Research report on

The Impact of Research and Innovation Investment on Bank's Financial Performance: A Study on Mutual Trust Bank Limited, Bangladesh

Submitted by

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A research report submitted to the Graduate School of Management in partial fulfillment of the requirements for the degree of

Master of Business Administration

Department of Finance

BRAC University

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Declaration

It is hereby declared that

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

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Letter of Transmittal

Dr. Faruk Bhuiyan

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Subject: Submission of Research Report

Dear Sir,

With due appreciation and immense delight, I am submitting my research report entitled "The Impact of Research and Innovation Investment on Bank's Financial Performance: A Study on Mutual Trust Bank Limited, Bangladesh" as an essential requirement of the MBA program.

This report is really an enormous prospect for me to assemble all the relevant information related to the study. I tried my dimension best to prepare a viable & comprehensive report and handle the subject matter in a fitting way. I would like to thank you for your utmost guidance. I believe this report will be a gigantic prospect for the advance study on the topic. I welcome further evaluation on the report and request you to consider the oversights that may occur in the resentment of my best endeavor.

I, therefore, with ample gratification would like to submit my research report. Any further rectifications, if needed, please offer me the chance to rectify.

Sincerely yours,

Hossain Mohammad Yeasin

_____

Hossain Mohammad Yeasin (20264075)

Graduate School of Management

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03rd November, 2022

Non-Disclosure Agreement

This agreement is made and entered into by and between Mutual Trust Bank and the undersigned student at BRAC University. I realize in my internship journey I had access permission to the information of organization's various operations of business, data related information and written information. I want to clarify that I will not disclose any confidential data regarding company in my research report which may have an adverse effect on the values and reputation of the company.

Organization Supervisor's Full Name & Signature:

_____

Ashique Iqbal

Designation: VP & Group Head, Research & Development

Letter of Endorsement by the Supervisor

To whom it may concern

This is to certify that, Hossain Mohammad Yeasin; student of Master of Business Administration, Graduate School of Management, BRAC University has successfully completed the report entitled "The Impact of Research and Innovation Investment on Bank's Financial Performance: A Study on Mutual Trust Bank Limited, Bangladesh" as partial requirement for the internship program under my supervision. I appreciate his hard work and determination and wish his prosperity and success in future.

Internship Supervisor

_____

Dr. Faruk Bhuiyan

Assistant Professor

Graduate School of Management

BRAC University

Acknowledgement

First of all, I would like to express my gratefulness to the almighty Allah, the most generous and merciful to every single living creature and their activities. Subsequently, I would like to express my gratitude to my beloved parents whose interminable love, backing and favors have constantly given me the motivation to do the best.

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At the end, this research report is a result of many people's effort especially all of the researcher and the writers whose comprehensive research papers helped me to accumulate all the relevant information and valuable data while preparing the report. Despite my best effort to give this report the most possible edge to perfection this may suffer from many oversights. All the inaccuracies that might have occurred in the resentment of my best exertion hopefully would be seen in forgiving manner.

Executive Summary

Research and development activities start and encourage new production, raise the level of knowledge, and introduce fresh approaches to the production and application of technology. The current study reveals the diversified behavior of factors influencing the performance of banks and R&D investment associations. The study applied a descriptive research design and targeted Mutual Trust Bank Limited Bangladesh, all with data spanning five years between 2017 to 2021 with secondary data by employing a panel regression analysis model. Seven factors affecting banks financial performance were selected and analyzed. In the study, Return on asset and Return on equity are used as Bank performance measurement tools and Dividend yield ratio, Dividend cover ratio, Price earning ratio, Capital gearing ratio, Research & development intensity ratio, Firm size ratio and Leverage ratio are used as research & innovation investment indicators. The result of panel data regression analysis showed that Dividend yield ratio, Dividend cover ratio, Capital gearing ratio, and Leverage ratio had negative and statistically significant impact on banks financial performance. Whereas, Price earning ratio, Research & development intensity ratio and Firm size ratio had positive and statistically significant impact on banks financial performance. However, Leverage ratio and Dividend cover ratio had no statistically significant impact on banks financial performance for the tested period. Therefore, the research and innovation investment are positively affecting the banks financial performance.

Keywords: Research & Innovation; Investment; Financial Performance

Table of Contents

CHAPTER 1: INTRODUCTION 13

1.1 Title of the Study 13

1.2 Background of the Study 13

1.3 Statement of the Problem 15

1.4 Research Questions 16

1.5 Research Objectives 16

1.5.1. Broad Objective 16

1.5.2. Specific Objectives 16

1.6 Significance of the Study 16

1.7 Scope of the Study 17

1.8 Organization of the Study 17

CHAPTER 2: COMPANY OVERVIEW 19

2.1 History of MTBL 19

2.2 Organizational Overview of MTBL 20

2.3 Mission of MTBL 20

2.4 Vision of MTBL 21

2.5 SLOGAN 21

2.6 MTBL Core Values 21

2.7 Stock Statistics of MTBL 22

2.8 Types of Banking Business 23

2.9 MTBL Products 23

2.9.1 Deposit Products 23

2.9.2 DPS Products 24

2.9.3 FDR Products 24

2.9.4 Loan Products 24

2.10 MTBL Card Services 24

2.11 Awards and Accolades 25

2.12 Hierarchy of Position of MTBL 26

2.13 Activities of the R&D Division of MTBL 27

2.14 Routine Monthly Researches 28

2.15 My Works in R&D Division 28

2.16 Newsletter Publication 29

CHAPTER 3: LITERATURE REVIEW 30

3.1 Introduction 30

3.2 Research & Innovation 30

3.3 Review of Related Empirical Studies- Research and innovation with banks financial performance 31

3.4 Summary of Literature Review and Research Gap 38

3.5 Conceptual Framework 38

CHAPTER 4: RESEARCH METHODOLOGY 39

4.1 Introduction 39

4.2 Research Method 39

4.3 Research Design 39

4.4 Research Approach 40

4.5 Research source and Nature of data 40

4.6 Method of data collection 41

4.7 Target population and Sampling frame 41

4.7.1. Target Population 41

4.7.2. Sampling Frame, Technique and Size 42

4.8 Method of Data Analysis and Statistical Tools 41

4.8.1 Descriptive Statistics 42

4.8.2 Linear Regression Analysis 43

4.8.3 IBM SPSS Statistics 25 43

4.9 Definition of Variables and their measurement 44

4.10 Regression Model Specification..... 45

CHAPTER 5: FINDINGS, ANALYSIS & DISCUSSION 46

5.1 Introduction 46

5.2 Research & Innovation Investment and Return on Asset 47

5.2.1 Descriptive Statistics of ROA 47

5.2.2 ANOVA of ROA 48

5.2.3 Coefficients of ROA 49

5.3 Research & Innovation Investment and Return on Equity 51

5.3.1 Descriptive Statistics of ROE 51

5.3.2 ANOVA of ROE 52

5.3.3 Coefficients of ROE 53

5.4 Revised Conceptual Framework 57

CHAPTER 6: RECOMMENDATIONS & CONCLUSION 58

6.1 Recommendation 58

6.2 Conclusion 59

6.3 Limitations of the study..... 60

CHAPTER 7: REFERENCES 60

7.1 References 60

LIST OF FIGURES

Figure 1: Conceptual Framework 38

Figure 2: Revised Conceptual Framework 57

LIST OF TABLES

Table 1: Definition of Dependent Variables 44

Table 2: Definition of Independent Variables 44

Table 3: Descriptive Statistics of ROA 47

Table 4: ANOVA[a] of ROA 48

Table 5: Coefficients[a] of ROA 49

Table 6: Descriptive Statistics of ROE 51

Table 7: ANOVA[a] of ROE 52

Table 8: Coefficients[a] of ROE 53

Table 9: Impact of Research & Innovation Investment on Return on Asset 55

Table 10: Impact of Research & Innovation Investment on Return on Equity 56

List of Abbreviations and Acronyms

Acronym	Abbreviations
ROA	Return on Asset
ROE	Return on Equity
DY	Dividend Yield
DC	Dividend Cover
PE	Price Earnings Ratio
CGR	Capital Gearing Ratio
RDI	Research & Development Intensity
FS	Firm Size
LEV	Leverage
MTB/MTBL	Mutual Trust Bank/Mutual Trust Bank Limited
R&D	Research & Development
R&I	Research & Innovation
ANOVA	Analysis of Variance
SPSS	Statistical Package of Social Sciences

CHAPTER 1

INTRODUCTION

1.1 Title of the study

The Impact of Research and Innovation Investment on Bank's Financial Performance: A Study on Mutual Trust Bank Limited, Bangladesh.

1.2 Background of the study

Research and development activity starts and encourages new production, raises the degree of knowledge, and introduces new methods of producing and implementing technology (Fatima et al., 2018). Information is the key to staying on top of forecasting future business situations and being proactive in every choice. As a result, it is important to invest in a division within the company which collects data to give a picture of potential future hazards and opportunities is crucial. R&D division plays a major part in delivering the greatest possible combination of expanding measure. The key to making wise decisions that ultimately determine whether the organization will gain or lose value is proper information presentation and exploitation.

MTBL is a private commercial bank incorporated as a Public Limited Company in 1999, under the Companies Act 1994. Corporate Head Office at MTB Center, Gulshan Avenue, Dhaka, Bangladesh. MTB has offices across Bangladesh in Dhaka, Chattogram, Rajshahi, Khulna, Borishal, Sylhet, Rongpur and Mymensingh. MTB portfolio includes current network of 119 branches & 34 Sub branches, 200 Agent Banking Centers, 18 kiosks, 310 modern ATMs including 6 CRM Booths, 6 Air Lounges, over 3,220 Point of Sales (POS) machines, located in prime commercial, urban and rural areas.

MTB Research & Development Department established in 2009. So, the existence of this department in MTB is more than a decade old. All the possible research-based, scientifically derived inputs and possible avenues of development should be delivered by the R&D Department to the Management and Board in both pro-active and re-active manners. This department will be responsible for meeting the bank's entire research needs. Major functional areas of R&D Department are - Financial Market & Strategy (FM&S), Product Development & Management (PD&M), Stakeholder Insights (SI), Business Analytics (BA), Business Process Development & Re-engineering (BPD&R), Channel Planning & Re-organizing (CP&R) and Service Quality Assurance (SQA). MTBiz, a Quarterly Business Review magazine, has been published by the MTB Research & Development Department since its inception. It covers the latest banking news, banking articles, finance news, finance articles, banking statistics and more.

Bangladesh's banking industry is growing more and more competitive. To maximize their share of this market, each bank must be on top of what they are doing. The secret to staying on top of predicting future business circumstances and being proactive with every decision is information. As a result, it's critical for the business to have a section that gathers data to provide a picture of potential future risks and opportunities. The role of R&D division is to offer the most effective fusion of expansive measures. The key to making wise decisions that ultimately determine whether the organization will gain or lose value is proper information presentation and exploitation. To reduce risk, R&D will be used to determine whether to offer credit or an open letter of credit in connection with this commodity in manufacturing or international business. The leaders of the bank's managing and executing committee must constantly be kept in the loop regarding the bank's performance and any new developments.

1.3 Statement of Problem

Several studies have evaluated the effect of research & innovation investment on banks financial performance. Dave et al. (2013) found a weak positive relationship between the research & innovation investment and the profitability of banks. However, VanderPal, (2015) found that research & innovation investment had a positive and significant effect on banks financial performance. Whereas Ayam, (2012) concluded that the effect of research & innovation investment on profitability is mixed and not significant. Based on the reviewed studies, the empirical evidence on the effect of research & innovation investment on financial performance is mixed.

Therefore, the impact of research & innovation investment on financial performance of banks cannot be regarded as conclusive. Thus, it can be concluded that prior studies on bank's research & innovation investment and financial performance still leave enormous gaps as their studies have not reached a compromised conclusion on the issue. Therefore, this study attempted to fill this research gap by using a distinct viewpoint to determine the impact of research & innovation investment on the financial performance of banks; by examining how the factors that influence banks research & innovation investment effect financial performance of banks as there is not enough research on this subject. Moreover, the contradiction between the findings from the various studies and the lack of focus on all deposit taking financial institutions provided a justification for this study. So, there is a need for more knowledge about this relationship in order to help both bankers and investors to analyze the performance.

1.4 Research Questions

RQ1: Is there any impact of research & innovation investment on financial performance of Mutual Trust Bank Limited?

RQ2: Is there any significant association between DY, DC, PE, CGR, RDI, FS and LEV on ROA?

RQ3: Is there any significant association between DY, DC, PE, CGR, RDI, FS and LEV on ROE?

1.5 Research Objectives

1.5.1 Broad Objective

The general objective of this study is to examine the impact of research & innovation investment on mutual trust bank's financial performance.

1.5.2 Specific Objective

The specific objectives of the study are:

- To examine the association of dividend yield (DY), dividend cover (DC), price earnings ratio (PE), capital gearing ratio (CGR), research & development intensity (RDI), firm size (FS) and leverage (LEV) with return on asset (ROA).
- To examine the association between dividend yield (DY), dividend cover (DC), price earnings ratio (PE), capital gearing ratio (CGR), research & development intensity (RDI), firm size (FS) and leverage (LEV) with return on equity (ROE).

1.6 Significance of the study

Bangladesh's banking industry is growing more and more competitive. To increase their share of this market, banks must continuously improve what they do (also known as share of wallet in the industry). Information is the key to staying on top of forecasting future business situations and

being proactive in every choice. As a result, a division within the company that collects data to give a picture of potential future hazards and opportunities is crucial.

Branch expansion is a crucial component of staying competitive, and an R&D division plays a major part in delivering the greatest possible combination of expanding measures in this regard. The key to making wise decisions that ultimately determine whether the organization will gain or lose value is proper information presentation and exploitation.

In order to reduce risk, the manager of a bank branch will use information on a commodity's anticipated price provided by R&D. The heads of the bank's managing and executing committee must constantly be informed on the bank's performance and any new developments.

1.7 Scope of the study

The study's general focus, or its scope of study, will be outlined in a class or seminar. The importance of R&D in the banking industry is described in this section's "Scope." The "borders" of the activity's aim, knowledge, instruction, or result are defined as the scope of the activity. In this section, the study will provide the actions, influence, evaluation, and feedback of the R&D Division on MTBL's banking operation. Additionally, it can show the potential results that might result in success if other banks engage in research and development operations.

1.8 Organization of the study

The influence of research and innovation investments on the bank's financial performance is the focus of the first series of research questions in the first chapter of this study. The second set of

questions focuses on the significance of the relationship between DY, DC, PE, CGR, RDI, FS, and LEV and financial performance as measured by ROA. The final set of questions focuses on whether there is a substantial relationship between DY, DC, PE, CGR, RDI, FS, and LEV and financial success constrained by ROE. The company overview that I chose is elaborated upon in Chapter 2. The third chapter elaborates on the effect that investments in research and innovation have on banks' financial performance as shown by the literature. The relationship between research and innovation investment, financial performance, and the effects of such investment on bank performance is conceptualized in this chapter. The research's methodology is detailed in Chapter 4. Which method, research design, approach, data source and type, data collection process, population target, data analysis method and instruments of statistics, variable definition, and regression model specification were all considered in this study. Chapters three and four are expanded upon in chapter five. Basically, it was regression analysis-focused. Descriptive statistics, ANOVA, model summary, and coefficients are a few examples. In chapter six, the impact of research and innovation on bank financial performance is summarized, concluded, and suggested. Similar to chapter six, chapter seven lists the sources consulted for this investigation.

CHAPTER 2

COMPANY OVERVIEW

2.1 History of MTBL

MTBL is a 3rd generation bank in the history of Bangladesh banking. The company was incorporated as a public limited company on September 29, 1999, under the companies act 1994. MTB was also issued certificate for commencement of business on the same day and was granted license on October 05, 1999 by Bangladesh bank under the banking companies act 1991 and started its banking operation on October 24, 1999. Its registration number is C38707 (665)/99 and got on September 29, 1999. Bangladesh bank permission no. BRPD (P) 744(78)/99-3081 on October 5, 1999. The company started its operation to progressively carry out its banking businesses, such as wholesale, retail, international trade financing, SME banking, NRB banking, Off-shore banking, Privilege banking, etc. the company (Bank) operates through its corporate head office located at MTB center, Gulshan 1, Dhaka, 1205. The bank carries out its international business through a global network of over four hundred foreign correspondent banks. The banks have a current network of 119 branches, 34 sub branches, 200 agent banking centers, 18 kiosks, 310 modern ATMs including 6 CRM booths, 6 air lounges, over 3220 MTB POS, MTB securities, MTB exchange UK limited and MTB capital limited. Board members of MTBL are Mr. Md. Wakiluddin (Current Chairman), Mr. Md. Abdul Malek (Current vice Chairman), Mr. Syed Manzur Elahi (Current Director and founding Chairman) and Mr. Syed Mahbubur Rahman (Current Managing Director and CEO).

2.2 Organizational Overview of MTBL

The Company (Bank) operates through its head office at Dhaka and with 119 branches in the country. The Company/Bank carry out international business through a Global Network of Foreign Correspondent Banks. MTBL is a member of different chambers, associations and institutions in our country. These are given below:

1. The Institute of Bankers Bangladesh (IBB)
2. Bangladesh Association of Banks (BAB)
3. Bangladesh Foreign Exchange Dealer Association (BAFEDA)
4. Bangladesh Institute of Bank Management (BIBM)
5. Bangladesh Association of Publicly Listed Companies (BAPLC)
6. Metropolitan Chamber of Commerce and Industry, Dhaka (MCCI)
7. International Chamber of Commerce Bangladesh Limited (ICCB)
8. Dhaka Stock Exchange (DSE)
9. Dhaka Chamber of Commerce & Industry (DCCI)
10. Federation of Bangladesh Chambers of Commerce and Industry (FBCCI)
11. American Chamber of Commerce in Bangladesh (AmCham)
12. Primary Dealers Bangladesh Limited (PDBL)

2.3 Mission of MTBL

Aspire to be the most admired financial institution in the country, recognized as a dynamic, innovative and client focused company, which offers an array of products and services in the search for excellence and to create an impressive economic value.

2.4 Vision of MTBL

MTB's vision is based on the philosophy well known as MTB3V. They envision MTB to be:

- One of the best performing banks in Bangladesh
- The bank of choice
- A truly world-class bank

2.5 SLOGAN - "YOU CAN BANK ON US"

2.6 MTBL Core Values

Commitment:

Shareholders – Create sustainable economic value for their shareholders by utilizing an honest and efficient business methodology.

Community – Committed to serve the society through employment creation, support community projects and events and be a responsible corporate citizen.

Customers – Render state-of-the-art service to their customers by offering diversified products and by aspiring to fulfill their banking needs to the best of their abilities.

Employees – They rely on the inherent merits of the employee and honor their relation as a part of this renowned financial institution. They work together to celebrate and reward unique backgrounds, viewpoints, skills and talents of everyone at the work place, no matter what their job is.

Accountability: As a bank, they are judged solely by the successful execution of their commitments; They expect and embrace this form of judgment. They are accountable for

providing the highest level of service along with meeting the strict requirements of regulatory standards and ethical business practices.

Agility: They can see things from different perspectives; they are open to change and not bound by how they have done things in the past. They can respond rapidly and adjust their mode of operation to meet stakeholder needs and achieve our goals.

Trust: They value mutual trust, which encompasses transparent and candid communications among all parties.

2.7 Stock Statistics of MTBL

Market Capitalization (BDT)	15,930,000,000
Shareholders' Equity (BDT)	19,160,910,000
Book Value Per Share (BDT)	25.34
Last Audited P/B Ratio (x)	1.67
Forward P/E	13.1
EPS (BDT)	3.66
Audited P/E (x)	9.02
Trading Currency	Bangladeshi Taka
Market Category	A
Market Lot	1
Credit Rating	LT: AA, ST:ST-2
Last Dividend Declaration Date AGM Date	43,208 43,251

Total Shares	19,160,910,000
Paid Up Capital (BDT)	8,124,960,000

(**Source**: MTB Annual Report 2021)

2.8 Types of Banking Business:

As envisaged in the Memorandum of Association and as licensed by Bangladesh bank under the provisions of the Banking Companies Act 1991, the Company started its banking operation and entitled to carry out the following types of banking business:

1. Wholesale Banking
2. Retail Banking
3. Privilege Banking
4. SME Banking
5. NRB Banking
6. Card Services
7. Treasury Operations
8. International Trade Financing

2.9 MTBL Products

2.9.1 Deposit Products

1. MTB Regular Savings
2. MTB Inspire
3. MTB Ruby
4. MTB Current Account

5. MTB Senior
6. MTB Junior

2.9.2 DPS Products

1. MTB Millionaire Plan
2. MTB Brick by Brick
3. MTB Education Plan
4. MTB Graduate
5. MTB Kotipoti

2.9.3 FDR Products

1. MTB regular fixed deposit
2. MTB double saver
3. MTB monthly benefit plan

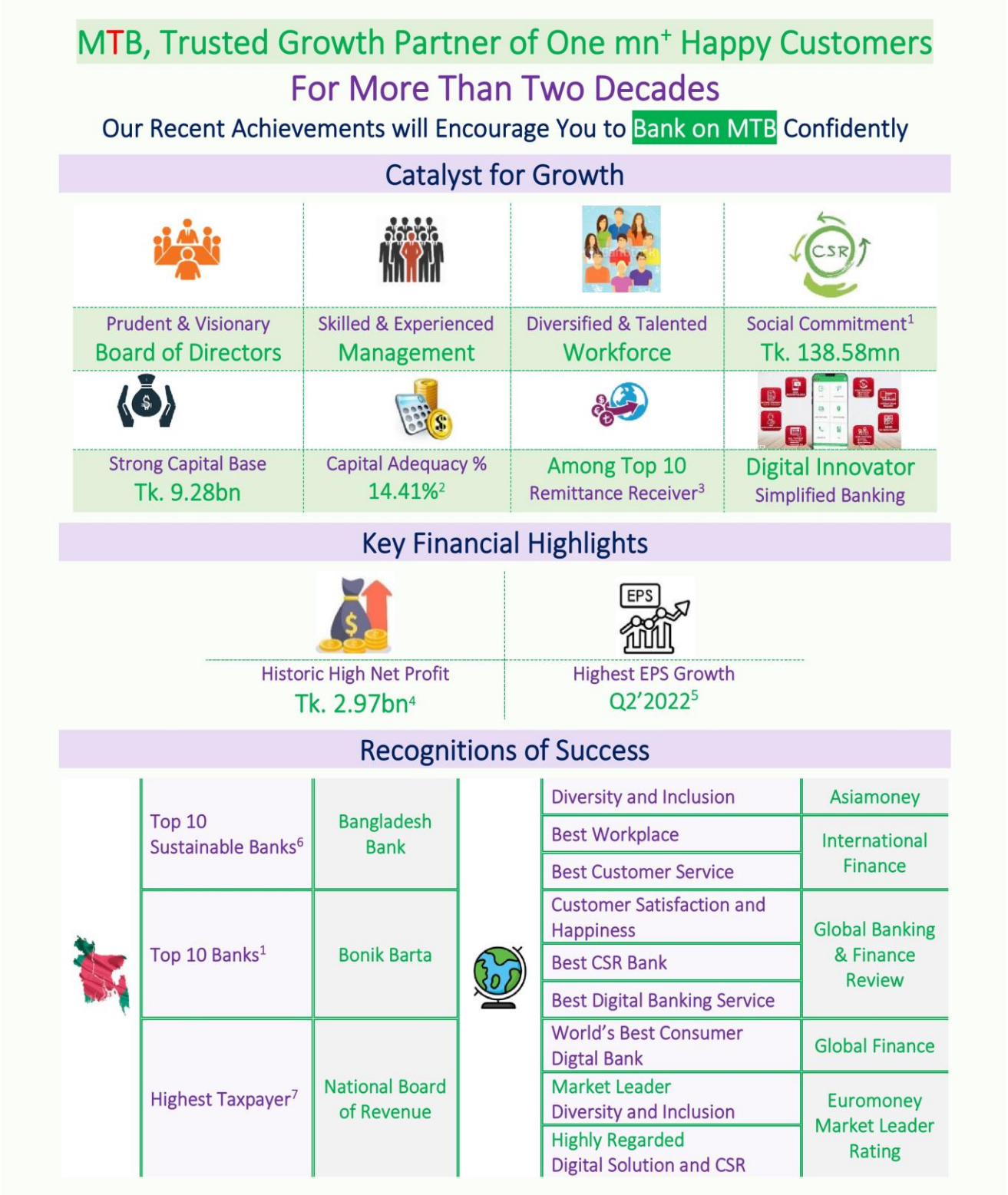
2.9.4 Loan Products

1. MTB personal loan
2. Home loan
3. MTB Home Equity Loan
4. Auto loan

2.10 MTBL Card Services

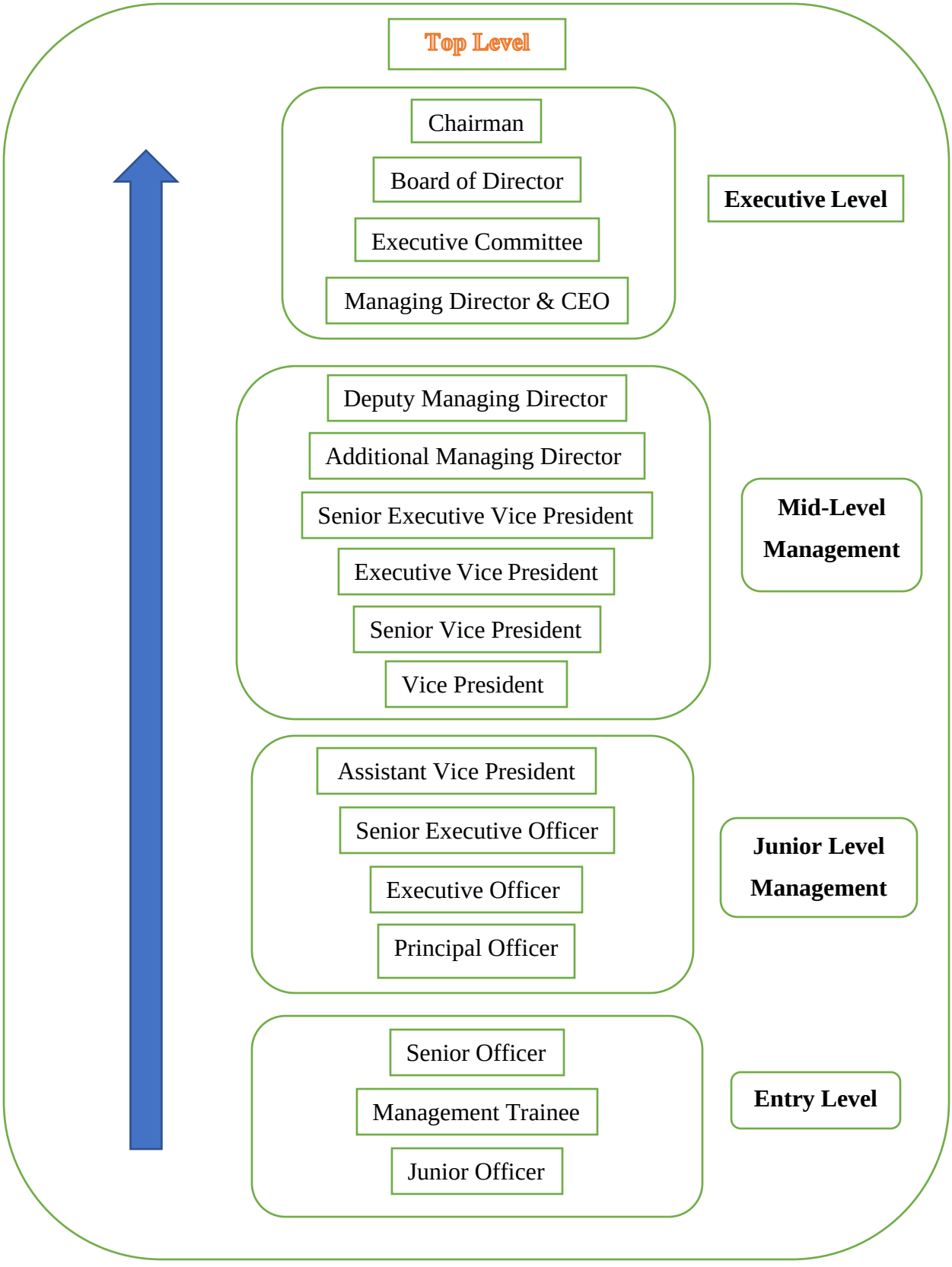
1. MTB Debit Card
2. MTB credit Card
3. MTB VISA Co-branded Cards

2.11 Awards and Accolades



Source: R&D Desk, MTB

2.12 Hierarchy of Position of MTBL



2.13 Activities of the Research and Development Divisions of MTBL

The following functional groups make up the bulk of the division's activities:

1. Marketing research
2. Operations research
3. Research on business policy

Each functional group is very reliant on and supportive of the others, and there is considerable knowledge and information sharing.

1. Marketing Research

An insight into the competitive market that exists in the banking industry today is provided by marketing research. Marketing research is the ideal option for creating new financial goods in order to offer something fresh, inventive, and customer-focused.

i. Develop new financial products, services, and outlets for bank customer service, as well as improve existing ones, in order to better serve customers and cater to their needs, both as consumers and as enterprises (B2B).

ii. Create more potent marketing strategies for the products.

These are some of the primary goals of marketing research, and the R&D department employs this technique to broaden its clientele and, ultimately, boost sales. The marketing research team must carry out the following tasks in order to reach its ultimate objective.

2. Business Policy Research

i. A guide for new business growth opportunities

ii. Investment guidelines

iii. Management growth guidelines

3. **Operations Research (Financial markets and the economy)**

i. Reviews and articles on macroeconomics

ii. A yearly business directive

iii. The bank's strategic planning

iv. A comparison of the bank's performance to that of other banks in its generation or category that are also competitors.

v. Business trend analysis and forecasting

vi. Studies that adhere to the core goals of the business policy

2.14 Routine Monthly Researches

The division is in charge of directly delivering some important market data to the Managing Director and Executive Board in addition to the three main research categories. To stay current and at the top of the industry, you need this information. As a result, the division has created the following organized information.

2.15 My works in R&D Division

- Assist the research team in primary and secondary qualitative or quantitative data collection.
- Digitalization of the data and performing preliminary analysis if required.
- Frequent out-of-the-desk Branch and Customer Visits as well as making regular Phone calls to the Branch Management and Customers for conducting Survey on various issues.
- Economic feasibility survey for opening new Branch/Sub-branch/Agent Outlet.
- Conduct secondary research: reviewing the literature, journals, newspapers.

- Publications work/research: proofreading, design ideas, questionnaire preparation.

2.16 Newsletter Publication

The MTBiz, a newsletter produced by MTBL, is intended for use by employees working in the banking and finance industries. MTB considers knowledge to be the primary competitive advantage that can help it become a rising organization in a highly competitive environment, and the publication of a newsletter is crucial to keeping every employee of the company informed. The steps of a newsletter's publication are as follows:

i. News gathering from both domestic and foreign sources
ii. Relevant news screening
iii. Relevant information summarization
iv. Sectoral categorization and finally
v. News publication

The newsletter's news is mostly focused on the following industries:

i. Finance and banking
ii. Bangladesh’s Economy
iii. The global economy and business
iv. Energy
v. Agriculture and
vi. Telecommunications

The value of newsletters as sources of current information cannot be overstated. The MTB employees can learn about what's happening in the financial world by reading the newsletter. The magazine also makes an effort to pinpoint domestic and international market changes, shifts in

government regulations, and effects on the banking industry. Additionally, it looks for emerging markets and the possibility for company in those industries. Since knowledge is essential for a branch manager to properly provide loans and retain them, this information gives managers an idea of the direction the economy is moving in. MTBiz has been released in 14 volumes so far, and they are available in https://www.mutualtrustbank.com/investor-relations/mtbiz/.

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

This chapter represents literature review of the preview's studies done on the topic. Here we are going to discuss the researches done by different scholars regarding the impact of research and innovation investments on banks financial performance. Then the related empirical studies and a conceptual framework with discussion of research variables followed by summary of literature and finally research gaps. A total of fourteen hypotheses have been formulated with respect to the research objectives. The framework will then be used as a guide for designing the research methodology, which will be discussed in the next chapter.

3.2 Research and Innovation

Any corporate concern's success, effectiveness, and profitability are critically dependent on R&D. R&D is utilized as a substitute for making money (Fatema et al., 2019). Researchers have previously examined the connection between R&D spending and business performance. Donations and charitable organizations were employed by business as social activities; however, such R&D

did not improve the performance of the company. Due to the fact that R&D efforts cannot provide results in the short term and instead offers long-term financial advantages, they had no impact on the performance (Fatema et al., 2019). R&D is important to all parties involved in the business, and depending on the strategy used by the company, it might affect sales. Increased value addition and trust in the company will result in higher revenue. The success of a company's R&D strategy depends on how interested it is in conducting research and development (Fatema et al., 2019).

3.3 Review of Related Empirical Studies – Research and Innovation with Bank's Financial Performance

According to Fatima et al. (2018), innovative firms grow faster than non-innovative ones. R&D investment has a favorable effect on growth rate and is associated with better growth rates for businesses. The most crucial innovation efforts are those that increase the firm's productivity and sales. The company's international commercial and innovation operations are closely related. The company's decision to enter new international markets is influenced by R&D and innovation initiatives. It has been discovered that small businesses invest more in innovation than large businesses. Innovation encompasses a vast array of activities, including developing, introducing, and enhancing goods, technologies, abilities, and methods of selling and buying. Investments in R&D differ from other types of investments. Organizations are spending money on human resources to hire qualified personnel who will generate various kinds of innovation.

VanderPal (2015) investigate the correlation between successful R&D spending and the erratic nature of future performance. There is a positive association between R&D and the erratic nature of future earnings, which is consistent with the ambiguity of R&D's advantages. They also

demonstrated that including data on the effectiveness of a company's R&D expenditures, link between R&D efforts and future earnings is simpler to understand.

Fatima et al. (2018) examined that investment in research and development activities not only improve firm's performance but also made the position of firm. The investment is profitable for businesses as it confesses them to attain and boost the performance and higher the assessment by market. The direct relation among the research and development investment and firms' performance takes the serval duration to earn profit. Investment in research and development produce value but it always ambitious for investor to evaluate its impact on business.

According to Dave et al. (2013), high R&D spending is not a guarantee of high profitability unless firms manage it correctly. This is in reference to the impact of R&D expenditure on profitability. R&D costs have an impact on corporate profitability projections since they must be immediately expensed. We have not explicitly evaluated the relationship between R&D investment and ROA because the profitability in turn distorts the ROA.

The association between R&D and business success, according to Ayam (2012), can only be strong if management uses stronger control measures of R&D expenditures within the company. The ability of senior management to implement effective and efficient control mechanisms for managing the R & D expenses will therefore have a significant impact on how R & D as a whole affects a firm's performance. Therefore, a company's overall profitability from a successful R&D program should exceed its overall R&D expenses; otherwise, it would be preferable to close the R&D program or reassess it.

Using a simultaneous model, Fatema et al. (2019) looked at the relationship between growth, profitability, and the cost of R&D. It examines the firm's size and other elements that have an impact on R&D. The outcome demonstrates the advantages of company size as well as the beneficial interactions between profitability and profitability growth. The profit from future research and development advantages is included in the income statement, but the loss is not. According to Fatema et al. (2019), traditional methods of higher risk in R&D activities are not relevant for high value products, and cost of production management is not viable without R&D strategies.

VanderPal (2015) demonstrated a favorable relationship between R&D intensity and firm success and highlighted the influence of R&D investments, which were two times larger than those made in tangible assets, on market capitalization. The body of literature also contains studies that looked at the connection between R&D and subsequent operating performance and discovered a favorable association between the two ideas.

The impact of profit and other information on the cost of research and development is examined by Fatema et al. in 2019. It demonstrates that operating profit produces anomalous profit due to increasing R&D expenditures. They looked at the fact that companies invest more in research and development because of product innovation and enhancement. It demonstrates how the market value of new items is created through the improvement of products as a result of input behavior and output control.

A $1 increase in R&D spending determines a two-dollar profit boost over the course of seven years, according to VanderPal (2015). Similar to this, operating income and both current and lag R&D data show a favorable link. The results also showed that depending on the industry sector, the influence of R&D on current operating outcomes varied. It is more practical to concentrate on the relationship between R&D investment and profitability while taking future R&D increases into consideration as opposed to current and previous levels.

Fatema et al. (2019) looked at how businesses use technical advances to generate new items at a low cost, satisfy customer demand, and boost market competitiveness. By entering a new market, it also increased company profit and increased earnings. By utilizing the best research and development methodologies, it launched new and unique products. The market position of already existing items is strengthened by investments in research and development, and new product opportunities are created, which helps enterprises operate better.

Research and development investments have a positive, significant impact on projecting future returns, according to an empirical study by VanderPal (2015) that assessed the impact of R&D on stock returns for a group of European countries. Exploring how R&D efforts affect financial stability is a challenging process since the implications of the time lag between the moment of R&D investment incurrence and the point at which it enhances financial performance differ from business to business.

The financial performance of a corporation is directly impacted by the accounting handling of R&D undertakings. The net income and profitability indicators (ROA and ROE) for the specified

period will decrease if the R&D expense materializes within the incurrence period. Given that total assets will increase as a result of capitalizing the R&D spending as an intangible asset, deferring R&D costs to future years as intangible assets would not negatively affect current period net income or return on equity, but could put pressure on ROA. Research and development efforts won't pay off financially unless specific R&D operations result in patent issue (VanderPal, G. A., 2015).

Innovation and return on assets typically have a positive relationship. Additionally, according to VanderPal (2015), operating cash flow and net income can be used to gauge a company's performance. They emphasized a favorable correlation between the firm's patent quality and future operating performances (FOP), which are computed as means. However, there is a bad correlation between the company's patent quality and the standard deviation of FOP. High operating performance is brought about by innovation, which also lowers the level of uncertainty.

In their study on R&D and valuation from 2019, Erdogan and Yamaldinova looked at how long business growth and market success from R&D investments will last. Researchers supported the constant increase association between gross revenue, R&D intensity, and sales with evidence in the study. While study results show a correlation between R&D intensity and profitability, they also show that R&D intensity increases the consistency of share returns.

Using information from the Indian pharmaceutical sector, Erdogan and Yamaldinova (2019) investigated the effect of R&D efforts on business performance. Within the empirical framework of the study, two analyses - growth accounting and production function were conducted. The

findings of growth accounting revealed that R&D intensity significantly impacted total factor productivity. Its findings demonstrated that international businesses in the sector were more responsive to R&D than domestic ones. The results suggested that the Indian pharmaceutical industry should be encouraged to pursue more innovative endeavors.

According to Erdogan, M., and Yamaldinova, A. (2019), innovation is the primary way for all businesses to get a competitive edge in the market. This study intends to determine the impact of company size on the impact of innovation in addition to examining the impact of SME innovation on financial performance. Regression analysis was used to examine the data of 98 SMEs in the Italian food machinery industry. The study's empirical results support the idea that when innovation levels rise, financial performance rises as well. The study concluded that while innovations created to satisfy customer wants and those created to set companies apart from rivals were crucial, technological level had little bearing on financial performance.

Erdogan, M., and Yamaldinova, A. (2019) conducted research using data from 272 US firms to examine the relationship between R&D spending, inventions, and product innovation, as well as how these factors affect financial success. New product introductions are favorably correlated with financial performance, according to study results.

Studies have shown, according to Habtewold (2021) that investing in R&D can assist businesses acquire new technologies and goods as well as increase efficiency to better meet customer expectations. This can help businesses adapt more quickly to changes in the market's profitability.

Decisions about R&D investments are based on anticipated returns and the resources that companies have at their disposal. Studies are undertaken frequently to look at how R&D spending affects business performance. The majority of research show a beneficial impact of R&D spending on business performance. According to Habtewold (2021), there may be a correlation between current year R&D, prior year R&D and future performance, and current performance. However, the association may be stronger if certain conditions are present, such as investor protection in the nation. Additionally, they discovered that current-year R&D expenditures lower profits but may have a positive impact on future business performance. R&D spending continues to have a positive impact on performance to some extent. Therefore, increasing R&D expenditures beyond a particular level has a detrimental impact on profitability. Accordingly, in their situation, R&D spending and financial performance are connected negatively in the short run and positively in the long run, according to the extensive mixed literature in the field.

According to a number of studies, there is a positive correlation between R&D investment and innovation performance, albeit the effect varies depending on the firm's structure and the type of knowledge created. R&D spending has been found to positively influence innovation performance in certain earlier research (Habtewold, 2021). By developing and launching fresh, cutting-edge goods and services, businesses leverage R&D spending to boost their innovation performance and generate significant returns. Generally speaking, the literature has quite a good understanding of the positive relationship between R&D investments and innovation performance, so businesses that increase their R&D spending are expected to be more likely to advance positively, introduce new products and technologies, and boost their competitiveness.

3.4 Summary of Literature Review and Research Gap

A research gap that I faced was the limited amount of research conducted to measure the impact of R&D expenditure on financial performance. A further gap consisted of the limited research carried out to ascertain the impact of marketing performance, gross margins and technological innovation on financial performance. The primary aim of this research is to bridge this gap.

3.5 Conceptual Framework

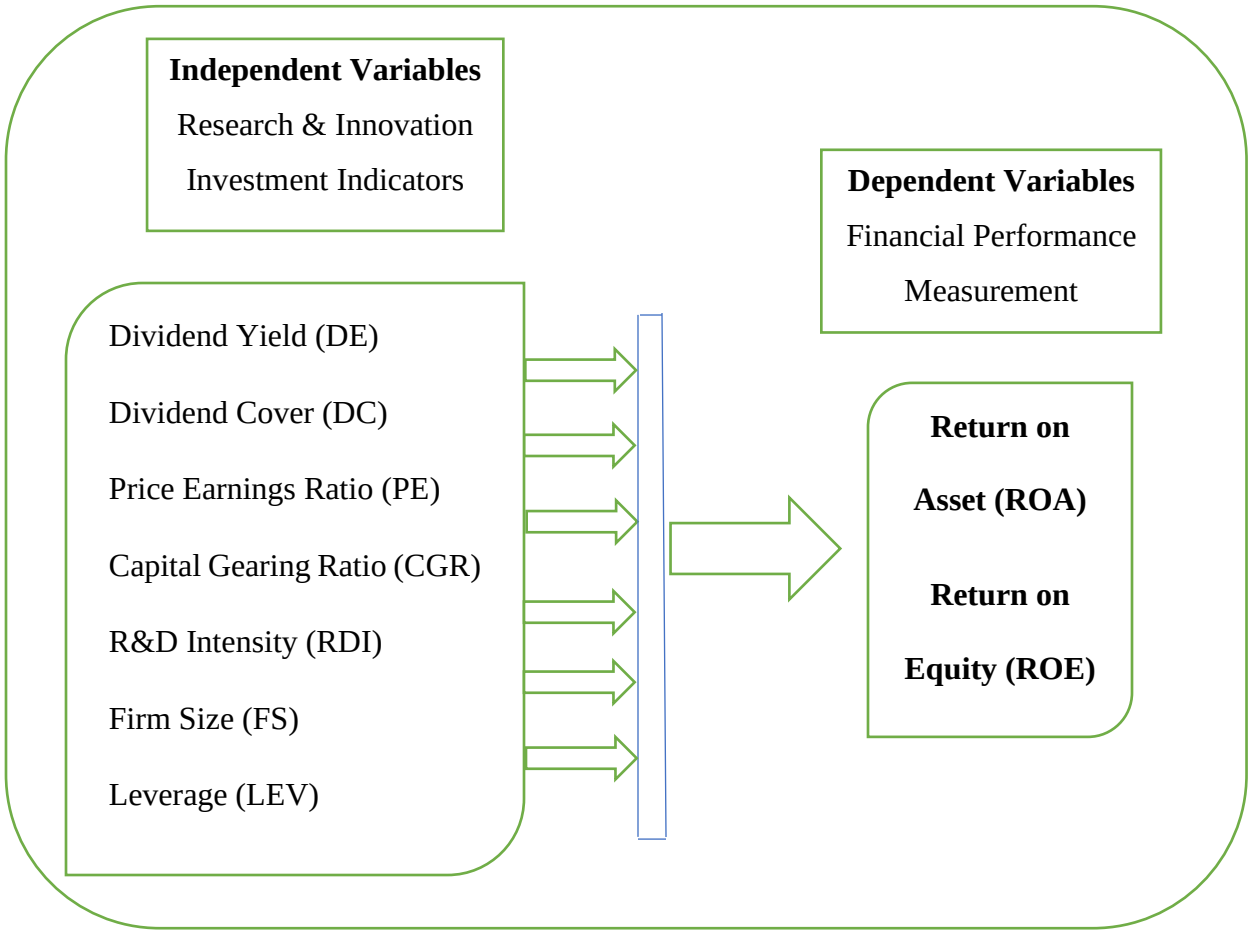


Figure 1: Conceptual Framework

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

The research approach used for this study is described in this chapter. It comprises the research methodology, research design, research strategy, research source, the study's target demographic, and the sample techniques used. The chapter also examines the used empirical model and the method of data collecting. Finally, the chapter describes the steps involved in data analysis and how the results are shown.

4.2 Research Method

Research problems can be answered using a variety of quantitative approaches and procedures. It is used to frame the descriptive approach and determine the outcome and impact by testing the hypothesis in order to achieve the study's ultimate objective. In the sense that numbers indicate the values and intensities of theoretical constructions and notions, quantitative procedures and techniques tend to specialize in quantities. Finding evidence to either support or reject theory that was defined in the earlier stages of the investigation is also related to this research methodology.

4.3 Research Design

Identifying the data collection method(s), the instruments to be used, how the instruments would be administered, and how the information would be structured and analyzed are all part of the research design, which is a strategy defining how information is to be obtained for an assessment or evaluation (Assumptah & Muhari, 2017). It also discusses problems with the research design that are related to the study's exploratory, descriptive, or causal goals. A descriptive research

design was utilized for this study, which essentially involves gathering data on the state of phenomena in order to describe "What exist" in relation to conditions or factors (Gardner, Dixie, & S.C., 2004).

4.4 Research Approach

Two categories of research approaches can be distinguished:

1. A deductive method to research
2. An inductive research strategy

Deductive methodology associated with quantitative research is being used in this study. It is conducted with a focus on creating hypotheses based on accepted theory, and after that, it develops a research plan to test the hypotheses (Wilson, J. 2014). The Deductive approach, which refers to drawing conclusions from premises, is the one that this strategy best complements. The key distinction between deductive and inductive techniques is the applicability of the hypothesis to the study. While the inductive approach aids in the development of new theories, the deductive approach evaluates the accuracy of existing hypotheses or assumptions.

4.5 Research Source & Nature of Data

Secondary data used in this study has been extracted from the annual reports of MTB which has been obtained from the official web sites published by the MTBL, Bangladesh for a period of 5 years from 2017 to 2021. Five years annual report of MTBL (2017-2021) have been used as secondary source of data.

4.6 Methods of Data Collection

The data obtained from banks financial statement used to determine bank specific variables that determine research investment and profitability of the bank. In order to increase the credibility and reliability of the research the study used audited financial statements (balance sheet, income statement and cash flow statement) sourced from MTB. Selecting appropriate and acceptable data gathering instrument help the researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize investment of irrelevant conclusion. Thus, our sample consists of MTBL, Bangladesh. Data must be accessible from the years 2017 to 2021, which is the study period. Initially, all of the MTB's annual reports were downloaded from the websites of the respective banks. Information was then manually searched from each annual report, and finally, the ratios that were produced by computing the various variables related to research and innovation investment and performance measurement in the annual reports of the banks served as the empirical inputs for testing hypotheses. Return on Assets (ROA) and Return on Equity (ROE) are used to illustrate the banks' performance in this instance (ROE). The dependent variables will be these three. The independent variables that will measure research and innovation investment are Dividend yield ratio (DY), Dividend cover ratio (DC), Price earnings ratio (PE), Capital gearing ratio (CGR), R&D intensity ratio (RDI), Firm size (FS) and Leverage ratio (LEV).

4.7 Target Population and Sampling Frame

4.7.1 Target Population

The term "population" refers to the entire group of components, people, or organizations about which judgments and inferences are drawn (Cooper & Schindler, 2011). According to Mugenda & Mugenda (2008), the target population is the group of people for whom a researcher hopes to

generalize the findings of his investigation. Therefore, the MTB population between 2017 and 2021 is the study's target population.

4.7.2. Sampling Frame, Techniques and Size

A sampling frame, according to Cooper and Schindler (2011), is a list of components from which a sample is really taken. A list of population components that frequently diverge somewhat from the specified target population was used to choose the sample. Since MTB have been running the banking service in Bangladesh for more than 20 years, they make a convenient sample for this study. It is included in this study because it has been running for 20 years and has operations in many different Bangladeshi regions, allowing for a fair representation of the country's banking sector. To improve the sample size, we have used this bank's five-year data. Thus, a 5*1 matrix sample frame with 5 observations will be used.

4.8 Method of Data Analysis & Statistical Tools

The statistical methods used to examine the data and determine the various correlations between the variables are listed below:

4.8.1 Descriptive Statistics

Simple descriptions of variables are covered in the descriptive analysis section. Each variable's mean, maximum, minimum, and standard deviation are included. So, over the course of the sample period, descriptive statistics of the variables (both dependent and independent) were computed. This is consistent with Malhotra's (2007) assertion that employing descriptive statistics techniques aids the researcher in visualizing the current situation and makes pertinent information available.

4.8.2 Linear Regression Analysis

By applying a linear equation to the collected data, it makes an attempt to model the relationship between two or more variables. When X is the independent variable and Y is the dependent variable, the equation for a linear regression line is Y= a + bX. At a 5% level of significance, linear regression was employed to estimate the statistical association. The size of the relationship between the independent and dependent variables is determined by the correlation coefficient (R). A regression model's coefficient of determination (R-square), which measures the proportion of variation in the dependent variable that can be accounted for by changes in the independent variables, and P-value were used to assess the model's fit and the overall significance of the relationship. Finally, the structural models are run to test the hypotheses. Using IBM SPSS version 25, the data is examined.

4.8.3 IBM SPSS Statistics 25

The Statistical Package for Social Sciences (SPSS) is a software program that is used for logically batching and non-logically analyzing statistical data. It offers a number of statistical calculations, including linear regression analysis, descriptive statistics, correlation, bivariate statistics, and numerical outcome prediction, among others. In this study, data are computed using IBM SPSS version 25 to produce a result for assessing the association between research & innovation investment and corresponding banks selected as samples of financial performance.

4.9 Definition of variables and their measurement Table

Table 1: Definition of Dependent Variables

Dependent Variables	Definition	Acronym	Measurement
Return on Asset	The ratio of net income to total asset of the company.	ROA	Annual Net Income / Average Total Assets
Return on Equity	The ratio of net income to total equity of the company	ROE	Annual Net Income / Shareholder's Equity

Source: Author

Table 2: Definition of Independent Variables

Independent Variables	Definition	Acronym	Measurement
Dividend Yield	A percentage of current share price.	DY	Gross Dividend Per Share / Market Price Per Share
Dividend Cover	Number of times a company could pay dividends to its common shareholders using its net income over a specified fiscal period.	DC	Net Profit or Loss Attributable to Ordinary Shareholders / Net Dividend on Ordinary Share

Price Earnings Ratio	Company's share price to company's earnings per share	PE	Market Price / Earnings Per Share
Capital Gearing Ratio	The ratio of debt a company has relative to equities.	CGR	Prior charge capital / Total capital
R&D Intensity	Research and development (R&D) expenses are direct expenditures relating to a company's efforts to develop, design, and enhance its products, services, technologies, or processes.	RDI	R&D Expense / Total Sales
Firm Size	Scale or volume of operation turned out by a single firm	FS	Natural log of assets
Leverage	Amount of debt a company will be using to finance its business operations.	LEV	Total Debt / Total Assets

Source: Author

4.10 Regression Model Specification

The study uses a general linear model of regression to establish the relationship between the independent and the dependent variables. The model has been fixed by considering the variables used in previous studies. The model is as follows:

Model 1: ROA = β0 +β1DY + β2DC + β3PE + β4CGR + β5RDI + β6FS+ β7LEV + €

Model 2: ROE = β0 +β1DY + β2DC + β3PE + β4CGR + β5RDI + β6FS+ β7LEV + €

Where, β = constant term,

B1 – β7 = coefficient of independent variants

€ = regression error term

ROA = Return on Asset

ROE = Return on Equity

DY = Dividend yield ratio

DC = Dividend cover Ratio

PE = Price earnings ratio

CGR = Capital gearing Ratio

RDI = Research & Development Intensity Ratio

FS = Firm size ratio

LEV = Leverage Ratio

CHAPTER 5

FINDINGS, ANALYSIS & DISCUSSION

5.1 Introduction

The data analysis described in this chapter will be followed by a discussion of the research results. The research goal that served as the study's guidance is related to the findings. Several statistical analyses, including descriptive statistics, linear regression analysis—which includes model summary, ANOVA, coefficient, etc. and others are performed on the data using IBM SPSS Statistics version 25.

5.2 Research & Innovation Investment and Return on Asset

5.2.1 Descriptive Statistics of ROA

Table 3 and Table 6 below provide descriptive statistics for independent and dependent variables. Return on asset (ROA) and Return on equity are the dependent variables (ROE). While the independent variables are Dividend yield ratio (DY), Dividend cover ratio (DC), Price earnings ratio (PE), Capital gearing ratio (CGR), R&D intensity ratio (RDI), Firm size (FS) and Leverage ratio (LEV).

Table 3: Descriptive Statistics of ROA using regression model

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROA	5	.0094	.0140	.012600	.0018588
RDI	5	.0016	.0055	.003120	.0015189
FS	5	110	119	114.20	4.266
LEV	5	-.0027	.0281	.011340	.0135108
DY	5	-.1700	.0200	-.070000	.0809321
DC	5	.1402	.4896	.287400	.1433511
PE	5	4.7525	18.8770	10.211240	5.7440333
CGR	5	7.6762	8.3041	7.928340	.2498049
Valid N (listwise)	5				

For the variable utilized in this investigation, descriptive data are shown in Table 1. As can be seen in the above table, there are a total of 5 samples. Return on Asset (ROA) has a mean value of

0.012600, a range of 0.0094 to 0.0140, and a standard deviation of 0.0018588. The research and development intensity ratio (RDI), with lowest and maximum values of 0.0016 and 0.0055, is 0.003120 on average. The median firm size (FS), which ranges from 110 to 119, is 114.20. The average leverage ratio (LEV), with minimum and maximum values of -0.0027 and 0.0281, is 0.011340. Dividend yield ratio (DY) lowest and maximum values are -0.1700 and 0.0200, respectively, with a mean value of -0.0700. Dividend capital ratio (DC) ranges from a minimum of 0.1402 to a maximum of 0.4896, with a mean value of 0.2874. The price earnings ratio (PE) has a mean value of 10.2112, a minimum value of 4.7525, and a high value of 18.8770. Last but not least, capital gearing ratio (CGR). The minimum and highest points are 7.6762 and 8.3041, respectively, with a mean of 7.9283.

5.2.2 ANOVA of ROA

Table 4: ANOVA of ROA using regression model

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.123	4	0.513	4.132	.000[b]
	Residual	6.244	0	0.114		
	Total	11.367	4			
a. Dependent Variable: ROA						
b. Predictors: (Constant), DY, PE, RDI, CGR, FS, LEV, DC						

The ANOVA test of the model's fitness is displayed in the table above. The data fits the model well, as evidenced by the F statistic of 4.132 and significance level of 0.000, which suggests that the model's specified variables are reliable predictors of performance.

5.2.3 Coefficients of ROA

Table 5: Coefficients of ROA using regression model

Coefficients[a]					
Model 1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.068	.022		1.244	.104
FS	.001	.021	.391	2.121	.000
LEV	-.116	.009	-.841	-.214	.670
DC	.022	.001	.029	2.320	.000
CGR	-.009	.000	-1.252	-2.099	.039
DY	-.005	.012	-.501	-3.423	.098
PE	0.337	.026	.394	.381	.130
RDI	0.135	.021	.087	2.114	.051
a. Dependent Variable: ROA					

The tests were run at a 95% confidence level, therefore for all of the aforementioned tests to be significant, the p-value had to be less than or equal to 0.05. When all other independent variables are maintained constant, unstandardized coefficients show how much the dependent variable

fluctuates with an independent variable. The beta coefficients for the 7 independent variables are listed in Table 4. The individual variables' individual prediction strengths are shown by the beta coefficients. The beta constant is negative, as can be seen from the table above. Leverage ratio (LEV), capital gearing ratio (CGR), and dividend yield ratio (DY) all exhibit negative beta coefficients, indicating that the dependent variable return on asset is inversely related to these independent factors (ROA). This suggests that a unit change in the leverage ratio, capital gearing ratio, and dividend yield ratio will, respectively, cause a 0.116, 0.009, and 0.005 change in performance.

Conversely, the positive beta coefficients and statistical significance of the Dividend Cover Ratio (DC), Firm Size (FS), Price Earnings Ratio (PE), and Research & Development Intensity Ratio (RDI) indicate a positive association between the dependent variable, return on asset (ROA). According to this, a unit change in the Dividend Cover Ratio, Firm Size, Price Earnings Ratio, and Research & Development Intensity Ratio causes a proportional change in Performance of 0.022, 0.001, 0.337, and 0.135, respectively.

The independent variables Firm size (FS), Price Earnings Ratio (PE), Research & Development Intensity Ratio (RDI), and Capital Gearing Ratio (CGR) have a substantial impact on the dependent variable Return on Asset, according to the study's findings (ROA).

Consequently, the first regression model is:

ROA = 1.068 - 0.001 (FS) - 0.022 (DC) +0.009 (CGR) - 0.337 (PE) + 0.135 (RDI) + €

5.3 Research & Innovation Investment and Return on Equity

5.3.1 Descriptive Statistics of ROE

Table 6: Descriptive statistics of ROE using regression model

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROE	5	.05	.06	.0617	.002571
RDI	5	.00	.00	.0031	.00151
FS	5	110	119	114.20	4.266
LEV	5	-.00	.02	.0113	.01351
DY	5	-.17	.02	-.0700	.08093
DC	5	.14	.48	.2874	.14335
PE	5	4.75	18.87	10.2112	5.74403
CGR	5	7.67	8.30	7.9283	.24980
Valid N (listwise)	5				

Some descriptive data for the variable used in this investigation are shown in Table 1. As can be seen in the above table, there were a total of 5 samples used to calculate the Return on Equity (ROE), which had a mean of 0.0617 and a range of 0.0583 to 0.0641 with a standard deviation of 0.0026. The research and development intensity ratio (RDI), with lowest and maximum values of 0.0016 and 0.0055, is 0.003120 on average. The median firm size (FS), which ranges from 110 to 119, is 114.20. The average leverage ratio (LEV), with minimum and maximum values of -0.0027 and 0.0281, is 0.011340. Dividend yield ratio (DY) lowest and maximum values are -0.1700 and

0.0200, respectively, with a mean value of -0.0700. Dividend capital ratio (DC) ranges from a minimum of 0.1402 to a maximum of 0.4896, with a mean value of 0.2874. The price earnings ratio (PE) has a mean value of 10.2112, a minimum value of 4.7525, and a high value of 18.8770. Last but not least, capital gearing ratio (CGR). The minimum and highest points are 7.6762 and 8.3041, respectively, with a mean of 7.9283.

5.3.2 ANOVA of ROE

Table 7: ANOVA of ROE using regression model

ANOVA[a]					
Model 2	Sum of Squares	df	Mean Square	F	Sig.
Regression	210.322	4	24.043	2.231	.000[b]
Residual	630.465	0	7.010		
Total	840.787	4			
a. Dependent Variable: ROE					
b. Predictors: (Constant), DY, PE, RDI, CGR, FS, LEV, DC					

The ANOVA test of the model's fitness is displayed in the table above. The data fits the model well, as evidenced by the F statistic of 2.231 and significance level of 0.000, which suggests that the model's specified variables are reliable predictors of performance.

5.3.3 Coefficients of ROE

Table 08: Coefficients of ROE using regression model

Coefficients[a]					
Model 2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.007	.022		1.244	.104
FS	.001	.021	1.244	2.121	.000
LEV	-.121	.009	-.637	-.214	.698
DC	-.002	.081	-.138	-2.320	.089
CGR	-.004	.000	-.374	-2.099	.039
DY	-.100	.012	-.501	-3.423	.002
PE	.337	.026	.394	.381	.130
RDI	.135	.021	.087	2.114	.421
a. Dependent Variable: ROE					

The tests were run at a 95% confidence level, therefore for all of the aforementioned tests to be significant, the p-value had to be less than or equal to 0.05. When all other independent variables are maintained constant, unstandardized coefficients show how much the dependent variable fluctuates with an independent variable. The beta coefficients for the seven independent variables are shown in Table 8. The individual variables' individual prediction strengths are shown by the beta coefficients. The beta constant is negative, as can be seen from the table above. An inverse association between the independent variables leverage ratio (LEV), capital gearing ratio (CGR),

dividend cover (DC), and dividend yield ratio (DY) is indicated by the independent variables' negative beta coefficients (ROE). This shows that a unit change in leverage, capital gearing, dividend cover, and yield ratios causes an inverse change in performance of 0.121, 0.004, 0.02, and 0.100, respectively.

However, the price-earnings ratio (PE), research-and-development intensity ratio (RDI), and firm size (FS) all exhibit positive beta coefficients and are statistically significant, indicating that the dependent variable return on equity and these variables are positively correlated (ROE). According to this, a unit change in the Price-Earnings Ratio, the Research and Development Intensity Ratio, and the Firm Size causes a proportional change in performance of 0.337, 0.135, and 0.001 accordingly.

According to the study's findings, the dependent variable return on equity is significantly impacted by the independent variables price earnings ratio (PE), research and development intensity ratio (RDI), and firm size (FS) (ROE).

The second regression model then takes the form:

ROE = 1.007 - 0.337 (PE) - 0.135 (RDI) – 0.001 (FS) + €

Table 09: Impact of research and innovation investment on return on asset

Explanatory Variables	T-test at 5% level of significance p<0.05	Decision
Dividend yield Ratio (DY)	p=0.098	Not Supported
Dividend cover ratio (DC)	p=0.000	Supported
Price earnings ratio (PE)	p=0.130	Not Supported
Capital gearing ratio (CGR)	p=0.039	Supported
Research & development intensity ratio (RDI)	p=0.051	Supported
Firm size ratio (FS)	p=0.000	Supported
Leverage ratio (LEV)	p=0.670	Not Supported

Source: Author

Table 10: Impact of research & innovation investment on return on equity

Explanatory Variables	T-test at 5% level of significance p<0.05	Decision
Dividend yield Ratio (DY)	p=0.002	Supported
Dividend cover ratio (DC)	p=0.089	Not Supported
Price earnings ratio (PE)	p=0.130	Not Supported
Capital gearing ratio (CGR)	p=0.039	Supported
Research & development intensity ratio (RDI)	p=0.421	Not Supported
Firm size ratio (FS)	p=0.000	Supported
Leverage ratio (LEV)	p=0.698	Not Supported

Source: Author

5.4 Revised Conceptual Framework

According to the study, firm size, dividend cover ratio, research and development intensity ratio, and capital gearing ratio all have a substantial impact on a bank's financial performance as measured by return on assets (ROA) However, when expressed in terms of return on equity, dividend yield ratio, price earnings ratio and leverage ratio all have a major impact on the financial performance of the bank (ROE). As a result, the findings indicate that research and innovation investment have an impact on the bank's financial performance. The conclusions arrived at are summarized in the updated conceptual framework below.

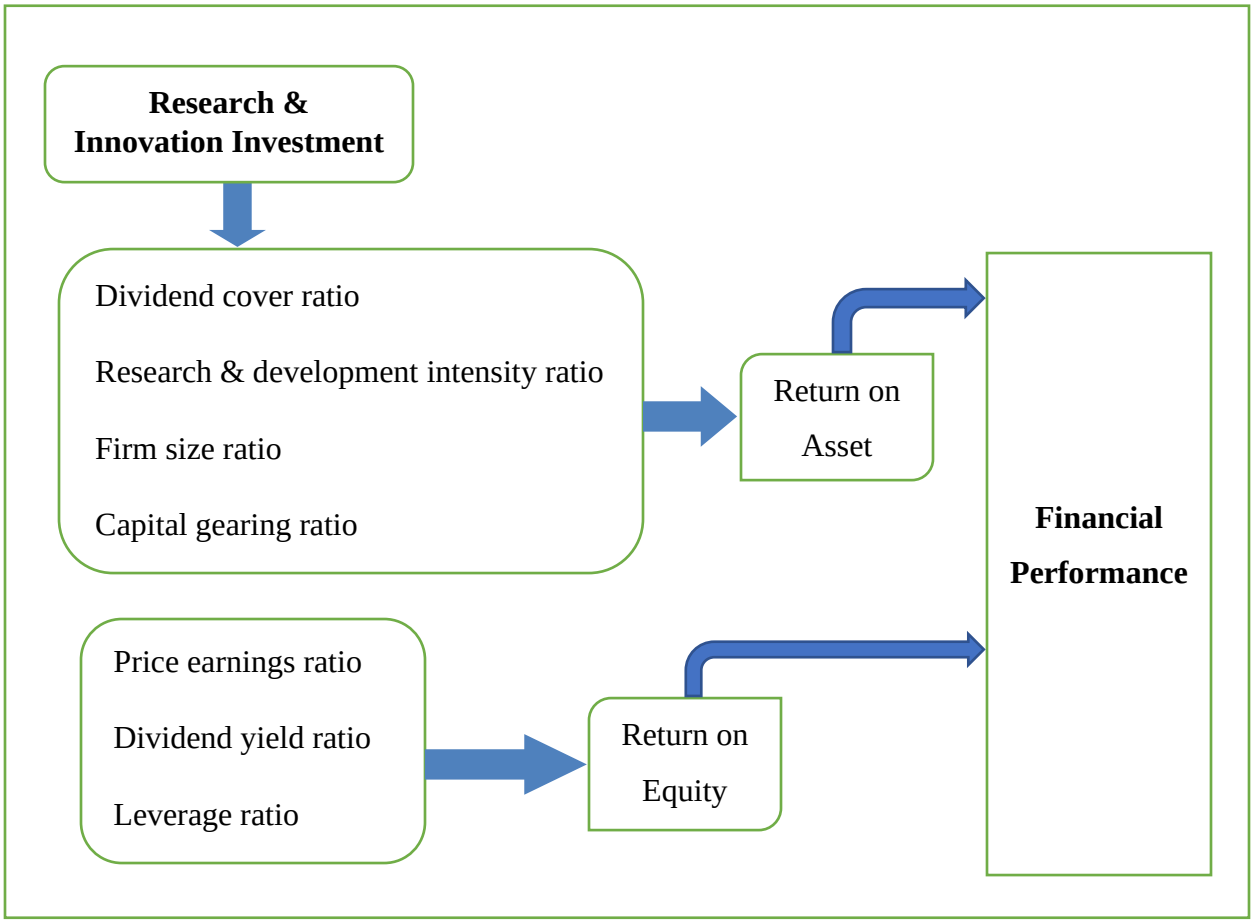


Figure 2: Revised Conceptual Framework

Source: Researchers own design

For any compliance or necessity, the R&D Division is connected to other Divisions. Management decisions and R&D have a very close link. The management gives earnest consideration to the R&D feedback. R&D receives manuals for all upcoming goods and services to test their viability. R&D conducts analysis, creates reports in accordance with the specifications, and presents the information to the user in a suitable manner. R&D also does a variety of support service tasks in addition to research activities. This division periodically assesses the bank's organizational status in light of economic and financial indicators as well as personnel conduct.

CHAPTER 6

RECOMMENDATIONS & CONCLUSION

6.1 Recommendation

I've noted a few of the R&D Division's most important projects that actually aid senior management in making competitively and successfully informed decisions. These initiatives are only timely undertaken to provide customers with unique products and services. The Managing Director of MTBL oversees the R&D Division primarily. By adhering to its corporate head office strategy, the Division primarily works for unanticipated demands and better services for its customers. And I discovered that there is a strong connection between R&D activities and banking operations. The management is occasionally assisted by the R&D department's comments in understanding changes in market forces and in making timely decisions to maintain an advantage. The actions listed below can be followed in order to accomplish this.

I. The banking sector primarily deals with money and how it behaves. Even while the R&D section is allowed to look into various parts of banking operations, the financial aspect is

largely lacking in this. This region is actually under the direction of Financial Administration (FAD).

II. Reliance on outside market research firms should be reduced because their work is highly sophisticated and competitively sensitive. More experts should be hired as a result.

III. R&D occasionally becomes bogged down with tasks from other departments. The flow and routine tasks are hindered at that time. Therefore, management should prioritize R&D projects.

IV. It is suggested that R&D projects be prioritized because they need extensive investigation and the use of dependable tools and data.

V. The R&D Division cannot operate effectively with the current staffing levels.

6.2 Conclusion

There is no Research & Development Division in the other modern and fiercely competitive banks in Bangladesh. The founder of the R&D Division in this case is MTBL. Other banks have now formed this division as well in order to go forward. My time spent working in the research and development division was productive because I gained a great deal from it. Following my internship at MTBL, I have developed competence mostly in the following areas:

1. Analytical expertise
2. Banking knowledge
3. Research methodology
4. Expertise in different types of research tools and techniques.

R&D investments play an important role as they display future growth opportunities in company performance. This study examined the impact of R&D expenditures on the financial performance of the MTB with the obtained in the 2017-2021 period. The findings of the study proved the existence of relationship between R&D expenditures and financial performance. However, the effect of R&D expenditures was found to be higher in ROE than ROA. It was also found that while firm size increases overall profitability, leverage reduces its profitability.

6.3 Limitations of the study

- Due to secrecy, the bank did not disclose much information about the many initiatives it completed. In certain ways, it was therefore impossible to obtain the R&D Division's honest feedback, which might be seen as the opposite.
- The conclusion is based on an analysis of the R&D Division performance of a single bank. Therefore, this sample size is too small to accurately reflect how R&D would affect banking operations.
- As the entire report was created while working a full-time job in the concerned organization, time was a very critical issue.

CHAPTER 7

7.1 REFERENCES:

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