Report on

A Comparative Analysis of Conventional and Modern Methods of Credit Risk Assessment in Financial Institutions: Implications for Micro, Small and Medium Enterprises (MSMEs)

By

Nabiha Hossain

ID: 20104023

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

Bachelor of Business Administration

BRAC Business School

BRAC University

December 2023

Submitted to:

Supervisor:

Mohammad Mujibul Haque, PhD

Professor & Associate Dean (Acting Dean)

BRAC Business School (BBS), BRAC University (BRACU)

Co-Supervisor:

Abu Saad Md. Masnun Al Mahi, PhD

Assistant Professor (Finance)

BRAC Business School (BBS), BRAC University (BRACU)

Table of Contents

Declaration vi
Letter of Transmittal vii
Non-Disclosure Agreement viii
Acknowledgement ix
Executive Summary x
List of Acronyms xii
1 Overview of Internship 1
1.1 Student Information: Name, ID, Program & Major 1
1.2 Internship Information 1
1.2.1 Period, Company Name, Department/Division, Address 1
1.2.2 Internship Company Supervisor's Information: Name & Position 1
1.2.3 Job Scope: Job Description, Duties, Responsibilities 1
1.3 Internship Outcomes 2
1.3.1 Student's Contribution to the Company 2
1.3.2 Benefits to the Student 2
1.3.3 Difficulties 2
1.3.4 Recommendations 3
2 Organization Part 4
2.1 Introduction 4
2.1.1 Objectives 4
2.1.2 Scope 4
2.1.3 Methodology 4
2.1.4 Limitations 4
2.1.5 Significance 4
2.2 Overview of the Company: IPDC Finance Limited 5
2.2.1 Beginning of IPDC 5
2.2.2 Present of IPDC 5
2.2.3 Vision and Mission of IPDC 6
2.2.4 Footprint of IPDC 7
2.3 Management Practices of IPDC 8
2.3.1 Organogram 8

2.3.2 Leadership Style and Implementation 10
2.3.3 Recruitment and Selection Process in IPDC 10
2.3.4 Employee Diversity 11
2.3.5 Employee Value 11
2.3.6 Training and Development Initiatives 13
2.4 Marketing Principles 13
2.4.1 Marketing Strategy: Target Customers, Targeting & Positioning Strategy 13
2.4.2 Marketing Channels 14
2.4.3 Product Development & Competitive Practices 14
2.4.4 Branding Activities 14
2.4.5 Advertising & Promotion Strategies 15
2.4.6 Products and Services 15
2.4.7 Critical Marketing Issues & Gaps 18
2.5 Financial Performance & Accounting Practices 19
2.5.1 Financial Performance 19
2.5.2 Accounting Practices 27
2.6 Operations Management and Information System Practices 27
2.6.1 Information Systems, Processing and Sharing Data with Stakeholders 27
2.6.2 Office Management Software 27
2.7 Industry and Competitive Analysis 28
2.7.1 Industry Analysis - Porter's Five Forces 28
2.7.2 Company Analysis - SWOT (Strength, Weakness, Opportunities & Threats) 30
2.8 Summary 33
2.9 Recommendations 34
3 Research Topic: 36
Comparative Analysis of Conventional and Modern Methods of Credit Risk Assessment in Financial Institutions: Implications for Micro, Small and Medium Enterprises (MSMEs) 36
3.1 Introduction 36
3.1.1 Background 36
3.1.2 Literature Review 37
3.1.3 Objectives 37
3.1.4 Significance 38

3.2 Methodology 38
3.3 Findings and Analysis 39
3.3.1 Conventional Methods Used by Finance Industry to Assess Credit 39
3.3.2 Credit Risk Management Policy by IPDC Finance to Assess Credit 46
3.3.3 Application of Credit Policy in IPDC 47
3.3.4 Observation and Analysis of Current Application 52
3.3.5 Limitations of the Current Methods Used 53
3.3.6 Modern Methods in the Finance Industry 55
3.3.7 Application of Modern Methods: Example of China's MyBank 57
3.3.8 Comparison of Conventional Methods and Modern Methods 58
3.3.9 Observation from Implementation of Modern Methods 60
3.3.10 Effectiveness of the Modern Methods in the Industry 61
3.3.11 Benefits for MSMEs from Modern Methods 62
3.3.12 What Does It Means for Bangladesh's Finance Industry? 63
3.4 Conclusion 64
4 References 65
Appendix 69

Declaration

It is hereby declared that

1. The internship report submitted is my/our 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/We have acknowledged all main sources of help.

Student's Full Name & Signature:

Nabiha Hossain
Student ID: 20104023

Supervisor's Full Name & Signature:

Mohammad Mujibul Haque, PhD
Professor & Associate Dean (Acting Dean)
BRAC Business School (BBS), BRAC University (BRACU)

Letter of Transmittal

Mohammad Mujibul Haque, PhD

Professor & Associate Dean

BRAC Business School

BRAC University

Kha 208, 1 Bir Uttam Raifuql Islam Avenue,

Dhaka 1212, Bangladesh

Subject: Internship Report Submission

Dear sir,

With pleasure, I am submitting my internship on "A Comparative Analysis of Conventional & Modern Methods of Credit Risk Assessment in Financial Institutions: Implications for Micro, Small, and Medium Enterprises (MSMEs) " Following the university guidelines and your advice, I have prepared my report with utmost sincerity and dedication.

I hope this report will be accepted and be granted by you. Thank you for your patience and guidance to complete this report.

Kind Regards,

Nabiha Hossain

20104023

BRAC Business School

BRAC University

January 7th, 2024

Non-Disclosure Agreement

This agreement is made and entered into by and between IPDC Finance Limited and the undersigned student at BRAC University.

Nabiha Hossain

Acknowledgement

I would like begin my expressing my gratefulness towards Allah for granting me the ability to complete the three-month internship period gracefully, and for the completion of this internship report.

I am thankful to my academic supervisor, Mohammad Mujibul Haque, PhD, Professor & Associate Dean at BRAC Business School for his guidance and advice for the completion of the report. His words encouraged me to give my best for the report. I would also like to extend my gratitude to my organization supervisor, Syeda Abida Sultana (Assistant Manager in Credit Risk Management department, IPDC Finance) for her support and guiding me in my first corporate experience.

Finally, I am grateful to my parents, my sister, my grandparents and my friends for the support and encouragement throughout the entire undergraduate program, and the three-month period. I also want to extend my thankfulness to a few more people, for being there one way or other – BTS, NCT, Seventeen and also Babar Azam – for being my emotional support cricketer.

Executive Summary

This report is a culmination of what I have garnered from my undergraduate classes and from the experience of my three-month internship period. Familiarizing myself with the corporate sector and gaining practical experience helped understand the academic knowledge in practice and prepare this report overviewing the three chapters discussing my experience, the organization and the research topic.

Beginning with the first chapter, the information of the student, myself, at the allocated organization during the internship period. Additional details such as work place tasks, contribution to the organization all are addressed. From the three-month internship period, it was possible to build a bridge from the academic world to the corporate sector. Majoring in finance, and being in a financial organization such as IPDC Finance made it possible to see the reality of finance industry and the operations in-person and in detail.

Moving to the second chapter, the organization part, covers all sectors of operations conducted by the organization, IPDC Finance. Management practices, marketing practices, financial performances & accounting practices, as well as the industry and company analysis. In the end of the chapter, certain recommendations are further provided based on the research done on the organization.

Finally, in the third chapter, that is the research on "A Comparative Analysis of Conventional and Modern Methods of Credit Risk Assessment". The topic dives into detailed analysis of the conventional methods being used. The report includes an example of memo, that is used by IPDC when assessing credit and is an important document when considering loan approvals. Further, the report analyzes the benefits of the modern methods, that are potential alternative tools to assess credit risk. This includes usage of Artificial Intelligence and Machine Learning in credit risk management, that will erase human error, biasness and such. This will be highly beneficial for the micro, small, and medium enterprises (MSMEs) which are often subject to not receiving the required funding due its nature and scale.

The report comes to a conclusion to see the visible scopes and opportunities available if the modern methods are implemented by the financial institutions for its credit risk assessment.

Keywords: IPDC Finance Limited, Credit Risk Management (CRM), Conventional Methods, Modern Methods, Comparison, Micro, Small and Medium Enterprises (MSMEs).

List of Acronyms

- NBFI – Non-Banking Financial Institutions
- FI – Financial Institutions
- CSR – Corporate Social Responsibility
- CRG – Credit Risk Grading
- CRG Score – Credit Risk Grading Score
- CIB – Credit Information Bureau
- MSMEs - Micro, Small, & Medium Enterprises
- SMEs – Small, and Medium Enterprises
- AI – Artificial Intelligence
- ML – Machine Learning
- NPL – Non-performing loans

1 Overview of Internship

1.1 Student Information: Name, ID, Program & Major

I, Nabiha Hossain, ID: 20104023, am currently studying in the Bachelors of Business Administration (BBA) program of BRAC Business School. My major is Finance, along with a minor in Accounting. I had been on-boarded as an intern in IPDC Finance as a part of my academic program.

1.2 Internship Information

1.2.1 Period, Company Name, Department/Division, Address

The internship period was from 19th of September 2023 to 19th December 2023. It consisted of a total of 90 days, or 3 months. The internship was at a non-banking financial institution (NBFI), IPDC Finance Limited. The internship placement was at Risk Control Unit which is under Credit Risk Management department. The position was at the institution’s head office, located in Hosna Center 3rd Floor, 106 Gulshan Avenue, Dhaka 1212, Bangladesh.

1.2.2 Internship Company Supervisor’s Information: Name & Position

During the internship period, I was supervised under Syeda Abida Sultana, who is an Assistant Manager in the Credit Risk Management department of IPDC Finance.

1.2.3 Job Scope: Job Description, Duties, Responsibilities

Throughout the internship period my roles consisted of assisting my supervisor with any task she delegated to me. She had trusted me with several confidential duties. Primarily my job was to collect CRG scores (credit risk grading scores) from the memos, for the years 2023 to 2017. This was a tedious and time-consuming task, however, it was impactful as it made the transition from the academic environment to the corporate world easier.

1.3 Internship Outcomes

1.3.1 Student's Contribution to the Company

Throughout my three months of internship, I have been dedicated to the task given at hand. In the Credit Risk Management department, as most of the work remains confidential, I did not receive the opportunity to directly contribute to anything beyond my task. However, beyond the assigned task, I was given the opportunity to observe the practical settings and help my supervisors with miscellaneous tasks.

1.3.2 Benefits to the Student

From the internship placement, there were significant benefits and learning opportunities present for the intern. To begin with, this was my first time working in a corporate office. While having done multiple courses, real-life experience is vastly different and this exposure in the finance world gave me a better understanding of how this industry works in reality. It further helped to grow my communication skills, communicating and dealing with people of various ages, and backgrounds in the office environment, etc.

In addition, use Excel, and certain websites, handling large amounts of data to sort through. Although these topics and skills were covered in courses, using them during the internship helped me gain confidence and polish my skills.

1.3.3 Difficulties

One of the difficulties in the transition from the academic world to the corporate sector was not being aware of the differences and not being completely ready for the change. As I was the only intern for my department, and on the floor as well, it was hard to socialize which led to feeling out of space. However, with proper guidance from my supervisor, this difficulty did not reflect on the duties delegated to me.

1.3.4 Recommendations

For the internship period, recommendations for IPDC for their internship program would be to recruit interns at the same time. This would make it simpler to recruit and manage the interns. Additionally, it would make sure the interns get to know each other and make it easier to fit in. Also, in this way, the employees would be aware of the newly recruited interns and help if they can.

Another recommendation would be to arrange workshops or seminars which interns can participate in. This would enhance the intern's knowledge and this may come in handy in the internship period as well.

To conclude, internship at IPDC Finance was a wonderful experience to learn more about the finance industry and have a deeper understanding of how the financial institutions, especially NBFIs work in Bangladesh.

2 Organization Part

2.1 Introduction

2.1.1 Objectives

The objective of this chapter is to highlight the functions of IPDC and its operations in the NBFI industry. It gives an overview of all the functions in details, including its financial standing and its position in the industry it operates in. Further, this chapter gives an idea how IPDC has been one of the top NBFIs in the industry and how it might expand even bigger through certain recommendations.

2.1.2 Scope

In this following chapter, the institution's management practices, marketing principles, financial performance & accounting practices, operations management and industry & company analysis, we can look through a summary of the organization.

2.1.3 Methodology

The chapter will see the overview of the organization and its current state in the industry. The data used is collected through secondary data of the institution's own annual reports, primarily the latest published report (Annual Report 2022), and its own website. It provides mainly a descriptive overview, along with quantitative data of the financial overview.

2.1.4 Limitations

In order to assess the current conditions and overview of the organization, certain limitations were faced when writing this report. Due to time constraints and limited research opportunities, the report was limited to using secondary data from reports, conversations with on-site supervisors, and free online resources.

2.1.5 Significance

Through understanding the mechanics and functions of IPDC, helped me to gain the practical knowledge in the corporate world of the finance industry in Bangladesh. While the workings of the institution do not largely vary from what is taught in courses, how the workings are done and implemented is significantly different. Communication between departments, colleagues are of utmost importance to maintain harmony and efficiency in the workplace. Without the experience in the practical field, it is impossible to understand how certain factors or functions of the finance sector truly works.

2.2 Overview of the Company: IPDC Finance Limited

2.2.1 Beginning of IPDC

IPDC Finance Limited is a non-banking financial institution, the first private financial institution in the country, established in 1981. IPDC was formerly known as the Industrial Promotion and Development Company. After the catastrophe of the 1971 Liberation War, changes were needed for the development of the nation and the private sector was one of the key ways in bringing such changes. The aim of IPDC’s beginning was to promote the private sector industries in the free nation. The establishment of IPDC led the path and created opportunities for other financial institutions in the country. The renowned group of shareholders of the institution includes the International Finance Corporation (IFC), USA, the German Investment and Development Company (DEG), Germany, The Aga Khan Fund for Economic Development (AKFED), Switzerland, the Commonwealth Development Corporation (CDC), UK and the Government of Bangladesh.

2.2.2 Present of IPDC

The majority of the shares are currently held by BRAC, the Peoples' Republic of Bangladesh (GOB), Aga Khan Fund for Economic Development (AKFED), Ayesha Abed Foundation, RSA Capital, Institutions, and international and general shareholders. Currently, BRAC holds 25% of shares in the company, the highest of all shareholders after general shareholders. Followed closely by the Government of Bangladesh owning 21.9% shares and Ayesha Abed Foundation at 10%.

It is one of the top non-banking financial institutions currently in the country, along with IDLC Finance, National Housing and DBH Finance. It has become a pioneer in the non-banking finance industry in Bangladesh. With currently over fifteen branches all over the country, and employing nine hundred (983 employees as of June 2023), it is leading in the industry with consistent performance. The institution serves over seventy thousand customers in the nation (73,116 as of June 2023).

Along with its financial activities, IPDC has become a pioneer in implementing Bangladesh Bank's Green Banking and passionately embraces many CSR (corporate social responsibility) activities in its operations. Green Bank is entitled to embrace a new generation of building a low-carbon economy. They focus on minimizing the usage of paper, printing both sides if needed, and reusing papers wherever possible. Further, it initiates many CSR activities for the betterment of the nation. Some of the activities include; setting up public washrooms, distribution of water purifiers for cyclone victims, etc.

IPDC has made a significant impact in the finance sector as well as setting the standard of what corporations can do for the economy beyond its area of operation. From earning GOLD at the ICAB Best Corporate Award under the Non-Bank Financial category to earning the sustainability rating in 2020 and 2021 for its effort in sustainable banking, IPDC has been working to become an ideal institution in all aspects.

Over the years, IPDC has made investments in many industries and led the way for more private-sector investments to take place. Their milestones of big-name investments include the first leasing company “IDLC Finance”, the first ever theme park “Fantasy Kingdom”, the first private sector TV channel “Ekushey TV " and so on. At present, to be more competitive and relevant in the financing sector, IPDC has redshifted its focus to other investments and loan schemes. The spotlight now is more investments for youth, women, and rural areas that are often deprived of receiving funds for businesses.

2.2.3 Vision and Mission of IPDC

With the changes and transformation of the ever changing world, IPDC too has had to make changes to give its best to its customers. The changing times led IPDC Finance to acknowledge to shift focus and implement a new vision for the institution. IPDC now aims to become a brand of finance in the country that focuses on youth, women and underserved areas. These groups of clients are often overlooked in comparisons to big corporations and big-name clients. Hence, IPDC

Finance now has the goal to diversify the industry and finance the dreams of youth of the nation, women and people in the rural areas.

IPDC has the mission to empower its clients and local communities to reach their maximum potential and rise beyond obstacles by providing creative financial solutions in an approachable, timely, transparent, and economical way.

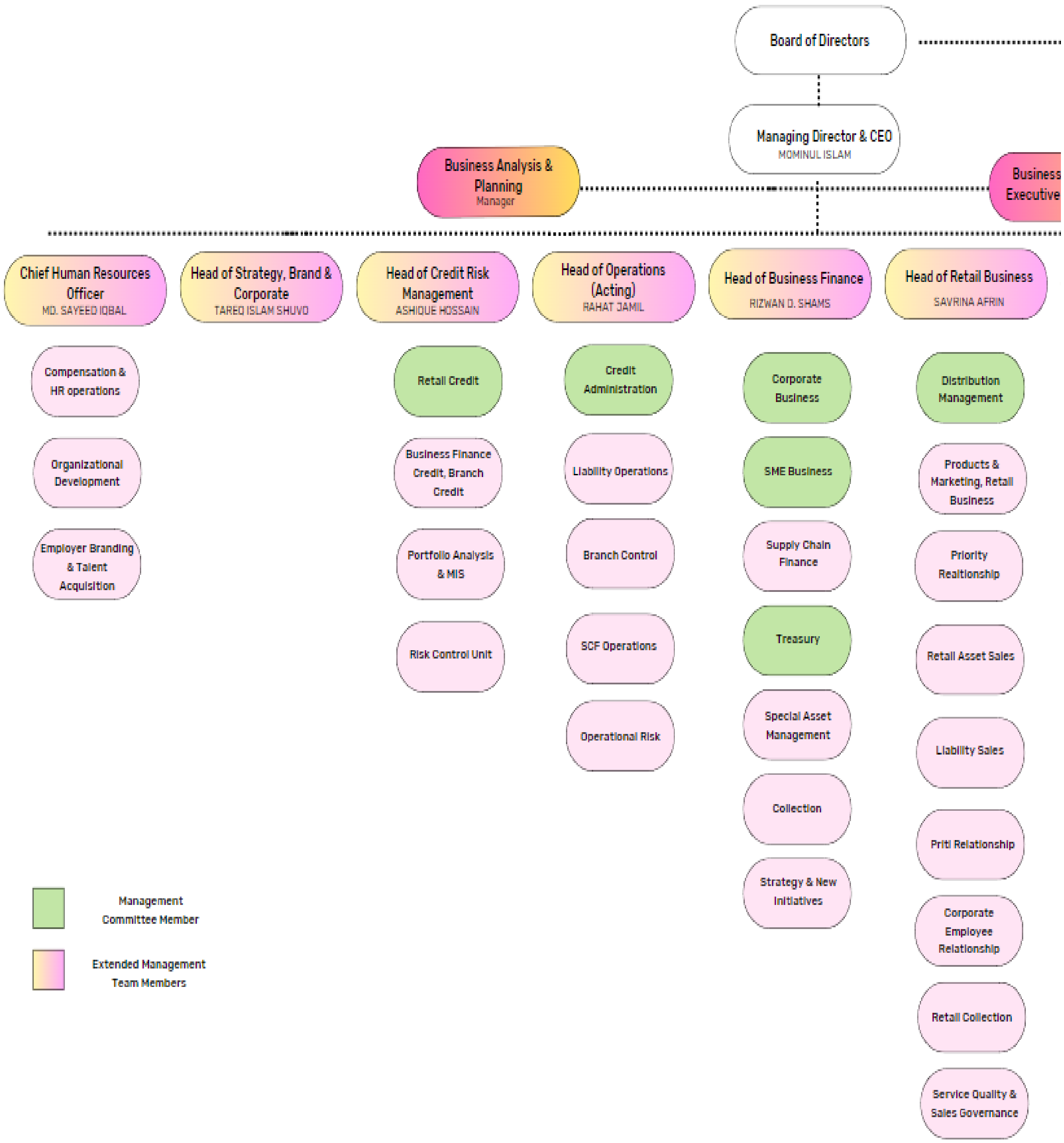
2.2.4 Footprint of IPDC

The financial institution has fifteen branches in the country, with the head office operating in Gulshan Avenue and branches in Motijheel, Dhanmondi, Uttara, and even outside the capital in, Chattogram, Sylhet, Gazipur, Narayanganj, Bogura, Jashore, Cumilla, Mymensingh, Khulna, Faridpur and Rangpur. With their values being customer-centric, they focus on “creating extraordinary customer experiences". The company, as of June 2023, employs just under one thousand employees to provide their customers with the utmost care and ability.

In the modern age, digital presence is as important as physical presence. IPDC Finance has maintained a significant presence on its social media. As of December 2023, IPDC has over four hundred thousand followers on IPDC Finance’s official Facebook page, twenty-five thousand subscribers on IPC Finance Youtube Channel, and almost forty thousand followers on the popular business social media platform, LinkedIn. To expand and branch out more, IPDC Finance has several other pages on Facebook, such as, IPDC Amader Gaan, IPDC Priti, Priyo Shikkok.

2.3 Management Practices of IPDC

2.3.1 Organogram



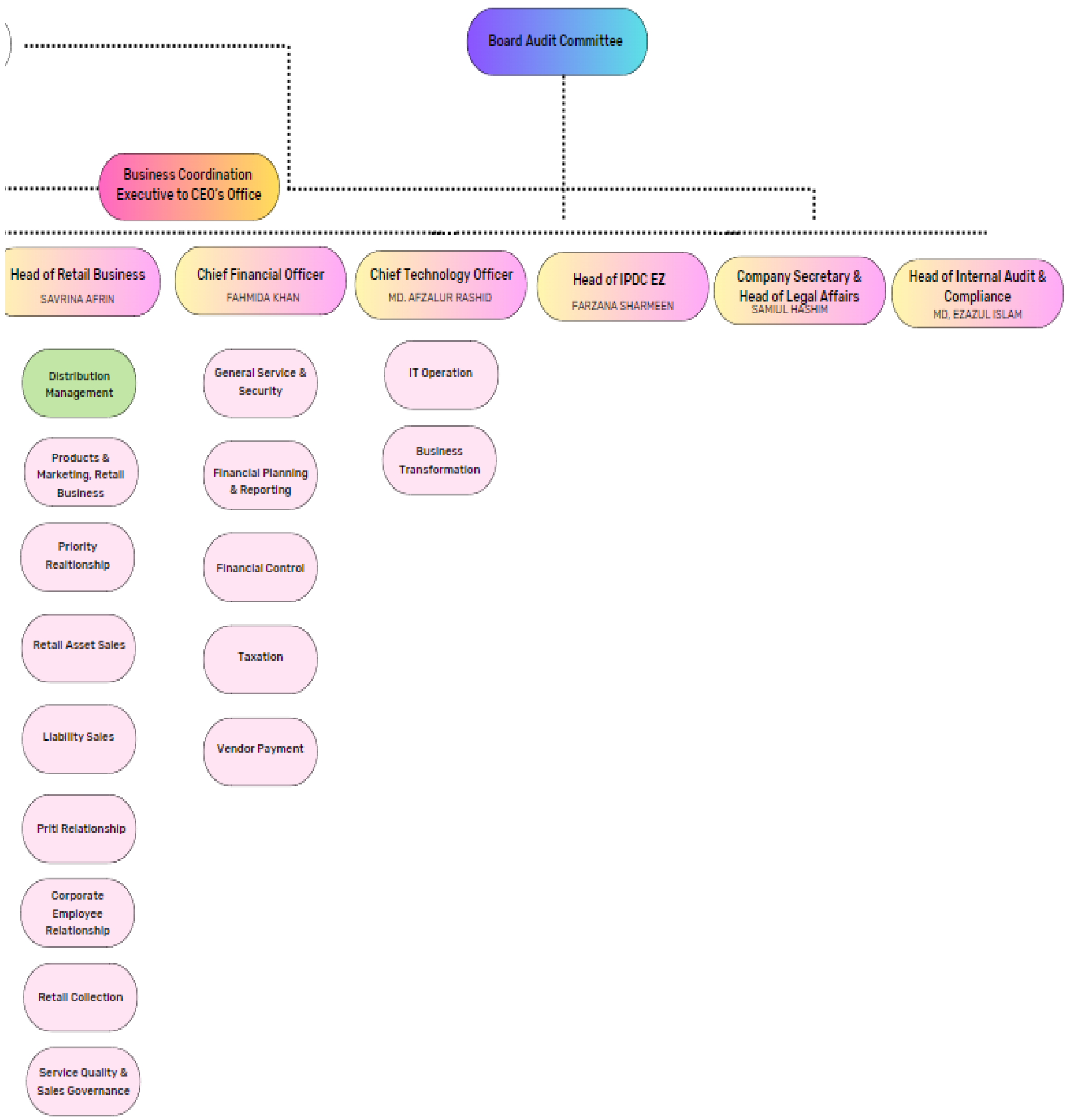


Figure: Organogram of IPDC, as of 2022

2.3.2 Leadership Style and Implementation

IPDC Finance tends to follow a participative leadership. Participative leadership refers to the top management allowing and encouraging employees to participate in decision-making. Employees are part of the decision-making process and a collaborative approach is implemented. Further, the performance management system at IPDC ensures motivation and growth of each employee.

With such participative leadership in the institution, IPDC manages to motivate its employees to be productive and feel involved. As employees feel part of the company, they give their best work to collect deposits to increase client portfolios. Further, motivated employees have the tendency to be more detailed in their work, which is important when assessing credit risks and making sound investments. Thus, with the institution following participative leadership, where employees are welcomed to participate, IPDC enjoys better outcomes for the company.

2.3.3 Recruitment and Selection Process in IPDC

IPDC is an equal opportunity employer, maintaining a fair and transparent recruitment and selection process. To begin with, internal and external recruitment exists in IPDC. Internal recruitment is usually used mostly for higher management, where references are given high importance. When internal recruitment is not feasible, IPDC looks for external recruitment in order to hire new talent for the institution. (IPDC Annual Report, 2022)

External recruitment begins with openings being posted on several job portals, their own website, and various online media. These enable them to recruit top talent based on their required job opening. For example, in the case of an opening of a position, the notice will be posted on their own website where potential employees can apply directly. Additionally, job openings are posted on LinkedIn, Bdjobs, and similar websites to reach out to more potential employees. Further, job applications are also accepted through email and mail. Potential employees are required to submit a composed resume in accordance with the job they are applying for.

After the deadline has passed, the job candidates are shortlisted for an examination. The examination depends upon the job position and its level. From the candidates who pass the examination, they are then called for an interview. Successfully passing the interview, the candidates are asked to attend a medical examination, similar to a checkup and after passing that, the candidates are hired by the management committee.

2.3.4 Employee Diversity

IPDC emphasizes diversity and inclusion to build a community in the workplace. IPDC does not discriminate based on religion, race, or gender. The company only looks for the qualifications and skills the potential employee requires to fulfill the job accurately.

While in the finance industry, many companies shy away from employing female employees, IPDC acknowledges the importance of having equality in the workplace. According to data provided from 2023, IPDC has a 77:23 ratio of men to women employed. (IPDC Annual Report, 2022). To specify in the top management, 3 out of 11 employees are female. They strive to make the workplace more diverse and create a balanced environment, as it leads to bringing innovation and growth for the company.

2.3.5 Employee Value

IPDC, emphasizes the employee value proposition. It concerns and focuses on five core aspects; employee wellbeing, employee growth, shared purpose, engaged work environment, and personal touch to employees.

Employee Wellbeing: IPDC puts utmost attention to the wellbeing of each employee, as healthy employees are its priority. Employees are covered under both hospitalization and life insurance. Additionally, employees can avail of discounts at notable hospitals in the country. Further, sessions are occasionally arranged by collaborating through Labaid Hospital and Fashion Optics. In the post-pandemic world, a company that prioritizes your health is a crucial factor in choosing the workplace.

Employee Growth: As IPDC follows a performance-driven culture, it follows a cycle of checking for improvement. The performance management system includes objective setting, mid-year review, and year-end review. All three phases begin with a one-to-one discussion. This sets the work and the expectations to be understood by the employee. In the objective setting, the second step is followed by the employee setting their own objective and, in the end, their line manager reviewing it. While, in the mid-year review, the second step is the evaluation by the line manager and then, self-evaluation by the employee. On the other hand, for year-end review, after the discussion, self-evaluation takes place and ends with line manager evaluation. In terms of year-end review, it is important for the line manager to check the yearly progress of the employees to understand their performance and how they can improve or be compensated. According to the data by IPDC Finance, in 2022, 44 performance review sessions were held, and it improved the performance of the employees by a massive 76%. (IPDC Annual Report, 2022).

Shared Purpose: IPDC focuses on employee motivation and engagement so, everyone has one shared purpose for the betterment of the company.

Engaged Work Environment: IPDC stresses on making an environment where each worker is engaged with the corporation. They make a point of employees participating, bringing new ideas through implementing an open door policy. This ensures everyone feels valued and feels important. Likewise, IPDC concentrates on providing timely feedback and value good work of employees. It has a reward and recognition culture, with giving out several awards. These awards include, achievement award, long service award, integrity & honesty award, champion of innovation award, high performers club, excellence award and chairman's award.

Personal Touch to Employees: Similar to paying attention for employees' wellbeing, IPDC also follows upon paying personal attention to employees. This helps in keeping employees' morale high and feel connected. IPDC has few activities, including employee birthdays where birthday posts are posted on in-house Facebook page as well as gifts, congratulating new parents through Facebook posts and gifts. Further, it has arranged a "Talk to Me" box, where employees can give their own feedback and concerns about the workplace and suggest improvements.

From my personal experience, I have witnessed IPDC's utmost care for its employees. One example of an incident was, during the Cricket World Cup, all employees were asked to wear Bangladesh's cricket team's jersey to the office as the match was on during work hours. The TV in the office was also kept on to allow employees check the scores during their break. This showcased their intention for the employees to feel valued. Being a financial institution, work might get tedious and boring for some, so events like this helps employees to enjoy regular office days.

2.3.6 Training and Development Initiatives

The employees are encouraged to grow in terms of both their strengths and also, to build their new skills. IPDC helps to bring out the employees' inner potential and helps them to grow their careers in the industry further. The culture of belongingness is promoted as this helps in productivity as employees feel their opinion and presence matters to the company.

According to the data provided by IPDC, it is reported that 145 training sessions were held in the year 2022. Training for the year 2022 included, internal, external as well as e-learning. This flexibility in the method of training available makes it easier for participants to participate and learn at their own pace. Thus, training at IPDC is given priority and the development of employees is inspired. (IPDC Annual Report, 2022)

2.4 Marketing Principles

2.4.1 Marketing Strategy: Target Customers, Targeting & Positioning Strategy

The institution's marketing strategy reflects on its goal as a company. With four key elements of marketing strategy which includes product, price, place and promotion. To begin with products, IPDC has redesigned their initial target market to the industry changes and now it has primarily set its vision to target the youth, women and rural areas. For instance, IPDC is now providing products as Joyee, which is tailored for women in business to avail loans easily and, Priti, a privilege card for female clients of IPDC. Targeting its products and services requires making note of how to raise awareness of IPDC's products and services.

IPDC's products and services, are priced under the regulations of Bangladesh Bank and provides its perks and benefits in comparison to other companies through its ranges of products and utmost caring services, as it follows the customer first method. The place of operations for IPDC consists of both physical branches spread all over the country and through apps where customers can avail services such as IPDC EZ etc.

For promotions to achieve the position in the target market IPDC offers exclusive deals and runs campaigns to captivate customers. An ongoing campaign for Priti, the privilege card enables the customers to avail discounts such as, 20% discount on services, 50% discount on rooms at Westin

Dhaka etc. These deals attract deposits and exclusive deals for women to empower women in the finance industry.

2.4.2 Marketing Channels

IPDC intends to take on a digital based marketing technique. They conduct marketing activities through its own Facebook, Instagram accounts and YouTube channel. As IPDC has set its sights on creating a green environment, this also includes usage of less papers and rather use technology based methods wherever, whenever possible for its operations so digital marketing plays a key role. Further usages of digital billboards or long-lasting banners rather than one time leaflets or posters marks the message of IPDC's marketing strategy.

2.4.3 Product Development & Competitive Practices

IPDC understands the needs of each customer varies from client group to group. They implement the same philosophy to develop new products and executive competitive practices to gain advantage in the market.

IPDC EZ is one of the developments, which enables customers to avail loans for small amounts to purchase household electronics with ease, with a touch of an app. With options of monthly installments to pay back, the customers get flexible options for payback. Additionally, its deposit product, Priti, is a women exclusive platform for IPDC's women clients to prevail services and enjoy discounts through partners. IPDC following its vision to serve youth, women and people in rural areas, it aims towards these out of the box products to attract the group of clients who are often overlooked.

2.4.4 Branding Activities

IPDC begins to stand out from the rest of its competitors and related institutions through its magenta hue as its brand color. It further has "Jaago Ucchashe" as its slogan, which presents a concept of living that goes beyond the boundaries of everyday existence.

From IPDC's super brand story, published in 2016, we can look into the company's branding activities. IPDC does not follow a book method of just posting a regular post or celebratory post on social media. They thrive to make the post “cause-driven” instead. For instance, for Independence Day, rather than just posting a customary post on Facebook, IPDC created “Bijoye Jadughor” which was a microsite, displaying the efforts made by everyday people and the privilege of unrestricted life. Similarly, for Eid, IPDC gave away tickets under Eid Ucchash campaign, knowing the struggles of finding tickets to travel outside Dhaka during Eid.

2.4.5 Advertising & Promotion Strategies

IPDC being a financial institution, has not shied away from out of the box promotional activities and has exposed themselves to the market. It has set its promotional strategy which primarily includes a digital based strategy, with a mix of GDN (Google Display Network) and YouTube, as well as other mediums. (IPDC Super Brand Story, 2016).

IPDC has presence on social media and with physical presence with conventional methods, IPDC earns the market of both newer clients and existing clients. IPDC has presented several TVC (television commercials) such as their Home Loan TVC in 2020, which promoted their home loan campaign. The TVC was produced through an external agency which goes by Grey Advertising Bangladesh.

2.4.6 Products and Services

IPDC has core products and services for operations, they include; loan product, deposit products and Ucchash Club.

Loan Products: The loan products are further subcategorized by each client group.

I. <u>Retail Finance:</u>

- Home Loans

IPDC aims to fulfill every individual’s dream of owning their own home through multiple home loan options, this falls under its home and mortgage division.

- Auto Loans

To overcome transportation hassle, IPDC’s auto loan division focuses on financing car, motorcycle etc. (auto loans) for individuals and institutions.

- Personal Loans

For personal financing needs and requirements, personal loan unit provides a wide choice of loan options.

- Bhalo Basha Home Loan

To encourage development outside the metropolitan areas, IPDC's Bhalo Basha Home Loan finances and gives loan options to the middle-income class to establish their own home in their hometown.

- IPDC EZ

Moving with the times where everyone wants fast and easy ways, IPDC's EZ, a consumer financing platform, provides just the ease for its customers. This platform enables customers to apply for loans with a touch and pay it off in installments, this loan is primarily for purchasing products such as electronics from shops/websites and can be used also for trips abroad.

II. <u>Small and Medium Enterprises (SMEs):</u>

- Term Loans

As SMEs require financing for its business needs, such as for modernization of equipment, expansion of office space, etc and to finance for such capital or operating expenses, term loans are preferred.

- Short-Term Financing

Working capital finance, that is the finance required for short period of time for operating everyday operations, short-term finance is available. This helps to meet cash requirements.

- Work-Order Finance

To help overcome liquidity crises and to execute orders in a timely manner, work-order finance is preferred.

- Factoring

In order to release an organization of a debt for some of the total amount owed, IPDC provides businesses with factoring finance, facilitating them to obtain cash quickly on their receivables and maintain working capital.

- Joyee

With goals of providing women in finance the opportunities, IPDC's Joyee facilitates female entrepreneurs with low interest rates, all year around.

- Lease Finance

Lease finance is provided to SMEs for industrial engines, machines & equipment, generators, vehicles etc.

III. <u>Corporate Finance and Advisory:</u>

- Lease Finance

Corporate sector, usually requiring bigger amounts, are also provided industrial engines, machines & equipment, generators, vehicles etc.by IPDC.

- Term Loans

To help corporate sector meet their longer term needs, for capital and operating purposes, such as modernization of equipment, expansion of office space, factories etc. term loans are available.

- Project and Syndication Financing

When syndication services are required for large scale investments, IPDC will form consortiums with banks and FIs to raise funds. IPDC will remain the lead financing arranger.

- Short-Term Financing

For corporates too, short-term financing is available where to fund everyday operations are preferred.

Deposit Products: These are available for both savings and deposit schemes as per customer requires.

- Deposit Premium Scheme

In this scheme, fixed amount is deposited every month, and it is capitalized annual, which can be withdrawn at the end of the term.

- Millionaire Deposit Scheme

This is a monthly scheme, that provides a flexible long-term that gives a maturity value of 1 million BDT.

- Ultiflex Deposit Scheme

With the availability to depositing any amount of deposit, anytime, with a fixed rate, this scheme is the most flexible scheme in IPDC. The minimum time of the deposit is 2 years.

- Annual Profit Scheme

Fixed amount, no less than 10,000BDT must be deposited, and interest payment is annual.

- Cumulative Profit Scheme

Fixed amount, no less than 10,000BDT must be deposited, and interest payment is at maturity.

- Fixed Deposit General

Fixed amount, no less than 10,000BDT must be deposited, with tenure of minimum 3 months, and interest is paid at maturity.

- Monthly Profit Scheme

Fixed amount, no less than 50,000BDT must be deposited, with tenure of minimum 3 months, and interest is paid on monthly basis.

- Double Money Deposit Scheme

Fixed amount, no less than 50,000BDT must be deposited, and the deposited amount is doubled after a certain period.

- Quarterly Profit Scheme

Fixed amount, no less than 50,000BDT must be deposited, with tenure of minimum 1 year, and interest is paid on quarterly basis.

- Priti

A women exclusive platform of IPDC clients to claim a wide range of privileged services and discounts.

Ucchash Club: This club is referred to as priority services, especially designed for top customers. These privileges are arranged for high value customers, services include financial advice, top priority etc. IPDC is one of the few NBFIs to provide such convenience to its top customers.

2.4.7 Critical Marketing Issues & Gaps

The institution despite being well prepared certain marketing issues can be found. The issue of addressing certain stigma and unsure customers in trusting NBFIs has at times been overlooked.

This is because, while NBFI conducts financial literacy sessions across branches, with better depth and reaching out to potential customers, it would be more effective.

One of the groups IPDC's new vision, on whom IPDC wants to spotlight on, the youth are currently being failed to be observed by the marketing management. Marketing specially for the youth, may require designing products accordingly to them, and marketing those products to reach to the young generation. Student loans, marketed through universities can be a prime example to reach out to the youth more. Additionally, holding workshops, seminars at universities to grow interest on NBFIs could help promote the brand name even more.

2.5 Financial Performance & Accounting Practices

2.5.1 Financial Performance

2.5.1.1 Loan Portfolio & Deposit Portfolio

For understanding the position of IPDC in terms of its future growth and stability, its loan portfolio and deposit portfolio is crucial. IPDC needs to embrace its diversification and reduce concentration on one single segment.

- Loan Portfolio: (Annual Report, 2022)

Figure: Loan Portfolio, showing segment-wise loans, leases & advances of 2022

In 2022, portfolio grew in comparison to its previous years and predictions are once the economy stabilizes following the pandemic, IPDC will see more diversification its loan portfolio. In the corporate sector, it amounted to 44%, nearly the half of the loan portfolio. As per annual reports, from 2017 corporate sector grew by 1.6 times, from 19,079mn BDT to currently, 30,205mn BDT. This growth indicates positivity, however, considering one of the hardest challenges for IPDC is now gaining the trust and business of high end corporate clients, this may reach its limit. Further, solely catering to corporate sector may isolate IPDC from earning clients in other sectors with different needs.

Moving to retail sector, the retail portfolio represented a mere 24% of the whole loan portfolio. Retail sector includes personal loans, leases etc. and growth of this sector will put significant benefit on the institution. As per annual reports, from 2017 retail sector increased by 2.6 times, from 6,980mn BDT to currently, 15,935mn BDT. While it has impressively improved in less than ten years, this sector is expected to grow in greater deal in the near future, which will reduce the risk on sole concentration on the corporate sector in IPDC.

Finally, taking SME sector, small, medium enterprise represented a total of 32% of loan portfolio. SME sector being on the most vital sectors in Bangladesh gives much scope of expanding financial services towards. From 2017, SME sector has also seen a growth of 2.6 times in IPDC showcasing its importance. However, for IPDC SME sector proves to be even more importance as despite the ongoing economic situation, SME sector in Bangladesh is thriving and thus more concentration would provide IPDC the security of funding and investing.

To sum up, diversification towards retail and SME sector becomes important for IPDC, as nearly half of the portfolio being taken up by corporate may lead to devastating circumstances in case of a financial crisis, or clients preferring banks more due to NBFIs industry struggling overall.

- Deposit Portfolio: (Annual Report, 2022)

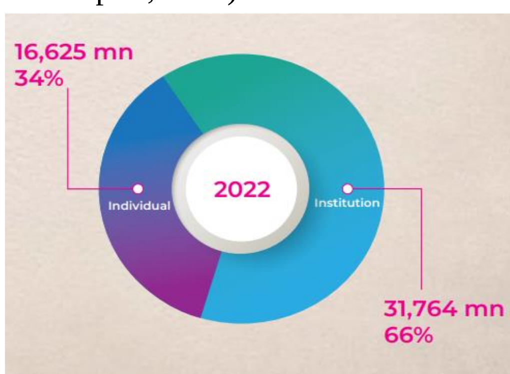


Figure: Deposit Portfolio, showing customer deposits of 2022

From the above table, deposits from individuals represented 34% of the total deposits, while institutions amounted to 66% of the total deposits. While IPDC have been taking measures and have increased individual deposits by 18.1% since 2021 (Annual Report, 2022), IPDC still has to focus more on diversifying its deposit profile as well. This is important due to this dependency may to lead to problems such as, even if two or three clients withdrawing the deposit may result in significant fall in total deposit.

2.5.1.2 Ratio Analysis

Use of ratio analysis, can help identify how the institution is doing financially. In the following, we will look through the financial indicators of IPDC for the past five years, from 2018 to 2022.

I. Profitability

Financial measurements known as profitability ratios are used to assess a company's capacity to turn a profit over time in relation to its revenue, operational expenses, balance sheet assets, and shareholders' equity. Higher profitability ratios, indicate better success in converting revenue to profit, and are often desirable to lower ratios. It is crucial to remember, though, that profitability ratios work best when implemented as comparison tools. (Hayes, 2023)

The table below represents the profitability ratios of IPDC: (IPDC, Annual Report 2022)

	2018	**2019**	**2020**	**2021**	**2022**
Net Interest Margin Ratio[1]	4.0%	3.6%	3.2%	3.8%	3.5%
Operating Profit Margin[2]	22.1%	17.6%	24.3%	33.7%	24.9%
Return on Asset (ROA)	1.0%	1.0%	1.0%	1.1%	1.05%

To note:

1. Net Interest Margin = Net Interest Income/Average Interest Earning Assets excluding Investments

2. Operating Profit Margin = Operating Profit / Interest Income

As the above table presents three profitability ratios that help us understand the performance of IPDC for the past 5 years. To begin with, *net interest margin*, which shows how much the financial institution earns from its interest-bearing products as compared to how the interest it provides its depositors. Having a clear understanding of how profitable the loans and related products are for IPDC we can see net interest margin ratio. This percentage have varied over the years for IPDC as in the beginning of the five-year period, it was peaking at 4% however over the years it has seen a slight decline. From 3.6% in 2019, to the lowest point at 3.2% at 2020. Pandemic can be a contributing factor as loans became less desirable for clients. However, following 2021, the ratio improved by 0.6% and reached 3.8%. In the latest year, 2022 it slightly fell yet again.

Further, *operating profit margin*, which indicates how much profit is generated from the institution's core operations. Core operations for IPDC includes providing their financial services and products. Over the years we can see how IPDC has improved despite the struggling economy in the post pandemic period. In 2018 it was at 22.1%, and fell further in 2019, however it began rising in 2020 to 24.3%. In 2021, IPDC saw a significant boost of 33.7% but failed to maintain it fell again to 24.9%. However, this still shows growth of profits for the institution.

Finally, *return on asset (ROA)*, which demonstrates how much the institution is earning from the assets it has nvested in the institution itself, it may range from investing in employees, software programs, etc. For IPDC, in the past 5 years, this return has stayed nearly the same. It has seen no significant changes in year as it has ranged from 1.0% to a highest of 1.1% from 2018 to 2022 period. While no drop in the ratio signifies positive sides of the institution, also not seeing any improvement indicates no major assets has been undertaken to improve the institution's profitability and hence growth might be limited for this factor.

II. Liquidity & Solvency

Another kind of financial ratio used to assess a company's capacity to settle its immediate debt is the liquidity ratio. The data assists in figuring out if a business can pay its current responsibilities with its liquid, or current, assets. When a company's ratio is 1, it indicates that its existing assets and obligations can be paid off in whole. A ratio that is less than one (for instance, 0.75), indicates that the company cannot pay its current liabilities. (CFI Team, n.d)

The table below represents the liquidity & solvency ratios of IPDC: (IPDC, Annual Report 2022)

	2018	**2019**	**2020**	**2021**	**2022**
Current Ratio	1.0	1.0	1.0	1.0	1.0
Debt Equity Ratio	1.6	1.3	1.8	1.7	`1.8
Capital Adequacy Ratio (CAR)[1]	14.01%	19.30%	18.51%	15.65%	15.92%
Leverage Ratio[2]	6.8%	8.2%	7.4%	7.1%	7.5%
Loan to Fund Ratio[3]	94.8%	86.0%	77.2%	84.6%	86.7%

To note:

1. Capital Adequacy Ratio (CAR)= Tier 1 +Tier 2 Capital/Total Assets

2. Leverage Ratio = Tier 1 Capital/Total Asset

3. Loan to Fund Ratio= Total Loans/Total Deposit

Beginning with, *current ratio*, we can look at a constant figure of 1.0 throughout the 5 years, from 2018 to 2023. This ratio of 1, refers the institution is capable of paying of its short-term assets through short-term liabilities. While a ratio of 1 indicates stability, with no improvement in current ratio for past 5 years could stipulate there has been no growth for IPDC in its current assets. Thus, improving its current ratio should be priority.

Further, *debt equity ratio*, helps us find out how much debt a company has, in comparison to its assets. From the above table, debt equity ratio has ranged from the lowest of 1.3 at 2019 to the highest at 1.8 in 2022. The higher the ratio, the institution shows more risk factors associated to repaying back its debts. While IPDC have not seen any major changes, it still shows a struggling ratio in the recent years. This could be improved through betterment and more investments towards the company's assets.

Moving on, *capital adequacy ratio (CAR)*, that identifies the strength of the financial institution by using its capital and assets. A higher capital adequacy ratio is preferred as it shows stability and efficiency of the financial institution. And, in terms of unexpected losses, this stability would ensure less risks for its clients. IPDC's CAR in 2018 was at its lowest in the past 5 years, at 14.01%. Moving, IPDC seen a huge boost in 2019 at 19.30%, just before the pandemic hit in 2020. This could not be maintained as in 2020 it fell to 18.51% and declined further in the following years hitting, 15.92% in the latest 2022. Again, this could be contributed to lower assets in hand of the institution. To conclude, however, according to Bangladesh Bank regulations under Basel Accord, NBFIs are to maintained not less than 10% of CAR. Thus, IPDC is still operating above its requirements.

Looking at the *leverage ratio* of Tier 1 capital, tier 1 capital includes the institution's core capital that are made up of retained earnings, common stock etc. The ratio helps to identify how much the financial institution can withstand the negative impacts/effects and survive from its assets. 6% Tier 1 leverage ratio is the ideal ratio for struggling industry such as NBFIs, IPDC has recovered and presented a data well above 6% and improved over the years, currently at 7.5%. This indicates the firm's stability rising.

Finally, *loan to fund ratio*, which shows the ability to cover loan losses and any withdrawals by customers in the financial institution. To add, it shows how well the bank is at brining and retaining customers through increasing deposits. In the finance industry, ideal figure is 80-90%. (Murphy, 2023). From the table above, IPDC has maintained the loan to fund ratio remarkably, ranging from 94% to 86%. It has brought down from the very 94% which indicated low reserves, and brought to the ideal figure of 86%.

III. Asset Quality

	2018	2019	2020	2021	2022
Rate of NPL	2.14%	1.57%	1.38%	3.15%	4.14%

To start with, *rate of NPLs (non-performing loans)*, is one indicator of asset quality. This represents a percentage of gross non-performing loans to total loans. Basing on the industry, NBFIs are struggling to meet ends in Bangladesh considering the capping on lending regulations and non-performing loans increasing. End of 2022 data stated, average non-performing loans ratio was at a staggering nearly 24% (Babu, 2023). From the above table we can look that IPDC's performance over the years, and while it has been increasing, with the highest of 4.14% NPL in the year 2022, we can see it being significantly lower than the industry average. Additionally, top NBFIs performance reported to have NPL ratio of 1-7% in 2022, thus, the conclusion can be drawn IPDC is operating and keeping its NPL ratio moderately stable, and well below the dangerous zone.

IV. Market Value Added (MVA)

	2018	2019	2020	2021	2022
Market Value Per Share (BDT)	38.10	25.60	27.60	38.60	57.60
Number of Share Outstanding	218,160,816	353,420,521	371,091,547	371,019,547	371,091,547
Total Market Capitalization	8,311.9	9,047.6	10,242.1	14,324.1	21,374.9
Book Value of Outstanding Shares	3,751.9	5,5760	6,063.4	6,353.0	6,802.9

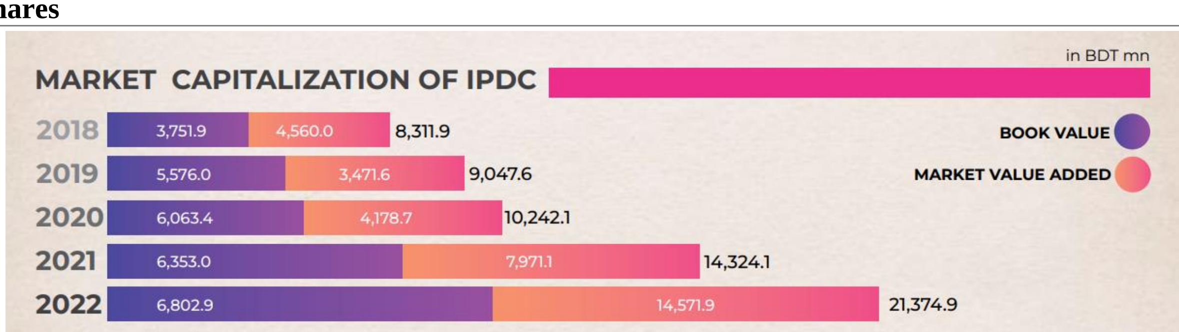


Figure: Market Value Added (Annual Report,2022)

Taking look at the *market value added* (MVA) of IPDC. Market Value Added, or MVA, evaluates how the market has assessed the performance of the company in relation to share market value. The difference between the book value and market value of the equity invested in the company is known as MVA. As this represents the market performance of the institution, from the above table we can understand the growth of IPDC over the past years. In terms of market share, despite a low of 25.60BDT in 2019, and 27.60BDT in 2020. IPDC has improved market value in the ongoing pandemic and reached the highest in the past 5 years, at 57.60BDT in the year 2022.

Total market capitalization has risen over the past few years steadily, and in the last year of 2022, it has jumped from 14,324 to 21,374mn BDT. Indicating a positive rise of the market value added at 14,571.9mn BDT. The NBFI industry is still struggling to shine in this economy, so still encountering such growth is positive aspects of IPDC.

2.5.1.3 Du-Pont Framework

Du-Pont analysis is a framework, or method, that helps to break down the return on equity (ROE) equation into three parts. These parts include, operating efficiency, asset efficiency and leverage. Operating efficiency is assessed by net profit margin, asset efficiency by total asset turnover and finally, leverage is assessed by equity multiplier. (CFI Team, n.d)

To take a look at IPDC's 2022 Du-Pont analysis, we can see, net profit margin of IPDC increased by 1% in 2022 as compared to 2021. Asset Turnover has dropped to 3.8% in 2022 from its previous 4.3%. This drop in asset turnover is due to decreased investment in assets in the year. Finally, equity multiplier increased to 13.1 times as IPDC's average assets increased due to increased loan portfolio. (IPDC Annual Report, 2022)

2.5.1.4 Comparative Analysis

To compare financial standing of IPDC with those of industries top performers, we can take a look at the following table. This will highlight the differences and areas IPDC is falling behind or moving forward in terms of its industry peers. The table presents data from the third quarterly year, September 2022. (As per IPDC Annual Report 2022).

Details	IPDC	IDLC	LankaBangla	DBH
Loans & Advances	70,337	102,064	63,332	44,114
Growth (YTD)	*14.62%*	*15.39%*	*14.29%*	*2.06%*
Deposit	55,154	82,517	45,936	38,053
Growth (YTD)	*-4.38%*	*9.73%*	*-2.69%*	*-17.96%*
Revenue	2,515	4,213	2,032	1,609
Growth (YoY)	*7.99%*	*-1.15%*	*0.30%*	*-15.18%*
Net Profit	620	1,055	72	787
Growth (YoY)	*-1.59%*	*-7.78%*	*-73.53%*	*2.96%*
Cash Flow	(5,764)	(23,102)	(1,735)	(2,136)

In light of the table above, we can firstly take a look at IPDC's *loans & advances*, in comparison to its peers. With securing the second position in terms of growth in loans & advances, at 14.62% IPDC is leading above LankaBangla by a margin and significantly above DBH. Thus, IPDC's credit portfolio is growing in comparison to its peers.

Additionally, *deposits*, were too second, with IDLC topping the table with 82,517mn BDT, and IPDC being generously below at 55,154mn BDT. Further, with a de-growth IPDC indicated slow incoming deposits. Primary reason for such occurrence is to be, IPDC's asset diversification is towards retail customers and with encouraging and bringing in more retail customers, deposits fell for the year. This however promises better potential in the future as IPDC's concentration and reliance on the banking sector was becoming a limitation for the institution.

Looking forward to the *revenue* and its growth comparison, IPDC's revenue was lower than of IDLC, with the former registering a revenue of 2,515mn BDT and the latter, nearly double at 4,213mn BDT. However, when looking at the growth rate, IPDC has done far better than its peers, earning a growth rate of 7.99%. This credited due to IPDC recognizing the importance of portfolio growth and expanding in different sectors.

Further, *net profit* and its growth, for IPDC has reached 620mn BDT, just lower than IDLC which generated a net profit of 1,055mn BDT. However, similar to revenue growth, we can see, IPDC has witnessed a higher growth than its industry peers, despite the negative figure, at 1.59%.

Finally, taking *cash flow* into account, the industry of NBFIs have been facing liquidity crisis with all the industry peers reporting a higher cash out flow figure, with IDLC having more than double of IPDC's cash outflow.

To summarize the comparative analysis, it has been a rough few years since the pandemic for the NBFIs industry. Loans are rising towards the agricultural, transportation and trade sector and 37% of the shares are taken by industrial sector. Shifts in loan disbursements are expected to occur and hence, loans, deposits, profitability scopes, and cash flows may now look different. IPDC is maintaining its top position in the difficult times among its peers.

2.5.2 Accounting Practices

IPDC maintains a very clear and transparent accounting system. All the calculations are as per the International Financial Reporting Standards, or IFRSs as applicable in Bangladesh. This standard requires to follow and report on the affected changes on assets, liabilities, income and expenses. These are reviewed on regular basis. As per declaration in Annual Report 2022, the management uses going concern basis of accounting when preparing the statements. Internal auditors conduct periodic audits to minimize any discrepancies and guarantees the established policies are being followed. External auditors of IPDC is Rahman Rahman Huq, which is a member firm of KPMG International. IPDC remains transparent with their shareholders and stakeholders with detailed calculations on significant effects and explanations provided on their annual reports.

2.6 Operations Management and Information System Practices

2.6.1 Information Systems, Processing and Sharing Data with Stakeholders

IPDC ensures cybersecurity and information protection of customers. As a financial institution, it deals with highly confidential and sensitive information. Customer data are protected with security, and access is only given to employees who are to assess or process the information for loan proceedings, etc. Data are mostly stored on internal software, which can be accessed through employee information. This enables to track down who has access and have used the data. While sensitive information is kept private, IPDC shares data with its stakeholders as required. IPDC produces its annual reports with utmost care and is detailed to maintain transparency.

2.6.2 Office Management Software

Office management software for IPDC includes use of SharePoint, the Microsoft drive solution, and using One Drive for storage of data which can be only accessed to through employee IDs.

IPDC's growth in the technology sector could further be analyzed with its product, ORJON. This is a digital supply chain platform for easier access of MSMEs to apply for supply chain finance (SCF), that is collateral free, low cost credit. As supply chain finance usually consists of many manual tasks, this platform makes it hassle free for the customers and makes it easy to apply for SCF. Additionally, IPDC's EZ is another platform that enables customers to apply for loans for white consumer goods with a touch. This loan is processed through like other loans and usually of less amount and approval is fast.

IPDC's popular website, SHIRI is a client based platform which uploads information directly electronically. Customers can sign up for this through IPDC's website's "iService" tab and the very simple interface makes it hassle-free.

Concentrating and understanding the importance of technology will be crucial for future growth when Bangladesh takes its step towards the digital world.

2.7 Industry and Competitive Analysis

2.7.1 Industry Analysis - Porter's Five Forces

To understand the industry IPDC operates in, we can look through a model called Porter's Five Forces. It looks through five categories and assesses the competitiveness of the organization in the industry. Each category is rated from one to five (1 to 5), with 1 indicating the lowest and 5 indicating the highest level.

I. Threat of New Entrants 1 2 3 4 5

There are thirty-five (35) non-banking financial institutions (NBFI) in Bangladesh as of 2023. Hasan (2023) reported, fourteen of this non-banking institutions were reported to be in the red zone, underperforming in the last year. This indicates a decline in the industry in the nation. Likewise, the popular mobile finance app, Nagad, had received the NBFI license. However, earlier this year in August, as reported by The Business Standard (2023) Nagad surrendered their NBFI license and opted to stay in digital banking. Further cementing that the industry is not as lucrative as it once was.

With the declining industry, it is likely in the near future for even less entrants to come into the NBFI industry. Thus, for IPDC the threat of new entrants is relatively low, which can be numbered at 2.

II. Threat of Substitutes 1 2 3 4 5

Non-Banking Financial Institutions (NBFIs) have been operating in the nation for nearly forty years, however still has failed to earn the trust of many depositors. In an interview with Dr Saleh Uddin Ahmed, Business Standard Reported (2022), said, “While the larger banks do have the capacity to monitor their debtors, most NBFIs have limited resources and cannot do so. This is probably why they prefer keeping a relatively smaller and manageable roster compared to typical financial institutions like banks”. This addresses how NBFIs more often than not, cannot monitor their debtors as banks can. Thus, as NBFIs biggest substitute is, banks. Further, inclusion of modern day digital banking and mobile financial apps additional substitutes exist in the industry.

With more than 60 banks operating in the nation, banks are larger in numbers and act as a big threat as a substitute for IPDC and other NBFIs. Hence, the threat of substitutes is extremely high, which can be numbered at 5.

III. Bargaining Power of Customers 1 2 3 4 5

Customers, or clients of NBFIs range from individuals, partners, corporate and even MNCs. These customers, depositors, would have different bargaining power depending on their amount of deposit. Big corporations or MNCs, usually have high bargaining power as compared to individuals. This is because, with less amount, the individual closing his own will not have a significant impact on the institution.

Another client group includes the borrowers. They apply for loans and leasing, and as customers they have next to no bargaining power. This is because the rules and regulations are set by the Bangladesh Bank and loan rates are fixed accordingly.

Thus, IPDC faces moderate bargaining power of customers, mainly from depositors, which can be numbered at 3.

IV. Bargaining Power of Suppliers 1 2 3 4 5

Suppliers of IPDC and NBFIs include, depositors and employees. Depositors bring in the deposit, that enables them to give out loans by the institution. Depositors of NBFIs generally have relatively high bargaining power because, if they consider withdrawing their accounts, especially big accounts of corporate and MNCs, it may make significant damage on the NBFIs liquidity. Additionally, attracting new clients with lucrative programs with higher savings rate, accessibility, and flexibility is required as otherwise clients may not opt for NBFIs.

Further, employees are important assets for the company who are also the suppliers. Executive and top level management employees have higher bargaining power as suppliers as they make crucial decisions, and are expensive to recruit. Hence, employees play a vital role they tend to have certain bargaining power.

Thus, bargaining power of suppliers are relatively high, again mainly from depositors, and can be numbered at 4.

V. Competitive Rivalry 1 2 3 4 5

Competitive rivalry is an indicator of the level of competition between currently operating businesses in the industry. According to the score out of 100, as researched by EBL Securities from 2022 (Babu, 2023) IPDC Finance current biggest competitors in the NBFI industry stand to be DBH Finance PLC, IDLC Finance and National Housing. While the NBFI industry is not as competitive as the banking industry, due to most NBFIs struggling to meet ends, the top few institutions fight for the top rank.

Thus, to estimate the competitive rivalry among NBFIs, it can be numbered at 3, which is a moderate level.

2.7.2 Company Analysis - SWOT (Strength, Weakness, Opportunities & Threats)

A company analysis through SWOT analysis, helps us be aware of the company’s own strengths and weaknesses as well as analyze the external factors affecting the company through understanding its opportunities and threats. By understanding the company’s own capabilities and future potentials, the company can make proper and sound decisions for the betterment of the company. (IPDC Annual Report, 2022)

I. Strengths

To begin with, we can look through the strengths of IPDC. As reported by IPDC in its annual report of 2022, the management has highlighted three strengths. Firstly, its unique shareholding structure. With BRAC holding 25% of the shares in the institutions, as well as government support, it solidifies the shareholding panel and makes IPDC a strong and renowned institution.

Secondly, IPDC’s relationship with corporate houses. This gives the competitive advantage of appealing to bring in bigger deposits. With higher amounts of deposits, it enables IPDC to maintain big clients and give out loans in bigger amounts. This helps the company to keep afloat and further help its liquidity.

Finally, another strength of IPDC includes its risk management framework. In the industry currently 16 NBFIs are experiencing high amounts of non-performing loans and potential bad debts, while IPDC maintains its position in the industry through thorough risk management. This framework allows to minimize credit risk and avoid bad & loss accounts.

These strengths are responsible for IPDC’s current position and its image to be a trustworthy NBFI in the country.

II. Weakness

As reported by IPDC in its annual report of 2022, we can look into the self-identified weaknesses of the company. IPDC identifies the need for improvement for brand recognition in the retail and SME sector. IPDC focuses on corporate relations, while retail such as home loans and the SME sector gets overlooked. In the emerging economy, the SME sector is thriving and overlooking the growing sector reduces chances of more future growth of the company.

Additionally, IPDC recognizes its limited distribution network. While having several branches outside of Dhaka, the company still fails to reach rural areas for its expansion. In the developing nation, it is important to branch out more to increase its distribution network.

III. Opportunities

IPDC has further been able to develop opportunities for itself, as reported by its annual report of 2022. Out of the many opportunities, one of the key important opportunities considering its external environment includes, emergence of the middle income class in the nation. Middle income class indicates more families having the ability to apply for home loans, auto loans and other retail loans. This gives birth to a new chance of rebuilding the retail sector. People in this income class require loans and are able to apply and avail such loans creating a market for IPDC. Additionally, one of the vision of IPDC including guiding women entrepreneurs, becomes more vital as the country sees a growth in women entrepreneurs. Thus IPDC can increase its focus and reach their target vision through giving importance to women entrepreneurs.

Further opportunities for IPDC include, collaboration with BRAC, growth of service sector, younger generation coming into the workforce with new ideas and skills, and increasing mobile & internet penetration gives opportunity for IPDC to expand their services.

IV. Threats

As reported by IPDC in its annual report of 2022, the institution recognizes one of the biggest threats being competition from banks in corporate lending. As discussed during the industry analysis, one of the biggest substitutes for NBFIs stand to be banks. Similarly, big corporations prefer to trust banks and as one of IPDC's biggest strengths being corporate clients this rises to be a threat.

Further, with limited product and Bangladesh Bank's regulatory restrictions on low cost deposit IPDC faces limitations to their future growth potential. And, with a declining industry, such limitation in growth may lead to fatal consequences for the company.

To conclude the company analysis, we can understand that while IPDC has opportunities for future growth as well as strengths such as unique shareholders and good risk management, IPDC still has to look and plan for their threats accordingly in order to overcome their weaknesses and reduce chances of poor performance.

2.8 Summary

To summarize, IPDC's growth since 2016 after its rebranding has been remarkable. In the struggling industry of NBFIs it has been a challenge to keep its performance maximized, and above the industry average. IPDC has managed to keep its goal of building a solid image through footprint, both offline and online media and marketing. With products and services catering to the mass market, curating a diversified loan portfolio has helped the institution secure its position in the industry.

Moreover, understanding the importance of effective and efficient management being top priority, IPDC has focused deeply on its management practices. A participative leadership style and prioritizing employee growth and value, leads IPDC to stand out as a top employer and brand. Additionally, its investments towards training and employee development initiatives ensures IPDC's future plans and growth for the institution. With highly competitive substitutes such as banks which provide more stability, IPDC has concentrated on its marketing and attempted to stood out than the rest of the NBFIs. From its tagline, to its brand color, IPDC has worked to stand out and make a brand name to be remembered. Promoting through social media with decent online presence has led IPDC to raise brand awareness.

Currently standing in the fourth place ranking of NBFI (Babu, 2023), IPDC has consistently performed well to warrant its position. The rising NPL ratio, the major problem currently in the NBFI industry, was tackled by IPDC, keeping it below 5% as compared to industry average of nearly 24%. This indicates the financial position of the institution and its practices that assures such performance.

IPDC performing in the declining industry, has overcome through self-assessment of its industry and its own performance. To maximize its strength, for IPDC it is its relation with corporate houses and big clients. While the need to improve its brand recognition among the SME is vitally important for IPDC. Further, focusing on its opportunities such as rise of middle class income and preventing threats such as competition from banks, enables IPDC to understand where to focus on and operate accordingly.

To conclude, IPDC since its beginning in 1981, has been a brand name in the industry. Starting out with being the first private financial institution, focusing on industrial promotion and development, to its rebranding in 2016 to cater to the youth, women and underserved areas. IPDC has grown as a company, along with its employees, and aims to reach higher goals in the future.

2.9 Recommendations

While IPDC have been performing constant in the struggling NBFI industry, there are certain recommendations that would enable IPDC to bloom as a NBFI even more. Some of the recommendations are given below, based on the institution's performance and status analyzed in the report.

- Advertising & Promotional Activities

To begin with, advertising and promotion activities, despite IPDC's the digital approach and social media presence, IPDC is not as popular with the younger generation. IPDC's vision to serve and help funding the youth, can only be fulfilled with being popular and well-known name in the generation. Promotion among the youth can be through university visits & seminars, finance workshops, and products like student loans would enable IPDC to become the financial institution serving the youth. Further steps could be taken with building direct rapport with university and its clubs through placement of "campus ambassadors". This directly creates a relation and gap between the two institutions become smaller.

- Improvements in Financial Performance

Additionally, from the financial performance, we can see a fall in investments, as the asset turnover dropped. Further, no improvements in the current ratio, indicating no significant changes or additional assets. This may stand out to be a problem in the long term, and if unexpected losses are to occur. Investments towards newer research of product developments, giving fringe benefits as well as bonuses to motivate existing employees stay motivated, and promising promotions to help employees advance in their careers would all be reflected as improvements in the financial performance of the institution.

- Increased Concentration to Serve the Youth

With one of IPDC's core values currently being to appeal to the youth, women and underserved areas, concentration towards increasing customers from the young generation would mean increasing products appealing to them. One of IPDC's gap remains in the education sector, with no availability of student loans. Student loans for studying in private universities or abroad would broaden the customers and overcome the boundary with students and IPDC.

Thus, these recommendations are to provide guidance and help IPDC overcome its struggles and maximize its profit in the near future. Ensuring the stability of IPDC through these recommendations would secure its future in the non-banking industry.

3 Research Topic:

Comparative Analysis of Conventional and Modern Methods of Credit Risk Assessment in Financial Institutions: Implications for Micro, Small and Medium Enterprises (MSMEs)

3.1 Introduction

3.1.1 Background

For years' conventional methods have been the industry norm to assess the credit risk in financial institution in the country. Without looking beyond the credit risk grading and several internal regulations set by each institution, most institution only focuses on providing loans to corporates or companies will high level of paid-up capital. Understanding the differences of the two methods would enable assessors analyze the limitations of the conventional methods and look forward to the improvements from implementation of the modern methods.

Conventional methods, limits the significance of providing financial support to smaller firms, MSMEs, who often do not have such high level of paid-up capital or years of experience to back them. As the economy grows in Bangladesh, with recent developments opening up more opportunities for start-ups and new smaller businesses to enter the industry, a new opportunity grows for financial institutions. MSMEs are the new future, and the new trend of businesses, to help development of the business industry. Financing such institutions is vital for the growth of the economy.

While MSMEs are crucial for the economic development, it often do not receive the funding it requires and thus limiting its growth. In this paper, we can examine how while conventional methods for most cases and is the standard for the industry, there are certain limitations it poses for MSMEs and related enterprises. Thus, looking into modern methods of assessments, may open up new opportunities for MSMEs.

3.1.2 Literature Review

B. Sanjay (2020) reports the future of credit risk management in his article of "AI, Machine Learning, and the Future of Credit Risk Management". It goes through the methods and workings of the tech-based models that are modern methods of assessing credit. Additionally, he provides examples of places where application has been conducted and its impact on the institution and its lending.

Allianz Trade (n.d), an insurance company based in the United States, explores newer and improved ways of credit risk analysis. They explore unique methods of embracing new technology and tools to improve credit risk analysis. The incorporation of machine learning and artificial intelligence may further give institutions a better understanding of the clients beyond traditional information.

Credit Risk Grading Manual (2005) by the Bangladesh Bank provides all the guidelines to assess credit risk through a credit risk grading system. This details the definitions, how to compute the credit risk grading, its process, and exceptions. To understand how Bangladesh monitors the credit risk grading system this manual is important.

3.1.3 Objectives

The objective of the report is to highlight the difference between conventional and modern methods, and how might modern methods be beneficial effective lending decisions. It will compare current methods to newer methods of valuation to increase lending toward micro and small, medium enterprises (MSMEs).

The report will look in details of the existing and common methods used in the industry currently, and provide an example of memo used by IPDC when assessing the overview of a client's file. This helps understand the parameters used by financial institutions to assess one company before the approval or disbursement of any finance.

In addition, modern methods overview that are already in initial stages of implementation stage in foreign countries are discussed. Machine Learning and Artificial Intelligence are discussed as the future of credit risk management. Further, the research aims to give the spotlight on how MSMEs can especially benefit from the newer method. Primarily, this is due to MSMEs getting overlooked due to limited past data and experience, despite their potential in the industry and ability to grow as a company.

3.1.4 Significance

Understanding the difference between traditional, or current and modern methods of credit risk assessment is important to improve the assessment policies. Improving the current methods would enable the financial institutions to increase their clientele and boost safer lending through safer assessment policies.

With the growing economy of Bangladesh, investments are more and more required for cottage, small and medium-sized enterprises. MSMEs in Bangladesh however often fail to have certain equity or assets to verify and support their loans fully, making it harder to assess companies effectively using conventional methods of CRG score, etc. resulting in companies failing to receive funding despite their potential (Ahmed, S. 2021). To help with the growth of such businesses, assessing credit risk can be done beyond traditional methods. Innovative and effective methods, such as looking into their goodwill, references, the potential, and the significance of the industry for the economy have to be considered in order to assess credit risk to give proper funding to the MSMEs so they too can contribute to the economy to its full potential.

3.2 Methodology

The report will work on to assess alternatives of credit risk assessment in comparison its current methods. Beginning with analyzing the current methods of assessment and their challenges. This will be done by using secondary data from the company websites, company manuals, articles, and journals from the internet to assess the industry-wide norms. Additionally, the report also gives an example memo, that one of the country's leading NBFI, IPDC uses when considering loan approvals. It includes several parameters and it is also described in details how the parameters effect when making the final decision.

Further, it will research the new methods which can be used to assess credit risk more efficiently. It will dive into new methods, such as the application of AI to credit risk management. This will be done by analyzing the effectiveness of AI and its sustainability from secondary data of present AI models that are used for credit risk scoring.

3.3 Findings and Analysis

3.3.1 Conventional Methods Used by Finance Industry to Assess Credit

To assess credit risk in the finance industry several methods are used, that are common among all the institutions, including banks and NBFIs. Through these methods, we can understand what methods are currently being conducted in the industry.

3.3.1.1 6 Cs of Credit

6 Cs of Credit help determine the borrower's creditworthiness. This is the main criterion of making the decision to disburse the loan as the biggest risk for the institution remains whether or not the client will be able to pay back in time and amount. The 6 Cs of Credit and how they influence credit decisions are in the following:

I. Character

When considering a loan, it is most often noticed at first, whether the character of the person applying for the loan is trustworthy. The person applying for the loan, must have a clear purpose and need or want for the loan. This may range from a company applying for supply chain finance and having a clear description of exactly what it requires such loan to personal loans or auto loans stating the reason for the loan. In addition to having a clear purpose, the customer must have a serious intention to repay the loan. The terms and conditions of repayment have to be stated clearly, along with the purpose. Without a purpose, the financial institution may decline the loan without reviewing it further.

II. Capacity

The capacity of the person or the company applying for the loan has to be thoroughly examined according to the Bangladesh Bank requirements, along with the institution’s policies. Firstly, the one applying for the loan has to have the authority to even request the loan. This includes having a legal standing to sign the binding loan agreement. On top of that, the loan requester must have the capacity to pay back the loan. It may include having enough assets, life expectancy, job life etc.

III. Cash

To approve a loan, the third condition to fulfill includes checking and analyzing the cash generation of a company. If only the company applying for the loan, is able to generate enough cash-in for its operation, it can possibly repay the loan. Customers generally only have three sources of funds they can use to repay the loan, which includes 1) cash from sales of product/services, 2) liquidation of assets and 3) funds raised by issuing shares or equity securities. The institution has to assess thoroughly the client and their ability to raise cash or amount through these means in order to make the loan repayment.

IV. Collateral

Furthermore, the institution has to check the collateral for the applied loan. The answers the question of whether the requester has enough adequate net worth or owns enough quality assets, which can be converted to cash and provide support for the loan in regards to its repayment. This assessment includes inspecting the assets and its condition of the client. On top of that, the age and degree of specialization of the borrower's assets play a role.

V. Conditions

Additionally, conditions are another criterion to examine before disbursement of the loan. The conditions include the recent trends and happenings of the client's line of work or industry. For instance, government employees, or doctors, judges get top priority for the loan as their jobs are very secure and stable. Further, economic conditions play a role to assess the industry before approval. With current political instability, garments sector faces uncertainty and thus may have trouble getting loan approvals. This is checked by the institution as when the client's work or industry they operate in suffers, the loan repayment might be delayed or not received at all.

VI. Control

Control, has been recently reviewed as an assessment criterion to inspect for loan approval. This sector overlooks the questions regarding changes in law and regulations, whether these would adversely affect the borrower, that is the client, or the institution itself. This becomes a top priority in a dynamic industry and growing economy. As changes in the laws, may result in changes of authorities' standards for loan quality.

These above 6Cs of Credit has become the norm to use as a tool to measure the creditworthiness. It is commonly used in banks, and other financial institutions.

3.3.1.2 Credit Risk Grading

The Credit Risk Grading (CRG) is a collective term which defines the underlying credit risk for a particular exposure and is based on a predetermined scale. It deploys a number, generally out of 100, which is used as a summary indicator of risks associated with a credit exposure. (Bangladesh Bank, 2005).

This grading provides financial institutions to make safe and sound decisions by presenting informed data. This further enables institution to examine and monitor changes in risk levels, and manage risk accordingly for optimized returns. To avoid risks, and bad debts, CRG score play a vital role during loan approval decisions.

Additionally, the CRG maintains a standard, allowing to make uniform assessment. The CRG scale consists of eight (8) categories, with short names and numbers as below: (Bangladesh Bank, 2005)

GRADING	**SHORT NAME**	**NUMBER**
Superior	SUP	1
Good	GD	2
Acceptable	ACCPT	3
Marginal/Watch list	MG/WL	4
Special Mention	SM	5
Sub Standard	SS	6
Doubtful	DF	7
Bad & Loss	BL	8

Each category refers to the standard of risk associated. For instance, number 1, superior, refers to lowest risk. Indicating the borrower is backed up, and fully secured by cash, or government guarantee, or by the guarantee of a top tier international bank. While, as the list goes down, at number 8, bad & loss, refers to highest risk associated. This grade has nearly zero prospect of recovery and has records of long outstanding with no progress in obtaining repayment.

To compute the Credit Risk Grading, there are six (6) steps. The steps are as follows:

I. <u>Identify all the principal risk components</u>

Credit risk arises from specific criterions, these five (5) criteria are the following:

- *Financial Risk*
  This risk is related to borrower's chances of failing to meet the obligations to repay the loan due to financial situations. Parameters such as analysis of leverage, liquidity, profitability, and interest coverage ratios are generally assessed here.
- *Business Risk*
  This category enables to understand the industry situation and business conditions that may impact the borrower's payback capabilities. Parameters such as industry growth, market competition, barriers to exit/entry, business outlook are evaluated.
- *Management Risk*
  Management risk can come from poor top management, such as poor experience of top management, its teamwork, succession plan and planning capabilities.
- *Security Risk*
  This risk entails whether the strength of the assets or security is enough in case a default. Parameters such as strength & collateral, location of collateral and support is considered.
- *Relationship Risk*
  This criterion covers the judgement of the borrower's account performance, deposit relationship and compliance by the borrower.

II. <u>Allocate weightages to principal risk components</u>

As CRG follows a standardized method of assessing, the above components are given weightages that are used, the weightages are as follows:

Principal Risk Components	**Weight**
Financial Risk	50%
Business/Industry Risk	18%

Management Risk	12%
Security Risk	10%
Relationship Risk	10%

III. Establish key parameters

As discussed above the key parameters for each category helps to weight the components.

Principal Risk Components	**Key Parameters**
Financial Risk	Leverage, Liquidity, Profitability, & Coverage Ratio
Business/Industry Risk	Size, Age, Outlook of Business, Industry Growth, Competition & Entry/Exit Barrier
Management Risk	Experience, Succession & Team Work
Security Risk	Security Coverage, Collateral Coverage, & Support
Relationship Risk	Account Conduct, Limit, Compliance of Conditions, & Personal Deposit

IV. Assign weightages to each of the key parameters

The above parameters are each then given weightages, that is total to its principal risk component. This enables to assess each parameter individually and thoroughly check each category.

Principal Risk Components	**Key Parameters**	**Weight**
Financial Risk		**50%**
	Leverage	15%
	Liquidity	15%
	Profitability	15%
	Coverage	5%
Business/Industry Risk		**18%**
	Size of Business	5%
	Age of Business	3%
	Business Outlook	3%
	Industry Growth	3%
	Market Competition	3%
	Entry/Exit Barriers	2%
Management Risk		**12%**
	Experience	5%
	Succession	4%
	Team Work	3%
Security Risk		**10%**
	Security Coverage	4%
	Collateral Coverage	4%
	Support	2%

Relationship Risk		**10%**
	Account Conduct	5%
	Utilization of Limit	2%
	Compliance of Conditions	2%
	Personal Deposit	1%

V. <u>Input data to arrive at the score on the key parameters</u>

This step involves inputting the data on MS Excel. This data is to be computerized and stored in the company data to refer to when, and if required.

VI. <u>Arrive at the Credit Risk Grading based on the score obtained</u>

Final step of computing credit risk grading consists of computing all the scores, from the principal risk components and its key parameters, and obtain a score out of 100. Below we can see the table of the matrix. With the Superior, (SUP) grade having a score of 100, Good (GD) grade having a score of 85+ and so on.

Number	**Risk Grading**	**Short Name**	**Score**
1	Superior	SUP	- 100% cash covered - Government guarantee - International Bank guarantees
2	Good	GD	85+
3	Acceptable	ACCPT	75-84
4	Marginal/ Watch List	MG/WL	65-74
5	Special Mention	SM	55-64
6	Sub-Standard	SS	45-54
7	Doubtful	DF	35-44
8	Bad & Loss	BL	<35

3.3.1.3 Credit Risk Identification – Company, Industry Analysis

To assess the credit, it has to be identified on what possible risks the financial institution is exposed to when approving the loan. These risks include, the borrower, industry and systemic risks. (GDS Link, 2020)

Beginning with, the borrower has to be examined through various data, as well as in-person. Site visits are to be conducted if in doubt of valid addresses and validity of the company or business. These risks are to be assessed and inspected before loan approvals.

Further, to examine the company or the client’s line of work and industry, the most three common methods that can be used are,

- Competitive Forces Model (Porters 5 Forces)
- PESTLE (Political, Economic, Social, Technological, Legal, Environmental)
- SWOT (Strength, Weakness, Opportunities, Threats)

These methods help analyze the state of the business or client’s stability to make the repayment and its obligations to be covered. With positive outlook from the business’ industry, it provides strength and reduces risks of default or possibility of bad loss loans.

Finally, to avoid systematic risks such as the market risks or economy-wide risks, the institution should implement precautions and understand the economic situation of the nation in depth. For instance, the COVID pandemic effected the finance industry adversely as businesses were unable to repay back loans due to lockdowns and shutdown of operations. In order to prepare for such instances, financial institutions require to keep a high level of provision and safety reserve for each credit to prevent bad debts.

To summarize, credit risk has to be identified in order to prevent and reduce it in most cases.

3.3.1.4 Credit Risk Monitoring & Mitigation

Credit risk monitoring, that is monitoring the state of the borrower’s ability to pay the credit. This is done to ensure the assessment in the beginning is in order with the current changes. In a dynamic economy, it is more crucial to conduct quarterly or half-year monitoring sessions to make sure the credit risk exposure remains according to the standard.

Further, credit risk mitigation refers to implementing strategies to manage the above credit risk exposure. This is usually done through diversifying one the institution’s loan portfolio and increasing or diversifying collateral requirements. For instance, a worrying state for the Bangladesh’s finance industry, is only 5,019 depositors were responsible for about 56.2% of all deposits in NBFIs (Ahmed, 2022). This indicates these depositors struggling would lead to the brink of NBFIs performance and may even result in some of the struggling institution’s bankruptcy. Thus, diversifying in investments, deposits, clients is so vital in a growing economy.

3.3.2 Credit Risk Management Policy by IPDC Finance to Assess Credit

3.3.2.1 Credit Policies and Procedures

IPDC established a credit policy manual which states the core principles for identifying, measuring, approving and managing credit risk in the institution. The Board of Directors creates these regulations, which are intended to satisfy the requirements of the organization. These guidelines serve as the Company's minimal requirements for extending credit; they do not, however, serve as a replacement for expertise and sound judgment. A corporate, small, and medium-sized business is covered by the policy. Business risk, management risk, financial risk, security risk, environmental risk, reputational risk, and account performance risk are all covered in the extensive credit appraisal process. In order to create stronger internal control systems and reduce conflicts of interest, the credit risk management function operates independently of business-originating functions.

3.3.2.2 Credit Rating and Measurement

IPDC's risk management plays a significant role in making risk-taking decisions and portfolio management. IPDC uses Credit Risk Grading Matrix (CRGM), which is used as general indicator used to compare one set of customers with another; it is not a tool used in lending decisions. A borrower is assessed by CRGM using a range of quantitative and qualitative metrics. There is currently no rating model in use for retail or channel financing; instead, borrowers are evaluated in accordance with pre-approved standards specified in Product Program Guidelines, which have been given approval by the Board of Directors.

3.3.2.3 Credit Monitoring

IPDC monitors portfolio performance and credit exposures at least quarterly. Credit policies for corporate and small- and medium-sized enterprises are spelled out in detail to clients and are subject to ongoing monitoring. Early warning signs are set off by things like declining industry standing, inconsistent repayments, disorganized management, and breach of agreements. If an early warning is issued, corrective measures are decided upon and kept focused on. In the ever-changing and dynamic business world of Bangladesh this is key to avoid seeing a rise in non-performing loans (NPLs).

3.3.2.4 Credit Risk Mitigation

Credit risk mitigation involves using a wide range of techniques, including collateral, netting agreements, and other guarantees, are used to reduce the possibility of credit losses from any particular account, client, or portfolio. In compliance with the institution's credit policy and procedures, collateral is valued by an impartial third-party surveyor.

3.3.2.5 Credit Approval

For the approval of credit facilities, IPDC's board of directors is the only entity with the right to approve any credit exposure. The responsibility can also be delegated to the "Executive Committee," a subcommittee of the board, with no authority to approve requests from the managing director and CEO or other department heads.

3.3.2.6 Downgraded Credit Management

IPDC has a separate department, "Special Asset Management (SAM)" division is solely responsible for managing, recovering, and settling downgraded credits. This department's primary duty is to establish tactics and plan of action for lowering risks, loss prevention, recovery maximization, restructuring, direct recovery, and/or legal action. They take steps such as vigorous site visits when required to further assess and collect data directly from the client.

3.3.3 Application of Credit Policy in IPDC

Due to confidential reasons, the name nor the details of the business could be shared as it is and various data been modified to keep the confidentiality. It is only an example to see the application process. IPDC uses a memo, or a proposal, that provides the detailed information about the client, its past and present as well as industry information along with other relevant information.

3.3.3.1 Introduction to the Example Case

X Tel. company, a private limited company, that is operating in the telecommunication industry, in the corporate sector, non-SME. X Tel. has applied for a short term finance loan, or known as STF (Revolving) product of IPDC. X has applied for a limit of BDT 200M, tenor for 12 months at

9.25%. X Tel. has existing relation with IPDC judgment on approval will be based on analyzing the parameters stated below, along with other parameters checked separately.

3.3.3.2 Example Memo

The memo follows through an array of parameters and each assess the condition of the company, and final decision is based on it. In the following we can look through the parameters which effects the decision during approval. An example of the memo is showcased below:

1. Summary & Overview:

Client Details

Borrower	X Tel. Company	**Date**	March 9, 2016
Constitution	Private Limited Company	**Authority**	IPDC Executive Committee
Registered Office	Banani, Dhaka-1213	**RM**	Jamal
Corporate Office	Karwan Bazar, Dhaka- 1215	**CRG**	75(Accepted)
Incorporation Date	December 9. 2011	**CIB**	Standard
Group		**Category**	Corporate
Nature of Business	Call operations, for international calls		
Bankers	United Commercial, MTB etc		

Existing Facilities (Amount in M'BDT) *Proposed (Amount M'BDT*

Company	**Limit**	**Outstanding**	**Expiry Date**	**Facility**		**Limit**	**Tenor**	**Rate**	**Facility**	**Exposure**
XA Cement	150M	134.10M	25/09/16	STF		200M	12 months	9.25%	STF	+BDT 200M
Total	**150M**	**134.10M**				**BDT 200M**				**+BDT 200 M**

Conditions and Purpose of the Proposed Facility

Borrower	**Facility**	**Amount**	**Purpose**	**Rate**	**Term**	**Security Arrangement**
X Tel.	STF (Revolving)	BDT 200M	To meet working capital requirement	9.25% per annum (Floating)	12 months	Floating charge on movable assets of X Tel.

Exposure Limits

		Current (BDT)	**Proposed (BDT)**
Single Borrower Exposure Max. BDT 371.19M (15% of Equity)	Amount	-	200,000,000
	% of IPDC equity	-	8.08%
Industry Exposure	Amount	23,866,107	223,866,107

(Telecommunication & IT)			
	% of IPDC Investment Portfolio	0.37%	3.38%

2. Client Profile:

X Tel. company was incorporated December 9, 2011 as a private limited company under the Companies Act 1994. The corporate office is located at Karwan Bazar, Dhaka. The authorized share capital and paid up capital of BDT 20M & BDT 10M respectively.

Credit Rating: Credit Rating Agency of Bangladesh (CRAB) has rated the company as per the following:

Details	**Long Term**	**Short Term**
Entity Rating	AA2	ST -3
Definitions	Indicates very strong degree of safety	Indicates adequate degree of timely repayment
Stable	Outlook	

3. Proposal Brief:

IPDC proposes investing BDT 200M as Short Term Finance (Revolving) in favor of X Tel. Company.

Features	Proposed Terms
Facility	Short Term Finance (STF)
Amount	BDT 200M
Purpose	To meet working capital requirement
Interest Rate	9.25% p.a (floating)
Disbursement	Fund will be disbursed after approval and collection of documentation
Repayment	• Accrued interest will be payable monthly basis • Principal will be paid on or before expire of loan period
Security Arrangements	• Floating charge on movable assets of X Tel.

4. Purpose:

In order to repay back its due to its suppliers, in due time X Tel. has approached IPDC for short term facility. X tel. has huge number of receivables to be collected soon which will be used to pay back the credit.

5. Relationship with IPDC:

X Tel. has considerable existing relationship with IPDC, they currently have depository relationship as the table follows:

Client	Product	Current Balance	Open Date	Last Renewal Date	Maturity Date
X Tel.	FDR – Organization	10M	2014	2019	2019
Total		**10M**			

6. Shareholding of the Sponsors:

The shareholders name and number of shares are presented to give an idea of how the structure of sponsors work. Below is an example of the sponsors list:

Shareholders	Represented By	Designation	No. of Shares	Shareholding
Mr. X	Mr. X	Chairman	65,000	65%
Mr. Y	Mr. Y	Managing Director	25,000	25%
Mr. Z	Mr. Z	Shareholder	10,000	10%
		Total	**100,000**	**100%**

7. Financial Highlight:

The financial overview, or the highlight of X Tel. is shown below:

Details	Dec'13	Dec'14	Dec'15
Revenue	300,000,000	550,000,000	700,000,000
Growth	-	40%	28%
Operating Profit Margin	51%	63%	69%
Net Profit	90,000,000	170,000,000	230,000,000
Net Profit Margin	30%	31%	32%
Total Assets	1,700,000,000	2,200,000,000	2,200,000,000
Total Liabilities	1,600,000,000	1,900,000,000	1,700,000,000
Total Equity	100,000,00	280,000,000	510,000,000
Current Ratio	1.11	1.18	1.32
Debt to Equity	16	7	3
ROA	5.2%	8%	10%
ROE	90%	63%	45%
Paid Up Capital	10,000,000	10,000,000	10,000,000

Observations:

- The overall business performance of X Tel. was found stable, and company's growth gives potential in the future and is a positive indicator.
- Sufficient liquidity positon and asset for every liability was found, and considered stable.

- Summarizing financials, X Tel. reveals a good performance with the capacity of timely payment of financial commitments.

8. Liability Position:

Liability statement of X Tel. are as follows:

Name	**Bank/FIs**	**Facility Type**	**Limit**	**Outstanding**
X Tel.	UCB	Funded	500	200
		Non Funded	800	700
X Tel.	MTBL	Non Funded	600	600
		Total Funded Facility	**500**	**200**
		Total Non-Funded Facility	**1,400**	**1,300**
		Grand Total	**1,900**	**1,500**

9. CIB status:

The CIB status, Credit Information Bureau (CIB), established by Bangladesh Bank in 1992 helps to understand the credit status of the company and minimize default loans. The CIB report of X Tel. Company was found to standard. To note, none of its credit facilities were rescheduled nor have been reported as SMA (Special Mention Account). Thus, reflecting on X Tel's regular payment behavior.

10. Industry Analysis:

The telecommunication industry is booming and concentration on international calls puts the company to operate very competitively in the industry. BRTC statistics favorably show potential in the industry, stating a market of 100 to 200 million exists. With a large market to serve and growing industry, it gives confidence to invest in the industry and the company.

11. Security Evaluation:

The short-term finance is secured against existing floating charges on movable assets and other usual charge documents.

12. Submission:

Based on the analysis and assessment conduct above, approval is sought for Short Term Finance (Revolving) facility of BDT 200M in favor of X Tel. Company.

If approved, disbursement of fund will be subject to the following:

- Completion of legal & security documentation are appropriate
- Availability of matching fund.

The document, this memo is generally prepared by the RM (relation manager of the customer), proposed to the committed by a manager or head of department, recommended by a head or top management and finally, the document is further reviewed by the in-charge or head of risk.

3.3.4 Observation and Analysis of Current Application

From the above example, of X Tel's memo, we can understand the parameters considered when assessing a company before disbursement of loan or credit facility. The purpose, client background, liability position, etc. all are thoroughly checked through and proceeded and approved only after legal clearance and availability of matching fund.

To see alternative situations, we can take a look, of how different changes in different parameters would maybe lead to decline of the loan facility.

Scenario 1: Poor Liability Position & Poor CIB status

Liability position may vary from company to company. In the above example, X Tel. only had two borrowers and were in a solid position. Its standard CIB status clarified its repayment history and gave the company a good history of credit. This gives IPDC the confidence to trust its payment to be made in time. However, when considering poor liability position, with too many loans outstanding, this would question the capability of the company's repayment. Several big loans from different banks and institutions may indicate trouble in the operations and management of the company. Further poor CIB status would indicate further doubt and would only accepted as a special mention at least. This would increase possibilities of credit default and would make the lending company lose its confidence in the customer.

Scenario 2: Declining Industry, and Fall in Profitability

When investing and lending a certain facility, the lender has to assess the industry the client or company operates in. Doing so would help to understand the workings and potential of the company to earn profit or survive for the repayment. In a declining industry, it might not seem to have plenty of future potential ahead however, even being in a declining industry if one company is performing well and improving over times, special mentions can be provided as the company itself is doing good financially. However, along with a declining industry, a loss and fall profitability over the years would lead to negative image and the loan may get declined. In above, as X Tel's industry is booming and growth is being seen over the years, it gets a positive review on these two parameters.

Scenario 3: Client Profile & Relation with the Lender

Client profile covers a vast number of data from the credit rating to CRG score and the logistics of the applicant. This is vital in assessment as they indicate the overall status of the company. A low credit rating, both in short term and long term would mean unstable business outlook and question the company's future or ability to make its due payment. Further, a low CRG score that is below "Marginal" may indicate further issues arising if fund is disbursed. Additionally, an existing relation with the lender gives the confidence and know about of the customer rather than a completely new face. A new customer would require additional assessment to gain trust about its payment behavior. From the example, X Tel's credit rating and CRG score were both at par, and an additional existing depository relation provided trust to IPDC.

In conclusion of credit risk assessment application, this is the primary basis of the disbursement of funds. This creates the base to understand details and whereabouts of the client's operations, financial conditions and its industry analysis. Further assessment like site-visits, legal clearance, etc. are conducted before final disbursement. This application of memo, through an example, can be used to help understand the credit risk operations of IPDC, and the general NBFIs industry in Bangladesh.

3.3.5 Limitations of the Current Methods Used

The methods and management policies used currently by the finance industry, and IPDC while is functional and have proven to be successful, the methods still have some limitations. Certain limitations prevent financial institutions to finance SMEs or MSMEs and, also lead to complications with the loans provided. (GDS Link, 2020)

3.3.5.1 Overreliance on Historical Data

Financial institutions tend to rely heavily on to the past data, that is the historical data, of the borrower or its company. Although this indicates the past performances of the company, it may not accurately reflect or represent the future of the company. Future conditions tend to be volatile and hard to predict based on the past data. It is rather more efficient to verify cash flows, returns and potential of the industry it is operating in. (Ahmed, 2021). These indicators give a clearer idea of the operations of the business, rather than several past years' balance sheets. For instance, a company's data before 2020, that is now pre-pandemic, holds almost no relevance as the market has completely changed since then.

3.3.5.2 Incomplete Data

Incomplete data provided by the client is another limitation faced by the credit risk management when making sound decisions. Clients may intentionally, or unintentionally, fail to provide accurate and transparent data to the institution. This leads to poor assessment of credit risk, and may lead to certain risk exposure. Also, institutions may not have all the information for emerging or new industries. This leads to incomplete data before making the decision.

3.3.5.3 Human Error

One of the key limitations is human error. For credit risk management, many work and main decision is to be approved and cleared by humans, employees of the institutions. This results in biasness to take place and decisions can be made purely through connections. Further, judgment error exists due to incomplete data provided or inexperienced employee.

3.3.5.4 Regulatory Requirements

Final limitation refers to the complex and time-consuming regulatory requirements set by the Bangladesh Bank or the company policy itself. Maintaining all these rules often become a tedious task for the employee and processing several hundred applications may lead to slow work progress or increased errors.

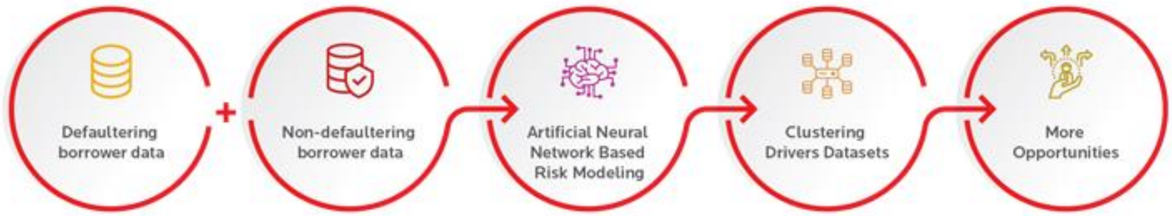
3.3.6 Modern Methods in the Finance Industry

To overcome the limitations of the traditional methods of credit assessment we have to look forward to the changes and future of credit risk assessment. Implementing modern, the future method of credit risk assessment primarily uses two key methods, involving artificial intelligence (AL) and machine learning (ML).

To begin with AL, or *artificial intelligence*, is imitation of human intelligence processes by machines, particularly computer systems. It is truly the new age of assessing credit risk. AI-based credit scoring decisions are based on data such as, total income, credit history, transaction analysis, work experience, and user behavior analytics (Datrics, n.d). This modern approach enables to analyze wide-range of data, including unconventional data, and can predict something as unpredictable as likeliness of the borrower repaying the credit. It potentially looks into the ability of earning of the borrower. Thus, the significance of the AI score provides financial institutions a more accurate and advanced view of a borrower's financial behavior by representing a more thorough and dynamic evaluation of credit risk.

The transformative role takes into take into consideration the complicated nature and fluctuations in each person's financial behavior. As AI can process large amount of data, identify patterns and make predictions with accuracy and, no biasness or human error involved, AI credit scoring provides way to make a neutral and fair decision. Further, AI credit score has the ability to finance credit opportunities to underserved areas, or smaller businesses or borrowers with less credit history available. It does so by considering alternative data such as credit card history, current level of employment and the potential ability to earn by the client. (Datrics, n.d)

Moving on to, ML, or *machine learning*, we can see a more in depth method of risk assessment. ML is an application of AI, and Bajaj (2020) explains, the workings of Artificial Neural Network, which is an ML model. This is a mathematical model of a biological neural network that is capable of processing interactive and non-linear patterns between numerous variables. In terms of financial institution's credit scoring, Artificial Neural Network can be revolutionary. The model would work as showing in the following figure:



How machine learning models lead to better revenue opportunities

The figure above, demonstrates how the ML model leads to more opportunities and reduces revenue loss. This happens as, firstly, only a minority of the borrowers usually defaulters. This set of defaulters however, imbalance and decrease the accuracy of the analysis made through traditional models. Thus leading to inaccurate predictive insights and NPLs to rise. However, using ML, it would create a cluster of datasets. These datasets sets apart majority and minority clusters and applies merging methodologies to assess which sets would be more capable of repaying the loan. ML reflects on the picture itself, rather than solely mean values. As more data is curated and ML's ability to adapt and "learn", ML is more capable of showing such possibilities. This enhances the opportunities to increase revenue. (Bajaj, 2020)

With the new age and digitalization of the financial sector these changes are to be soon taken over due its opening of many opportunities and advantages.

3.3.7 Application of Modern Methods: Example of China's MyBank

To look into the modern methods in practice currently in the industry, we can see the practices are still at initial stages of implementation. With only one of the world's fasting growing country, China commercializing through the new methods. With this being a huge investment and major change in the structure of finance industry, most financial institutions are skeptical to commit to the change. Modern methods are mostly being implemented on small and medium enterprises (SMEs) and loans of smaller amounts are being processed through the Artificial Intelligence model. We can look into an example, of MyBank which is utilizing the modern methods at its finest.

China's MyBank, established in 2015, which is China's first digital bank, a concern of Ant Group, is one of the leading financial institutions implementing AI for its loans. Ant Group is an affiliate of Alibaba, including Alipay, boasting 900 million users, MyBank is able to gather financial credit history of client's payment and spending behavior, increasing the data to process credit risk for any credit facility. The use of this algorithm helps to in credit risk assessment when customers are applying for loans through MyBank. (MyBank Case Study, 2020)

MyBank's "3-1-0" model enables its lending model. It typically works as, it takes customers 3 minutes to apply for the loan through online application, receive approval in 1 second and with 0 human interaction. The AI model was processing data including the sales of small businesses, income of borrower, customer profile everything under 1 minute, even possible as fast as 1 second. The model is aimed to serve smaller entrepreneurs as it demanded zero collateral and for women who faced discrimination when applying for credit traditionally. Further traditionally, the loan would take 30 days to process and would cost a bank around USD $ 294 to process as opposed to MyBank's lending model processing it in 1 minute, and costing an average cost of USD $0.34. (Wang, H and Bhattacharya, L, 2023).

3.3.8 Comparison of Conventional Methods and Modern Methods

3.3.8.1 Non-Performing Loans (NPL) Ratio

One key highlight and difference from the usages of conventional methods and modern methods reflect on non-performing loans (NPL). To compare from the example of IPDC's NPL in comparison to MyBank's, the table is as follows:

	IPDC	MyBank
2020	1.38%	1.52%
2021	3.15%	1.53%

Figure: IPDC and MyBank's Non-Performing Loans (NPL)

MyBank enjoys a very low NPL ratio for the past years, including during a pandemic. The figure remained constant throughout the two devastating years. (Ant Group, 2022). This is as opposed to IPDC's NPL rising significantly during the pandemic after 2020. With both still under 5% of NPL as per the ideal finance industry rate, we can see the volatility of IPDC's NPLs in comparison to MyBank's NPL.

Further emphasize can be given on NPLs as this is a critical problem in the finance industry currently, especially in Bangladesh, where NPLs have been rising in a staggering manner. Through the use of AI model, this could be significantly lowered. In comparison to the conventional method of credit risk assessment, using of technology to assess, lower the rate of default loans.

Huang et. al (2020) has calculated the reduction of NPLs from following modern methods instead of traditional approach using data from MyBank.

Threshold	Reduction in NPL Ratio
10%	1.05%
15%	0.76%
20%	0.48%
25%	0.27%
30%	0.15%

Figure: Reduction in NPL ratio using Modern Methods

The above table set a threshold, for example, if the probability of defaulting loan is 10%, use of modern approach would lower it down by 1.05%. Albeit, this improvement lowers as the probability of default loans increase, this is useful in lowering the NPL ratio of the average financial institution vastly.

3.3.8.2 Distribution of Loan Sizes and Durations

MyBank mainly serves loans and financial facilities to micro-firms who have no other access to credit. These borrowers cannot apply through traditional approach due to low or no assets. However, the approach currently is limited to financing smaller loans, and for shorter duration. The average loan provided by MyBank is USD $367, as compared to traditional financial institutions providing loans to SMEs at an average of USD $150,000, This is around 30 times larger than average loan provided by MyBank. (Huang et al, 2020).

Following smaller loans, the loans provided are also shorter duration than most traditional banks or institutions are providing. To reflect on the statistics, we can see a figure showcasing the loan duration of credit facilities in traditional approach and in modern approach:

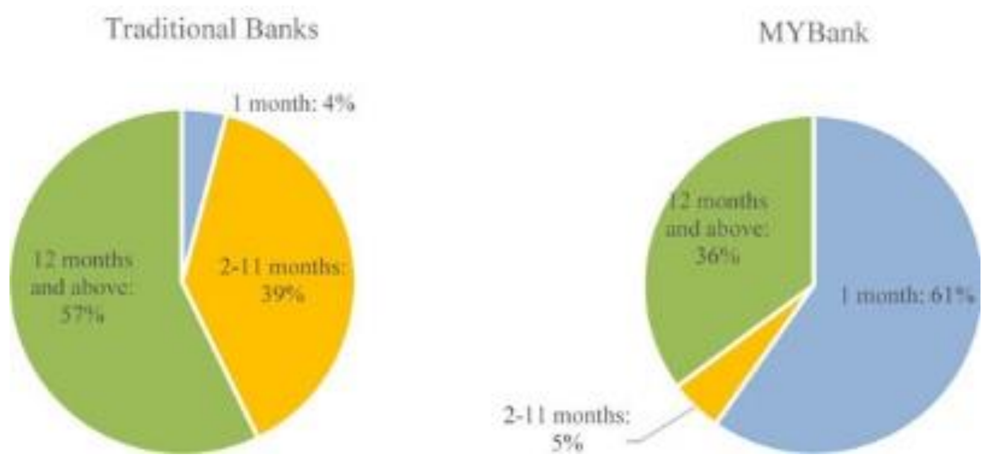


Figure: Traditional Banks in comparison with MyBank's Loan Duration Distribution.

Traditional banks mostly, above 57% of the loans are for one year or longer, usually classified as term loans, and with only a minority, of 4% loans being for one month which is generally reserved for work-order finance facilities. On the other hand, MyBank is processing more of short-term finance with more than 61% of loans and only 36% of loans being term loans. (Huang et al, 2020).

3.3.8.3 Operating Services Hours

The online services of MyBank operates all day and night, with their 24/7-hour service. Based on the loan analysis it was found approximately 8% of loans were applied through MyBank during the nighttime, from 11pm to 4am. (Wang, H and Bhattachrya, L, 2023). Traditional financial institution only operates from 10am to 5pm in general and requires in-person presence from the borrower to finalize the loan and disbursement. Due to MyBank's zero human interaction and fully digital operations, all the formalities can be eliminated and the required finance can be received at any given time. This further opens a big retail market for the financial institutions, albeit for smaller loans.

3.3.9 Observation from Implementation of Modern Methods

From the above case study of MyBank, it is evident the initial stages of using AI driven models enables and opens market for smaller loans, or micro loans for SMEs and MSMEs in the financial industry. In 2020, MyBank had served up to 10 million SMEs and loans totaled to USD $63 billion. One of the issues it was also able to address was the diversification of loans. With smaller loans given to wider group of people, the defaulting rate (NPL) ratio was at minimal and provided confidence and stability to the financial institution. Rather than relying on few big corporates for deposits, this method is successful at diversifying customer portfolio.

Further, MyBank could contribute in lower gender biasness by the modern methods. Through the digital platform, and no human intervention it eliminates social stigmas and beliefs which usually prevented women entrepreneurs in China to received required finance facility. By 2020, 50% of loan recipients of MyBank were women entrepreneurs, 80% of them had never received financing from any traditional financial institutions before. (Wang, H. and Bhattachrya, L, 2023) This indicates how modern approach is entering a new market that was previously unexplored and overlooked.

Thus, outcome from the modern methods stand to be an opportunity for SME and MSMEs to grow through proper financing, lower NPL ratio for financial institutions, diversifying customer portfolio as well as lowering gender biases and open a new market for financial institutions. With benefits for both the customers and institutions, the modern methods of credit risk assessment are the future of finance.

3.3.10 Effectiveness of the Modern Methods in the Industry

Along with the practice of AI model implementation in MyBank, we can further look into the effectiveness of the modern methods through two examples and to what extent it will be beneficial.

Zest Finance, a financial technology company, is using artificial intelligence (AI) to make proper and fair credit decisions. With the goal of reaching out to underserved areas and rule out discrimination of the finance industry, Zest Finance have worked to implement the innovative idea of utilizing machine learning algorithms to undertake credit underwriting processes. Zest Finance’s AI model is capable of analyzing thousands of data to come up with points for assessment beyond traditional models will ever be able to. Zest Finance's AI-driven models have the capability to predict a borrower's potential for repaying a loan with greater accuracy through the use of data from alternative sources, including social media activity, rental history, and utility bill payments. (Frackiewicz, 2023).

While the conventional methods can only assess the bank balance, AI model can even predict future potential of earning of the client. This enables the minority groups have a chance of receiving funding. Financial institutions also benefit from making more informed decisions, and opens up new market and opportunities to access credit. This further reduces default risks and reduction in losses. Lenders are able to tailor loan terms and interest rates with every borrower's risk profile by offering a more thorough evaluation of the borrower's creditworthiness.

Additionally, while current models suffer from incomplete data and are not capable of keeping up with new trends or industries, ML have the continuous ability to “learn” and adapt accordingly. Economic changes, market conditions, industry preferences all are taken into account when making the credit decision. (Frackiewicz, 2023). Bajaj (2020) further stated the company has optimized credit risk for banks using machine learning, resulting in an average 20% reduction in losses and default rates.

Moving to another example, JP Morgan, the biggest bank in the United States has implemented its very own ML program, named COIN. Introduced in 2017, COIN, is a machine learning program, that is powered by the bank’s private cloud network. Having invested billions, JP Morgan is seeing the results right away, as the program was capable reviewing 12,000 credit agreements, that is 360,000 hours’ worth of work in merely few seconds. (Bajaj, 2020).

Asides the remarkable reduction in time, COIN was more accurate and decreased the loan-servicing mistakes. Being automated, there was no room for human error to take place and thus increasing efficiency of the task. Eliminating human error could save billions in return of the investments spend towards this technology. (Galeon, 2017).

3.3.11 Benefits for MSMEs from Modern Methods

Following the recent trend of businesses, especially in Bangladesh, MSMEs and small start-ups are booming. To serve the new market, and help arrange finance for such organizations, modern methods will help immensely. MSMEs are said to be crucial for the economic growth and business industry, thus financing the booming industry is also important for the overall growth of the nation.

MSMEs however, face a lot of trouble when looking for finance and most often fail to reach the required finance for operations. This limits their growth and often cannot reach their potential. The modern methods, the machine learning programs are expected to overcome the discrimination faced by MSMEs and also people from rural areas when applying for loans. (Fuscaldo,2019). The MSMEs usually face difficulties in preparing and providing many years of historical data, and showing quality assets. These enterprises tend to be only starting out and some in this time even are online based without a physical office. This situation makes it difficult for the businesses to apply and get approval for credit.

China's MyBank creates the opportunity to minimize gender gap and provide fair financing facilities to women entrepreneurs. ZestFinance's AI driven models, are working to provide and give the underserved people, who are treated unfairly, minority groups who fall victim to human biasness, and low asset rich people. (Frackiewicz, 2023). This gives a transparent view without discriminatory factors.

While investments from the lenders end at initial stage is expensive, the use of technology results more opportunities and more access to provide credit. Traditional methods would fail to see the potential if the borrower failed to provide credit history for their company or limited information. The predictions allow to make room for scope and hope of approval. The fair and transparency in credit assessment would open more opportunities for growth of MSMEs.

3.3.12 What Does It Means for Bangladesh's Finance Industry?

As the world moves on to digitalization, Bangladesh is falling behind in terms of using technology in the finance industry. In the developing country, such as ours, we have to prioritize the MSMEs as they require the funding to grow and contribute to the economy. In an article of The Business Standard (2021), Dr. Salehuddin Ahmed addressed how important it is for financing and give special focus on the development of smaller business as these ventures are mostly run by hard-working and dedicated entrepreneurs.

Despite initial investment cost, Bangladesh would benefit the most through credit risk assessment through AL and ML. These models would even open opportunities in the rural areas. The need for work-order finance, home loans and auto-loans in the rural areas tend to be declined more often than not due to assets not being considering strong enough, or enough, and traditional methods fail to look beyond numbers.

Use of AL and ML would ensure the assessment of customers would to be undertaken fairly and predict their credit risk chances through their education, ability to earn etc. Through implementation of these modern methods, these enterprises will be open to receive funding in a fair way and reach its potential.

Further, financial institutions such as IPDC would highly benefit from these, as their mission aims to serve for the youth, women and underserved areas. This clientele is likely to have lower credit history than big corporations and thus, assessment through ML could potentially increase the opportunity to finance such credit.

3.4 Conclusion

To conclude and summarize, the conventional and modern methods are vastly different and implementation of these would result in different outcomes.

To assesses the conventional methods, we have looked over basic methods used in the industry such as 6 Cs of Credit, Credit Risk Grading and IPDC's methods. IPDC's credit policy explores the possibilities of credit default and assesses thoroughly through various parameters. Through an example of a loan application, we could see the current trend of assessment and requirements for loan approval. The current base, or foundation, loans are being now disbursed upon however have certain limitations.

Following the current methods have certain limitations. To name, human error, over dependency upon historical data limits the opportunities to increase lending towards newer industry and diversify the loan portfolio of financial institutions.

The limitations can be overcome to a certain extent through innovative technology such as AI, artificial intelligence, and ML, machine learning, which as a branch of AL. The technological approach to credit risk assessment can lead to opening new markets and new customers, through its fair and transparency. New methods would rely less on existing relations, big assets, in-depth financial data, and rather focus on the potential and capability of what the applicant can achieve given the loan and their own skills. As per the case study on China's MyBank new methods would lower NPL ratios, provide 24/7 services and increase shorter term loans. Additionally, MSMEs particularly which do not have a lot to its name, can highly benefit from this approach. This would open up scope to receive funding through larger platforms and turn their dreams into reality.

Thus, in the near future, effective methods of credit risk assessment can help overcoming the gap between big corporations and MSMEs, lowering the gender finance gap and thus benefit the institution, the applicant, as well as the economy through more scopes of development as the finance industry becomes more capable.

4 References

Hasan, M (2023). “Number of weak NBFIs on the rise”. *The Daily Star*. August 15 2023.

https://www.thedailystar.net/business/economy/news/number-weak-nbfis-the-rise-3394486

TBS Report (2023). “Nagad surrenders NBFI license, opting for digital banking”. *The Business Standard.* August 1 2023.

https://www.tbsnews.net/economy/banking/nagad-surrenders-nbfi-licence-opting-digital-banking-675374

Murphy, C.B (2023). “Loan-to-Deposit Ratio (LDR) Definition”. *Investopedia*. November 2 2023.

https://www.investopedia.com/terms/l/loan-to-deposit-ratio.asp

Babu, M. U (2023). “Most NBFIs struggling, but a few shining”. *The Business Standard.* September 2 2020.

https://www.tbsnews.net/economy/most-nbfis-struggling-few-shining-693562

Bajaj, S. (2020). “AI, Machine Learning, and the Future of Credit Risk Management”. *Birlasoft.* November 3 2020.

https://www.birlasoft.com/articles/ai-machine-learning-and-future-credit-risk-management

Frackiewicz, M. (2023). “ZestFinance – A company that uses AI to make fair and transparent credit underwriting decisions.”. *TS2 Space*. April 30 2023

https://ts2.space/en/zestfinance-a-company-that-uses-ai-to-make-fair-and-transparent-credit-underwriting-decisions/#gsc.tab=0

Galeon, D (2017). “An AI Completed 360,000 Hours of Finance Work in Just Seconds”. *Futurism.* September 3 2017.

https://futurism.com/an-ai-completed-360000-hours-of-finance-work-in-just-seconds

GDS Link (2020). “Credit Risk Management Process, Best Practices & Techniques”. GDS Link. March 2 2020.

https://www.gdslink.com/credit-risk-management-process-best-practices-techniques/#:~:text=To%20assess%20a%20borrower's%20credit,ratio%2C%20and%20other%20financial%20obligations.

Ahmed, S. R (2022). “‘No need for so many non-bank financial institutions”. *The Business Standard*. 15 February 2022.

https://www.tbsnews.net/features/panorama/no-need-so-many-non-bank-financial-institutions-370927

Fusaldo, D. (2019). “ZestFinance Using AI to Bring Fairness To Mortgage Lending”. *Forbes*. March 19 20219.

https://www.forbes.com/sites/donnafuscaldo/2019/03/19/zestfinance-using-ai-to-bring-fairness-to-mortgage-lending/?sh=7f4cc4957f2d

Saunders, A & Allen, L (2002). “New Approaches to Value at Risk and Other Paradigms”. *John Wily & Sons, Inc*. 2002.

http://www.untag-smd.ac.id/files/Perpustakaan_Digital_1/CREDIT%20RISK%20Credit%20risk%20measurement,%20New%20approaches%20to%20value%20at%20risk%20and%20other%20paradigms.pdf

Allianz Trade (n.d). “How to Improve Your Credit Risk Analysis Process”. *Allianz Trade*.

https://www.allianz-trade.com/en_US/insights/how-to-improve-credit-risk-analysis.html

Datrics (n.d). “AI Credit Scoring: The Future of Credit Risk Assessment”. *Datrics.*

https://www.datrics.ai/articles/the-essentials-of-ai-based-credit-scoring

Huang, et al (2020). "Fintech Credit Risk Assessment for SMEs: Evidence from China". IMF eLibrary. 25 September 2020.

https://www.elibrary.imf.org/view/journals/001/2020/193/article-A001-en.xml

MyBank Case Study (2020). "MYBank's gender-driven approach to lending". MyBank. August 2020.

https://www.ifc.org/content/dam/ifc/doc/mgrt-pub/202008-d2e-mybank.pdf

Ant Group (2022). "MYbank makes financing more accessible for 45 million SME clients by leveraging digital technology". Ant Group. 29 April 2022.

https://www.antgroup.com/en/news-media/press-releases/1651219200000

Wang, H and Bhattacharya, L (2023). "China's MYbank: Creating Shared Value". Singapore Management University. 7 July 2023.

https://cmp.smu.edu.sg/ami/article/20230707/chinas-mybank-creating-shared-value

Ahmed, S. R (2021). "Access to Finance Most Crucial for CSMEs". The Business Standard. 26th June 2021.

https://www.tbsnews.net/analysis/access-finance-most-crucial-csmes-266647

Hayes, A (2023). "Profitability Ratios: What They Are, Common Types, and How Businesses Use Them". *Investopedia*. 2023.

https://www.investopedia.com/terms/p/profitabilityratios.asp

CFI Team (n.d). "Liquidity Ratio". *Corporate Financial Institute*. N.d

https://corporatefinanceinstitute.com/resources/accounting/liquidity-ratio/

Bangladesh Bank (n.d). "Performance, Regulation and Supervision of NBFIs". *Bangladesh Bank*.

https://www.bb.org.bd/pub/annual/anreport/ar1314/chap7.pdf

CFI Team (n.d). "DuPont Analysis". *Corporate Financial Institute.* N.d

https://corporatefinanceinstitute.com/resources/accounting/dupont-analysis/

Credit Risk Grading Manual (2005). "Credit Risk Grading Manual". *Bangladesh Bank*. November 2005.

https://www.bb.org.bd/mediaroom/circulars/brpd/dec1105brpd18enl.pdf

IPDC Super Brand Story (2016). "Super Brand Story". *IPDC*. 2016.

https://www.ipdcbd.com/downloads/IPDC-superbrand-story.pdf

IPDC Annual Report (2022). "Annual Report". IPDC. 2022.

https://www.ipdcbd.com/areport/IPDC_annual_report_2022.pdf

IPDC Website.

https://www.ipdcbd.com/

Appendix

Revised proposal for this report is attached below:

20104023_Nabiha Hossain_RevisedProposal.docx