (Arslanian & Fischer, 2019), with a view to maximizing the convenience of end users via innovative and cutting edge business models, backed by forward thinking strategies. (Nicoletti, 2017)

3.2 Problem Statement:

“Fintech” or financial technology refers to the use of digital, automated and advanced software and hardware technologies to dispense conventional financial services such as banking and transactions at a more efficient, cost effective and sustainable way. Despite lagging behind substantially from most first world countries, it is hopeful to observe that the financial services sector of Bangladesh, particularly commercial banks have seen an increased adoption of “Fintech” or financial technology solutions such as DFS, mobile banking, RTGS etc. in recent years. With the disruptive potential they entail, it is important to look into the opportunities and challenges that come with adopting fintech. However, there is a gap in empirical research showing the impact of fintech adoption on the financial performances of these banks. This

report thus aims to conduct a linear regression analysis to determine the relationship between fintech adoption and financial performance by studying the top ten commercial banks of Bangladesh. Effectively, the following question gives us the framework to pursue this research:

3.3 Research Question

Does Fin-tech adoption affect a company's financial performance?

3.4 Research Objectives:

- **Broad objective:** To assess the impact of fintech adoption on the operating performance of commercial banks in Bangladesh.
- **Specific Objectives:**
 - i. To analyze the extent of fintech adoption by Bangladeshi commercial banks.
 - ii. To understand the econometric effect of fintech adoption on the return on asset (ROA) ratios of commercial banks.

3.5 Significance:

In addition to contributing to the academic discourse on fintech's impact on the financial performance of banks, this research is expected to assist commercial banks in refining their strategies for sustainable growth amidst the changing technological landscape. Furthermore, the research should hold significance for investors seeking opportunities in the financial services industry.

3.6 Fintech and the Evolution of Financial Services:

Technology has been used in financial services operations even before the term fintech was coined. Prior to the mid-1900s, banks and other financial institutions relied heavily on analogue technology, particularly the telegraph, to transmit information over a wide geographic area.

However, this began to change with the development of digital information and communication technologies. In the end, this cleared the path for electronic finance, and by the late 1980s, financial services relied heavily on electronic transactions between stakeholders and financial institutions, turning the sector into a digital one (Alt et al., 2018).

In order to meet the demands of a new generation of customers and survive in a dynamic and constantly evolving technological landscape, financial institutions were forced to revamp their technological infrastructure and modify existing policies and practices in response to the rapid proliferation of IT that followed, as well as other industry-changing forces. At present, the connotation of the term fintech exclusively revolves around Industry 4.0 elements as more and more financial institutions are incorporating big data, predictive analytics, blockchain ledgers, crypto assets and currencies in their processes.

3.7 State of Fintech in Bangladesh:

By combining industry 4.0 technologies like big data, blockchain, and APIs (application programming interface), innovation-driven startups are disrupting traditional financial processes in developed first-world economies. These startups are able to provide instantaneous and seamless solutions in key financial service areas like lending, investments, crowdfunding, retail transactions, and personal finance (Arslanian & Fischer, 2019). However, due to technology limitations and other difficult issues, fintech's reach has been severely restricted in Bangladesh.

In Bangladesh, the payment service providers (Upay, ipay, Pay360), IT solution providers (CloudWell, SSLCommerz), e-commerce websites, net banking channels, ATMs, DFS/MFS platforms (bKash, Rocket, Nagad), and the Bangladesh Electronic Fund Transfer Network (BEFTN) comprise the main components of the fintech ecosystem at present (Chakraborty,

2020). The government's "Digital Bangladesh" development policy and the country's remarkable 80% mobile penetration rate have made it possible for an increasing number of people from various demographic segments to access fintech services and take advantage of financial inclusion gains. But the complete potential of fintech in Bangladesh is not being realised due to a few significant regulatory factors and deficiencies in the technology infrastructure.

While the Bangladeshi central bank has been accommodating in helping MFS expand and gain more users by granting licenses to over eighteen commercial banks and other non-bank financial institutions (Rashid, 2020), it has also declared all cryptocurrencies to be "hostile" or illegal in Bangladesh in line with the Money Laundering Prevention Act of 2012 and the Foreign Exchange Regulation Act of 1947 (Sujat, 2020), thereby underutilizing their enormous potential. The financial services industry in Bangladesh faces various obstacles to the comprehensive adoption of fintech. These include sector-specific issues like capital access and the lack of digital and financial literacy among low- and middle-class customers. Additionally, technological limitations that hinder the development and provision of creative financial solutions also pose a hindrance.

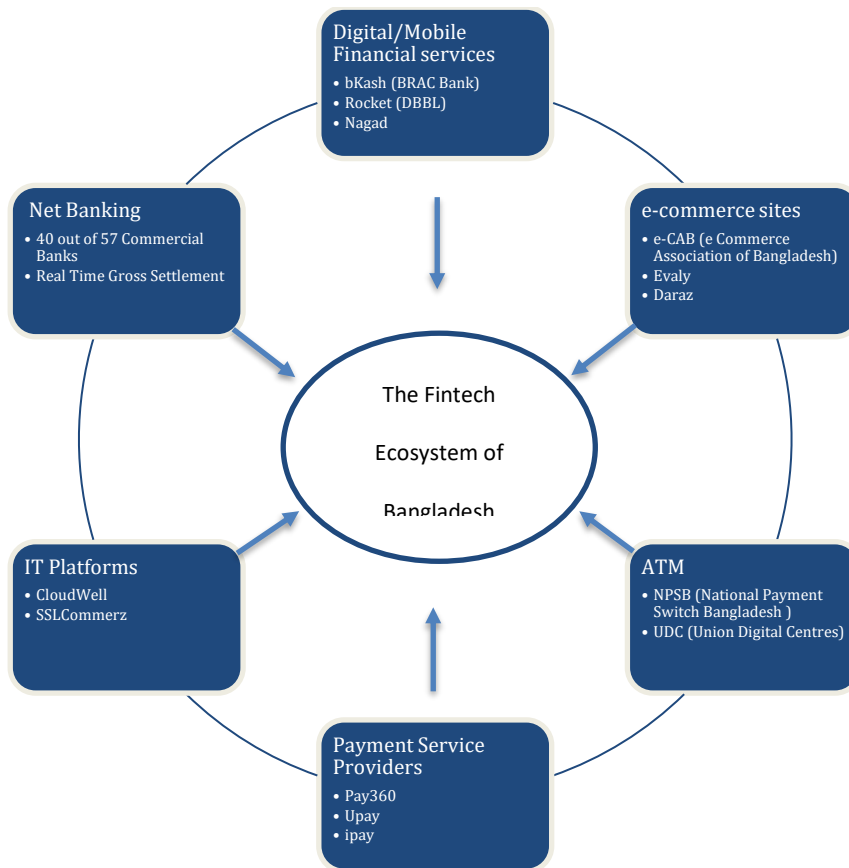


Figure: Present State of Fintech in Bangladesh

3.8 Literature Review and Hypothesis Development:

3.8.1 Fintech and Banking:

While the term fintech is commonly used to describe IT based startups entering various segments of the financial services industry, the key focus of the definition lies in the use of contemporary technology to deliver financial services more efficiently. As such, the criteria can also be extended to traditional financial institutions such as banks due to their adoption of modern internet based technologies.

Although pure fintech firms may have an advantage over banks due to their relative lack of regulatory pressures in areas like small business loans and consumer finance (Stulz, 2019) the banks have long taken note of the disruptive potential entailed by these startups. This is evident in the way banks are reshaping their conventional business models into a more digital one. For example, net banking, incorporation of API architecture to facilitate open banking, cloud-based core banking to manage and store customer data and the use of AI to create chatbots for online customer service have become mainstream practices in banking sectors globally. In addition, banks are collaborating with popular fintech startups such as digital payment platforms instead of competing with them, effectively reducing the cost of innovation and benefiting mutually through enhanced customer experiences. (Singh Negi, 2023)

3.8.2 Fin-tech adoption and Financial Performance

The surge in fintech solutions has revolutionized the banking landscape globally, prompting researchers to investigate its implications on the performance of banks. Yoon et al. (2023) conducted a cross-country analysis, examining the differential impact of fintech adoption and gross domestic product (GDP) levels on bank performance. Surprisingly, they observed that fintech adoption significantly enhances bank performance, particularly in less developed countries. In essence, the following hypothesis can be put forth based on the objectives of our research:

H1: Fintech adoption has a significant impact on the ROA of Bangladeshi commercial banks.

3.9 Conceptual Framework:

The current study will consist of a quantitative research designed to understand the effects of the adoption of financial technology (Fintech) on the operating performance of commercial

banks in Bangladesh. The response variable chosen for this purpose will be return on assets, one of the key profitability ratios; while the explanatory variable will be the level of fintech adoption, which we shall quantify using a unique methodology. The sample will consist of ten Bangladesh based commercial banks. Econometric analysis shall be employed to estimate the relationship, direction and strength of the variables under study. The proposed research framework for the study is shown in the following figure:

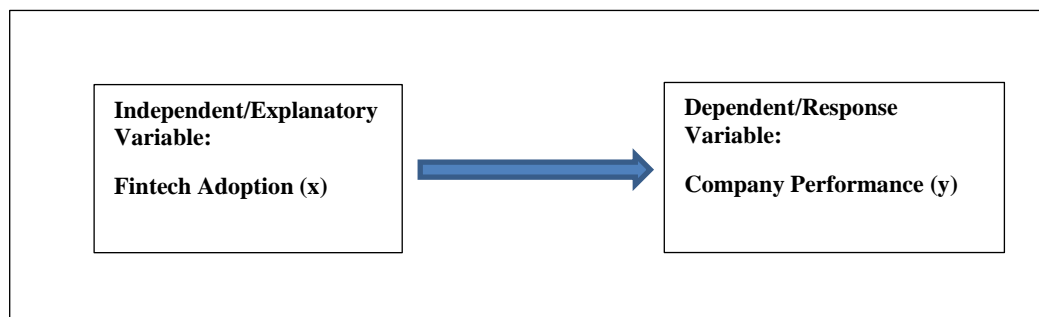


Figure: Conceptual Framework

3.10 Methodology:

This section outlines the various components of the research methodology followed during the construction of this study as listed below.

3.10.1 Research Design: The objective of this research is to develop an econometric understanding of the impact of fintech adoption on the operating performance of commercial banks in Bangladesh. In essence, a quantitative research design shall be followed wherein the effects of the independent or explanatory variable, in this case, “Fintech adoption” (x) on the dependent or response variable, “ROA” (y) shall be examined.

To quantify the independent variable “Fintech Adoption”, the methodology created by Bouheni et al. (2023) shall be replicated where a questionnaire underscoring several fintech parameters with corresponding scores of 1 for each “Yes” and 0 for each “No” shall be used to evaluate the extent or level of fintech adoption by the banks under study.

Parameters	Score: Yes=1, No=0
1. Bank has mobile banking	
2. Bank has net banking	
3. Bank has mobile app	
4. Bank's clients can open an account online	
5. Bank's clients can access their account online	
6. Bank's clients can perform online P2P money transfer	
7. Most of the bank's transactions are conducted online	
8. Bank has core banking system	
9. Bank has integration with all available domestic MFS providers	
10. Bank has open banking/API Integration	
11. Bank offers online customer service	
12. Bank has chatbot/Robo-advisory	
13. Bank has PCI DSS certification in digital security	
14. Bank has ISO 27001 certification in digital security	
15. Bank has won awards for digital innovation	
Total	

Table: Fintech Score

3.10.2 Sampling: From a total of 61 scheduled banks, a subset of ten largest commercial banks in terms of revenue were selected for the study using non-probability purposive sampling technique, to obtain a holistic view of the retail banking sector.

3.10.3 Data Collection: Secondary research was employed to collect ROA datas from the annual reports of each respective bank for the five years from 2018 to 2022.

3.10.4 Research Instrument/Tools: After collecting the raw data for both variables, an initial dataset was created in Microsoft Excel. The data was then organized into a long view and a wide view format on two different worksheets for the ease of analysis.

Next, the data was imported to IBM SPSS (Statistical Product and Service Solution) software version 27 for the purpose of running the quantitative analysis.

3.10.5 Data Analysis: As per the quantitative methodology of this research, we shall be performing a bivariate regression analysis on SPSS based on the following equation:

$$y = \beta_0 + \beta_1 x + \varepsilon$$

In which, y is the dependent variable as measured by the ROA of the banks while the predictor x is the independent variable which is computed as the score of the level of fintech adoption by the banks respectively. The term ε represents the random error component which reflects all other factors that could account for the variance in the dependent variable. Reorganizing the equation by plugging in both variables for bank i at time t , we get:

$$ROA_{it} = \beta_0 + \beta_1(Fintech_{it}) + \varepsilon$$

Where β_0 is the intercept that represents the value of ROA if the banks do not invest in fintech adoption while the beta co-efficient β_1 measures the change in ROA for each unit increase in fintech score.

3.11 Findings and Analysis:

This section interprets the results of the quantitative analysis. Initially, it has been hypothesized that fintech adoption drives the ROA of banks. This assumption is explored in the following outputs derived after running the bivariate regression.

3.11.1 Descriptive Statistics:

Descriptive Statistics					
Parameters	Min	Max	Mean	Std. Deviation	N
Roa	0.45	1.87	1	0.29292	50
Fintech	0	15	12.4	1.485	50

Table: Output of Descriptive Statistics

Over the span of five years, the collective performance of ten banks reveals a noteworthy average Return on Assets (ROA) of 1.0040, indicating a solid financial standing. This ROA figure is accompanied by a standard deviation of 0.29292, highlighting the degree of variation within the sample. The banks' innovative prowess, as gauged by their Fintech Scores, demonstrates an average score of 12.40, suggesting a commendable level of technological integration and adaptability within the industry. The standard deviation of 1.485 associated with these scores reflects the dispersion of Fintech capabilities among the banks.

3.11.2 Correlations:

Correlations			
		Roa	Fintech
Pearson Correlation	Roa	1	0.345
	Fintech	0.345	1
Sig. (1-tailed)	Roa	.	0.007
	Fintech	0.007	.
N	Roa	50	50
	Fintech	50	50

Table: Output of Correlation

The analysis reveals a Pearson correlation coefficient of 0.345, signifying a moderate positive relationship between the Return on Assets (ROA) and Fintech Score variables. This correlation, assessed at a significance level of 0.007 (which is lower than the conventional threshold of 0.05), underscores its statistical significance. Such significance implies that the observed correlation is unlikely to have occurred merely by chance, bolstering the validity of the relationship identified between ROA and Fintech Score.

3.11.3 Model Summary:

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.345 ^a	0.119	0.101	0.27779

Table: Output of Linear Regression

The regression analysis yields an R-square value of 0.119, indicating that approximately 11.9% of the variability observed in Return on Assets (ROA) can be explained by changes in the Fintech Score. This finding reinforces our assumption that Fintech Score has significant impact on ROA.

3.11.4: Hypothesis Testing:

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0.16	0.334		0.48	0.634	-0.511	0.831
	Fintech	0.068	0.027	0.345	2.546	0.014	0.014	0.122
a. Dependent Variable: Roa								

Table: Output of Hypothesis Analysis

The unstandardized coefficient B for Fintech Score is 0.068. This coefficient is essentially the beta coefficient β_1 of the original regression equation. This means that for each unit increase in Fintech Score, we can expect an increase of 0.068 in ROA. Similarly, the standardized beta represents the intercept β which is 0.345, meaning 34.5% of the variation in ROA is not explained by the fintech score. However, the t-value is 2.546 with a significance level of 0.014; which is less than 0.05, indicating that the regression model predicts the dependent variable significantly well. Therefore, we can reject the null hypothesis and surmise that fintech score significantly contributes to the regression model; and has a clear impact on ROA.

3.12 Summary and Conclusion:

In summary, the quantitative analysis of the data reveals insightful patterns regarding the relationship between Fintech Score and Return on Assets (ROA) across the ten banks studied over a five-year period. The findings indicate a moderate positive correlation between these variables, with the Fintech Score explaining approximately 11.9% of the variability observed in ROA. The regression model further underscores the significant impact of the Fintech Score on ROA, as evidenced by the unstandardized coefficient indicating a positive association between the two. Despite the presence of unexplained variability in ROA, the regression model demonstrates strong predictive power, supported by the significance of the t-value. Consequently, it can be concluded that Fintech Score plays a meaningful role in shaping ROA outcomes within the banking sector, highlighting the importance of technological innovation and integration in driving financial performance.

3.13 Recommendations/Implications:

Our analysis offers actionable recommendations and insights for the banking industry, accompanied by promising avenues for future research. Firstly, recognizing the substantial impact of Fintech Score on Return on Assets (ROA), banks are advised to prioritize investments in technological innovation and digital transformation initiatives. By leveraging cutting-edge fintech solutions, institutions can enhance operational efficiency, optimize resource allocation, and capitalize on emerging market opportunities to bolster financial performance. In addition, fostering a culture of innovation and agility will be crucial to adapt to evolving consumer preferences and market dynamics, thereby sustaining competitiveness in an increasingly digitized landscape. Furthermore, collaboration and partnerships with fintech startups and industry disruptors offer avenues for banks to harness external expertise and drive

innovation through co-creation and knowledge-sharing initiatives. However, regulatory frameworks must also evolve in tandem with technological advancements to ensure consumer protection, data privacy, and systemic stability while fostering an enabling environment for fintech-driven growth.

Looking ahead, future research endeavors could delve deeper into the underlying mechanisms driving the relationship between Fintech Score and ROA. Longitudinal studies tracking the evolution of fintech adoption over extended time frames, alongside comparative analyses across diverse banking ecosystems, may offer opportunities to gain a more nuanced and comprehensive understanding of the sustainability and broader implications of fintech integration. Additionally, expanding the scope of analysis beyond traditional financial metrics to encompass broader dimensions of performance evaluation; such as customer satisfaction, market share, or risk management, could provide a more holistic understanding of the transformative potential of fintech within the banking industry. By adopting a multidimensional approach to performance assessment, researchers can capture the broader societal and economic impacts of fintech innovation, thus paving the way for more informed decision-making and strategic planning within the industry.

3.14 References

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3.15 Appendix:

3.15.1 Dataset Wide:

List	Fintech h_201 8	ROA _201 8	Fintech h_201 9	ROA _201 9	Fintech h_202 0	ROA _202 0	Fintech h_202 1	ROA _202 1	Fintech h_202 2	ROA _202 2
Dutch-Bangla Bank	12	1.18	12	1.08	12	1.14	14	1.05	14	0.98
Premier Bank	12	1.03	12	1.27	12	0.65	12	0.92	14	1.05
Prime Bank	11	0.74	11	0.62	12	0.52	13	0.78	13	0.93
Eastern Bank	14	1.09	15	1.2	15	1.22	15	1.2	15	1.12
Shahjalal Bank	10	0.65	11	0.67	11	0.68	12	0.85	12	1.08
City Bank	13	0.7	13	0.7	13	1.1	14	1.14	14	1
Uttara Bank	10	0.9	11	0.97	11	0.96	11	0.85	12	1.1
Pubali Bank	10	0.84	10	0.45	11	0.7	13	0.65	13	0.79
BRAC Bank	14	1.87	14	1.64	14	1.18	14	1.11	14	1.02
NRBC Bank	11	1.5	11	1.47	11	1.34	11	1.54	11	0.98

3.15.2 Dataset Long:

List	year	Fintech	Roa
Dutch-Bangla Bank	2018	12	1.18
Premier Bank	2018	12	1.03
Prime Bank	2018	11	0.74
Eastern Bank	2018	14	1.09
Shahjalal Bank	2018	10	0.65
City Bank	2018	13	0.7
Uttara Bank	2018	10	0.9
Pubali Bank	2018	10	0.84
BRAC Bank	2018	14	1.87
NRBC Bank	2018	11	1.5
Dutch-Bangla Bank	2019	12	1.08
Premier Bank	2019	12	1.27
Prime Bank	2019	11	0.62
Eastern Bank	2019	15	1.2
Shahjalal Bank	2019	11	0.67
City Bank	2019	13	0.7
Uttara Bank	2019	11	0.97
Pubali Bank	2019	10	0.45

BRAC Bank	2019	14	1.64
NRBC Bank	2019	11	1.47
Dutch-Bangla Bank	2020	12	1.14
Premier Bank	2020	12	0.65
Prime Bank	2020	12	0.52
Eastern Bank	2020	15	1.22
Shahjalal Bank	2020	11	0.68
City Bank	2020	13	1.1
Uttara Bank	2020	11	0.96
Pubali Bank	2020	11	0.7
BRAC Bank	2020	14	1.18
NRBC Bank	2020	11	1.34
Dutch-Bangla Bank	2021	14	1.05
Premier Bank	2021	12	0.92
Prime Bank	2021	13	0.78
Eastern Bank	2021	15	1.2
Shahjalal Bank	2021	12	0.85
City Bank	2021	14	1.14
Uttara Bank	2021	11	0.85
Pubali Bank	2021	13	0.65
BRAC Bank	2021	14	1.11
NRBC Bank	2021	11	1.54
Dutch-Bangla Bank	2022	14	0.98
Premier Bank	2022	14	1.05
Prime Bank	2022	13	0.93
Eastern Bank	2022	15	1.12
Shahjalal Bank	2022	12	1.08
City Bank	2022	14	1
Uttara Bank	2022	12	1.1
Pubali Bank	2022	13	0.79
BRAC Bank	2022	14	1.02
NRBC Bank	2022	11	0.98