A Study into the Factors Determining the Gap between Projected and Actual Revenue Collection from the Banking Sector in Bangladesh: A Trend Analysis

UNIVERSITY OF DHAKA

Department of Banking and Insurance

Submission of Dissertation

on

"A Study into the Factors Determining the Gap Between Projected and Actual Revenue Collection from the Banking Sector in Bangladesh: A Trend Analysis"

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**Dissertation Submitted for the Fulfillment of the Degree of Doctor of Business Administration
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Acronyms		
ACC	:	Anti-Corruption Commission
ADR	:	Alternative Dispute Resolution
ARDL	:	Autoregressive Distributed-lagged Model
BAF	:	Bank Al Falah Limited
BB	:	Bangladesh Bank
BBS	:	Bangladesh Bureau of Statistics
BL	:	Bad and Loss
BRSR	:	Bangladesh ShilpaRinSangstha
BSB	:	Bangladesh Shilpa Bank
BSEC	:	Bangladesh security and exchange commission
CBC	:	Commercial Bank of Ceylon
CSR	:	Corporate Social Responsibility
DF	:	Doubtful
DTAA	:	Double Taxation Avoidance Agreements
ETR	:	Effective Tax Rate
FCBs	:	Foreign Commercial Banks
GDP	:	Gross Domestic Product
GMM	:	Generalized Method of Moments
HBL	:	Habib Bank Limited
IRD	:	Internal Revenue Division
IMF	:	International Monetary Fund
IT	:	Information Technology
ITO	:	Income Tax Ordinance
LDC	:	Least Development Country
LTU	:	Large Taxpayer Unit
MIMIC	:	Multiple Indicators Multiple Causes
MOF	:	Ministry of Finance
NBP	:	National Bank of Pakistan
NBR	:	National Board of Revenue
NPL	:	Non-Performing Loan
NRB	:	Non-Resident Bangladeshi
OECD	:	Organization for Economic Co-operation and Development

OLS	:	Ordinary least squares
PCBs	:	Private Commercial Banks
ROA	:	Return on Asset
SAARC	:	South Asian Association for Regional Co-operation
SARIMA	:	Seasonal Autoregressive Integrated Moving Average
SBI	:	State Bank of India
SD	:	Standard Deviation
SMA	:	Special Mentioned Account
SOCBs	:	State Owned Commercial Banks
SRO	:	Special Regulatory Orders
SS	:	Sub-Standard
TDS	:	Tax Deducted at Source
TIN	:	Taxpayer Identification Number
TT	:	Turn-over Tax
VAT	:	Value Added Tax

LetterofTransmittal

Date: March, 2019

Dr. Md. Rafiqul Islam

Professor

Department of Banking and Insurance

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Subject: Submission of thesis on "A Study into the Factors Determining the Gap between Projected and Actual Revenue Collection from the Banking Sector in Bangladesh: A Trend Analysis"

Respected Sir,

It's a pleasure and opportunity to submit the thesis on "A Study into the Factors Determining the Gap between Projected and Actual Revenue Collection from the Banking Sector in Bangladesh: A Trend Analysis".

Taking this topic was an opportunity to reflect my previous learning and experience in this area of research. I have tried to complete this research with an aim to add additional knowledge to the existing stock of knowledge in this field maintaining originality. I wish you will be kind enough to remark on its strengths and weaknesses. I will be very pleased to provide further information if necessary.

Once again, thank you for making me feel the whole research process as an instructive, interesting, enlightening experience.

Best regards

_____

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Acknowledgement

Supervisor's certificate

This is to certify that the thesis paper on"A Study into the Factors Determining the Gap between Projected and Actual Revenue Collection from the Banking Sector in Bangladesh: A Trend Analysis" is carried out by Syed Md. AminulKarim (Registration No. 24/2014-15) under my guidance and is a record of the bona fide work carried successfully. We have gone through the draft and the final version thoroughly and found it satisfactory for the submission to the Department of Banking and Insurance, University of Dhaka for the fulfillment of the degree of Doctor of Business Administration (DBA). To the best of our knowledge, any part of this work has not been submitted anywhere for any degree or any part of this work has not been submitted anywhere for any degree or diploma.He is permitted to submit the thesis in its present form.

—————————————————

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Declaration

I do hereby soberly proclaim that the work presented in this thesis paper has been accomplished by me and has not been previously submitted to any other University/ College/ Organization for any academic qualification/ certificate/ diploma or degree.

The work I have presented does not breach any existing copyright and no portion of this thesis is copied from any work done earlier for a degree or otherwise.

I further undertake to indemnify the Department against any loss or damage arising breach of the foregoing obligations.

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Abstract:

Significantly higher accumulation and mobilization of domestic resources for financing national budget was the panacea of recent rapid economic growth of Bangladesh. Though internal resource is crucial for the economic development, the tax revenue collection gap in Bangladesh is unusually high. Focusing on the banking sector which is the largest direct tax revenue source of NBR, the study attempts to explore the reasons, factors and the interrelationship among the factors that determine the tax revenue collection and the difference between expected and actual revenue collection from the bankingsector. Amultiple regression method was used to ascertain the determinants of the propensity to pay tax whilst an Ordinary Least Square (OLS) procedure was used to estimate the factors that explain the tax gap. The results from the econometric estimations of the study show that change in the factors such as non-performing loan, operating cost, fees and commission, tax rate, inflation and Gross Domestic Product (GDP) have significant effects on the tax collection and its gap. The qualitative factors such as political intervention, tax avoidance tendency, tax evasion affect the quantitative factors significantly. Finally, the calculations of the tax gap for thirty-six (36) individual banks of Bangladesh for the period of six years (2012-2017) were displayed. The observations, analysis, and findings of the study suggest that ensuring internal control and compliance by banks is highly important to manage the bank specific factors that determine the tax revenue collection and its gap. Monitoring and observation by Bangladesh Bank should be held on regular basis in this perspective. Tax-net should be expanded by NBR, the procedure of tax administration should be digitalized and simplified through business process reengineering, a fully functioning research unit should be established, a systematic methodological standard should be followed to estimate the projected revenue properly, new tax code and rules should be enacted and implemented. The potential of generating tax revenue is very high which needs to be captured and the revenue composition pattern should be reversed to ensure equity and justice in the society in line with the constitutional obligation through optimal tax policy and proper administration of tax laws following international best practices.

Chapter One

1.0 Introduction

The socio-economic development of Bangladesh over the last few decades has attracted the attention of economists and practitioners of development around the world. Many economists and international financial organizations classify Bangladesh as a fastest growing emerging developing country. According to the International Monetary Fund (IMF), Bangladesh's economy was the second fastest growing economy of 2016 with a rate of growth 7.1%. The Gross Domestic Product GDP expanded 7.3% percent in 2017 from the previous year reaching an all-time high (IMF Staff Country Reports, June 8, 2018).

Bangladesh fulfilled all eligibility criteria for graduation from Least Developed Countries (LDC) to the lower middle-income country status by 2024. The sustained high growth rate was the result of many economic and demographic factors. But significantly higher accumulation and mobilization of domestic resources for financing the annual development plan of national budget was the panacea of rapid growth. The government has taken series of economic and social measures including revenue reform initiatives with the introduction of digital technology in revenue administration to mobilize required domestic resources to support development activities. During the initial years after independence, the country had to depend more on external resources for development but in recent years the equation has reversed and now the economy is more self-reliant and less dependent on external economic players.

In order to achieve higher economic growth rate surpassing 8% growth in the shortest possible time, Bangladesh has taken innumerable macroeconomic and revenue reform measures to increase revenue collection for increased mobilization of domestic resources and to stabilize macro economy through better governance and fiscal discipline.

The National Board of Revenue (NBR) is the national tax authority for tax administration in Bangladesh. The main responsibility of NBR is to formulate appropriate tax policy and collect tax revenue through tax administration. NBR has three wings: Income Tax Wing, Customs Wing and VAT Wing. About 65% revenue comes from indirect taxes and the rest 35% is generated from direct taxes. To cope up with the development needs of Bangladesh, the NBR has been facing tremendous pressure from the Ministry of Finance (MOF) to generate more revenue from

internal sources. This is mainly for two obvious reasons: 1) the tax GDP ratio in Bangladesh is consistently lower than the regional average, the average tax GDP ratio being around 15% for non-resource rich, low-income countries and 2) the direct tax revenue is about 1/3rd of total revenue. Hence the NBR has taken a long-term goal to increase direct tax revenue collection to more than 50% of total revenue by 2021. This policy will not only increase the tax revenue but will also ensure equity and social justice in the society.

There is a general consensus among the tax policy planners that the tax gap in Bangladesh is unusually high and the proportion of direct tax revenue in comparison to indirect tax revenue needs to be reversed within 2021. In other words, the potential of generating tax revenue is very high which needs to be captured and the revenue composition pattern should be reversed to ensure equity and justice in the society in line with the constitutional obligation through optimal tax policy and proper administration of tax laws following international best practices.

Large Taxpayer Unit (LTU) of NBR, the highest direct tax revenue earning unit, is solely responsible for administering the total revenue collection process of banking sector in Bangladesh. LTU is one of the thirty-one field level directly involved tax administering units of direct tax wing of NBR. It operates based on the functional method of taxation which is quite different from traditional territorial based taxation. Here, banking sector is the largest direct tax revenue source of NBR. Focusing on this sector the main objective of this research is to identify and examine different factors affecting revenue collection in the banking sector and to examine the interrelationships of these factors to come out with solutions for a broader objective to increase direct tax revenue.

In the context of Bangladesh, the appropriate process of tax collection is not clear particularly from the point of view of banking sector. This research aims to fill the gap in clarifying the importance of tax revenue collection in Bangladesh. As banking sector plays an important and significant role in the economic development of Bangladesh, tax collection from these sectors also shows the roadmap towards proper utilization of public money. In a country like Bangladesh where many infrastructure developments cannot be undertaken at the same time due to insufficient funds. The inefficiency in the revenue collection risks the development of the country from long-run perspective. This research identifies the tax revenue collection from different banks and formulates appropriate policies and recommendations based on systematic analytical approach. Compared with the other SAARC countries, revenue collection of

Bangladesh in terms of tax collection is much lower which negatively impacts the economic growth of Bangladesh. In this scenario, this research has identified the significance of the determinants of tax revenue collection from banks for which statistical analysis has been carried out.

In order to examine the root causes of revenue collection gap and underlying factors influencing the determinants of tax revenue collection, the research aims to concentrate on the banking sector of Bangladesh which happens to be the largest direct tax revenue yielding sector. Hence the selection of banks as the subject of study has produced a representative result for the entire direct tax wing of NBR.

The research opts for combining the elements of both qualitative and quantitative methodologies to ensure accurate and balanced assessment of the research problem. The targeted population of this study considers all operational scheduled banks in Bangladesh. These banks have been classified into groups based on the nature of ownership, principles of operation, foreign affiliation, date of commencement of operation, etc. In the next step, sample size has been taken following stratified convenience sampling method. The planned sampling technique is a non-probability sampling.

The quantitative study has been conducted collecting relevant data from LTU, NBR, Bangladesh Bureau of Statistics, Annual reports of banks and Bangladesh Bank. The qualitative study has been steered based on information provided by the field level official directly involved in collecting tax revenue and relevant literature available in this area of study, observations and feedback from ongoing debates among fiscal policy planners. A questionnaire has been developed to collect primary data from field level experienced officials for qualitative discussion in order to substantiate qualitative findings.

Efforts have been taken to evaluate the process of tax collection by NBR and tax payment behaviors of banks for the purpose of addressing the complex issues of tax compliance. The formation, structure, power and functions of NBR have been examined through SWOT analysis to identify the challenges, problems, opportunities and threats of revenue collection with a boarder objective to come up with solutions to increase the revenue collection to a desired level. SWOT analysis of NBR has been conducted based on relevant literatures on NBR and public finance of Bangladesh, interviewing field level officials and observations of the researcher.

The researcher focuses on both bank specific and macro-economic variables based on past research. On previously conducted studies, it is found that the macro-economic factors are largely focused by researchers in this particular research area. To find out the bank specific factors, the researcher has reviewed past literatures on bank's profitability as the profitability is closely related to the taxable capacity of banks.

To find out the strength of a relationship between two explanatory variables and to assess whether there is any multicollinearfactor, the study has conducted the correlation analysis using STATA. Regression analysis has been performed to find out the most influencing factors of tax revenue collection from different view-points. To differentiate between fixed effects model and random effects model in panel data, Hausman test has been steered by the researcher to have a better selection between higher efficiency and consistency.

Based on the statistical and questionnaire analysis, appropriate recommendations and interpretation have been provided in this study. In addition, limitations and scope of further study have been discussed in this study.

1.1 Rationale of the study:

In Bangladesh, Finance Division of MOF is the ultimate authority which prepares, formulates and coordinates national expenditure and revenue budget policies at the macro level. Internal Revenue Division (IRD) of MOF on the other hand formulates, prepares and finalizes the tax policy through NBR keeping Finance Division's macroeconomic goals as the driving principles. Before each budget preparation, Finance Division sets tax revenue as a budgetary target but tax determination hangs on the accuracy in forecasting method and the institutional efficiency of tax collection authority such as NBR.

The existing gap between expected and actual tax revenue collection is fairly large and remains to be volatile in its pattern. Based on the tax revenue data reported by NBR, there are large gaps between projected tax revenue figures in budget and actual tax revenue collections from banking sector, and this gap between actual and targeted figures reported in budgetary documents can become an obstacle to attain sustainable fiscal management and to progress domestic resource utilization.

This research attempts to find the reasons, factors and the interrelationships among these factors that determine the difference between expected and actual revenue collection from the banking sector in Bangladesh with an endeavor to suggest solutions to minimize the tax collection gap for achieving a fiscal discipline and upgraded tax governance status as well as to examine tax revenue accelerating potential of banking sector. The banking sector is selected for this study because in presence of a gap between expected and actual tax revenue, banking sector constitute the largest component of direct tax revenue and this component is vitally important in increasing direct tax revenue as well as total internal resources of the country.

1.2 Objectives of the study:

The ultimate objective of the research is to identify and analyze factors determining the gap between actual and expected revenue collection from banking sector in Bangladesh. The research objectives are the following:

a) To clarify the process of tax collection by NBR and tax expenses from bank's perspective.

b) To assess the trend of the revenue collection gap, i.e. difference between the actual tax collection and expected tax collection.

c) To identify factors influencing the gap between actual and expected revenue collection of NBR from banks.

d) To collect relevant information and analyze the collected data to find out the impacts of the determinants of tax revenue collection from banks and major causes of deviations.

e) To have in-depth knowledge about opportunities and challenges of tax revenue collection from banking sector.

f) Finally, to have suggestions to maximize the tax collection from the banking sector and to minimize the forecasting error based on the findings of the study.

1.3 Scope of the study:

The study is regarding the factors determining the gap between actual and projected revenue collections from banking sector in Bangladesh. To accomplish the objectives the study will focus on the revenue collection process of NBR from the scheduled banks operating in Bangladesh,

taxrevenue collection of NBR from scheduled banks and deviations of realized tax revenue from its expected collection. The study will explore the opportunities and challenges of tax authority i.e. NBR in terms of tax revenue collection from banking sector. The study will also analyze the collected data by statistical tools to observe the trends of the factors and to find out a reliable and valid result exploring the determinants of tax revenue from the banks and to identify the most influencing factor(s) determining the revenue collection gap.

1.4 Limitations of the study:

From the beginning to the end, the research has been conducted with the intention of making it as complete and resourceful one. However, difficulties aroused in the way of conducting the study. This study faced the following problems-

a) Estimated revenue for individual bank is calculated based on the growth rate of LTU's estimated revenue allocated by NBR.

b) Due to the existence of chapter-XX of the Income Tax Ordinance (ITO) 1984, individual information of tax-payers particularly statements, returns, etc., is required to be confidential. Under section-163 of ITO 1984 tax-payers' information and related data is protected by the law. As a consequence, information and statistics, in many instances, could not be obtained without higher level scrutiny and examination of legal implications.

Chapter-Two

2.0 Literature Review

2.1 Introduction

Due to the socio-economic impacts of tax laws and collection, a number of researches has been conducted in order to identify the appropriate and necessary factors of tax revenue collection. Significant concern has been given in the international arena to properly understand the revenue potential of tax collection in different sectors of the economy. Although this is true for many countries, the same cannot be concluded in case of Bangladesh for many internal intricacies of the respective departments connected with revenue collection. Financial sector for instance has not been properly analyzed to come up with the necessary determinants of tax revenue collection for which there currently exists a collection gap of budgeted tax and actual tax collection in Bangladesh.

2.2 Literature Review

This section presents relevant research in this particular field from different countries' perspective. This literature review follows diverse methodological standards to explore a number of related factors to tax collection from financial sector and its deviation from the expectation.

Wahrig and Vallina (2011) found that the economic crisis is directly related to the revenue collection. Because of the depth of economic crisis absolute revenues decline. The study compared the percentage change of total government revenue and expenditure in absolute terms with the evolution of the nominal GDP. This analysis result represents an elasticity between the two that is close to unity.

Boyd and Dadayan (2014) identified the impact of financial crisis, structural changes in tax laws, public spending, etc. on forecasting performance of government revenue. They emphasized that revenue forecast should consider the forecasting of macroeconomic variables as well as accounting for the functioning of the tax law and its enforcement. They also identified the

forecasting practice such as the independence of the bodies who are involved in forecasting the revenue to be a factor affecting the forecasting of revenue. Apart from accuracy, the transparency and political acceptance of revenue forecast is also important for revenue forecasting **(Franklin, 2017)**. This paper also mentioned the difficulty of the prediction of government revenue because of the global impact.

Addison and Levin (2012) conducted a panel data analysis using an unbalanced dataset of 39 countries for the time period 1980-2005 to identify the determinants of tax revenue. They used factors like tax base, structural factors, foreign aid and conflict for the analysis. Their macroeconomic study revealed that tax to GDP ratio affects the tax revenue differently for different countries. They concluded that VAT significantly increases the tax to GDP ratio and this ratio is statistically negatively affected by the agricultural sector.

From a different field of study **Bornhorst, Gupta, and Thornton (2009)** found that countries receiving large revenues from the use of natural resources are likely to reduce their domestic tax effort. This may not be a related issue for this research still it is interesting to see that there is a relationship between tax collection effort and the natural condition of a country.

Bird (2008) concluded that adequate tax collection effort increases when corruption is controlled. Similarly, **Chand and Moene (1997)** argued that fiscal corruption can hamper the tax revenue in the developing countries. **Madhavi (2008)** conducted a panel data study of 43 developing countries over the time period 1973-2002 and found that tax revenue is positively related with international trade, relative size of the urban population, adult literacy rate and per capital income. The researcher also found that inflation and tax revenue are negatively correlated.

Agbeyegb,Stotsky and Wolde (2006) used panel data with GMM method with 22 countries over 1980-1996 and concluded that tax revenue is negatively associated with currency appreciation and higher inflation. Further they showed that in most of the country's trade liberalization does not have a strong relationship with tax revenue.

Zarra, Sheikh and Moradi (2016) used dynamic panel data analysis with Generalized Method of Moments (GMM) estimation using a panel of 83 countries, over 1990 to 2012. They used tax to GDP ratio as a measure of tax revenue and found that trade liberalization has a statistical positive relation with tax revenue. Moreover, GDP growth rate, democracy and lagged tax revenue have positive significant relationship with the tax revenue. They also found that share of

agriculture over GDP, urbanization and official exchange rate have statistically negative relationship with the tax to GDP ratio.

Dioda (2012) conducted a panel data analysis with 32 Latin American countries over the period 1990-2009 to bring out the factors affecting the tax revenue of those countries. The research indicated that GDP per capital and openness of the economy are positively related to tax revenue in statistically significant way. Agriculture as a percentage of GDP and the size of the shadow economy has a statistical negative association with the tax revenue.

In terms of socio demographics determinants, the study found that level of education, female labor participation and population density have a positive and significant impact on the tax revenue. Level of urbanization and the rate of population growth were not statistically associated with tax revenue collection.

Eltony (2002) used panel data of 16 Arab countries for the period 1994 to 2000 to find the factors affecting the tax to GDP ratio as a proxy of tax revenue of the countries. The result showed that share of agriculture to GDP is negatively related to the tax-GDP ratio. This is not surprising because Arab countries are more endowed with oils so increasing in agriculture in a non-conducive agricultural environment will reduce the tax revenue. Other factors like mining, export, import as share of GDP and per capita GDP were found to be significant and positively related to the tax ratio. Per capita income, in particular, was more significant than any other variables.

On the other hand, the relationship between the outstanding debt and tax ratio were found to be positive and significant. The paper claimed that this positive relationship may have been due to IMF-aided financial and economic reform programs. The paper specially mentioned that some results were for the Arab specific countries.

Teera (2003) conducted a study which can be called as a combination of **Eltony. N (2001)** and **Dioda.L (2012)**. The researcher used the shadow economy as a proxy of tax evasion and used the external debt, import, per capita GDP, the ratio of aid to GNP, population density, ratio of agriculture to GDP, ratio of manufacturing to GDP to create a model for the determinants of the tax to GDP ratio. Tax evasion is significant and negatively related with all kind of taxes. The effect of import (measured for openness to trade) was negative on tax ratios which indicated that reductions in tariffs rates had been detrimental to taxes.

In a more recent paper, **Castro and Camarillo (2014)** conducted a static and dynamic panel data analysis across 34 OECD (Organization for Economic Co-operation and Development) countries over the time period 2001-2011 to identify the determinants of tax revenue. They showed that tax revenue is positively related with GDP per capita, robust industrial sector and the protection of civil liberties. Lagged tax revenue was found to be positively correlated with the tax revenue collection. This actually differed in terms of magnitude for the lower and higher income countries. They found that tax revenue of the middle-income countries was much more dependent on lagged tax than that of high-income countries. They suggested that social, institutional, economic and structural factors are more important to determine the current values of tax revenue in the middle-income countries.

Chaudhry and Munir (2010) have used time series econometric analysis over 1973-2009 in Pakistan and concluded that macroeconomic factors like broad money, external debt, foreign debt, foreign aid and political stability are significant determinants of tax efforts in Pakistan. They also concluded that more dependency on agriculture sector, narrow tax base, foreign aid and low level of literacy rate, tax evasion and tax exemption affected tax revenue of the country. They found inflation to be positively correlated with tax revenue in a significant manner.

Saibu and Sinbo (2013) analyzed the Nigerian economy from 1970 to 2011 using error correction mechanism to establish a short and long run relationship between the variables. They found that tax revenue is significantly responsive to changes in income level, exchange rate and inflation rate. Exchange rate depreciation and inflation is negatively related to tax revenue. They concluded that macroeconomic instability and the level of economic activity are the main drivers of tax to GDP ratio.

Velaj and Prendi (2014) showed that government tax revenue has a significant positive relation to GDP growth and inflation rate. The relationship between tax revenue and inflation in their analysis is contrary to the findings of **Madhavi (2008).**

Gupta and Newberry (1997) used micro level panel data to find that Effective Tax Rates (ETR) are not associated with firm size rather related to firm's capital structure, asset mix, and performance. Apart from economic factors, government efficiency and institutional factors like political stability, voice and accountability, civil and political rights are also considered to be the determining factors of the tax revenue (**Bird *et al*., 2008; Martin and Uribe, 2010**).

Nahar (2007) used a panel data analysis to identify the determinants of tax share and revenue performance of Bangladesh along with 10 other developing countries. The research utilized 15 years of data and concluded that international trade, broad money, external debt and population growth to be the significant determinants of tax efforts. Moreover, the study mentioned that Bangladesh has low tax effort (less than unity index) and not fully utilizing the capacity of tax revenue and has the potential for creating a budgetary imbalance through collecting tax revenue. From the existing literatures it is also identified that the financial leverage position related to the performance of the bank may affect the tax payment by the bank. **Perry (2013)** explored whether corporate tax bias toward debt finance differs between banks and nonbanks, using a large panel of micro data. On average, it is found that there is no significant difference. Similarly, **Heckemeyer and Mooij (2013)** used an unbalanced panel of 13,356 banks from 82 countries for the time period 2001 to 2011 and did not find a direct link between the tax bias and debt finance of banks. Similarly, **Kobayashi and Saita (2011)** stated that high debt ratios in financial institutions can jeopardize the stability of the financial system as a whole.

Devereux ,Fuest and Lockwood (2015) used static panel regression and analyzed whether the introduction of levies by the EU countries affected their funding behavior and portfolio choice. They used equity to total asset as the measure of capital and found significant positive relationship with levies and marginal levy rate. Furthermore, corporate tax rate was also found to have a negative association with the bank capital. It is possible that the effect of levy can affect the capital structure of banks and can ultimately affect the profitability of banks. This may have implications for the profit of the banks which can affect the effective tax rate of the banks.

Apart from quantitative factor many researchers stressed on the qualitative factors that could affect the tax revenue collection of countries. **Mansur, Younus and Nandi (2011)** analyzed the tax structure of nine Asian countries and based of comparison they came up with some findings on the system of tax administration of Bangladesh. They found that the tax system in Bangladesh is particularly weak for its tax administration and collection policy. Both tax administration and system have very little contribution to reduce the tax gap. According to their findings, the major reason of failures and weakness of the tax administration is the lack of cooperation and coordination among of the three main wings namely - VAT, Income Tax and Custom of NBR.

Lack of computerization, and reliance on physical control instead of accounts, are some of the major factors contributing to the failures in tax administration in Bangladesh.

Many articles have stressed to bring down the gap between the actual revenue which the government is supposed to get and the amount they are actually receiving. **George (2006)** reported based on his findings on the US tax system that there are some challenging barricades to closing the tax gap related to tax law complexity and incomplete information on the tax.

Parry (2008) reported the causes of tax gap are non-filers, under reported income, overstated deductions, tax shelters, offshore trusts, and unpaid taxes such as income, employment, excise and gasoline taxes etc. **Rashid (2011)** stated that to minimize the tax gap required balance and long-term investment is needed. The researcher also mentioned that abusive tax shelters, audit activity could be factors that can seriously hinders the tax collection of the government of a country.

Bakar (2014) stated that taxpayers' perspectives on tax administration are important to ensure tax compliance. The paper stated the importance of taxpayers' behavior as one of the determinant factors of revenue of government. Other researchers **(Murphy, 2004; Murphy and Byng, 2002)** have proposed six direct determinants of taxpayers' perspectives on tax administration: fairness, trust, resistance, respect, consultation, and outcome favorability. Similarly, **Tiwari (2017)** identified tax payers' awareness, taxable sources assessment, operational policies, data base systems and standard accounting system to be the important factors of revenue management of a country.

Research by **Australian Bankers Association (2017)** has showed that top banks in Australia tend to avoid tax by showing the operating expense, commission and fees more than what those actually are. This happens for the tendency to show the income of the bank lower because the taxpaying amount will become low as well. These all factors are correlated with each other and also influence the tax or revenue gap and economic growth in a negative manner.

Siddiqi and Ilyas (2011) used ARDL (Autoregressive-Distributed Lag) approach to find a short and long run link between the economic growths, budget deficit and revenue gap in Pakistan during the time period 1980 to 2009. Economic growth was found to be positively correlated with tax gap. They did not find any correlation between revenue gap and debt burden.

Schoefish (2005) introduced a more general forecasting mode based on the assumption that tax elasticity must vary depending on the phase of economic cycle. Seasonal factors in tax revenue collection for monthly and quarterly data were also included. The researcher used tax base as proxy to the moving geometric combinations of one or more macroeconomic repressors and their lagged values considering the growth rates in place of tax base and concluded that they are all necessary to calculate good forecast values.

Mujery and Younus (2009) used a panel data of 48 banks covering the period of 2004 to 2008 in Bangladesh. In the analysis researchers explained that the higher the non-interest income as a ratio of total assets of a bank, the lower will be its spread. So, bank specific factors such as mentioned above can affect the government revenue collection from the banks.

Nandi, Chaudhury and Hasan (2014) said that the tax revenue forecasting is performed based on some familiar assumptions those are well-suited with variables such as growth of the national income, inflation rate, interest rate and other influencing factors. Instead of a single point of time, those factors and predictions will be influenced by any change or disturbance situation in economy throughout a considerable period of time.

Mansor and Gurama (2016) assessed the factors that influence tax evasion in Gombe State (a state in Nigeria) through a questionnaire for collecting information from 303 taxpayer of that area. This study analyzed tax rate, tax system, corruption, education level and income level as the determining factors of tax evasion in Nigeria. It is found that the tax rate as well as corruption positively but not significantly influence tax evasion. On the other hand, tax system and income level have significant positive influence on tax evasion. The last variable, education level has also a positive and significant influence on tax evasion in Gombe state.

Gerger et al. (2014) conducted a study on certified public accountants of Chambers of Certified Public Accountants of Turkey. This research was carried out to identify and analyze the factors determining taxpayers' perceptions on the Turkish Revenue Administration. For this purpose, the researcher has gone through the factor analysis. The paper concluded that fairness, trust, and taxpayers' rights are vital factors of taxpayers' perspectives. In this scenario resistance, respect, and use of technology affect taxpayers' perspectives positively where consultation and outcome favorability do not affect significantly.

Buch, Hilberg and Tonzer (2013) conducted the study on German banking industry to explore the influences on lending behavior or interest rates in tax context. Researchers found that bank with high levy or with high tax base provides limited loan, impose a higher interest rate on newer loan and lower interest rate on new deposit.

Retselisitsoe and Neo (2015) performed an empirical analysis in South Africa for the period of 1965 to 2012 to analyze the macroeconomic factors determining the revenue gap. The co-integration analysis proved that the revenue gap negatively affects the import volume. Because the import is imposed by more taxation than the domestic financial activities and some specific features of international trade make the tax evasion difficult in this context. On the other hand, the positive relationship between external debt and tax gap shows that budget deficit is managed through the external debt by the South African government. The study was gone through the granger causality test which showed that there is a unidirectional causality running from imports and underground economy to revenue gap.

Heckemeyer and Mooij (2013) found in both banks and non-banking institutions, the tax bias toward debt finance is encouraged by corporate tax systems. The tax responses depend on the institution's size and financial position. After conducting OLS regression, it was observed that non-banks' asset size to the responsiveness of tax is a U -shaped pattern. In contrast, they found a linear downward pattern for the tax response with asset size in banks. So, it can be concluded from the above study that the large firms are more responsive to tax, where asset size of banks does not matter. Here, capital-tight banks are founded to be significantly less responsive than are capital-abundant banks on the conditional leverage distribution.

Chowdhury and Hossain (1988) studied the tax structure of Bangladesh and found that the overall tax structure is inelastic with respect to national income. This research identified that tax revenue can be amplified by removing various exclusions from tax net, smoothing prevailing multiple tax rates and acquiring tax administration capacity. They also mentioned that to project higher tax revenue in coming budgets, it is necessary to enlarge tax base and increase tax administration capacity.

Kariuki (2002) conducted a survey on revenue enhancement strategies of local authorities and identified political will, reforms, taxpayer education and incentives as the pivotal factors to boost revenue mobilization efforts. The researcher further mentioned the importance of training and

educating members of local authorities with devotion. In addition, the researcher advocated to provide taxpayers with the rationale, procedures, obligations and responsibilities to pay taxes in a transparent, reliable and accountable manner.

Langenmayr and Reiter (2017), in a research, analyze how banks relocate their proprietary trading in response to corporate taxation. With their preferred data on German multinational banks, they find through baseline regressions that one percentage point lower corporate tax rate increases fixed-income trading assets held in an affiliate in that country by about 4.0%, and trading derivatives by about 9.0%.

Alfirman (2003) endeavored to estimate tax potential of local governments with local taxes and property taxes using the special regression analysis of the stochastic frontier in the context of Indonesian fiscal decentralization. The empirical findings show that local governments fail to maximize their revenue potential. The study suggests improving revenue collection performance through reducing tax evasion by curbing corruption with the support and cooperation of central governments. The researcher also recommended that local governments should exploit their revenue potential from existing taxes before pursuing any new tax measure.

2.3 Conclusion

i.   By summarizing the above-mentioned studies, it can be stated that revenue gap predominantly is referred by researchers as the difference between the revenue collected and the revenue that should be collected. This gap can be either negative or positive where the magnitude of gap on both sides refers the forecasting error. Considering the forecasting error as a vital issue in revenue gap, several researchers have identified a number of factors such as economic crisis, financial crisis, and structural changes in tax laws, public spending, etc. as the determinants of forecasting proficiency of tax revenue. It is found in many cases that the GDP forecasting error has strong impact on revenue forecasting error where national income, inflation rate, interest rate and other influencing macro-economic factors also have a significant association.

ii. Generally, a revenue gap from banks often found to be a result of overstating banks' expenses, exemptions and understating banks' income so they can pay lower taxes. Researchers found that banks with high levy or with high tax base provide limited loan,

impose a higher interest rate on newer loan and lower interest rate on new deposit. Several studies showed that banks tend to avoid tax by showing the operating expense, commission and fees more than what they actually are. This happens for the tendency to show the income of the bank lower because the taxpaying amount will become low as well. These factors are correlated with each other and also influence the tax revenue gap and economic growth in a negative manner.

iii. It is observed on several studies that the tax revenue has a significant positive relation with GDP growth and inflation rate. Researchers also found both types of effect of inflation on tax revenue considering different economic conditions. Share of agriculture over GDP, urbanization and official exchange rate has negative relationship with the tax to GDP ratio.

iv. Openness of the economy is positively related to tax revenue in a statistically significant way where size of the shadow economy has a statistically negative association with the tax revenue as referred by several researchers.

v. Tax evasion is significantly and negatively related with all kind of taxes. Macroeconomic instability and the level of economic activity were the main drivers of tax to GDP ratio.Fiscal corruption can hamper the tax revenue in the developing countries. Apart from economic factors, government efficiency and institutional factors such as political stability, voice and accountability, civil and political rights, democracy and lagged tax revenue are also considered to be the determining factors of tax revenue.

vi. Along with the quantitative factors, researchers stressed on the qualitative factors that could affect the tax revenue collection of countries. In this context the tax gap is related to tax law complexity, incomplete information on the tax, non-filers, under reported income, tax shelters, offshore trusts, and unpaid taxes. Researchers also mentioned that abusive tax shelters, audit activity could be factors that can seriously hinder the tax collection of the government of a country. A number of studies stated the importance of taxpayers' behavior as one of the determinant factors of revenue of government. Six direct determinants of taxpayers' perspectives on tax administration: fairness, trust, resistance, respect, consultation, and outcome favorability are identified by several authors. Taxpayers' awareness, taxable sources assessment, operational policies, data base systems and standard accounting system are referred to be vital factors of taxpayers' perspectives according to several studies.

vii.   Researchers came up with several findings on the system of tax administration of Bangladesh. They found that the tax system in Bangladesh is particularly weak with its present tax administration and collection policy. Both tax administration and system have very little contribution to reduce the tax gap. According to their findings, the major reasons of failures and weakness of the tax administration is the lack of cooperation and coordination among the taxpayers and different wings of NBR. Lack of computerization and reliance on physical control are the major factors contributing to the failures in tax administration in Bangladesh.

viii.   To minimize the tax gap macroeconomic balance should be ensured and long-term investment is needed. Researchers emphasized that revenue forecast should formulate a standard and appropriate methodological standard considering the forecasted macroeconomic variables as well as accounting for the functioning of the tax law and its enforcement. Apart from accuracy, transparency and political acceptance of revenue forecast are also imperative for revenue forecasting as mentioned by several researchers. Studies suggest improving revenue collection performance through reducing tax evasion by restricting corruption with the support and cooperation of governments. Researchers also recommend that governments should exploit their revenue potential from existing taxes before pursuing any new tax measure. Taxpayers' perspectives on tax administration are important to ensure tax compliance. Tax administration should enhance accountability, transparency and improve management of revenue collection to reduce tax evasion. Anti-corruption campaign, public awareness, tax policies revision can be fruitful in this context.

2.4 Gap in the literature

The literature on the determinants of tax revenue collection is mostly focused on the macroeconomic factors. Apart from the macroeconomic factors other factors related to organization are used to find the determining factor of tax revenue and its gap from expectation as well. Most of the studies in Bangladesh related to the determinants of tax revenue were conducted from the macroeconomic perspective. This study is unique in the sense that it fills the gap in the literatures and addresses the relevant factors to identify and to explore both bank

specific and macro-economic factors of the determinants of tax revenue collection gap and actual tax paid from the perspective of commercial banking institutions.

Chapter-Three

3.0 Methodology of the study

3.1 Introduction:

Methodology of the research refers to the systematic approach of collecting, analyzing and interpreting data within a specified probability framework. For this reason, qualitative and quantitative approach is used to judge the basis of any hypothesis. This section provides the tools and techniques to analyze the field survey and secondary data in a systematic manner.

The study has been performed following a specific methodology. This systematic approach followed by the researcher will be presented in this part of the study. Multiple regression analysis and correlation analysis have been used to show the impacts on the revenue collection and its gap and to find out the relationship among the independent variables or underlying factors with the dependent variables. Hausman test is performed by STATA to evaluate the model that is well fitted. Questionnaire is analyzed by ratio for drawing a qualitative conclusion based on interviewing relevant personnel.

3.2 Research Design:

Combining the elements of both quantitative and qualitative methodologies in social research ensures accurate and balanced assessment of the research problem. Therefore, maintaining a balanced criterion of both qualitative and quantitative design instead of single research method a

mixed research design is followed by the researcher in this study. Mixed-method is especially useful in understanding contradictions between quantitative results and qualitative findings. Mixed method has flexibility and is adaptable to many studies designs to elucidate more information that can be obtained in only quantitative research and to provide a more complete view than either method would alone. Collecting both types of data at the same time, assessing information using parallel constructs for both types of data, separately analyzing both types of data and jointly displaying both forms of data to compare findings from qualitative and quantitative data sources ensure that research findings are exploring the real scenario grounded in participants' experiences.

3.3 Population of the Study:

As the main focus is to determine the factors affecting the tax revenue collection from banks and its deviation from the expectation, the targeted population of this study is all operational scheduled banks in Bangladesh. There are fifty-nine scheduled Banks in Bangladesh [Bangladesh Bank's Website]. The three newly approved banks are not included here as they are yet to commence their fully functioning operation. So, among the sixty-two (62) scheduled Banks, the population size of this study is fifty-eight (58) as the operational activities of four new banks didn't pass a financial year yet.

3.4 Sampling Technique and Sample Size:

Considering availability of data for last Six (6) years, thirty-Six (36) banks are taken as sample for the purpose of the study. In this study, adopted sampling technique is stratified convenience sampling. The whole population is divided here in seven strata considering the category of banks, these are: State Owned Commercial Banks, 1st Generation Private Commercial Banks (Before 1991), 2nd Generation Private Commercial Banks, 3rd Generation Private Commercial Banks, 4th Generation Private Commercial Banks, Islamic Banks, Foreign Commercial Banks.

This sampling technique is a non-probability sampling, where each item does not have equal chance to be selected. Actually, for the suitability of the research, researcher wants to select a

unit from the whole population as representative to observe the overall scenario on the basis of the unit. Therefore, these strata have been created based on the category of banks.

Then the convenience sampling strategy is followed to select samples within strata. Convenience sampling allows researcher to choose the sample for which the relevant data is conveniently available to participate in study and no inclusion criteria is used before the selection of subjects. The appropriate sample size for the population (Fifty-eight banks) will be,

$$\frac{(N.z^2.p)}{((n-1).e^2 + z^2.p)} = \frac{5\ (1.9)(.9)(0.0)}{(5-1)(.0)^2 + (1.9)^2(.9)(C.0)} = 26.30 \text{ or } 27 \text{ [Confidence interval: 95\%, SD: 2\%]}$$

So, thirty-five (36) Banks will be a satisfactory sample size for having a fitted model.

Sample size for strata: To calculate sample size of strata the study has followed the following process: Formula: $n_s = N_s/ N \times n$ *[n_s= Sample size in strata, N_s= Population size in strata, N= Population Size, n = Total sample size]*

State Owned Commercial Banks: $6/ 58 \times 36 = 3.72$ or 4 *[In this study: Five]*

1st Generation Private Commercial Banks= $16 / 58 \times 36 = 9.93$ or 10 *[In this study: Five]*

2nd Generation Private Commercial Banks = $8/ 58 \times 36= 4.96$ or 5 *[In this study: Five]*

3rd Generation Private Commercial Banks = $13/ 58 \times 36 = 8.06$ or 8 *[In this study: Five]*

4th Generation Private Commercial Banks = $9/ 58 \times 36 = 5.58$ or 6*[In this study: Six]*

Islamic Banks: $8/ 58 \times 36 = 4.96$ or 5 *[In this study: Five]*

Foreign Commercial Banks: $9/ 58 \times 36 = 5.58$ or 6*[In this study: Five]*

3.5 Sources of Data:

Primary data are collected through interview for qualitive discussion and available secondary data have been used for statistical analysis and assessment.

Primary Data: Primary data are collected through interview from field level officials of NBR, Alternative Dispute Resolution (ADR) and Large Taxpayer Unit (LTU). Information is gathered on the basis of questionnaire was very useful to make this thesis objectives oriented. Relevant row data are collected from various official records of NBR.

Secondary Data: Secondary sources of available data are annual reports (2012 to 2017) of the selected 35 banks, economy study report, Bangladesh Bank published reports, annual reports of

Bangladesh Bank (BB), annual reports of National Board of Revenue (NBR), raw data of Large Taxpayer Unit (LTU), different Articles, Journals, Books etc.

3.6 Questionnaire Design:

Table-3.1: Questionnaire Design

Topic	Measures	Explanation
Number of Interviewee	Twenty-Five persons	*It is a representative number. Total twenty-five face to face interviews were taken from officers who have practical experience and expertise on relevant field that is collecting tax revenue from the banking industry in Bangladesh.*
Number of Questions	Ten questions	*The questionnaire was divided into four sections. The first section is about the* respondent, the second section was concerned with the *revenue collection from banking sector-basic process of NBR, then the third one discussion is about the gap determining factors, and the last one is about present attempt and future plan to mitigate the gap.*
Types of Questions	Mixed	I. *To conduct the study all relevant questions were included in questionnaire.* II. *To make the questionnaire flexible and respondent friendly close ended questions as well as open ended questions were included.*

Source: Prepared by the Researcher

3.7 Data Analysis Tools:

To present the data representing the real scenario of the relevant field, the study has used statistical technique for descriptive analysis such as: Table, Graph, and Chart [Tools: Microsoft office word]. As well as this study has performed an inferential analysis such as: Correlation, Regression and Hausman test by using STATA.

As data analysis tools, trend analysis of determining factors over the period of time is presented. Multiple regression analysis and correlation analysis are used to show the impact on the revenue collection and its gap and to find out the relationship among the independent variables or underlying factors with the dependent variable.

Independent variables are considered as predictors of dependent variables and the following formula is used to construct the regression model:

$$y_{it} = {}_0 + {}_1 x_{it} + {}_{it}$$

Hausman test is performed by STATA to evaluate the model that is well fitted. There are two estimators for *b* in hausman test: b_0 and b_1. Under the null hypothesis, both of these estimators are consistent, but b_1 is efficient as it holds the smallest asymptotic variance. Under the alternative hypothesis, b_0 is consistent and b_1 isn't. Under the null hypothesis, this statistic has asymptotically the chi-squared distribution with the number of degrees of freedom equal to the rank of matrix $Var(b_0) - Var(b_1)$. If the null hypothesis is rejected, b_1 will be considered as inconsistent. Questionnaire is analyzed by ratio for drawing a conclusion about qualitative factors.

3.8 Variables of Statistical Analysis:

The variables are presented in following table with explanations of being selected.

Table-3.2: Determining Factors of Tax Revenue Collection and its Gap

Variables		Explanations
Dependent variable	Tax Revenue Collection	*The study considered the government tax revenue collection from the Banking sector as its dependent variable for the first multiple regression analysis.*
	Revenue Collection Gap	*The revenue collection gap is the dependent variable for second regression analysis. This gap is the deviation between actual and expected tax collection.*

Independent variables	NPL	*Nonperforming loan is related with banks as contingent liability. The more the NPL is, the higher will be the portion of income preserved as contingent liability. Therefore, it may largely affect Bank's tax payable amount.*
	Operating expense	*Operating expense also a determinant of revenue collection and its gap because of its relation with profit and loss of a bank. Lower profitability causes a decreased tax payment by banks.*
	Fees and Commission	*When a bank has more fees and commissions the profit will be higher. It is also a determinant of tax payable amount by banks.*
	Bank spread	*Banks' spread as amount or percentage is considered as the independent factor because the spread defines the profit and loss of the banks.*
	Tax rate	*The revenue collection and its gap are largely dependent on the tax rate.*
Independent variables	GDP	*Because of pro-cyclicality there is a positive association between real GDP growth and bank profitability that may affect the tax payable and as well as the tax collection gap.*
	Inflation	*Inflation is a major determinant of interest rate. Higher interest rates provide more opportunity (spread) for banks to maintain a smart profit margin and therefore may affect the tax payable by Banks.*

Source: Prepared by the Researcher

Figure 3.1: Research Design
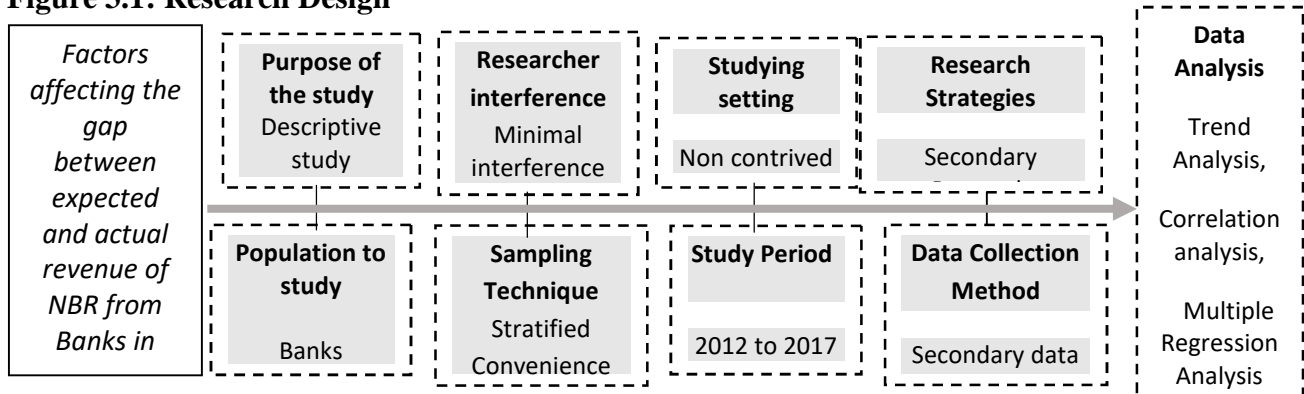
3.9 Conclusion

This chapter has provided the relevant tools and techniques for the interpretation of primary and secondary data through which the analysis of the thesis has been moved forward for justified interpretation. Based on the methodological approach of this chapter, findings of the research questions and objectives have been elaborately stated in the following chapters.

Chapter- Four

4.0 Overview of NBR and Taxation on Banking Sector

4.1 Introduction

NBR is a preponderant national organization of public interest dealing with public finance with far-reaching impacts on the economy. This state organization not only formulates tax policies and collect tax revenue but also plays significant role in fixing prices and redistributing wealth and income through application of principles of taxation. Hence, the formation, structure, powers and functions of NBR are dominant fiscal issues facing Bangladesh economy.

Since this organization is not appropriately organized and empowered to operate optimally to provide adequate domestic resources to finance economic development, economists are critical in evaluating challenges, problems, opportunities of revenue collection. In this perspective, tax laws and rules, tax administration bottlenecks, tax payment complexities, strengths, weaknesses and threats of NBR are needed to be explored to find out the possible solutions to increase tax revenue collection in the shortest possible time. In order to link with the tax revenue collection

from the banking sector in Bangladesh, the research endeavour, also needs to inquire into the issues of tax compliance, tax avoidance, tax evasion and tax payment behavior of banks.

4.2 National Board of Revenue (NBR) and Taxation Process in Bangladesh

4.2.1 Revenue Collection in Bangladesh

Like other developing countries, Bangladesh underscores the importance of internal revenue generation to meet the country's revenue needs and annual development expenditure requirements with a view to accomplishing national economic and social objectives, such as increasing GDP growth rate, poverty reduction through equitable distribution of income, containing inflation through price stabilization and discouraging unscrupulous consumption. Having these national objectives in mind, the government is under tremendous pressure to increase internal revenue in the shortest possible time. However, the revenue structure in Bangladesh is centralized, manual system-based and complicated. Several departments, agencies and in some cases different ministries are involved in the collection and processing function of revenue.

4.2.2 National Board of Revenue

NBR is the absolute authority in administering tax laws and collecting tax revenue in Bangladesh. This is the organization which formulates and controls the tax policies, reviews revenue policies, programs and procedures continuously. As central authority for tax administration in Bangladesh, the main responsibility of NBR is to collect domestic tax revenue for the government providing best possible services to the taxpayers and to negotiate and sign Double Taxation Avoidance Agreements (DTAA) with other countries.

Through NBR government acquires forecasted tax revenue and deposits this fund to national exchequer to complete the budgetary requirements. NBR collects revenue from individual taxpayers, corporate taxpayers, organizations, institutions, multinational companies, financial institutions, etc., on monthly and yearly basis calculation and fulfill their annual target revenue after a strict planning, strategy and policy on revenue collection. In recent years, the NBR has initiated some administrative and policy reforms in the tax system. This upgraded tax administration accompanied by significant policy changes has resulted in a modest improvement

in the tax-GDP ratio. The tax-GDP ratio shows a marginal improvement from 8.7% in 2011 to 8.8% (projected) in 2016 (Source: OECD, 2017).

Figure-4.1: Tax to GDP Ratio of SAARC Countries (2015)

Country	Tax to GDP Ratio
Afghanistan	6.40%
Bangladesh	8.50%
Bhutan	10.70%
India	21.89%
Maldives	20.50%
Nepal	23.10%
Pakistan	11.00%
Sri Lanka	11.60%
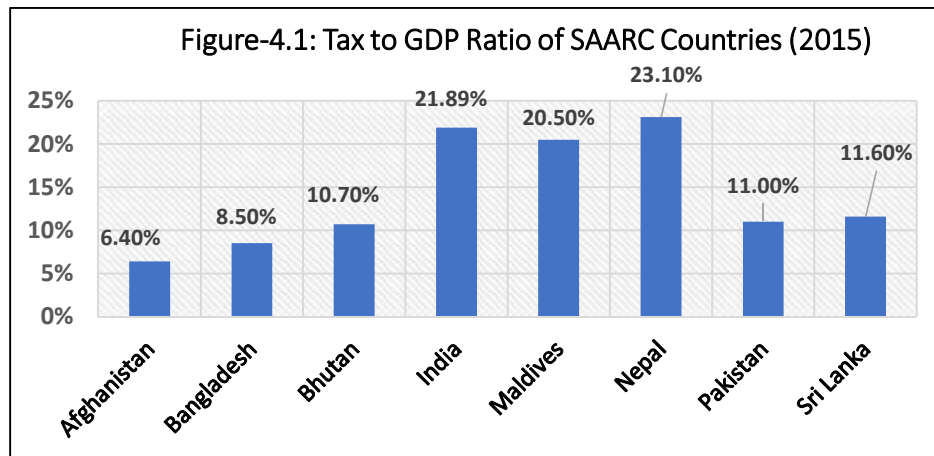
Source: The Economic and Social Commission for Asia and the Pacific (ESCAP)

However, the performance is still unsatisfactory as compared to other countries at a similar stage of economic development. In the last 10 years, Bangladesh's average tax to GDP ratio is 10.3%, which is 19.6% in India as well as in Nepal. In developed countries the average tax to GDP ratio is 35.8% [Source: Bangladesh Bank]. The tax collection as a percentage of GDP of Bangladesh is the lowest in the South Asian Countries and there were no significant variations in the last 10 years.

4.2.3 Sources of Revenue Collection

Finance Division acquires funds from two categories of revenue for preparing national income policy:

1. Tax revenue, which is again divided into NBR tax and Non-NBR tax, and
2. Non-tax revenue.

The NBR sources include customs duty, value added tax (VAT), supplementary duty (SD), excise duty, income tax, foreign travel tax, electricity duty, wealth tax (collected as a surcharge of income tax since fiscal year 2012--2013), turnover tax (TT), air ticket tax, advertisement tax, gift tax and miscellaneous insignificant taxes. Other taxes, often referred as non-NBR sources, include narcotics duty (collected by the Department of Narcotics Control, Ministry of Home Affairs), land revenue (administered by the Ministry of Land and collected by local Tahsil offices), Non-judicial stamp (collected under the Ministry of Finance), Land Registration fee

(collected by the Registration Directorate of the Ministry of Law, Justice and Parliamentary Affairs) and Motor vehicle tax (collected under the Ministry of Communication).

The non-tax revenue sources include dividends and profits, interest, administrative fees, penalties and forfeitures, services, rent and leases, tolls and levies, non-commercial sales, defense, non-tax receipts, railway, post office department, T&T Board, and capital receipts, etc. The following figure gives an overview on the institutional arrangements and sources of revenue generation of according to the Budget in Brief (2018-19), Ministry of Finance, Government of Bangladesh.

Figure-4.2: Government Sources of Income, Budget 2018-19
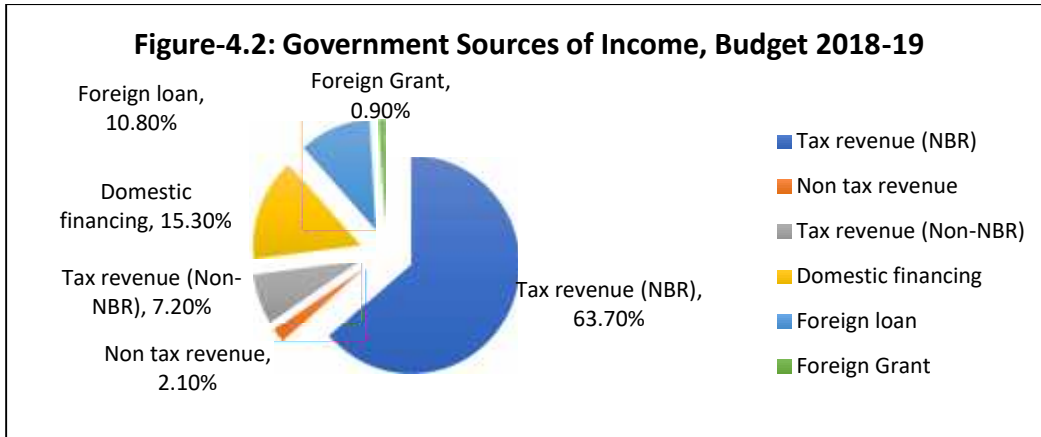
Source: Budget in Brief (2018-19), Ministry of Finance, Government of Bangladesh

The following figure shows composition of tax revenue in Bangladesh for the fiscal year 2018-2019. Among the tax revenue sources VAT delivers the major portion (37.30%), followed by income tax (34%).

Figure-4.3: Composition of tax in FY 2018-19
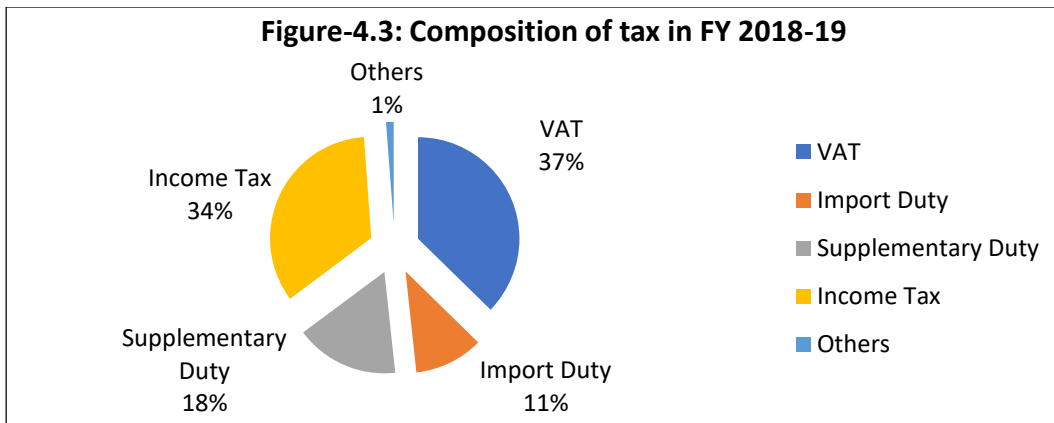
Source: Bangladesh Economic Review (2018-19)

4.2.4 Direct Tax Revenue of NBR

For the purpose of being more specific, the study will remain confined within the view of direct tax revenue of NBR. Direct tax is paid directly by the individual taxpayers, corporate bodies, multinational entities, banks and other organizations to NBR as consequence of tax incidence. More precisely, direct tax is the income tax on behalf of individuals and corporate tax on behalf of business entities. Other direct taxes are capital gain tax, gift tax, wealth tax and travel tax. The direct tax collection scenario of NBR was quite satisfactory over the years. During the initial years after liberation the percentage of direct taxes remained below 20% of total tax revenue which grew to about 36% in recent times. But due to unstable political situations, unfavorable business conditions and deteriorating governance situations direct tax collection also has been facing insurmountable problems and revenue challenges.

4.2.5 Estimated Revenue Calculation

Finance Division prepares medium term revenue outlook based on trend in GDP growth, investment and consumption, global economic outlook, tax reform initiatives and their potential outcome and tax policy in macro level. On the other hand, the method of estimating the future revenue of NBR is mainly based on tax enhancing policy measures minus tax reducing initiatives, tax enhancing outreach programs having positive impact on increasing tax net, positive outcome from risk-based audit, the expected economic growth rate, expected inflation rate, expected annual development expenditure, implementation of big projects, etc.

Table-4.1: Factors Considered in Revenue Forecasting

Base Revenue	
Add:	*Less:*
⟩ GDP growth ⟩ Tax base expansion ⟩ Tax rate increase ⟩ Tax withholding base increase ⟩ Tax withholding rate increase ⟩ Reduction of exemption, rebate & other tax expenditure ⟩ Impact of risk-based audit	⟩ Tax rate reduction ⟩ Tax withholding base erosion ⟩ Tax withholding rate reduction ⟩ Enhancement of exemption, rebate & other tax expenditure
Projected Revenue	

Source: National Board of Revenue

This estimation does not follow any systematic procedure or does not derive from any statistical method. Based on the assumption often the estimated tax is determined by adding close to 20% (on an average) growth with the previous year's collection.

This estimation of growth rate of revenue is calculated taking into consideration the total economic growth provided by Bangladesh Bureau of Statistics (BBS), estimated inflation rate provided by Finance Division, aggregate expenditure of government estimated by the Finance Division, implementation of large projects, additional tax revenue due to new tax measures minus loss of revenue for additional tax expenditures, intelligence activities of Central Intelligence Cell, outreach activities such as tax fair, tax education programs, reorganization of tax offices, tax dispute resolution measures, export-import growth and the overall business scenario of economy.

4.2.6 Tax Payment System in Bangladesh

According to the Income Tax Ordinance, 1984 (ITO, 1984), all types of taxpayers are required to pay taxes in the following manners:

1. Tax deducted at source or withholding tax
2. Advance payment of tax
3. Tax paid with income tax return

Tax Deducted at Source (TDS): In specific cases, the paying authority is required to deduct tax at source before the income reaches the hands of the taxpayers. The taxpayer receives after-tax income which is also disposable income. There are definite predetermined rates for different sources at which taxes are deducted. Deductions are adjusted with the final calculation of taxes and in many other sources these deductions are considered to be final and treated as the minimum tax.

This type of deduction is also called withholding tax as it remains in the hands of deducting authority until the collected amount is deposited to the exchequer. The time limit of depositing this withholding tax varies from two weeks to the next following day depending on the date of deduction. The deducting authority shall pay withholding taxes to the credit of the government by:

a) Remitting through income tax chalan (prescribed form) to Bangladesh Bank or Sonali Bank (only state-owned bank performing the treasury functions of the government);

b) Transferring electronically in the manner as prescribed by NBR.

Advance Payment of Tax: There is a time lag between earning an income and assessing the income for taxation purposes and hence assessment year of NBR is one year ahead of income year. For reducing the waiting time of receiving the tax money and accelerating development activities at an earlier date, the tax authority requires every taxpayer to pay advance tax in four equal installments in a financial year if the income exceeds Tk. 400,000 under certain conditions.

Figure-4.4: Advance Tax Matrix

Old Taxpayer — Does latest assessed income	Yes	Advance tax payable	Advance tax + TDS≥75%	No Simple interest Payable
	No	Advance tax not payable	Advance tax + TDS<75%	Simple interest (10%) Payable
New Taxpayer — Does Total assessed income	Yes	Advance tax payable	Advance tax + TDS≥75%	No Simple interest Payable
	No	No Advance tax due Interest payable	Advance tax + TDS<75%	Simple interest (10%) Payable

Source: Prepared by the Researcher

Tax Paid with Income Tax Return: The taxpayer is required to calculate net tax payable for the year in question after deducting TDS and advance tax paid in four installments. If there is any shortfall between tax due and tax actually paid, the taxpayer is required to pay the remaining unpaid portion of tax with the annual income tax return. The tax payable with the return of income may be paid by pay order or crossed check depending on the amount of tax payable.

E-payment method was introduced but due to lack of response, this method is under scrutiny for making the system more user-friendly. The replacement of TIN (Taxpayer Identification Number) by E-TIN has resulted inclusion of large number taxpayers into the tax-net. Introduction of online return submission has also made the tax compliance from easier.

If the taxpayer is aggrieved for the unjust determination of tax, they may go to the appeal forum, Tribunal, high court, supreme court, etc., for the just solution of the dispute. Taxpayer can also

opt for revision by the commissioner of taxes or can apply for a solution through alternative dispute resolution method. These conflict resolution methods are time bound and so requiring a definite time period to pass before a tax demand is finalized. In High Court and Supreme Court cases time period to pass in the process of determination of final tax demand is unknown and uncertain. From the above discussion it can be concluded that:

a) Tax payment system in Bangladesh is designed according to ITO, 1984, related rules, statutory regulatory orders, clarifications of NBR, etc. Hence, the entire process is legal-based, time-consuming and complex. On average a tax demand achieves its finality elapsing about two years. The banking sector, the largest tax yielding field, is also subject to these longer-term tax erosion issues.

b) The system is broadly manual-based with little exposure to the information technology. The department is run by territorial based tax administration except LTU where functional based system exists. The yearly, quarterly, monthly and next day payments are accumulated and administered through more than 650 circles and 31 tax commissioners' offices with payment facility in Bangladesh Bank and Sonali Bank.

c) Online annual return submission and e-payment systems are in its infancy. E-TIN registration process has shown remarkable success but computerized return processing is not available now. These features of NBR are not helping quick recovery of taxes or smooth functioning of tax accumulation.

4.2.7 SWOT Analysis of NBR:

SWOT analysis is a tactical analysis commonly used in strategic program planning. It provides a simple framework for an organization to examination both the internal and external environment. SOWT analysis was the outcome from the research work on corporate planning conducted at Stanford Research Institute (SFI) from 1960-1970. "What is good in the present is satisfactory, what is good in the future is an opportunity; what is bad in the present is a fault and what is bad in the future is a threat" considering a number of key areas with these four factors, the tool used to explore each of the critical areas was named as SOFT analysis.

The SOFT analysis was presented in a seminar at Zurich in 1964 where the F is changed to W and called it the SWOT (Humphrey, 2005) analysis. Weihrich (1982) subsequently modified

SWOT in the format of a matrix, matching the internal factors (i.e. the strengths and weaknesses) of an organization with its external factors (i.e. opportunities and threats) to systematically generate strategies that ought to be undertaken by the organization.

Table-4.2: SWOT Matrix

SWOT Matrix	**Competitive Advantages**	**Institutional Challenges**
Internal Factors	Strengths	Weaknesses
External Factors	Opportunities	Threats

Source: SWOT Matrix, Weihrich, 1982

Overall weakness of the policy framework combined with a high degree of informality and discretion, and in consequence the incidence of negotiated tax liabilities is the most basic challenge to NBR. The accounting and audit firms nominally verify tax declarations of taxpayers. Instead of taking any active role they passively validate accounts and statements that merely affirming the outcomes of informal negotiations. Thus, the system creates a scope for politicization, collusion and corruption.

Most of the low-income countries progressively increase reliance on self-reported tax returns, voluntary compliance and risk-based auditing that brings significant success in increasing tax-GDP ratio (Vazquez-Caro and Bird, 2011) where NBR has maintained an outdated manual system, which relies on the physical monitoring of taxpayers in order to enforce compliance. The absence of data sharing across departments severely weakens the tax administration, and creates scope for collusion, arbitrariness and abuse. The existence of fragmentation in the tax administration also creates additional costs for taxpayers. These challenges have been consistently underpinned by significant human resource constraints within the NBR.

"RajaswaBhabonaJetehobeBahudur (Thoughts on Revenue Sector: Miles to go)"is a recently published book (2018) on tax issues of Bangladesh written by a reputed journalist Abu Kawser. In this book the author tried to identify the challenges, problems, opportunities of revenue collection as well as required reform measures and changes in rules and regulations to increase the revenue collection to a desired level compatible with neighboring countries' standard. In this perspective, a number of former-chairmen of NBR, members of NBR, renowned economists, revenue and trade specialists and tax advocates have given their opinion in conclusive chapter of this book. However, in the process of examining tax administrative issues, SWOT analysis of

NBR has been conducted taking inputs from the writings of this book as well as using relevant literatures on NBR and economy of Bangladesh, interviewing field level officials and observations of the researcher. The outputs from SWOT analysis are presented in the following:

Strength:

a) Trained, qualified, experienced, and highly motivated cadre officials

b) Wide geographical coverage through 650 tax circles

c) Different outreach programs such as tax fair, establishment of tax education forum for creating taxpayers' awareness

d) Automation of work process is under construction.

e) Introduction of E-TIN and online return submission is already in operation

f) Ability to increase compliance by matching taxpayer information from other organizations and third-party information providers

g) Inheritance of tax culture beginning from 1860

Weakness:

a) Inadequate logistics and inadequate client relationship management

c) Lack of data management and central data processing framework

d) Lack of comprehensive human resource development policies

e) Lack of motivation to provide best possible services to the tax payers

f) Inability to adequately verify data provided by taxpayers

g) Inadequate skills in ICT, inadequate trained and skilled manpower

i) Over-centralisation of the authority

j) Lack of tax offices in all economically potential growth centres

k) Lack of updated tax code compatible with international best practices

Opportunity:

a) Stable economy with higher growth rate and stable inflation rate

b) Availability of national database and expanding digital economy

c) Innovative tax policy

e) Ongoing demographic dividend

f) Unexplored tax revenue exists due to large number of unidentified taxpayers

g) Ongoing construction of large economic infrastructures

h) Introduction of transfer pricing legislation

Threat:

a) Poor record keeping culture of taxpayers

b) Aggressive tax avoidance tendency and tax evasion

c) Inaccurate data from taxpayers

d) Negative public perception about the utilisation of tax revenue and tax administration

e) High corporate tax rate

f) IT security, stability, reliability and availability

g) High prevalence of corrupt practices

h) Fast changing technological environment

4.3 Tax Collection from Banking Sector:

The NBR collects revenue from all the sectors in Bangladesh. From banking sector, NBR collects corporate tax and at source tax on bank deposits.

4.3.1 Tax Rate

Tax rate for banking company is one of the prime determinants of tax revenue collection. Though the tax rates were unchanged for last few years, the rate is now fixed to be lower in the current budget. Corporate income tax is one of most important direct tax in Bangladesh. Under the umbrella of corporate tax there are some categories for corporate tax in Bangladesh which are as follows-

1. Non-listed companies
2. Listed companies
3. Listed banks, insurance and non-banking financial institutions (NBFIs)
4. Merchant banks
5. Tobacco companies
6. Non-listed mobile phone operators
7. Listed mobile phone operators

In the fiscal year 2017-18 listed banks, insurance and non-banking financial institutions (NBIFs) has to pay 40% corporate tax to the government. The non-listed banks, insurances and NBFIs on the other hand has to pay 2.5% more. Generally, in the banking sector the tax is imposed on the

banks' income after all the operating expense and the provisions have been deducted. So higher tax rate can reduce the profit for companies.

As the research is involved with the listed commercial banks, the subsequent discussions will be continued in terms of banks. As mentioned previously that the corporate tax rate is currently 40% for the listed banks the rate has declined from 42.5% which was unchanged from 2009 to 2014. From 2014 the rate has been 40% for the listed banks. Before 2009 the tax rate was 45% for the banks which has declined for the second time since 2003. In general, the tax rate has been declining for the listed banks from 1987. Apart from the increase of tax rate in 2003 fiscal year the tax rate has declined from 60% to 40% within the time frame of 1985 to 2014. From 2014 onwards, the tax rate has been unchanged for the listed banks in Bangladesh.

Figure-4.5: Corporate Tax Rates for Banks (1985-2017)
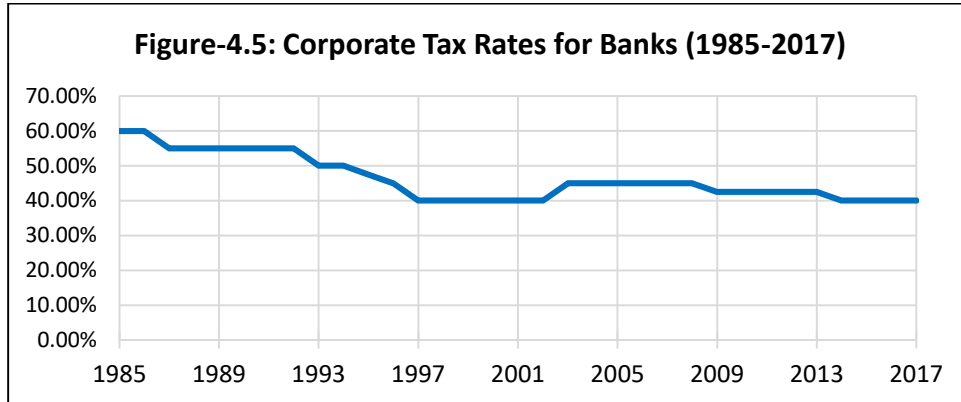
Source: National Board of Revenue

Table-4.3: Tax Rates for Banking Companies

Year	Tax Rate for Banking Companies
2010-2011	
2011-2012	i. Over the year (2010-2015) corporate tax rate was 42.5% for all banking companies.
2012-2013	
2013-2014	ii. New banks those got license in 2013 was imposed by corporate tax rate of 40%
2014-2015	
2015-2016	i. 40% if listed in any Stock Exchange ii. 42.5% if not listed in any Stock Exchange

| 2016-2017 | i. | *40% if listed in any Stock Exchange* |
| | ii. | *42.5% if not listed in any Stock Exchange* |

Source: National Board of Revenue

4.3.2 LTU and Tax collection from Banking Sector

LTU manages large corporate taxpaying entities and individual taxpayers from the beginning of its operation since 2004. It's the most efficient part of NBR where only the officials with adequate knowledge and expertise are associated. Banking sector provides the largest portion of LTU's revenue. Almost 49% of total revenue collection are collected from banking sector each year by the LTU.

Table-4.4: Tax Collection from Banking Sector   (BDT in Crore)

Year	Actual Collection of Tax
2012-2013	6446
2013-2014	6556
2014-2015	6929
2015-2016	6757
2016-2017	6686
2017-2018	8098

Source: Large Taxpayers Unit (LTU)

The table-4.3 represents the actual tax amount which is collected by LTU from the banking sector for the years 2012 to 2017. In the financial year 2013-2014, the socio-political environment in Bangladesh was not good enough to run the banking business smoothly. High NPL harms the profitability and is liable to decrease the tax collection from the banking sector of Bangladesh.

4.3.3 Banking Sector and Taxation

Banking sector of Bangladesh is one of the prime and prominent sectors which contribute significantly to the national economy of our country. The Bangladesh banking sector relative to the size of its economy is comparatively larger than many economies of similar level of development and per capita income. The total size of the sector at 26.54% of GDP dominates the financial system. Bangladesh Bank is the central bank of Bangladesh which was established in

1971. At present Bangladesh Bank has ten offices located at Motijheel, Sadarghat, Chittagong, Khulna, Bogra, Rajshahi, Sylhet, Barisal, Rangpur and Mymensingh in whole country to conduct the Banking Sectors. There are fifty-nine (59) scheduled banks in Bangladesh who operate under full control and supervision of Bangladesh Bank. Three banks also got license for commencing their operations very recently. According to Bangladesh Bank's website, the sector comprises a number of banks in various categories. Considering ownership, the sector can be classified in to the following categories:

a) Six State Owned Commercial Banks (SOCBs)
b) Forty-one Private Commercial Banks (PCBs)
   i. Thirty-three (33) conventional PCBs [excluding 3 newly approved Banks]
   ii. Eight (8) IslamiShariah based PCBs
c) Nine Foreign Commercial Banks (FCBs)

Banking sector's tax collection is incorporated by Large tax payer unit (LTU). This unit is the most efficient unit of NBR. The best officials of NBR are associated with this sector. As about 49% of tax revenue of LTU are from banking industry, they have serious concern with this sector.

4.3.4 Tax Expense of Banks

Following the payment method described on the previous section banks pay taxes to NBR on quarterly basis based on their own estimation. Date scheduled for quarterly payments are: 15th of March, 15th of June, 15th of September and 15th of December. The amount of tax payment calculated by banks and NBR often mismatch for several reasons. Office furnishing and decoration costs, entertainment expenses, promotional expenses by banks are often irrationally higher. Share market income might be a matter of dispute as this type of income is confusing whether it will be considered as capital gain or business income. Expenses like payment to Zakat fund by Islamic banks are not considered as eligible expenses by NBR. However, after resolving these types of disputes by ADR the tax payments are adjusted. Again, to make the target achieved by NBR advanced tax payment by banks is managed on 30th June, the last day of income year. However, tax expense by bank comprises current and deferred tax. Current tax and

deferred tax are recognized in profit or loss except to the extent that it relates to items recognized directly in equity.

a) Current tax: Current tax is the tax expected to be payable on the taxable profit for the year. It is calculated using tax rates as prescribed in the Income Tax Ordinance (ITO) 1984 and relevant Special Regulatory Orders (SRO) and any adjustment to tax payable in respect of previous years. The estimation of current tax provision involves making judgments regarding admissibility of certain expenses as well as estimating the amount of other expenses for tax purposes.

b) Deferred tax: Deferred tax is recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse. Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities against current tax assets, and they relate to income taxes levied by the same tax authority on the same taxable entity or on different tax entities.

4.4. Conclusion:

This chapter provides elaborate description of NBR. The various sources of revenue of NBR have also been discussed in great detail. Furthermore, various strengths and weakness of NBR have been highlighted for the purpose of systematic change in the policies and structural reform of NBR. Tax system of Bangladesh has also been highlighted with relevant rationale in different time period. Overall, this section provides a thorough description of the tax system of Bangladesh withrelevant terms in the banking sectors.

Chapter-Five

5.0 Factors Affecting Tax Revenue Gap and Trend Analysis

5.1 Introduction:

The factors that affect the tax revenue collection have been discussed in detail in this chapter. The concept of revenue gap can be explained by the difference between the revenue potential (economic) and the actual revenue collected. The expected tax is determined considering the growth level of economy and also based on the business environment. Therefore, two sets of explanatory variables can be considered in tax revenue collection perspective. The first group of variables is related to the economic structure of a specific country with higher potentials for raising tax proceeds, and the second group of variables is related to the firm's performance.

High tax rates, corruption and complexity of tax policy are positively related to the missing revenue since they promote tax avoidance. On the other hand, measures that discourage tax evasion such as public trust, regulations and effective administration are considered to lead to a reduction in tax revenue collection. In case of banking sector, generally the estimated tax revenue and actual tax revenue miss-matched because of the bank specific quantitative factors such as operating expenses, non-performing loan, fees and commission, spread etc. as those are the determinants of taxable income of banks.

5.2 Quantitative Factors:

After observation and analyzing the data set, this research has identified eight (8) qualitative factors for banks that affects the banks' profit, in this consequence the taxable amount also. These factors favorably or adversely affect the tax playability of the banks and following this effect these factors also influence the tax collection gap.

Quantitative factors affecting the gap between actual and expected revenue collection from banking industry are:

1. Non -Performing loan (NPL)
2. Interest Rate Spread
3. Operating Expenses
4. Fees and Commission Receipt
5. Shortage of Revenue Officer
6. Corporate Tax Rate
7. Inflation
8. GDP

1. Non-Performing Loan (NPL):

According to guideline of Bangladesh Bank, classified loan is divided into eight (8) stages which includes superior, good, acceptable, marginal, special mentioned account (SMA), sub-standard (SS), doubtful (DF) and bad and loss (BL). The last four categories are considered as non-performing loan (NPL) where the loan is a default loan itself or close to be default. Banks have to keep excess provision against defaulted loan which directly affects the net profit. So, the higher NPL leads to the lower net profit and vice versa.

Non-performing loan as a proportion of outstanding loan which was 7.2 per cent in 2010, reached 10.7 percent in September 2017 where the international standard is 2-3 percent. The amount of NPL in the banks increased to Tk 743.03 billion in the calendar year 2017 from that of Tk 621.72 billion in 2016. (Source: Bangladesh Bank)

Banks frequently engage in related lending through giving loan to friends, relatives or politically connected people irrespective of the quality of their loan proposals. Rescheduling/restructuring decisions are also influenced by political considerations. This problem is particularly acute for state-owned banks. As of December 2017, the amount of NPL in state banks was BDT 743.03 billion which 57 per cent of total NPL in banking sector.

The choice of Board Members often is not based on relevant qualifications. Audit committees and risk management committees do not function independently. Many large defaulters manage to get stay orders from superior courts. This encourages borrowers to continue to default on new as well as rescheduled/restructured loans, fortified by a sense of impunity.

2. Interest Rate Spread:

Spread is the difference between lending rate and borrowing rate. When the spread is large, banks are supposed to have a high taxable income as the profit increases. So, it can be predicted that the spread has a positive relationship with tax revenue collection and therefore also affects the tax revenue collection gap. As aggressive competition among the banks is a significant source of high interest rate spread in banking sector. Therefore, higher spread does not always mean higher profitability.

3. Operating expense:

Operating expenses are non-interest expenses those include a variety of operating costs incurred by banking companies through its normal business operations such as rent,

equipment, inventory costs, marketing, payroll, insurance, and funds allocated for research and development. One of the typical responsibilities that management must contend with is determining how to reduce operating expenses without significantly affecting a firm's ability to compete with its competitors. Low operating expense refers the large profit amount that increase the tax pay-ability of the bank.

4. Fees and Commission:

In common parlance, fees charged by banks in respect of personal current accounts or checking account and banking services that are provided to customers. Banks earn fees and commissions from diverse range of services provided to customers. Commission on letter of guarantee is recognized on accrual basis. Other fees and commission income are recognized on a realization basis. The higher the fees and commission income is, the larger will be the taxable income. But whether a shift to more fee and commission generating activities is feasible and sustainable depends on the type of fees and commission income and the bank's specific business model.

5. Shortage of Revenue Officer in NBR:

Tax collection procedure from banking companies is performed by LTU. Based on the field observation and top official's opinion, there an adequate number of skilled and expert officials are performing in LTU very efficiently. But through analyzing the annual report of NBR it is found that each year a large number of posts remain vacant in overall NBR, in its head office and even in the direct tax unit. The following table shows the number of vacant positions in direct tax unit as it is closely related to the banking industry's tax collection.

Table-5.1: Shortage of Revenue Officer in NBR

End of period	Number of Employee (Direct Tax Unit)	Number of Vacant Position (Direct Tax Unit)
2016	*5378*	*1564*
2015	*5942*	*2969*
2014	*6156*	*2815*
2013	*6059*	*2826*
2012	*4820*	*4121*

Source: Annual Reports of NBR (2012-2016)

The following graph shows that the number of vacant positions is decreasing year to year. So, it can be said the situation is getting improved over the years.

Figure-5.1: Number of Vacant Position
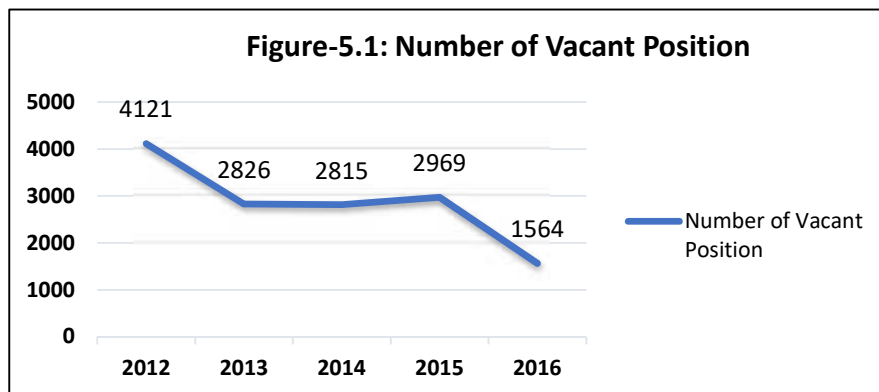
Source: Prepared by the Researcher Based on the Data Collected from Annual Reports of NBR

6. Corporate Tax rate:

Tax revenue is the result of the application of a tax rate to a tax base. Increases in tax rate may result an increase in tax revenue in certain macroeconomic conditions. But in most cases, it is efficient to increase the tax base to earn higher revenue, otherwise the increased tax rate could even backfire. Though the corporate tax rates for banking companies were unchanged for last few years in Bangladesh, the rate is now fixed to be lower in the current budget. It will adversely affect tax revenue collection.

7. Inflation:

The rate of inflation is an indicator of economic condition and problems faced by the country. A number of studies indicates that there is negative significant relationship between inflation and the tax to GDP ratio (Madhavi, 2008; Muibi and Sinbo, 2013). Chaudhry and Munir (2010) found a positive relationship with inflation and the tax to GDP ratio. Inflation is also a major determinant of interest rate. Higher interest rates provide more opportunity (spread) for banks to maintain a smart profit margin and therefore may affect the tax payable by banks. On the other hand, inflation increases the expenses of bank as a consequence the amount of tax paid will decrease. However, central banks attempt to limit inflation and avoid deflation by following some measure such as controlling bank rate, open market operation etc. in order to keep the economy running smoothly.

8. GDP:

Gross domestic product is the best way to measure a country's economy. GDP is the total value of everything produced in a specific time period within the border of a country.

Because of procyclicality there is a positive association between real GDP growth and bank profitability that may affect the tax payable and as well as the tax collection gap. The following table represents data of inflation rate and GDP growth rate in Bangladesh for the period of (2012-2017).

Table-5.2: Inflation Rates and GDP Growth Rates in Bangladesh(in percentage)

Year	Inflation	GDP
2012	*8.7 %*	*6.01 %*
2013	*6.8 %*	*6.06 %*
2014	*7.4 %*	*6.55 %*
2015	*6.4 %*	*7.11 %*
2016	*5.9 %*	*7.28 %*
2017	*5.4 %*	*7.65 %*

Source: Bangladesh Bank

5.3 Qualitative Factors:

By conducting interview and through data analysis and observations some qualitative factors come into front those are liable for tax revenue collection and its gap. These factors are:

1. Tax Avoidance Tendency
2. Tax Evasion
3. Corruption
4. Complexity in process
5. Lack of proper monitoring
6. Political Intervention
7. Tax Exemption
8. Use of Information Technology
9. Mitigation Problem
10. Procedure of Preparing Financial Statement
11. Tax Governance
12. Underground Economy

1. Tax Avoidance Tendency

Banks often try to intentionally avoid the tax payable by presenting misleading information, applying for inappropriate tax exemption. Tax avoidance is the use of legal methods to modify an entity's financial situation to lower the amount of income tax owed. This is generally accomplished by claiming the permissible deduction and credits. This practice differs from tax evasion, which uses illegal methods, such as underreporting income to avoid paying taxes though it is quite impossible in banking sector. But tax avoidance tendency to reduce tax through using the loopholes of law is very common for all banks.

2. Tax evasion:

Tax evasion is taking place through understatement and concealment of taxable objects, property transfer, and so on. Taxes are the main sources of revenue for governments to fund public services and projects. Detecting tax evasion is thus important for authorities to ensure sufficient revenue collection. Tax evasion breaks the tax law that creates the tax gap more and results taxable objectives, country's resources are underreported and concealed. The tax gap has a serious negative impact and can hiders a country's economic growth. Large Corporation have a massive tendency to avoid tax. So, it is necessary to give more importance about the collection of tax with transparency and accuracy for ensuring more resources for public spending.

3. Corruption:

Corruption in tax administration is one of the major institutional problems in the process of tax revenue collection in Bangladesh. Corruption leads to erosion of government revenue, in addition to lowering morale, fostering distrust in the government, and creating efficiency losses associated with rent-seeking. However, capacity in governance in NBR are remains weak. Institutions need capacity building and training to further strengthen them against corruption, promote good governance, and for them to perform their stated functions well.

The two nationwide devastating cases of corruption in banking industry are Hallmark scandal and Bismillah Group scandal. Hallmark had which were shown. The loans to Hallmark which established fictitious companies as recipients of the LCs, exceeded by a large margin (500% of loan quota to a single client) without any justification. Investigations of Anti-Corruption Commission (ACC) found both Sonali Bank and Hallmark officials as verdict. Because of this case of corruption, the default loan of state-owned Sonali Bank has risen over 50% following the Hall-Mark Group loan scam (Daily Star, June 8, 2017).

The other case is the lending of Tk 1,100 crore to the fraudulent Bismillah Towels Group by Jamuna, Janata, Prime, Premier and ShahjalalIslami banks. After an investigation into the loan scam, ACC officials of Bismillah Group and 40 bankers accused for their alleged involvement in the embezzlement (Daily Star, October 15, 2015).

4. Complexity of Tax policies:

The entire process of tax collection by NBR is legal-based, time-consuming and complex. On average a tax demand achieves its finality elapsing about two years. The banking sector, the

largest tax yielding field, is also subject to these longer-term tax erosion issues. The absence of a participatory policy making process, lack of research on tax system, short-term and politically influenced tax policies, loopholes, anomalies and complexities of tax laws and policies are responsible for lowering the tax revenue collection.

5. Lack of Proper Monitoring:

Institutional weaknesses of the tax administration, lack of professional support for tax officials and inappropriate behavioral aspects of tax officials have undermined the efficiency of the tax policy implementation process. During the compliance process, the absence of a tax culture among income earners, inadequate taxpayer service, complexities and unfairness in tax estimation, weak enforcement and the negative image of the tax department work as influential driving lead to tax non-compliance.

6. Political Intervention:

Political interventionism is an approach to manipulate an economy and society through interrelationship among political leaders, policy makers and corporate leaders. For instance, Bangladesh bank, the regulatory authority of banks in Bangladesh and many influential economists suggested not to give license to new banks because the number of banks in banking industry is unusually large in comparison to total size of economy. But the banking division of Finance Ministry decided to give approval to fourth and fifth generation banks following an inevitable political pressure. Political intervention leads banks to the recruitment of unskilled manpower, the collusion among directors of banks on taking large volume of uneconomic investment, bad investment decision making and repeated rescheduling of loans. Many chairman and board members of banks are selected based on political allegiance rather than the experience and expertise of the individual. In many cases banks act irrationally, disregarding economic justifications plagued by political intervention. This situation becomes more difficult when authorities failed to identify these defaulters and put them under trial. As a result of this culture existing in the banking sector, a large amount of loan processed on political consideration became default. This has direct impact on the high growth of non-performing loan.

7. Tax Exemption:

Bangladesh, like other developing countries, provides various supports to major and emerging industries with a view to enhancing industrialization in the country. Tax exemption

and concession related measures are provided under the directives of industrial policy, export/import policy, SME policy and fiscal policy of the country. Direct tax exemptions/incentive measures are: tax holiday, tax rate reductions, deferrals, tax credits and others; on the other hand, indirect tax measures are: exemptions and deductions. Tax Rebate is an amount of money that is paid back to bank at the end of the year if bank have paid an access amount of tax. The calculation process of tax rebate amount is so complex and it is also an important factor for revenue collection.

8. Use of Information Technology:

Information technology (IT) is the use of computers and internet to store, retrieve, transmit, and manipulate data or information, often in the context of a business or other enterprise. NBR has maintained an outdated 'control' based system, which relies on the physical monitoring of taxpayers in order to enforce compliance. Online annual return submission and e-payment systems are in its infancy. E-TIN registration process has shown remarkable success but computerized return processing is not available now. This is reflected, among other things, in extremely low levels of automation. However, use of technology may bring a significant positive change to improve the tax collection procedure.

9. Mitigation Problem:

Unjustified and unverified expenditure claimed by the taxpayers, inadequate disclosure of profit, different interpretations of law and as a consequence of mismatch on both party's calculation of tax often creates disputes. The disputes between LTU and banks are resolved based on the fairness of taxation and verifiability of taxpayers' claim. It also influences the tax collection for a specific period. There are hundreds of court cases for the years involving a large amount of income tax, customs duty and value added tax. To minimize this problem and to avoid the lengthy and time-consuming process, ADR was introduced in 2012. ADR is a mechanism that can resolve tax-related disputes and ensure a win-win situation for both the revenue authorities and taxpayers. ADR is now settling disputes outside of the courtroom promptly with both parties' consent and mutual agreement. A panel of facilitators assist both taxpayers and revenue officials to resolve disputes within two months of filing application. Here, Facilitator explains the legal position of the case to both the parties and encourages them to settle the dispute in accordance with law and practice of taxation and mutual understanding to pay the tax within certain period of time. But there is a lack of awareness among the taxpayers about the system.

10. Procedure of Preparing Financial Statement:

The objective of financial statements is to provide information about the financial position, performance and changes in financial position which ensures accountability and transparency. Bank sometimes doesn't follow the proper procedure of preparing financial statement and sometimes intentionally hide some factors for the purpose of profit shifting or for having inappropriate tax evasion. Preparing general-purpose financial statements, including the balance sheet, income statement, statement of retained earnings, and statement of cash flows can be simple or complex depending on the size of the Bank. Some statements need footnote disclosures while other can be presented without any details like this generally depend on the purpose of the financial statements. For instance, banks often want basic financials to verify the company can pay its debts.

11. Tax Governance:

Poor governance of banks causes lower profit and thus is responsible for lower taxpayment. Chairmen and board members of banks are not selected based on relevant qualifications and in many cases, they work to favor vested interest group. Because of related lending to friends, relatives or politically connected people without considering the quality of their loan proposals, default loan has increased at an alarming rate. Often audit committee and risk management committee do not function independently and neutrally. Rescheduling and restructuring decisions are also influenced by political considerations. There are allegations of corruption against both board members and senior employees. Inefficiency of employees to cope up with the digital banking practices is also a concerning issue.

Tax governance of banks is similar to the overall governance of the banking sector plagued with serious deficiency in terms of accountability, transparency and integrity. As a consequence, tax governance of the bank often fails to monitor the total procedure of tax determination and tax payment. This may happen purposely and sometimes may happen due to inefficiency. Tax department of banks often pursue different tax avoiding techniques that result disputes with the NBR. In many cases they try to dispute settled tax issues and go for different appeal stages in order to delay the tax payment and to hide taxable income.

12. Underground Economy:

The underground economy refers to illegal economic activity. Transactions in the underground economy are illegal either because the good or service being traded is illegal or

because an otherwise licit transaction does not comply with government reporting requirements. Underground economy also called shadow economy, as the transaction of goods or services not reported to the government and therefore beyond the reach of tax collectors and regulators. Examples of legal activities in the underground economy include unreported income. Unreported economic activity tends to occur when excessive taxes, regulations, price controls, or state monopolies interfere with market exchanges. Failure to recognize or enforce private property rights and contractual agreements may also encourage underground economic activities. Measurement of the underground economy is difficult because, by definition, its activities are not included in any government records.

5.4 State-Owned Commercial Banks and Trend Analysis of Relevant Data:

There are six (6) state owned commercial banks which are fully or majorly owned by the Government of Bangladesh. A brief overview on selected five (5) state-owned commercial banks and relevant data are presented below:

1. Sonali Bank Limited

Soon after independence of the country Sonali Bank emerged as the largest and leading nationalized commercial bank by proclamation of the Banks' Nationalization Order 1972 (Presidential Order-26). After corporatization in 2007, the management of the bank has been given required autonomy to make the bank competitive and to run its business effectively. The corporate head quarter of the bank is located at Motijheel, Dhaka, the main commercial center of the capital.

2. Janata Bank Limited

Janata Bank Limited, the 2nd largest state-owned commercial bank in Bangladesh, is playing a pivotal role in overall financial activities of the country. Since inception in 1972 the bank has commendably contributed to the socio-economic development of Bangladesh and helped structuring solid financial ground of the country as well. Janata Bank runs its business with 912 branches across the country including 4 overseas branches in United Arab Emirates.

3. Agrani Bank Limited

Agrani Bank Limited, a state owned leading commercial bank with 945 outlets strategically located in almost all the commercial areas throughout Bangladesh. Agrani Bank Limited started functioning as a going concern basis through a vendor agreement signed between the ministry of finance, Government of the People's Republic of Bangladesh on behalf of the

former Agrani Bank and the Board of Directors of Agrani Bank Limited on November 15, 2007.

4. Rupali Bank Limited

Rupali Bank Ltd. emerged as the largest public limited banking company of the country on December 14, 1986. To become a leading banking institution and to play a pivotal role in the development of the country the bank is committed to satisfying diverse needs of its customers through an array of products at a competitive price by using appropriate technology and providing timely service so that a sustainable growth, reasonable return and contribution to the development of the country can be ensured with a motivated and professional work-force.

5. BDBL

Bangladesh Development Bank Limited a state-owned commercial bank, has unveiled its appearance in the banking arena through amalgamation of Bangladesh Shilpa Bank (BSB) and Bangladesh ShilpaRinSangstha (BSRS), with the decision of the government of the Bangladesh. The registrar of joint stock companies and firms issued certificate of incorporation and Bangladesh bank issued license and permission as well for commencement of BDBL business' in November, 2009.

The following table represents non-performing loan of state-owned commercial banks for the period of 2012 to 2017.

Table-5.3: NPL of Selected State-Owned Commercial Banks(in million BDT)

Year	Sonali bank	Janata bank	Agrani bank	Rupali bank	BDBL
2012	*9715*	*5320*	*5380*	*2262*	*5417*
2013	*1037*	*3176*	*3580*	*1799*	*5202*
2014	*8643*	*3737*	*3966*	*1519*	*5241*
2015	*8684*	*4318*	*4640*	*2341*	*6945*
2016	*1024*	*5935*	*6804*	*3484*	*7302*
2017	*1493*	*7599*	*5702*	*3568*	*7645*

Source: Annual Report (2012-2017) of Selected State-Owned Commercial Banks

The following graph is prepared based on the data presented in table-5.3. As the graph shows, NPL of state-owned banks is in increasing trend over the period of 2012 to 2017. These banks continued to have high level of NPLs mainly due to poor underwriting standards,

inadequate follow-up and supervision of the loans disbursed. The decline in NPLs of Sonali Bank Ltd. in 2014 can be attributed partly to some progress in recovery of long-term outstanding loans, write-off of loans classified as 'bad' or 'loss' and rescheduling and restructuring of non-performing loans. But situation again deteriorated due to the implementation of regulations about new loan classification and a few notable irregularities in the banking industry.
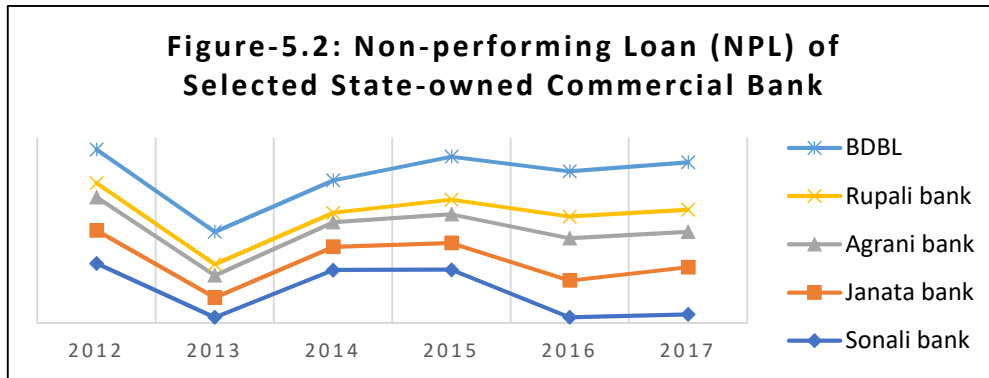
Source: Annual Report (2012-2017) of Selected State-Owned Commercial Banks

The following table represents operating expenses of state-owned commercial banks for the period of 2012 to 2017.

Table -5.4: Operating Expense of Selected SCBs (in million BDT)

Year	Sonali Bank	Janata Bank	Agrani Bank	Rupali Bank	BDBL
2012	*11556.89*	*7572.88*	*7318.77*	*3064.04*	*875.33*
2013	*12154.35*	*8871.52*	*8213.14*	*3412.82*	*1168.93*
2014	*13112.85*	*9837.33*	*9101.87*	*3811.59*	*1209.80*
2015	*14257.37*	*11062.49*	*11499.49*	*4786.83*	*995.73*
2016	*19579.57*	*13259.21*	*15646.87*	*7272.18*	*1293.67*
2017	*19705.11*	*14133.32*	*15807.23*	*5276.65*	*1232.07*

Source: Annual Report (2012-2017) Of Selected State-Owned Commercial Banks

Based on the data presented in table-5.4, the graph is prepared to show the trend of operating expense of state-owned banks over the period of 2012 to 2017.

Figure-5.3: Operating Expense of Selected State Owned Commercial Bank
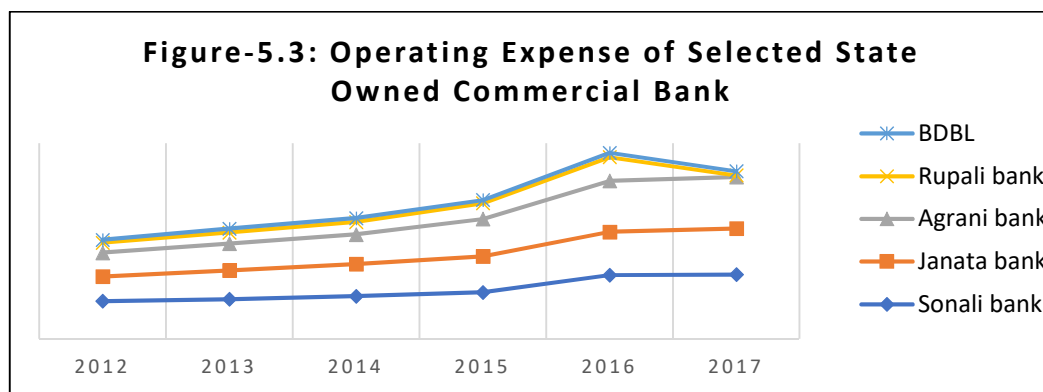
Source: Annual Report (2012-2017) of Selected State-Owned Commercial Banks

The operating expense of state- owned commercial banks has increased over the study period. Among the state-owned banks Sonali Bank has the highest operating expenses because of its large volume of business.

The amount of fees and commission of state-owned commercial banks for the period of 2012 to 2017 is represented in the following table-5.5

Table -5.5: Fees and Commissions of Selected SOCB's (in million BDT)

Year	Sonali Bank	Janata Bank	Agrani Bank	Rupali Bank	BDBL
2012	*11466.18*	*5358.02*	*4150.03*	*1414.02*	*48.75*
2013	*9056.86*	*3856.25*	*5148.10*	*1386.75*	*63.48*
2014	*10737.40*	*4190.70*	*4474.73*	*1433.18*	*54.33*
2015	*9347.20*	*5023.08*	*3384.62*	*1560.24*	*43.84*
2016	*8496.99*	*4236.45*	*3199.58*	*1565.58*	*49.22*
2017	*12587.41*	*4953.01*	*3485.73*	*1292.22*	*88.17*

Source: Annual Report (2012-2017) of Selected State-owned Commercial Banks

Based on the data presented in above table, the following figure-5.4 shows a comparative scenario of fees and commission receipt by selected state-owned commercial banks.

Figure -5.4: Fess And Commissions Of Selected State Owned Commercial Bank
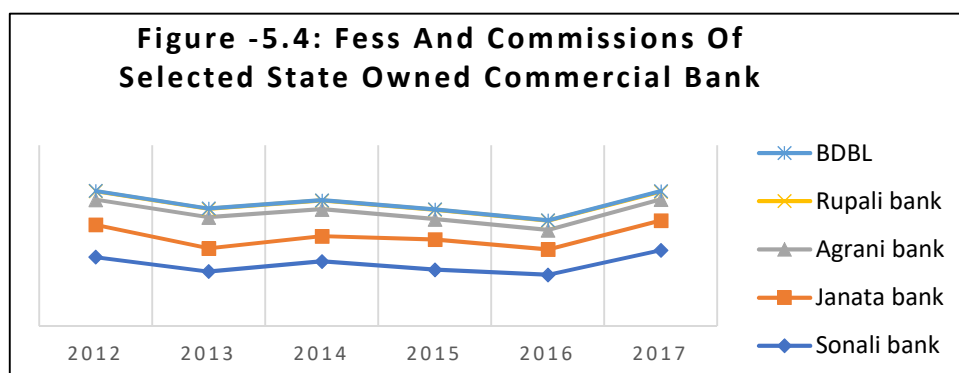
Source: Annual Report (2012-2017) of Selected State-Owned Commercial Banks

To the contrary of most private commercial banks the fees and commission receipt of state-owned commercial banks are going to be down with time. This is because of their reluctance towards modern investment scope. The fees and commission receipt by Sonali Bank are higher than that of any other state-owned commercial banks.

As evident from table-5.6 spread rate of Rupali Bank was highest from 2012 to 2017. Except Janata Bank and Rupali Bank, all other banks followed an increasing trend in their spread rates. Higher spread tends to go for higher profitability in most of the cases. The spread may decline when banks offer higher interest rates on deposit to collect more funds for minimizing the gap between deposit and credit growths.

Table-5.6: Spread Rates of Selected State-Owned Commercial Bank (in million BDT)

Year	Sonali bank	Janata bank	Agrani bank	Rupali bank	BDBL
2012	*1.89%*	*5.10%*	*4.44%*	*5.32%*	*0.46%*
2013	*1.95%*	*4.64%*	*4.49%*	*5.34%*	*-0.45%*
2014	*2.1%*	*4.10%*	*4.56%*	*4.64%*	*0.43%*
2015	*2.83%*	*2.59%*	*4.89%*	*4.96%*	*0.9%*
2016	*3.53%*	*3.05%*	*4.47%*	*5.34%*	*1.16%*
2017	*3.8%*	*4.49%*	*4.64%*	*4.73%*	*0.92%*

Source: Annual Report (2012-2017) of Selected State-Owned Commercial Banks

Based on the data presented in above table, the following figure-5.5 shows a comparative scenario of spread rates of selected state-owned commercial banks.
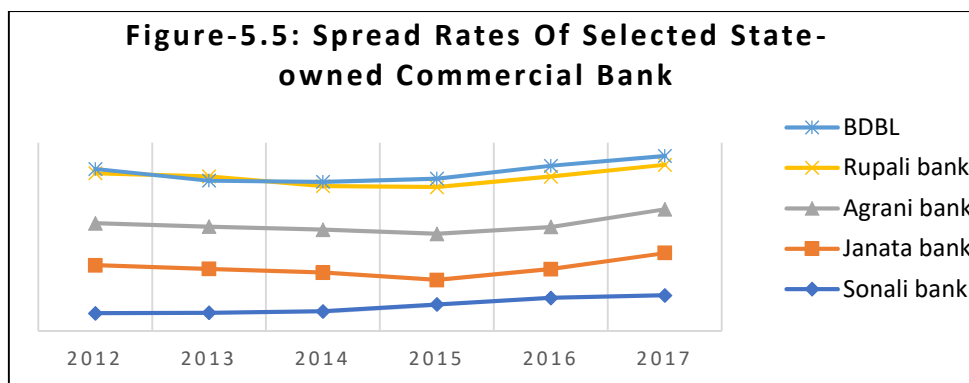
Source: Annual Reports (2012-2017) of Selected State-Owned Commercial Banks

5.5 First Generation Banks and Trend Analysis of Relevant Data:

Banks which were established in the decades of 1980s are known as First generation banks. The overview on selected 1st generation commercial banks and relevant data are in following:

6. AB Bank Ltd.

AB Bank Limited was incorporated and established on 31st December, 1981 as the first private conventional commercial Bank. Arab Bangladesh Bank commenced its effective operation from 12th April, 1982 with the aim to be the best performing bank of the country.

7. City Bank Ltd

City Bank is one of the oldest and popular private commercial banks which is operating in Bangladesh with a large number of branches all over the county. It is among the oldest five conventional commercial banks in the country which commenced its journey on 27th March 1983 through incorporating its first branch in the capital, Dhaka city. Instead of following traditional, decentralized, branch-based business model, city bank manages its business and operation vertically from the head office through 4 distinct business divisions.

8. IFIC Bank Ltd

International Finance Investment and Commerce Bank Limited (IFIC Bank) is a banking company incorporated in the People's Republic of Bangladesh with limited liability. It was set up at the instance of the Government in 1976 as a joint venture between the Government of Bangladesh and sponsors in the private sector with the objective of working as a finance company within the country and setting up joint venture banks/financial institutions aboard. In 1983 when the government allowed banks in the private sector, IFIC was converted into a full-fledged commercial bank.

9. NCC Bank Ltd

NCC Bank Limited or National Credit and Commerce Bank Limited is a Bangladeshi private commercial bank. NCC Bank was founded in 1985 as an investment company in the name of NCL (National Credit Limited). It became a scheduled commercial bank after receiving permission from the central bank in 1993. The vision of this bank is to become the bank of choice in serving the nation as a progressive and socially responsible financial institution by bringing credit and commerce together for profit and sustainable growth.

10. UCB Ltd

United Commercial Bank (UCB) incorporated on 26th June 1983is one of the largest private sector commercial bank in Bangladesh. The bank is listed in both Dhaka stock exchange and Chittagong stock exchange. Over the long time period of operation, sometimes it faced crisis but its efficient management knows how to face the crisis moment and how to steps forward with a team of dedicated employees.

The following table-5.7 shows NPL of selected first generation private commercial banks over the period of 2012 to 2017. The table shows the NPL of UCBL Bank Ltd is highest in 2017 among all other 1st generation banks. The NPL is in increasing trend along the research period for these five selected 1st generation public commercial banks.

Table-5.7: NPL of Selected 1st Generation PCB's (in million BDT)

Year	AB Bank	City Bank	IFIC	NCC	UCBL
2012	3522	6231	4096	4369	5015.58
2013	4720	7251	3168	4862	5985.17
2014	6856	6859	5061	6736	8050.04
2015	6619	10845	7962	7410	10324.69
2016	11365	10582	7250	7274	17920.57
2017	16409	10678	11478	8490	19268.09

Source: Annual Reports of Selected 1st Generation Banks (2012-2017)

Based on the data presented on above table, the following figure shows a comparative scenario of non-performing loan by selected state-owned commercial banks.
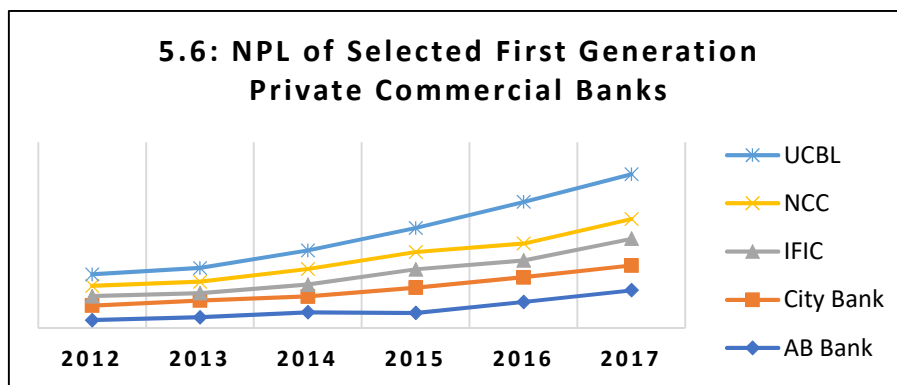
Source: Annual Reports of Selected 1st Generation Banks (2012-2017)

The following table-5.8 shows operating expenses of selected first generation private commercial banks over the period of 2012 to 2017.

Table-5.8: Operating Expense of Selected 1ˢᵗ Generation PCBs (in million BDT)

Year	AB Bank Ltd	City bank	IFIC	NCC	UCBL
2012	4072	3993	2693	2756.66	6346
2013	4465	4627	2965	2899.95	6574
2014	5230	5403	3210	2956.91	6904
2015	5628	6111	3775	3084.73	7146
2016	5999	6880	4405	3078.97	8755
2017	5871	8047	5348	3,780.14	9431

Source: Annual Reports of Selected 1ˢᵗ Generation Banks (2012-2017)

Here the graph represents the operating expenses of first-generation commercial banks for the year of 2012 to 2017. The increasing amount of operating expenses over the study period indicates average management inefficiency of the selected five 1ˢᵗ generation banks to control over the expenses that is escalating at a concerning rate.
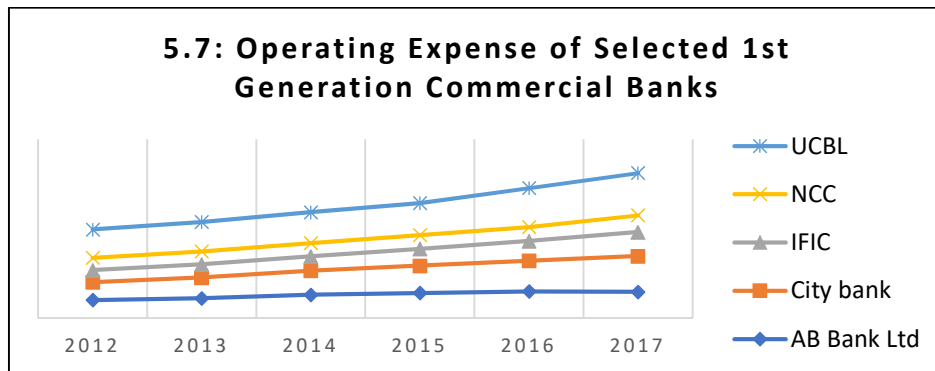
Source: Annual Reports of Selected 1ˢᵗ Generation Banks (2012-2017)

The following table-5.9 shows fees and commission of selected first generation private commercial banks over the period of 2012 to 2017.

Table-5.9: Fees and Commissions of Selected 1ˢᵗ Generation PCBs (in million BDT)

Year	AB Bank Ltd	City bank	IFIC	NCC	UCBL
2012	4120.21	9482.6722	1132.6743	690.3887	1493.6835
2013	4574.56	1044.7392	1298.4092	734.4916	1632.6392
2014	5932.92	1269.6732	1393.5561	631.9843	1840.5738
2015	6619.1	1107.07	1414.23	589.0457	1973.3359
2016	11364.8	1317.07	1501.86	607.5917	2072.4898
2017	16409	1516.2526	1667.1942	663.8857	2451.6645

Source: Annual Reports of Selected 1ˢᵗ Generation Banks (2012-2017)

Based on the above table the following graph is prepared to show the trend. Among 1st generation PCBs AB Bank has received highest fees and commission.

Figure-5.8: Fees and Commission of Selected 1st Generation Commercial Banks
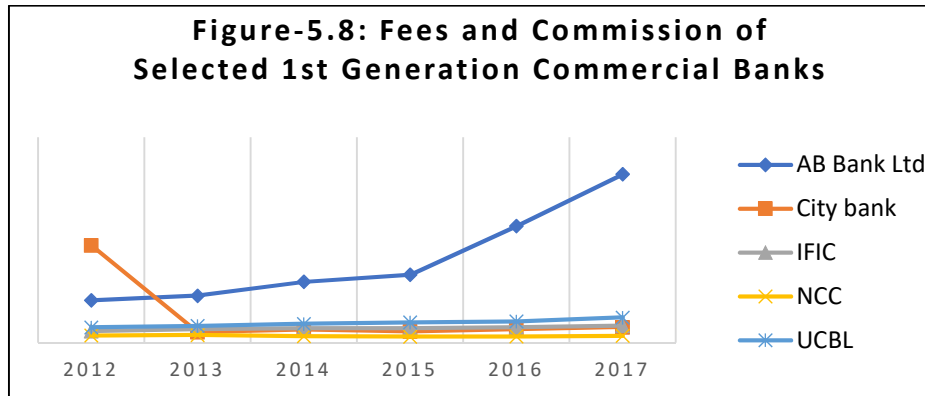
Source: Annual Reports of Selected 1st Generation Banks (2012-2017)

Spread of selected first generation private commercial banks over the period of 2012 to 2017 is presented below.

Table -5.10: Spread Rates of Selected 1st Generation PCBs (in percentage)

Year	AB Bank Ltd	City bank	IFIC	NCC	UCBL
2012	*5.57%*	*5.45%*	*5.68%*	*4.94%*	*4.65%*
2013	*5.20%*	*5.11%*	*5.49%*	*5.19%*	*4.98%*
2014	*5.73%*	*5.34%*	*5.94%*	*5.53%*	*4.88%*
2015	*5.77%*	*5.29%*	*5.83%*	*5.10%*	*4.93%*
2016	*5.67%*	*5.32%*	*5.78%*	*4.73%*	*4.77%*
2017	*4.95%*	*5.01%*	*5.11%*	*4.09%*	*3.98%*

Source: Annual Reports of selected 1st Generation Banks (2012-2017)

Spread ratios of selected banks decreases over the years. A declining trend of interest rate spread in the country's banking sector continued until November 2017, as the commercial banks slashed their interest rates more on lending than that of on deposits. Banks are advised to reduce their interest rate spread through improving efficiency instead of slashing interest rates on deposit.
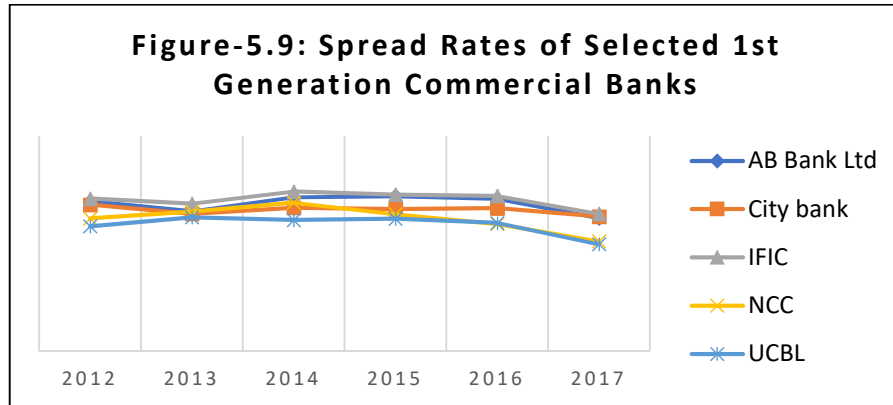
Source: Annual Reports of selected 1ˢᵗ Generation Banks (2012-2017)

5.6 Second-generation Banks and Trend Analysis of Relevant Data:

11. Dhaka Bank

Dhaka Bank is one of the finest private banks in Bangladesh which dedicated to assure a standard that makes every banking deal a satisfying experience. Dhaka Bank was incorporated as a Public Limited Company on April 6, 1995 under Companies Act 1994.

Along with a long-lasting bond with the corporate world DBL has achieved a countrywide spread through a larger network of Branches, ATMs, SME channels, agricultural outreach and mobile banking.

12. Bank Asia

Bank Asia started its journey on November 27, 1999 with a view to providing the top-quality technology driven facilities in banking sector. Since origin it has been continuing to cover most important parts of the country by spreading and expanding its network through opening branches, agent banking outlets etc.

The bank ongoing its Islamic banking operation in 2008. It has been launched by a group of effective entrepreneurs with accepted standing in the society. Bank Asia started its journey to serve people with up-to-date and innovative banking products and services.

13. Southeast Bank Limited

The bank was established on March 12, 1995 with a vision to contribute in the development of the national economy. The bank was established by top business personalities and renowned industrialists of the country with stakes in numerous segments of the national economy. Southeast Bank is run by a team of effective professionals. They have made and

maintained an atmosphere of trust and discipline that inspires and encourages everyone in the bank to work together for achieving the goals of the bank.

14. Dutch-Bangla Bank

Dutch Bangla Bank established on 1996, is one of the most popular banks in Bangladesh. Dutch Bangla Bank is the prime donor into social reasons in Bangladesh. It outlooks as one of the leading private donors involved in developing the country. DBBL is proud to be connected with helping Bangladesh as well as being a front-runner in the country's banking sector. DBBL is Bangladesh's most technically advanced bank. Its stands to give the most innovative and reasonable banking products to Bangladesh.

15. Eastern Bank Ltd.

Eastern started its journey in 1992. EBL received Asia money Best Corporate and Investment Bank in Bangladesh Award for 2017. Eastern Bank ltd launched country's first Artificial Intelligence (AI) - based banking chat bot titled 'EBL DIA' (EBL Digital Interactive Agent) - where anyone can relate with through chatting with an AI-based Chat Robot on social media stage.

The following table shows NPL of selected 2nd Generation private commercial banks over the period of 2012 to 2017. Over the period, all banks have faced an increasing trend in NPL which indicates deteriorating quality of the loan.

Table No-5.11: Non-performing loan of Selected 2nd Generation PCBs (in million BDT)

Year	Dhaka Bank	Bank Asia	Southeast Bank	EBL	DBBL
2012	*5656.31*	*5251.48*	*5687.92*	*3071*	*2728.3*
2013	*4136.68*	*5878.79*	*5350.24*	*3697*	*4175.6*
2014	*5657.25*	*6200.55*	*5387.74*	*5157*	*5475.3*
2015	*5490.64*	*5808.87*	*7193.82*	*4263*	*5624.9*
2016	*5402.94*	*8847.33*	*9257.79*	*4096*	*8999*
2017	*9208.85*	*8642.3*	*13878.53*	*4600*	*9644.5*

Source: *Annual Reports of selected 2nd Generation Banks (2012-2017)*

Based on the data presented in above table the following figure shows a comparative scenario of non-performing loan of selected 2nd generation private commercial banks.

Figure-5.10: Non-performing Loan of Selected 2nd Generation Banks (2012-2017)
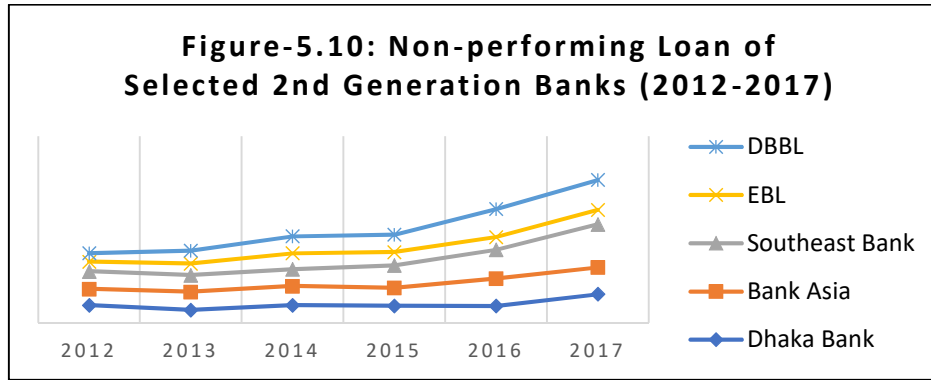
Source: Annual Reports of selected 2ⁿᵈ Generation Banks (2012-2017)

The following table 5.12 shows that the amount of total operating expenses of five selected banks are in increasing trend.

Table No-5.12: Operating Expenses of Selected 2ⁿᵈ Generation PCBs   (in million BDT)

Year	Dhaka Bank	Bank Asia	Southeast Bank	EBL	DBBL
2012	2,179.08	2,768.87	2,336.43	3,308	6,087.97
2013	2,781.08	3,117.35	2,984.60	3,594	8,114.28
2014	3,117.60	3,907.36	3,327.43	4,214	8,544.4
2015	3,275.37	4,321.25	3,570.11	4,691	9,174.9
2016	3,409.12	4,852.16	4,349.23	5,063	10,409.2
2017	4,251.50	5,437.86	4,870.74	5,605	12,827.1

Source: Annual Reports of Selected 2ⁿᵈ Generation Banks (2012-2017)

The highest operating expenses were 12,827.1million in DBBL and lowest were 4,251.5m in Dhaka Bank Ltd. Banks must have to give more focus on controlling the excessive operating expenses as more operating expenses is an indicator of managerial inefficiency. The following figure shows the trend of operating expenses of selected banks over the study period.

Figure-5.11: Operating Expense of Selected 2nd Generation Banks (2012-2017)
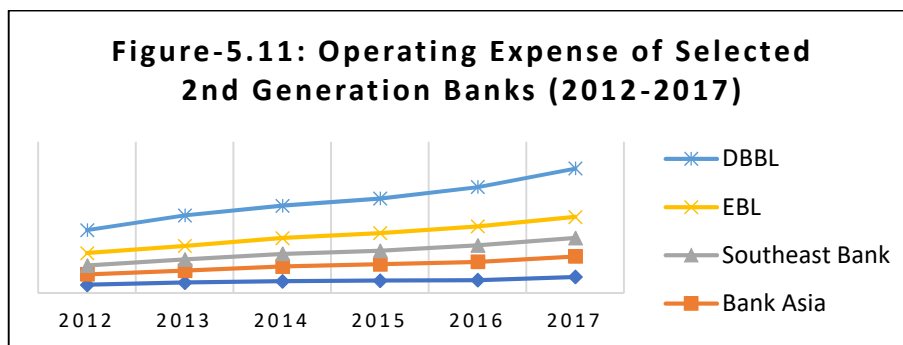
Source: Annual Reports of Selected 2ⁿᵈ Generation PCBs (2012-2017)

The following table shows fees and commission of selected 2ⁿᵈ Generation private commercial banks over the period of 2012 to 2017.

Table No-5.13: Fees and Commissions of Selected 2ⁿᵈ Generation PCBs (in million BDT)

Year	Dhaka bank	Bank Asia	Southeast Bank	EBL	DBBL
2012	*1,050*	*1,760.31*	*2,053.67*	*2,350*	*1,725*
2013	*1,093*	*1,912.11*	*2,440.37*	*2,420*	*1,601*
2014	*1,127*	*2,009.02*	*2,666.72*	*2,637*	*1,349*
2015	*1,316*	*2,156.11*	*2,759.45*	*2,774*	*1,502.83*
2016	*1,517*	*2,620.17*	*2,847.69*	*2,636*	*1,545.24*
2017	*2,877*	*3,346.78*	*3,360.67*	*3,241*	*1,917.84*

Source: Annual Reports of Selected 2ⁿᵈ Generation Banks (2012-2017)

Based on the data presented in above table the following figure shows a comparative scenario of fees and commission of selected 2ⁿᵈ generation private commercial banks.
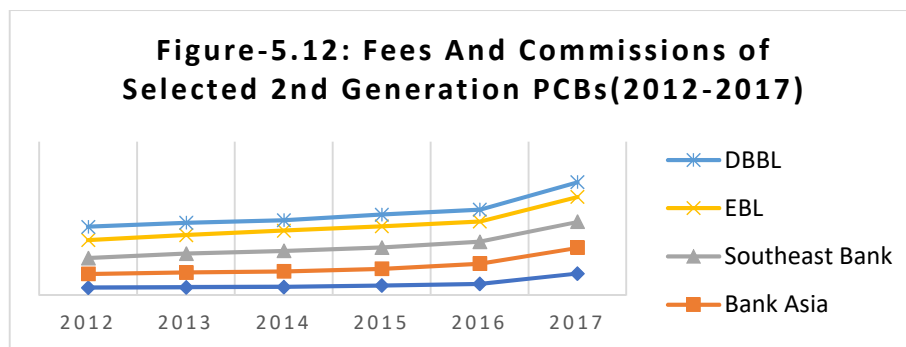
Source: Annual Reports of Selected 2ⁿᵈ Generation Banks (2012-2017)

According to the above figure fees and commission receipt by 2ⁿᵈ generation PCB are in increasing trend. The highest fees and commissions are earned by the Southeast Bank and the Eastern Bank Ltd. where Dhaka Bank earned the lowest.

The spread rate of selected 2ⁿᵈ Generation private commercial banks over the period of 2012 to 2017 are presented in the following table:

Graph No-5.14: Spread Rates of Selected 2ⁿᵈ Generation PCBs (in percentage)

	Dhaka Bank	Bank Asia	DBBL	EBL	Southeast Bank
2012	*4.1 %*	*5.27 %*	*4.5 %*	*7.4 %*	*6.7 %*
2013	*4.32 %*	*5.41 %*	*4.85 %*	*8.84 %*	*7 %*
2014	*4.44 %*	*5.24 %*	*5.5 %*	*7.26 %*	*5.7 %*
2015	*4.02 %*	*4.1 %*	*4.85 %*	*6.12 %*	*6.2 %*
2016	*4.58 %*	*4.2 %*	*4.1 %*	*4.87 %*	*5.3 %*
2017	*3.9 %*	*3.95 %*	*4.7 %*	*5.06 %*	*5.1 %*

Source: Annual Reports of Selected 2ⁿᵈ Generation Banks (2012-2017)

Based on the data presented in above table the following figure shows a comparative scenario of spread of selected 2nd generation private commercial banks.
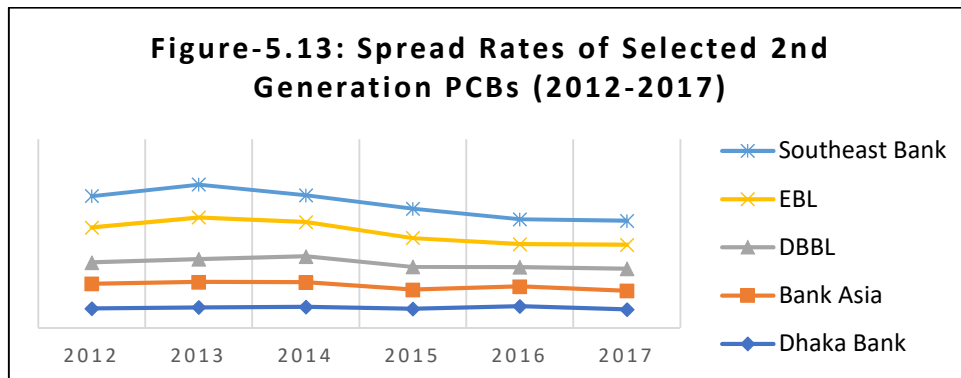
Source: Annual Reports of Selected 2nd Generation Banks (2012-2017)

The high spread rate indicates the high profit for the banks. In 2013 Eastern Bank had the highest spread rates which is 8.84% and the lowest spread rate were 3.9% for Dhaka Bank in 2017.

5.7 Third Generation Banks and Trend Analysis of Relevant Data:

16. BRAC Bank Limited:

BRAC Bank was incorporated on 4thJuly 2001 to provide banking services to a large number of people who are unbanked. The basic performance of the bank is to facilitate people with the main concept in Small and Medium Enterprises (SME). To build up the bank as a profitable institution as well as socially and financially responsible organization, BRAC bank promoted products and services which are the environment friendly and market and business oriented, thereby BRAC and all of its corporate stakeholders are trying to build a financially healthy, organized, and socially developed Bangladesh.

17. Jamuna Bank Limited:

Jamuna Bank Limited is a leading bank which was incorporated under the Companies Act, 1994. The bank began its activities and functions from June 3, 2001. The main objective of the bank is to provide basic banking activities to its customers and clients. Since the needs and demand of customers and clients are changing with time, the bank tries its level best to renovate strategies and promote new products and policies to match with the change. Thus, the Jamuna Bank Ltd. has gained successive improvement since its beginning.

18. Mutual Trust Bank Limited:

Mutual Trust Bank Limited is a prominent and leading bank which was incorporated under the Companies Act, 1994. The bank commenced its activities and functions from 1999 with the certificate for commencement of business. The bank aims at the financial and social development by including a lot of people in to the banking sector. For the aim the bank has innovated and promoted products and services with the efficiency and impressive economic value.

19. One Bank Limited:

One Bank Limited (OBL) started its banking operations from May, 1999 under the Companies Act. 1994, as a private commercial bank in BD. The main concern of the bank is on effectiveness, simplicity, accuracy and inspiration with the greatest spirit and sincerity to excel as number one bank in both case of its value and image. OBL is a private commercial bank devoted in the business line of captivating deposit through its different saving schemes and lending in various sectors at a profit.

20. Mercantile Bank Limited:

Mercantile Bank Limited started as a commercial bank aim at providing different banking products and services and contributing social and financial improvement in BD. The bank incorporated its operations and business on June 2, 1999. It offers wide ranges of products and services as per their customer needs and demands. With some prominent and professional personality, the bank consists of its board member to provide services at industrial and national level.

The NPL of selected 3rd generation private commercial banks over the period of 2012 to 2017 are presented in the following table:

Table 5.15: Non-performing Loan of Selected 3rd Generation PCBs (in million BDT)

Year	BRAC Bank	Jamuna Bank	Mutual Trust bank	One bank	Mercantile Bank
2012	5750.04	2097.94	2175.22	2284.66	2759.98
2013	6549.73	2688.12	2593.76	2998.37	3039.25
2014	6635.41	3047.73	3087.09	3263.42	3585.45
2015	7286.76	3371.36	4769.17	3492.4	4008.26
2016	7962.21	3964.8	4107.82	3946.56	5652.54
2017	8400.92	4481.07	6864.47	4471.35	6208.77

Source: Annual Reports of Selected 3rd Generation Banks (2012-2017)

Based on the data presented in the above table the following figure shows a comparative scenario of non-performing loan of selected 3rd generation private commercial banks. Non-performing loan of BRAC bank is highest among all other 3rd generation banks over the period. Following the entire banking industry trend, the NPL of all selected 3rd generation PCBs is in increasing trend.
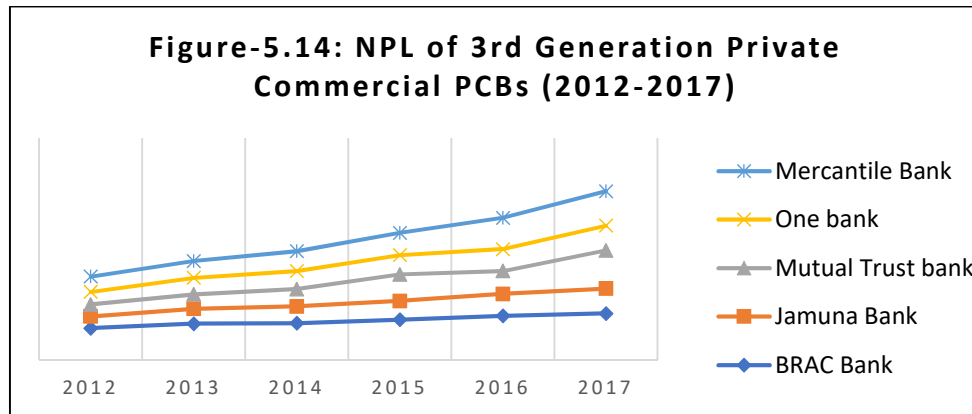
Figure-5.14: NPL of 3rd Generation Private Commercial PCBs (2012-2017)

Source: Annual Reports of Selected 3rd Generation Private Commercial Banks (2012-2017)

Operating expenses increases with business volume for larger banks. In case of banks having small volume of business, the excess operating expenses may occur due to managerial inefficiency.

The operating expenses of selected 3rd generation private commercial banks over the period of 2012 to 2017 are presented in the following table:

Table 5.16: Operating Expenses of Selected 3rd Generation PCBs   (in million BDT)

Year	BRAC Bank	Jamuna Bank	Mutual Trust Bank	OBL	Mercantile Bank
2012	2525.86	1132.23	672.33	998.97	1370.1
2013	2601.9	1007.82	766.77	1067.12	1457.89
2014	2567.98	1064.28	949.28	1242.9	1552.57
2015	2915.21	1187.76	974.04	1154.71	1673.09
2016	2538.45	1390.34	1228.62	1416.35	1871.88
2017	2976.34	1847.05	1342.69	1623.54	2107.34

Source: Annual Reports of selected 3rd Generation Private Commercial Banks (2012-2017)

Operating costs reduce net profit and the reduction of net profit creates reduction in taxation. The following graph represents the same scenario.
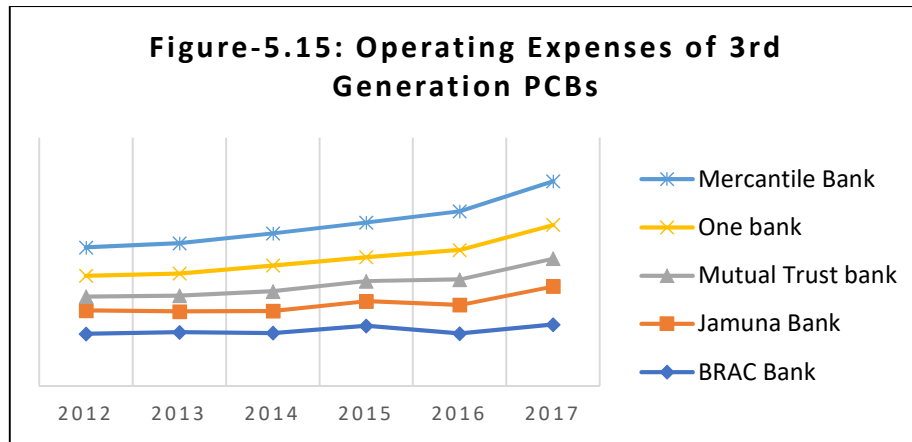
Source: Annual Reports of selected 3rd Generation Banks (2012-2017)

With a slight fluctuation, operating expenses of the 3rd generation private commercial banks are in increasing trend. This is because of the higher economic growth, higher business volume and in some cases managerial inefficiency in expense management.

The following table represents fees and commissions receipt by selected 3rd generation PCBs over the period of 2012 to 2017. The 3rd generation banks have faced an upward trend in the fees and commissions earned over the study periods.

Table 5.17: Fees and Commissions of 3ʳᵈ Generation PCBs (in million BDT)

Year	BRAC Bank	Jamuna Bank	Mutual Trust bank	One bank	Mercantile Bank
2012	*2525.86*	*1132.23*	*672.33*	*998.97*	*1,370.1*
2013	*2601.90*	*1007.82*	*766.77*	*1067.12*	*1,457.89*
2014	*2567.98*	*1064.28*	*949.28*	*1242.90*	*1,552.57*
2015	*2915.21*	*1187.76*	*974.08*	*1154.71*	*1,673.09*
2016	*2538.45*	*1390.34*	*1228.62*	*1416.35*	*1,871.88*
2017	*2876.34*	*1847.05*	*1342.69*	*1623.54*	*2107.34*

Source: Annual Reports of selected 3ʳᵈ Generation Banks (2012-2017)

The following figure shows a comparative scenario of fees and commissions of selected 3ʳᵈ generation private commercial banks.
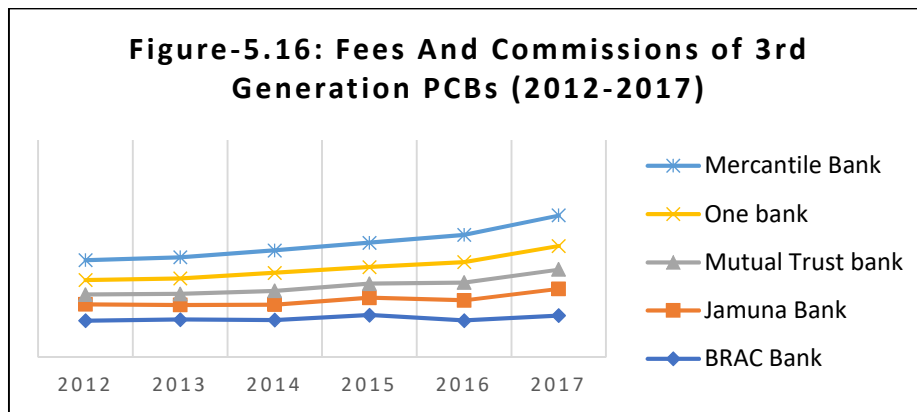
Source: Annual Reports of selected 3ʳᵈ Generation Banks (2012-2017)

The following table represents spread rate of selected 3ʳᵈ generation PCBs over the research period of 2012 to 2017.

Table 5.18: Spread Rates of Selected 3ʳᵈ Generation PCBs(in percentage)

Year	BRAC Bank	Jamuna Bank	MTB	OBL	Mercantile Bank
2012	*9.82%*	*6.11%*	*4.61%*	*6.02%*	*4.43%*
2013	*9.44%*	*5.88%*	*4.91%*	*5.76%*	*4.26%*
2014	*10.27%*	*5.75%*	*4.92%*	*7.75%*	*4.64%*
2015	*9.52%*	*5.11%*	*4.94%*	*6.41%*	*2.96%*
2016	*9.25%*	*4.55%*	*4.52%*	*6.07%*	*2.85%*
2017	*8.46%*	*3.76%*	*4.71%*	*4.68%*	*3.43%*

Source: Annual Reports of Selected 3ʳᵈ Generation Banks (2012-2017)

The spread percentage shows high rates but a stable pattern for the BRAC Bank. This particular bank has the highest spread rate in 2014. The Mutual Trust Bank and the Mercantile Bank has very lower spread rate over the years that indicates a lower profitability

for these banks.The following figure 5.17 shows the spread rates are more or less stable and following downward trend.

Figure-5.17: Spread Rates of 3rd Generation Commercial Banks
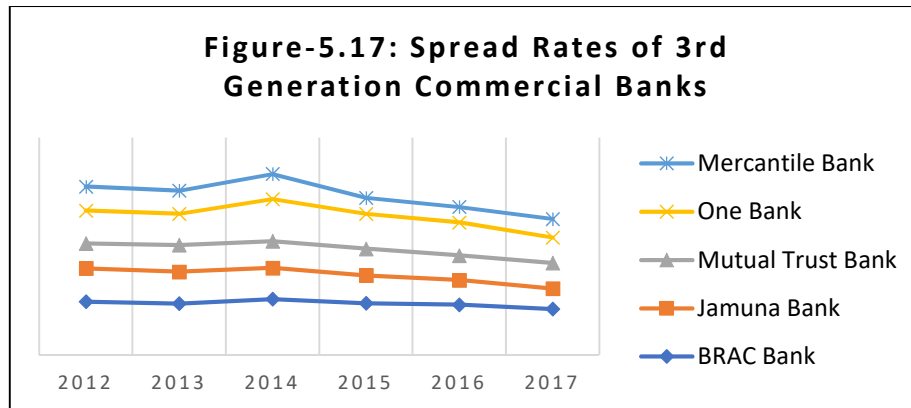
Source: Annual Reports of selected 3rd Generation Private Commercial Banks (2012-2017)

5.8 Fourth Generation Banks and Trend Analysis of Relevant Data:

21. Modhumoti Bank Limited

Modhumoti Bank Limited is a public limited commercial bank in Bangladesh. The bank was established in 2013 to lead the new generation of local commercial banks by excelling in customer delivery through insight empowered employees, smart use of technology and a full range of highest quality products and services.

22. NRB Bank Limited

NRB Bank Limited established to be the leading dedicated financial institution for NRBs to invest in Bangladesh and for Bangladeshi individuals and corporate bodies to access international markets. The bank aims to be the preferred provider of targeted financial services as a conduit for investment to and from Bangladesh both domestically and internationally, to accelerate the industrialization of Bangladesh.

23. Meghna Bank Limited

Meghna Bank Limited is a fourth-generation PCBs commenced its banking operation on May 9, 2013 after licensed by Bangladesh Bank, the central bank of Bangladesh. Meghna Bank Limited established to be recognized as an essential institution for the unbanked through zealous participation in the financial inclusion process.

24. NRB Global Bank Limited

NRB Global Bank Limited is a fourth-generation bank commenced its banking operation on September 9, 2013. It is the brainchild of 25 (twenty-five) well reputed visionary Non-

Resident Bangladeshi (NRB) people residing in different countries of the world. It has been approved by the regulatory bodies in 2012 to operate business in banking of Bangladesh.

25. South Bangla Agriculture and Commerce Bank Limited

South Bangla Agriculture and Commerce (SBAC) Bank Limited established to build Green Bangladesh free of poverty and pollution through sustainable development by application of latest information technology in financial services.

26. Midland Bank Limited

Midland Bank Limited is a fourth-generation bank started its banking operation on April 9, 2013. This bank commenced to be the first choice of their customers as a distinct financial service provider, trusted, respected and valued by all stakeholders within the region and beyond pursuing an endless voyage towards excellence in every respect.

NPL of 4th generation PCBs over the period of 2012-2017 is presented in the following table:

Table-5.19: NPL of Selected Fourth Generation PCBs (in million BDT)

Year	Meghna Bank Ltd.	Midland Bank Ltd.	Modhumoti Bank Ltd	NRB Bank Limited	NRB Global Bank Ltd.	SBAC Bank Ltd.
2014	*0*	*0*	*0*	*0*	*0*	*0*
2015	*0*	*139.69*	*0*	*22.14*	*132.39*	*22.32*
2016	*207.67*	*143.50*	*45.12*	*245.07*	*146.31*	*0*
2017	*931.18*	*457.58*	*88.29*	*563.33*	*774.83*	*375.25*

Source: Annual Reports of Selected 4th Generation Private Commercial Banks (2012-2017)

In 2017, three banks namely Farmers' Bank Limited, Meghna Bank Limited and NRB Commercial Bank Limited have a large amount of NPL. The bank started its operation from the year 2013, so, they do not have any NPL in 2013 and 2014.Modhumoti Bank Limited have lower NPL than others. But point to be noted, these banks are failed to control their NPL at very first period of their operation and NPL is now in increasing trend.

These banks followed aggressive lending policy to earn more profit but the banks were not benefitted through using this strategy. It's a serious issue of the concerned officials that NPL of the newly created banks is increasing day by day. NPL affects the ultimate profitability as well as the gap between actual and expected revenue from the banking sector.
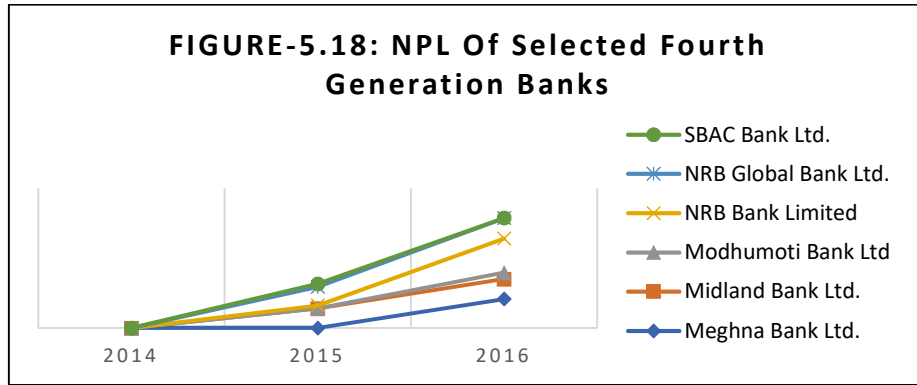
FIGURE-5.18: NPL Of Selected Fourth Generation Banks

Source: Annual Reports of selected 4th Generation Banks (2012-2017)

The following table represents operating expenses of 4th generation PCBs over the period of 2012-2017:

Table 5.20: Operating Costs of Selected Fourth Generation PCBs (in million BDT)

Year	Meghna Bank Ltd	Midland Bank Ltd	Modhumoti Bank Ltd	NRB Bank Ltd	NRB Global Bank Ltd	SBAC Bank Limited
2014	461.34	464.50	308.71	451.99	534.822282	536.99
2015	652.08	655.03	527.64	730.52	936.999480	1025.45
2016	874.52	830.54	643.14	869.95	1212.122587	1442.18
2017	1094.81	835.57	780.39	1171.50	1553.289423	1656.81

Source: Annual Reports of Selected 4th Generation Banks (2012-2017)

Operating costs of the banks are in increasing trend according to the following table. As these banks commenced their operation in 2013, at the preliminary level, these banks needed to involve in varieties introductory works. The following figure represents the scenario of increasing operating expenses over the years.
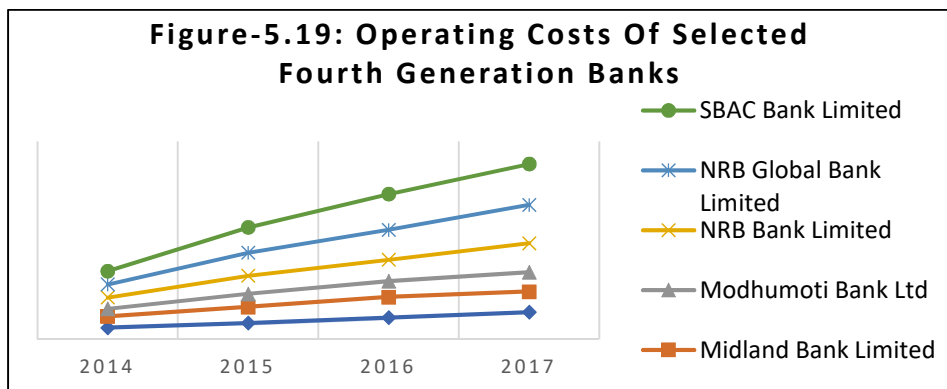
Figure-5.19: Operating Costs Of Selected Fourth Generation Banks

Source: Annual Reports of Selected 4th Generation Private Commercial Banks (2012-2017)

These new banks spend a large amount in decorating their offices. For this reason, Bangladesh Bank warned the managerial body to have control over expenses.

Fees and commission as a part of bank's core income affects the performance of bank with a high significance.

The following table represents fees and commission receipt by 4th generation public commercial banks over the period of 2012-2017. It is observed that SBAC Bank has the highest amount of fees and commission earned as this bank engaged itself with more non-interest earning sources.

Table-5.21: Fees and Commissions of Selected 4th Generation Banks (in million BDT)

Year	Meghna Bank Ltd.	Midland Bank Ltd.	Modhumoti Bank Ltd	NRB Bank Limited	NRB Global Bank Ltd.	SBAC Bank Ltd.
2014	*51.01*	*42.37*	*79.98*	*26.55*	*17.06*	*79.06*
2015	*106.61*	*102.92*	*108.73*	*60.89*	*48.90*	*138.06*
2016	*152.88*	*133.30*	*161.03*	*87.68*	*70.50*	*213.02*
2017	*218.33*	*242.54*	*391.82*	*215.46*	*98.66*	*418.98*

Source: Annual Reports of Selected 4th Generation Banks (2012-2017)

The following figure shows an increasing trend of fees and commission receipt by 4th generation PCBs over the year of 2012-2017.
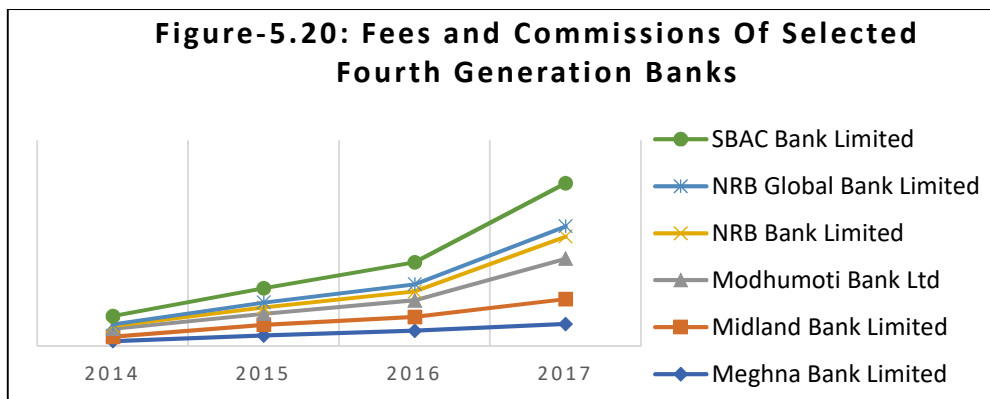
Source: Annual Reports of Selected 4th Generation Banks (2012-2017)

The spread rates are above four percentage point for almost all 4th generation banks. Positive spread is a good sign for the banks to increase its profit. But aggressive banking practices using higher or lower spread is harmful for banks' financial stability. Central bank warned 4th generation banks several times for their aggressive banking practices. Spread rate of 4th generation public commercial banks for 2017 are in below:

Table-5.22: Spread Rates of Selected Commercial Banks   (in percentage)

Name of The Bank	Interest Rate Spread		
	Deposits	Advances	Spread
Meghna Bank Limited	8.38	12.32	3.94
Midland Bank Limited	8.01	12.27	4.16
Modhumoti Bank Limited	7.2	12.45	5.25
NRB Bank Limited	7.75	11.94	4.19
NRB Global Bank Limited	9.63	13.8	4.17
SBAC Bank Limited	8.1	13.06	4.96

Source: Website of Bangladesh Bank

5.9 Islamic Banks and Trend Analysis of Relevant Data:

27. Islami Bank Bangladesh Limited (IBBL):

Islami Bank Bangladesh Limited initiated in 13th March 1983 as the first Islamic bank in South Asia as well as in Bangladesh. It is a joint venture public limited company engaged in commercial banking business based on Islamic Shari'ah. It started with 63.09% foreign shareholding having largest branch network among the private sector banks in Bangladesh.

28. Islami Commercial Bank Limited (ICB):

ICB Islamic Bank Limited is a first-generation bank started on April, 1987 as a public limited company under the Companies Act, 1913. The objective of the bank was to undertake and run all kinds of banking, financial and business activities, transactions and operations in accordance with the principles of Islamic Shariah.

29. First Security Islami Bank Limited (FSIBL):

First Security Islami Bank Limited is a second-generation bank which was incorporated on 29 August 1999 as a commercial bank, but it started its operations on 25 October 1999. From 2009 the bank started Shariah based banking.

30. Social Islami Bank Limited (SIBL):

SIBL is a second-generation commercial bank started operating on 22nd November, 1995 based on Shariah' Principles. It has two subsidiary companies - SIBL Securities Ltd. and SIBL Investment Ltd. SIBL introduced the concept of 21st century participatory three sector banking model in one frame targeting poverty. It works as an Islamic participatory commercial bank to credit and banking on the profit and loss sharing.

31. Shah Jalal Islami Bank Limited (SJIBL):

Shah Jalal Islami Bank Limited (SJIBL) is a third-generation bank. It started its commercial operation in accordance with principle of Islamic Shariah on the 10th May 2001 under the Bank Companies Act, 1991. SJIBL has diversified its service coverage by opening new branches at different locations across the country. SJIBL carries deal wise business product thereby generating real income and thus boosting GDP of the economy.

In Islamic banking, non-performing loan is called non-performing investment (NPI). Non-performing investment of selected Islamic commercial banks over the period of 2012 to 2017 are presented below.

Table 5.23: Non-Performing Investment of Selected Islamic Banks (in million BDT)

Year	FSIBL	IBBL	ICB	SIBL	SJIBL
2013	1785.35	10823.3	6321.37	933.59	2140.07
2014	1391.73	12581.53	7078.38	3610.89	4108.06
2015	2912.43	19059.01	7134.51	2819.13	4971.02
2016	2992.96	18309.52	6895.96	4415.99	5246.28
2017	3635.8	20195.82	6621.4	6060.29	5262.72

Source: Annual Reports of selected Islamic Banks (2012-2017)

The following figure shows the NPI of selected five Islamic banks from 2012 to 2017. As a credit quality measure, it follows an increasing trend over the period. It indicates the quality of investments is decreasing.As evident from the table ICB Islamic Bank Limited has highest non-performing investment among five selected Islamic banks and FSIBL has the lowest non-performing investment. Other three banks are almost similar in performance according to the NPL.
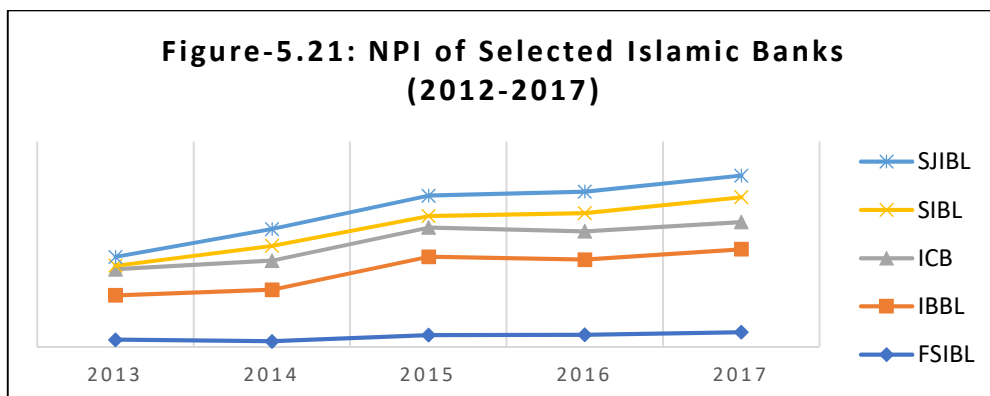
Figure-5.21: NPI of Selected Islamic Banks (2012-2017)

The following figure shows the operating expenses of selected five Islamic banks from 2012 to 2017.

Table 5.24: Operating Expenses of Selected Islamic Banks (in million BDT)

Year	FSIBL	IBBL	ICB	SIBL	SJIBL
2013	1792.72	8867.1	580.68	1906.62	1941.38
2014	2383.87	11039.14	584.06	2626.19	2337.59
2015	2906.12	12074.13	536.5	2775.27	2683.05
2016	3696.36	13466.17	497.84	3435.25	2778.2
2017	4298.82	17687.22	475.02	3986.8	2998.95

Source: Annual Reports of selected Islamic Banks (2012-2017)

Figure-5.22:Operating Expenses of Selected Islamic Banks (2012-2017)
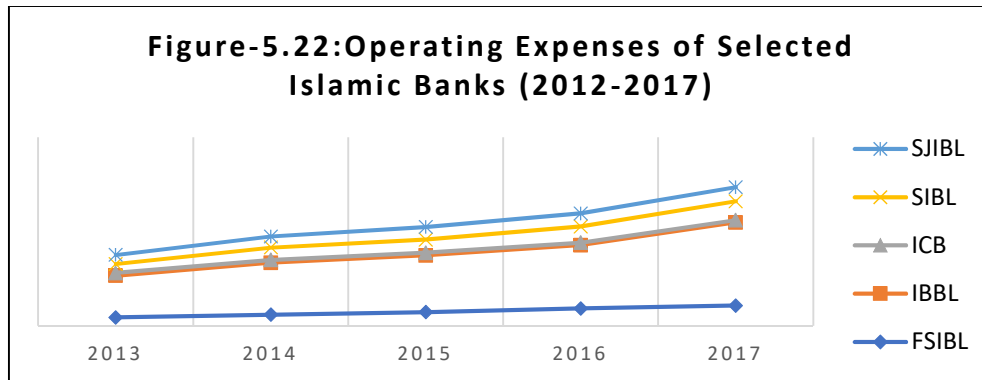
Source: Annual Reports of selected Islamic Banks (2012-2017)

The above figure prepared based on the table data shows operating expenses of IBBL is the highest among all other Islamic banks. ICB Islamic Bank has the least operating expense in this term. SIBL, FSIBL and SJIBL have almost similar and balanced operating expense with minimum fluctuation over the period.

The following table shows the fees and commission receipt for selected five Islamic banks from 2012 to 2017.

Table 5.25: Fees and Commissions of Selected Islamic Banks (2012-17)(in million BDT)

Year	FSIBL	IBBL	ICB	SIBL	SJIBL
2013	404.24	5249.69	6.28	601.84	1768.07
2014	326.77	4969.12	3.06	584.82	1364.7
2015	388.31	5870.37	4.18	604.11	1112.46
2016	532.58	6198.73	7.98	705.29	1036.12
2017	444.98	5738.17	4.74	885.41	1222.56

Source: Annual Reports of selected Islamic Banks (2012-2017)

The fees and commission earned by ICB Islami Banks is the least among these five banks and IBBL has the highest amount of fees and commission as usual.
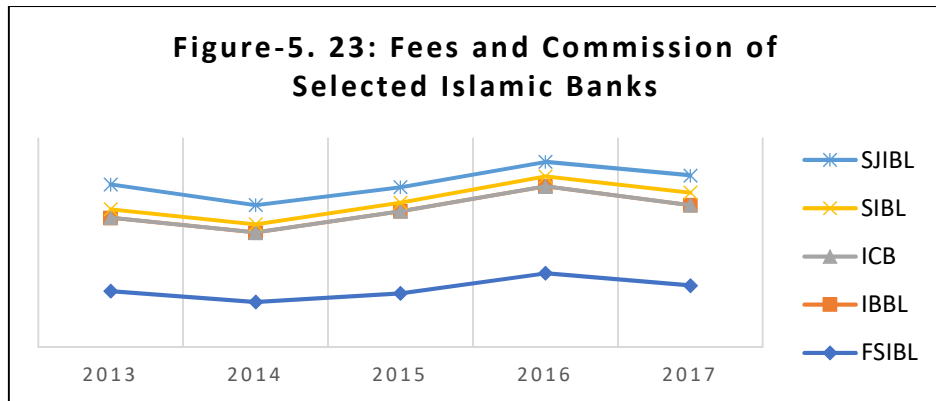
Source: Annual Reports of selected Islamic Banks (2012-2017)

The following table shows the fees and commission receipt for selected five Islamic banks from 2012 to 2017.

Table 5.26: Spread Rates of Selected Islamic Banks (2012-17)   (in percentage)

	2012	2013	2014	2015	2016	2017
IBBL	*4.77%*	*4.26%*	*3.98%*	*3.66%*	*3.83%*	*3.62%*
ICB	*4.47%*	*2.24%*	*1.72%*	*1.44%*	*0.69%*	*-0.16%*
FSIBL	*3.15%*	*3.21%*	*2.78%*	*2.80%*	*3.18%*	*3.06%*
SIBL	*4.98%*	*4.59%*	*4.61%*	*4.68%*	*4.24%*	*4.58%*
SJIBL	*2.31%*	*3.54%*	*3.75%*	*3.68%*	*3.39%*	*2.80%*

Source: Annual Reports of selected Banks (2012-2017)

It is observed from the above table that spread of selected Islamic banks are in decreasing trend except FSIBL and SJIBL. The spread of ICB Islamic Bank Limited declined sharply. SIBL has the highest spread rate among all the five banks.
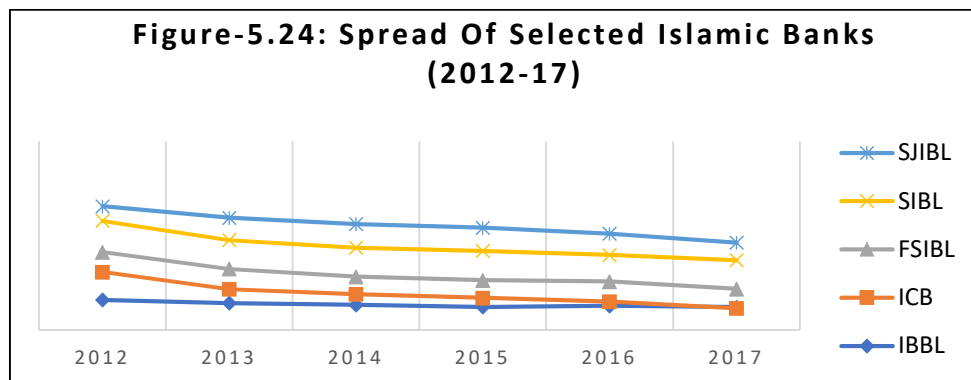
Source: Annual Reports of selected Islamic Banks (2012-2017)

5.10 Foreign Commercial Banks and Trend Analysis of Relevant Data:

32. Bank Al Falah

Bank Alfalah is the fifth largest bank in Pakistan owned and operated by the Abu Dhabi Group. Its Bangladesh operations commenced from 2005 with the acquisition of Shamil Bank of Bahrain. The bank provides financial solutions to consumers, corporations, institutions and governments through a broad spectrum of products and services. The bank looks towards an optimistic future with a dream to continue investing in its core strengths to provide 'best in class' products and services to its diverse range of clients.

33. Commercial Bank of Ceylon

With an unblemished history of nearly a century in the Sri Lanka's Banking arena, Commercial Bank of Ceylon is going towards a mission to 'Redefine convenience in financial services'. Unique products and services, superior service quality and efficient and customized solutions to the requirements of corporate and personal banking customers are hallmarks of the successful stride of CBC in Bangladesh.

34. Habib Bank Limited

Habib Bank Limited (HBL) is a Pakistani owned private commercial bank operating in Bangladesh. After flourishing a lot of branches all over its country, now it has started to expand beyond the borders. In Bangladesh it started to function in 1976. Till now it has 5 branches in Bangladesh. It provides all types of banking service people expect from a commercial bank.

35. National Bank of Pakistan

National Bank of Pakistan is the largest bank in Pakistan in terms of profit, deposits, number of branches and employees. Ever since its inception, the bank has played a pioneering role in shaping the future of the banking industry in Pakistan. The bank opened its branch in Dhaka in August, 1994 with a goal to enhance profitability and maximization of NBP share through increasing leverage of existing customer base and diversified range of products.

36. State Bank of India

The State Bank of India is the largest commercial bank in India. This government-owned corporation provides commercial banking services all over the world. It oversees a network of more than 20,000 branches and 189 international offices in 35 countries. In 2015, it was

ranked 59th on the list of top 1000 banks in the world by the banker. It operates in Bangladesh through its eight branches in five districts.

The most alarming factor for banking sector in recent time is high NPL. High NPL has deteriorated banks' performance at a large extent. The non-performing loan scenario for the selected foreign commercial bank is represented in the following table:

Table 5.27: NPL of Selected Foreign Private Commercial Banks (in million BDT)

Year	BAF	CBC	HBL	NBP	SBI
2013	*578.47*	*67.25*	*435.68*	*24.10*	*570.62*
2014	*203.17*	*225.81*	*622.73*	*70.92*	*834.66*
2015	*310.61*	*291.72*	*428.89*	*104.39*	*565.51*
2016	*269.76*	*466.74*	*472.99*	*148.03*	*443.43*
2017	*254.28*	*323.71*	*424.07*	*137.71*	*137.03*

Source: Annual Reports of Selected Foreign Banks (2012-2017)

Above table shows that the NPL is very high for State Bank of India in 2014 amounting 834,66 million BDT. In 2017, where most of the domestic banks are facing high NPL, the foreign commercial banks begin to improve the situation. The NPL of National Bank of Pakistan is relatively low. The following figure presents the trend of NPL over the research period.

Figure 5.25: Non-performing Loan of Selected Banks
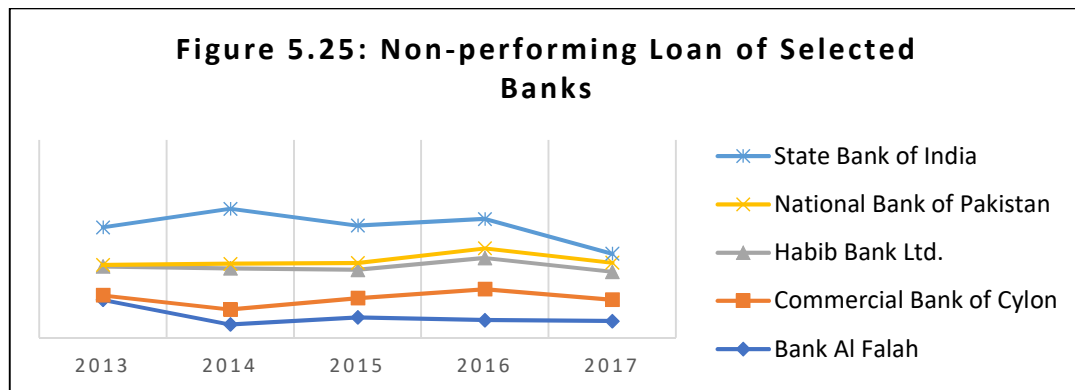
Source: Annual Reports of Selected Foreign Banks (2012-2017)

The following table contains operating expenses of selected foreign commercial banks for the period of 2012 to 2017:

Table 5.28: Operating Expenses of Selected Foreign Commercial Banks(in million BDT)

	BAF	CBC	HBL	NBP	SBI
2013	*426.44*	*634.34*	*246.78*	*129.87*	*271.85*
2014	*432.29*	*637.59*	*266.26*	*226.75*	*250.87*
2015	*477.92*	*618.87*	*292.85*	*217.93*	*343.12*

2016	*511.40*	*720.43*	*315.03*	*172.72*	*384.37*
2017	*524.78*	*733.52*	*326.72*	*191.13*	*377.81*

Source: Annual Reports of Selected Foreign Banks (2012-2017)

The following figure-5.26 represents the overall scenario. Commercial Bank of Ceylon has the highest operating cost among sample banks. In comparison the National Bank of Pakistan has lowest operating cost. But as mentioned in the above, the volume of business of this particular bank is also smallest in Bangladesh.
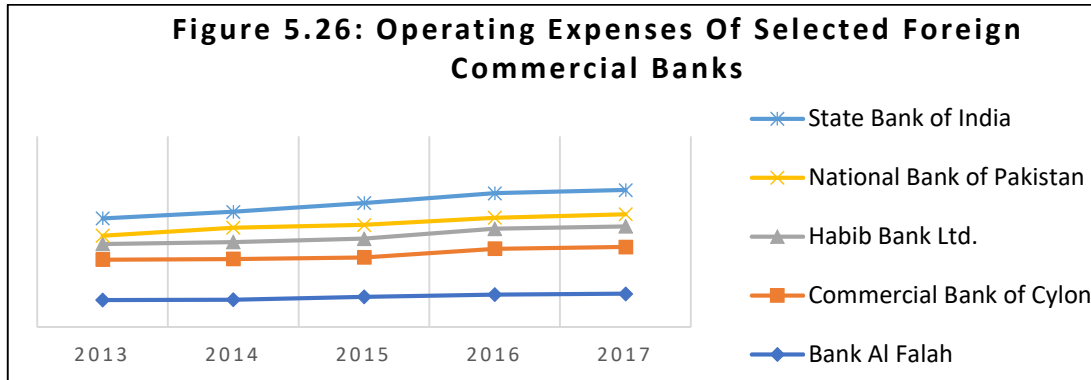
Source: Annual Reports of Selected Foreign Banks (2012-2017)

Fees and commission for selected commercial banks for the period of 2012 to 2017 are represented in the following table.

Table 5.29: Fees and Commission of Selected FCBs (in million BDT)

	BAF	**CBC**	**HBL**	**NBP**	**SBI**
2013	*32.46*	*259.76*	*95.64*	*6.94*	*345.28*
2014	*28.41*	*260.98*	*102.53*	*42.10*	*447.76*
2015	*35.08*	*253.29*	*106.35*	*225.06*	*652.42*
2016	*27.90*	*283.69*	*77.26*	*53.15*	*735.27*
2017	*24.50*	*327.04*	*86.70*	*22.90*	*1059.68*

Source: Annual Reports of Selected Foreign Banks (2012-2017)

The following graph shows State Bank of India has the highest amount of fees and commission. The National Bank of Pakistan has the lowest. When most of the banks are in increasing trend at earning fees and commission the NBP faces a volatility State Bank of India has the highest amount of fees and commission:
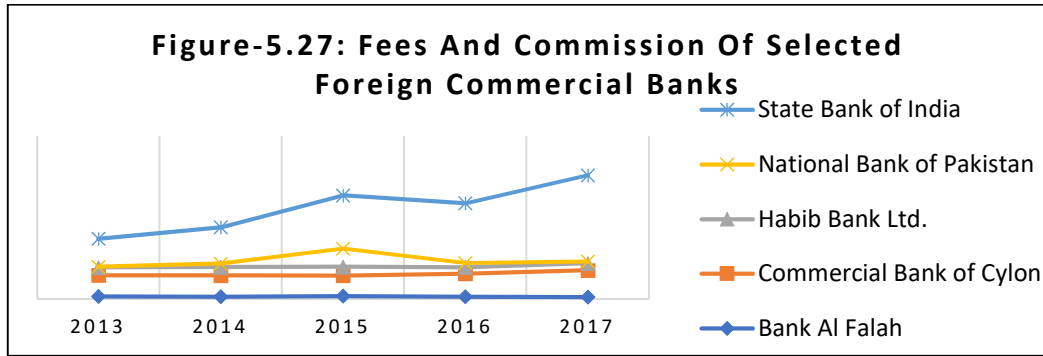
Source: Annual Reports of Selected Foreign Banks (2012-2017)

The spread rate over the five years (2013-2017) of selected foreign commercial banks are presented below. Here, National Bank of Pakistan is continuously facing a negative interest rate spread. State Bank of India is in a favorable situation from this context. The Commercial Bank of Ceylon is facing a decreasing trend in spread over the years where Bank Al Falah only faces single percentage change over five years.

Table 5.30: Interest Rates of Selected Foreign Commercial Banks (in Percentage)

Year	BAF	HBL	CBC	NBP	SBI
2013	*4.49%*	*5.46%*	*6.59%*	*-1.80%*	*3.10%*
2014	*4.86%*	*4.13%*	*6.89%*	*-2.37%*	*6.22%*
2015	*4.49%*	*4.91%*	*5.67%*	*-2.50%*	*5.45%*
2016	*3.65%*	*3.03%*	*4.83%*	*-6.14%*	*5.68%*
2017	*3.54%*	*3.76%*	*4.64%*	*-5.29%*	*5.27%*

Source: Annual Reports of Selected Foreign Banks (2012-2017)

To have a comparative scenario of spread of selected banks the following graph is prepared. Higher spread must not consider to be an indicator of higher profit. Because, excess spread often represents aggressive lending practices.
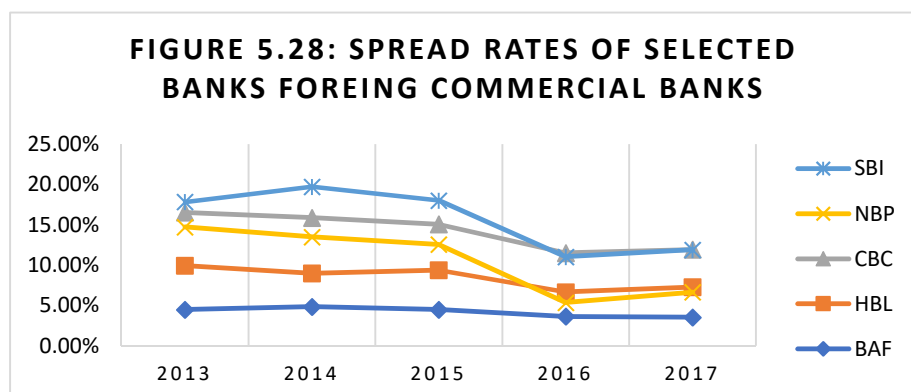
	SOCBs	1st Generation Banks	2nd Generation Banks	3rd Generation Banks	4th Generation Banks	Foreign Banks	Islamic Banks
NPL	*Varied significantly following an increasing trend*	*Increasing gradually over the study period*	*Increasing with small fluctuations*	*Following a gradual Increasing trend over the period*	*There was a sharp increase in 2017, at their early stage of operation.*	*Decreasing Gradually*	*Increasing with slight fluctuation*

Source:Annual Reports of Selected ForeignCommercial Banks(2012-2017)

The following table represents the overall scenario of banking sector on the basis of trend analysis from the perspective of these four performance-based variables.

Operating cost	*Increasing gradually over the period*	*Increasing*	*Following increasing trend over the period*	*Increasing with variation*	*Increasing trend over the period*	*Increasing slightly over the period*	*Increasing gradually*
Fees and commission	*Varied significantly over the period*	*Fluctuating with an increasing trend*	*Increasing trend*	*Increasing trend with fluctuation*	*Increasing trend over the period*	*Volatile over the period*	*Fluctuating significantly over the period*
Spread	*Increasing steadily except Janata bank*	*Slightly decreasing*	*Decreasing gradually*	*Decreasing trend with fluctuation*	*Following an increasing trend*	*Reducing over the period*	*Decreasing trend with fluctuation*

Table-5.31: Summary Output of Trend Analysis

Source: Prepared by the Researcher based on Trend Analysis

5.11 Conclusion:

The above discussion is exclusively about the bank specific factors determining the gap between actual and expected revenue collection. Descriptive statistics show that the NPL is in increasing trend except foreign banks. Operating cost is in increasing trend where fees and commissions fluctuate with the elapse of time. The spread in most of the cases is slightly decreasing. These factors directly affect banks' profitability and thus can be considered as the determinants of tax revenue collection from banks.

Chapter-Six

6.0 Trend Analysis of Tax Revenue Collection Gap

6.1 Introduction:

Trend analysis is the widespread practice of collecting information and attempting to spot a pattern of observations. The trend analysis plot displays the observations versus time. It evaluates an organization's financial information over a period of time to analyze the movement of observations from one period to the next. Organizations use trend analysis to maximize performance and minimize unscheduled down time. The power of trend analysis is the ability to observe how observations have changed over time and what will be its pattern for the next

6.2 Trend Analysis and Tax Revenue Gap:

Revenue gap predominantly refers to the difference between the revenue collected and the revenue that should be collected. In Bangladesh tax revenue is the principal source of government's sources of revenue. The rest of the revenue comes from non-tax sources like fees, charges, tolls etc. This research is all about the corporate tax revenue paid by the banks, so the discussion will be continued focusing on the tax revenue collection gap from banking sector. The tax revenue gap is defined as the difference between the baseline tax owed and the amount of tax voluntarily and timely reported on tax returns. The net tax gap is the amount which remains after the subtraction of audit and compliance collections from the gross tax gap.

"Economic and Social Survey of Asia and the Pacific-2018", a recent study conducted by ESCAP has revealed that the gap between tax revenue and GDP in Bangladesh is the highest in the Asia-Pacific region. Here 7.5% gap recorded by the on weak administration and a narrow tax net, strong lobby by business groups in the setting of the tax rate, and the corruption of tax officials. The survey found the actual levels of tax collection are below their potential in 17 Asia-Pacific countries. Bhutan is in second position behind Bangladesh with a 6.7% gap, while the gaps in Afghanistan and Maldives are also over 6%.

According to World Bank, there are two methods to measure and quantify the tax gap where the first one is control and audit methods within the representative group and the other one is the indirect method. Three types of tax gap can be considered in this perspective which are underreporting gap (connected with overestimating because of non-disclosure of adequate tax base), underpayment gap (tax underpayment disclosed in the tax return, though payment does

not occur or is deferred in time) and non-filling gap (shortage of the tax return, tax return submitted after deadline).

6.3 Total Tax Revenue Gap in NBR:

In Bangladesh, NBR is the national tax authority with responsibilities to formulate appropriate tax policy and collect tax revenue through tax administration. Before each budget preparation, finance division sets estimated tax revenue as a budgetary target. Therefore, tax revenue gap is mostly contingent on the accuracy in forecasting the expected tax revenue and the institutional efficiency of tax collection authority.

The gap between expected and actual tax revenue collection still be existent which is fairly large and remains to be volatile in its pattern that may become an obstacle to attain sustainable fiscal management and to progress domestic resource utilization. In the following table total tax revenue and tax revenue gap of NBR are mentioned for last 11 years.

Table 6.1: Total Tax Revenue Collection Gap in NBR (2007-2017)   (amount in crore)

Year	Actual Collection of Tax	Estimated Tax	Difference
2006-2007	*37,219.32*	*37,479.00*	*-259.68*
2007-2008	*47,435.66*	*45,970.00*	*-2,134.34*
2008-2009	*52,527.25*	*53,000.00*	*-472.75*
2009-2010	*62,042.16*	*61,000.00*	*1,042.16*
2010-2011	*79,403.11*	*75,600.00*	*3,803.11*
2011-2012	*95,058.99*	*92,370.00*	*2,087.00*
2012-2013	*1,09,151.73*	*1,12,259.00*	*-3,107.27*
2013-2014	*1,20,819.85*	*1,25,000.00*	*-4,180.15*
2014-2015	*1,35,700.70*	*1,35,028.00*	*672.70*
2015-2016	*1,55,518.72*	*1,50,000.00*	*5,518.72*
2016-2017	*1,71,656.44*	*1,85,000.00*	*-13,343.56*

Source: Annual Reports (2007-2017) of National Board of Revenue (NBR)

The revenue collection gap whether it is positive or negative express the magnitude of forecasting error. From 2006 to 2009 Bangladesh faces political instability. In this consequence the socio-economic condition was not favorable also.

The negative gap in 2006-2007, 2008-2009 is the reflection of this adverse business environment. The tax collection gap was very high in the financial year 2007-2008 when the country was ruling under the caretaker government. In the financial year 2010-2011, a positive gap occurs as the government took initiatives for making a large amount of black money to white and the first tax fair was organized by NBR. Which led to a large positive tax collection gap in comparison to previous year. In the financial year 2016-2017, the actual tax collection was shown 1,85,003.69crore at first. When auditor general office reviewed the cash flows of NBR, a number of double invoicing is found in some circles of NBR. The gap became positive to negative after conducting the correction.

The following figure-6.1 is prepared based on the data presented on table to show the estimated tax and actual tax collection scenario over the research period for the last 11 years (2007-2017). In the chart the blue column indicates the estimated tax and the red one shows actual tax collection.
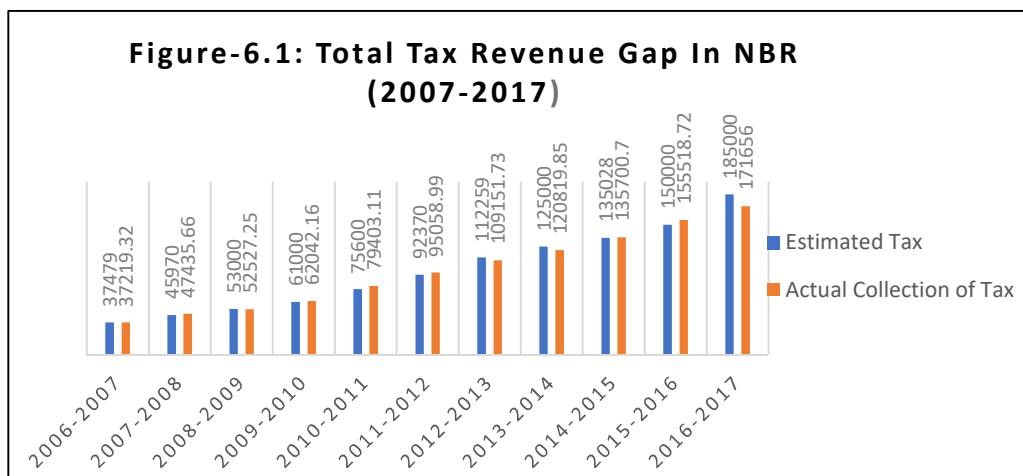
Source: Annual Reports of National Board of Revenue (2007-2017)

NBR faces a large negative revenue collection gap in the last year after experiencing a positive gap for consecutive two years. This is because of overestimation based on the growth rate method which considers economic growth and inflation for the purpose of forecasting the estimated tax collection.

The tax collection gap actually indicates the magnitude of forecasting error. The trend of total revenue collection gap by NBR over the period of 2007 to 2017 is shown in figure-6.2.
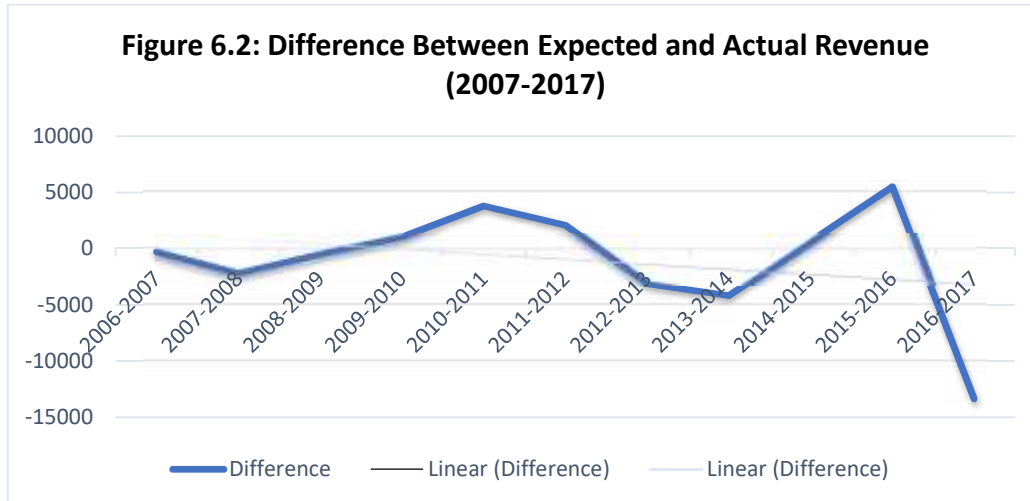
Source: Annual Reports of National Board of Revenue (2007-2017)

Figure-6.2 shows that the total tax revenue is continuously in increasing trend for the last 11 years. The gap between expected and estimated revenue collection is positive in several years. It indicates to the efficiency in tax collection and also indicates to the conservative forecasting practice to avoid complication in managing large negative deviation or deficit budget based on this forecast.

6.4 Direct Tax Revenue of NBR:

For the purpose of being more specific, the study will be gone through the direct tax revenue of NBR. Direct tax is paid directly by the individual entity or organization to NBR. More precisely, direct tax is the income tax on behalf of individual and corporate tax on behalf of business entity. About 65% revenue comes from indirect taxes and the rest 35% is generated from direct taxes. The direct tax collection scenario of NBR was quite satisfactory over the years. But in recent years due to unstable political situation, unfavorable business condition direct tax collection also has faced a lot of challenges.

The following table shows the direct tax revenue collected by NBR over 11 years period has experienced a negative tax revenue gap in 2006-2007, 2013-2014, 2014-2015, 2015-2016 and 2016-2017 financial year. In the rest of the years, the collection exceeded the expectations. A negative gap between actual and expected revenue collection is not always a bad sign for NBR because expectation is not always matched with reality. Here the magnitude of gap matters. Because, whether it is positive or negative, it measures the forecast error. In the last year, the error is large due to forecasting inaccuracy and unstable economic environment.

Table-6.2: Direct Tax Revenue of NBR (2007-2017)(amount in crore)

Year	Actual Collection of Tax	Estimated Tax	Difference
2006-2007	*9,050.05*	*9,237.00*	*-186.95*
2007-2008	*12,188.22*	*11,474.00*	*714.22*
2008-2009	*14,274.21*	*13,956.00*	*318.21*
2009-2010	*17,428.00*	*17,029.00*	*399.00*
2010-2011	*23,419.57*	*22,582.00*	*837.57*
2011-2012	*29,133.58*	*28,532.00*	*601.58*
2012-2013	*37,710.46*	*36,259.00*	*1,451.46*
2013-2014	*43,848.52*	*45,280.00*	*-1,431.48*
2014-2015	*48,353.80*	*49,264.00*	*-910.20*
2015-2016	*52,347.29*	*53,436.00*	*-1,088.71*
2016-2017	*53,812.15*	*64,000.00*	*-10,187.85*

Source: Annual Reports (2007-2017) of NBR

The following figure-6.3 shows the estimated and actual direct tax revenue collection for the last 11 years (2007-2017). Here the blue column indicates the estimated direct tax and the red one indicates actual direct tax collection.
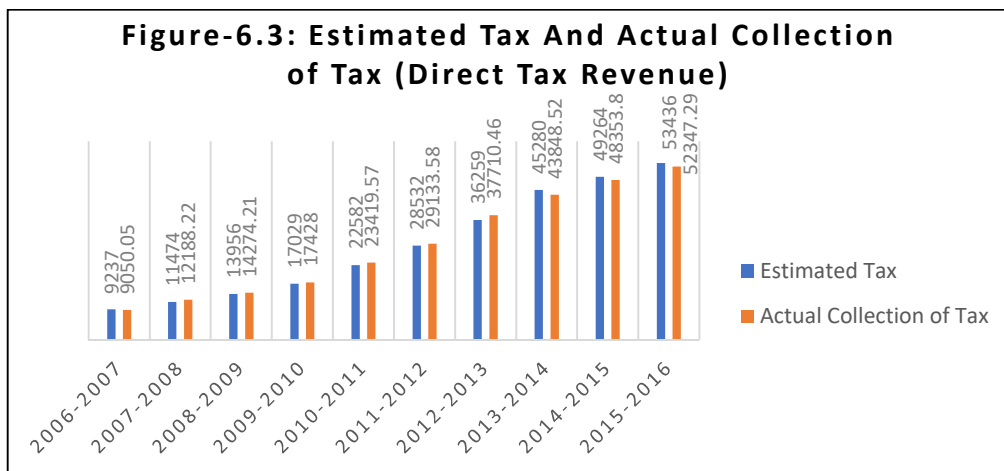
Source: Annual Reports of National Board of Revenue (2007-2017)

As the direct tax revenue is more desirable from equity and distribution of income point of view, NBR has taken a long-term goal to increase direct tax revenue collection to more than 50% of total revenue by 2021. After having positive gap for many years,the gap between actual and estimated revenue collection faced a negative trend for last 3 years. To represent the trend of direct revenue collection gap of NBR a line chart is formulated in the following:

Figure-6.4: Difference Between Expected and Actual Direct Tax Revenue (2007-2017)
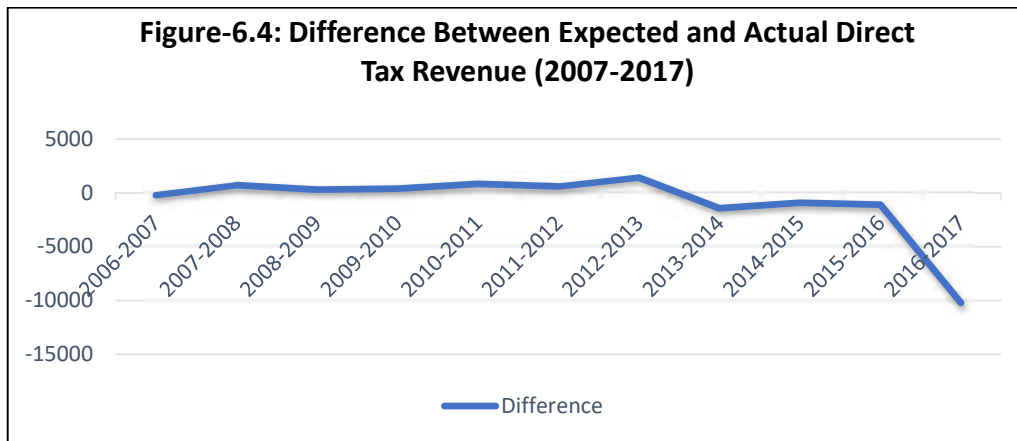
Source: Annual Reports of National Board of Revenue (2007-2017)

Figure-6.4 shows that the direct tax revenue was in increasing trend over a long period of time. It started to decrease from its epic point in 2012-2013.

6.5 Revenue from Large Taxpayer Unit:

Large Taxpayer Unit (LTU) of NBR, the highest direct tax revenue earning unit, is solely responsible for administering the total revenue collection process of banking sector in Bangladesh. Large tax payer unit manages the large taxpaying entity from the beginning of its operation since 2004. It's the most efficient part of NBR where only the officials with adequate knowledge and expertise are associated.

The following table-6.3 shows the tax revenue collection of LTU for the last 11 years. LTU succeeded to meet up its targets in most of the years. But in financial year2013-2014, 2015-2016, and 2016-2017 it has faced a negative tax collection gap and the gap is also larger that indicates a large magnitude of forecasting error and tax collection inefficiency. As the clients of LTU are mainly the corporate organizations or business entities, the collection of LTU depends on the net profit before tax of those firms.

In the financial year 2013-2014, the socio-political environment in Bangladesh was not good enough to run business smoothly and in this consequence the tax collection also failed to meet up the target of LTU. In fiscal year 2015-2016 tax rate for listed banks in Bangladesh Security and Exchange Commission (BSEC) has declined from 42.5% to 40%. It had a significant impact on the tax collection of LTU.

Table-6.3: Tax Revenue Gap in Large Tax Payer Unit (2007-2016)   (amount in crore)

Year	Actual Collection of Tax	Estimated Tax	Difference
2006-2007	*3,102.09*	*2,838.52*	*263.57*
2007-2008	*4,042.01*	*3,885.00*	*157.01*
2008-2009	*4,967.62*	*4,800.00*	*167.62*
2009-2010	*6,291.00*	*5,883.00*	*408.00*
2010-2011	*7,525.98*	*7,400.00*	*125.98*
2011-2012	*9,731.41*	*8,984.00*	*747.41*
2012-2013	*12,135.47*	*11,680.00*	*455.47*
2013-2014	*12,651.49*	*13,714.89*	*-1,063.4*
2014-2015	*14,481.45*	*14,416.00*	*65.45*
2015-2016	*13,911.35*	*16,030.00*	*-2,118.65*
2016-2017	*13,825.00*	*15,210.00*	*-1,385.00*

Source: Annual Reports (2007-2017) of NBR

In the following figure-6.5 shows the estimated and actual direct tax revenue collection of LTU for the last 11 years (2007-2017). In the chart the blue column indicates the estimated direct tax and the red one is for indicating actual direct tax collection. The tax revenue gap was positive at earlier research period and in recent time it starts to follow a negative trend in its movement.
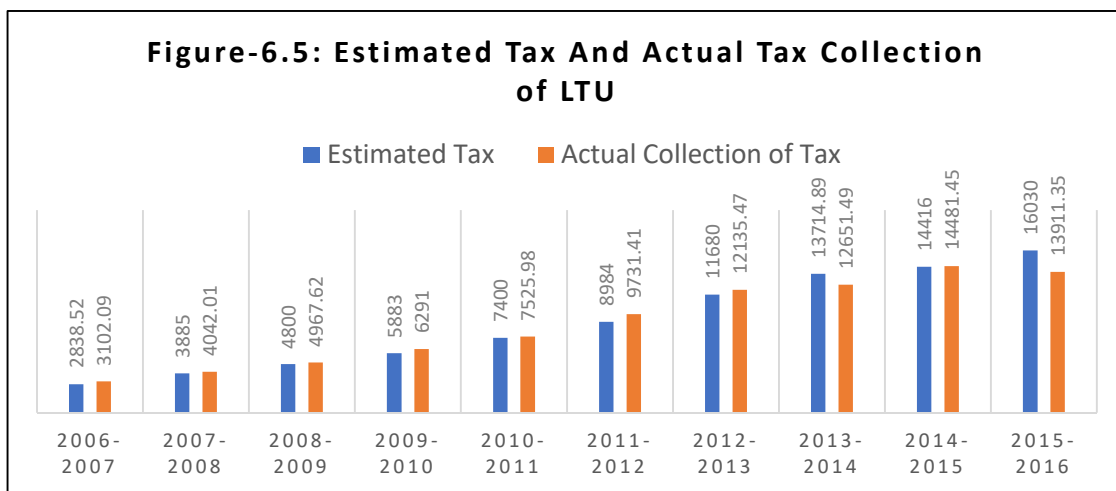
Source: Annual Reports of National Board of Revenue (2007-2017)

The figure-6.6 shows the trend of the revenue collection gap that is following a negative movement in recent years.This negative trend is a response of unfavorable business situation and also a feedback of the overestimation of tax revenue collection based on the growth method. The tax rate has declined in the current year's fiscal policy, so it can be predicted that this trend will remain negative.
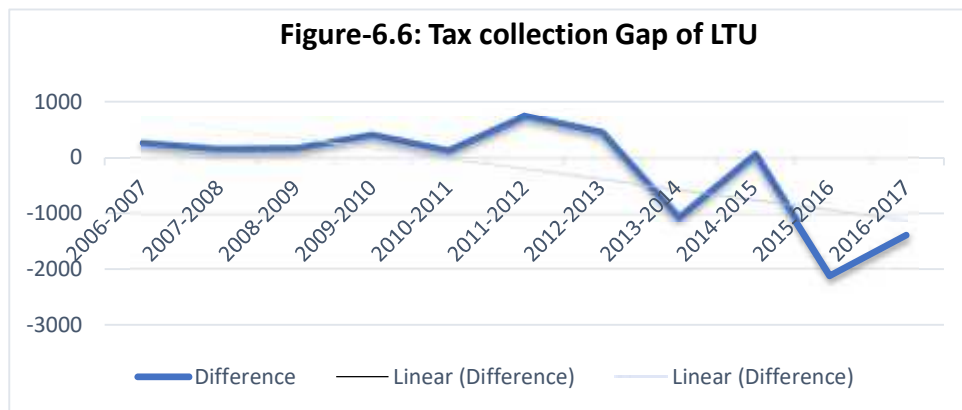
Source: Annual Reports of National Board of Revenue (2007-2017)

6.6 Tax Revenue in Banking Sector of Bangladesh:

Banking sector is the largest direct tax revenue source of NBR. Focusing on this sector the main objective of this research is to identify and examine different factors affecting revenue collection from the banking sector and to examine the interrelationships of these factors.

To examine the overall revenue collection from banking sector, the study presents the real data collected from the LTU. Large taxpayer unit has provided data of actual tax collection from banking sector from the financial year 2012-2013 to 2016-2017.

To calculate the estimated tax revenue, the same growth rate is considered by which the LTU's expected tax rate is determined. The actual tax collection from 2006-2007 to 2011-2012 is determined by 49% of LTU's total tax (this ratio is calculated by averaging the percentage of tax collection from banking sector to total tax collection of NBR as prescribed by LTU). The following table shows the tax revenue gap in banking industry of Bangladesh for the period of 2007 to 2017.LTU has faced a negative gap in tax collection from banking sector in the financial years 2008-2009, 2013-2014, 2014-2015, 2015-2016 and 2016-2017. In the financial year 2015-2016, the tax collection gap is largest because of rearranging the tax rate for listed banking companies with BSEC. The socio-political environment has a

significant impact on revenue collection from banking sector. In recent years, the banking company is suffering from high NPL that harms the profitability.

Table-6.4: Tax Revenue Gap in Banking Industry of Bangladesh   (amount in crore)

Year	Actual Collection of Tax	Estimated Tax	Difference
2006-2007	*1,549.12*	*1,390.87*	*129.15*
2007-2008	*2,018.17*	*1,938.41*	*76.93*
2008-2009	*2,480.33*	*2,396.58*	*-238.98*
2009-2010	*3,105.15*	*2,937.20*	*199.92*
2010-2011	*3,757.72*	*3,652.41*	*61.73*
2011-2012	*4,858.89*	*4,485.59*	*366.18*
2012-2013	*6,446.00*	*5,831.63*	*722.8*
2013-2014	*6,556.00*	*7,284.62*	*-728.62*
2014-2015	*6,929.00*	*7,470.56*	*-541.56*
2015-2016	*6,757.00*	*7,669.71*	*-912.71*
2016-2017	*6,686.00*	*7,388.10*	*-702.1*

Source: Data collected from LTU (after 2012-2013) and estimated data calculated as prescribed by LTU (before 2012-2013)

In the following figure-6.7 shows the estimated and actual direct tax revenue collection of LTU from banking sector for the last 11 years. In the chart the blue column indicates the estimated direct tax and the red one is for indicating actual direct tax collection from banking sector.
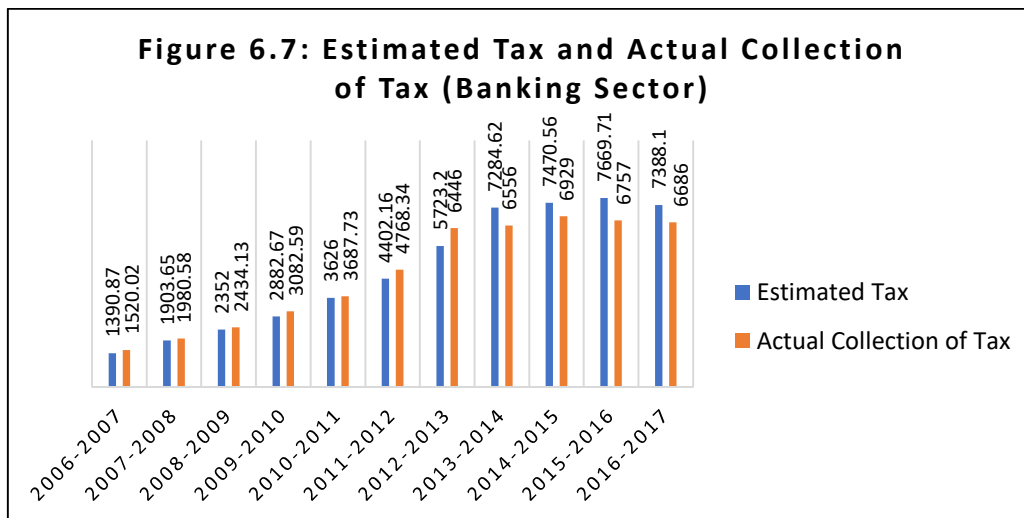
Source: Data collected from LTU and Estimated tax calculated as prescribed by LTU

Figure-6.8 shows the tax collection gap from banking sector over last 11 years (2006-2017). Because of lowering the tax rate for listed bank, the actual collection of revenue is facing a decreasing trend for 2015 to 2017.
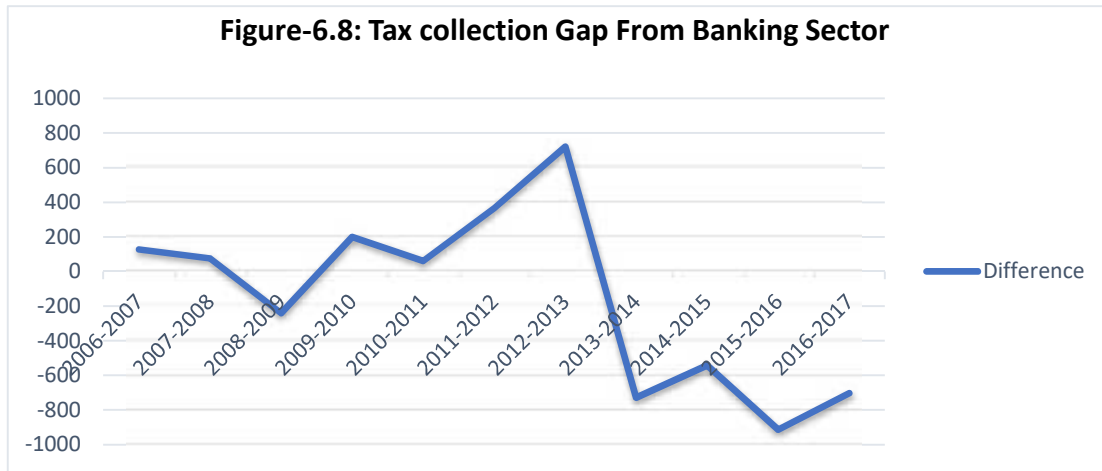
Source: Data Collected from LTU (2007-2017)

6.7 Tax Gap Analysis for Selected Banks:

Tax revenue collection from banking sector is highly volatile over the period without relating to any determinant factors because of adjusting deferred tax, tax exemption with the current tax. So, the tax collection considered in this study is calculated based on the tax due. Tax due for every year is calculated by multiplying the profit before taxes with individual bank's tax rate. The estimated tax is calculated following the same way as previously mentioned for calculating estimated tax calculation of overall banking sector. For calculating expected tax from individual bank, the following percentages are calculated.

Table-6.5: Growth Rate Calculation for Calculating Estimated Tax   (amount in crore)

Year	Actual Tax Collection of LTU	Estimated Tax of LTU	Growth rate for Estimation
2010-2011	*7,525.98*	*7,400.00*	*19.37%*
2011-2012	*9,731.41*	*8,984.00*	*20.02%*
2012-2013	*12,135.47*	*11,680.00*	*13.01%*
2013-2014	*12,651.49*	*13,714.89*	*13.95%*
2014-2015	*14,481.45*	*14,416.00*	*10.69%*
2015-2016	*13,911.35*	*16,030.00*	*9.34%*

Source: Data Collected from NBR

To determine the estimated tax of a year, the previous year's tax rate will have to be adjusted with the growth rate such as the 2015-2016 year's estimated tax of LTU (16030.00) in found by adjusting the growth rate of 10.69% with the previous year's actual tax (14481.45).

The following table-6.6 represents revenue collection gap from Sonali Bank ltd. for the period of 2012 to 2017.

Table-6.6: Revenue Collection Gap from Sonali Bank Limited (in million BDT)

Year	Actual tax	Expected tax	Revenue gap
2012	*1,000.00*	*599.25*	*400.75*
2013	*600.00*	*1,200.20*	*(600.20)*
2014	*3,166.32*	*678.06*	*2,488.26*
2015	*1,160.00*	*3,608.02*	*(2,448.03)*
2016	*2,894.95*	*1,172.40*	*1,722.55*
2017	*2,724.64*	*3,165.63*	*(440.99)*

Source: Annual Reports (2011-2017) of Sonali Bank and NBR

Here a positive revenue gap is found in 2012, 2014 and 2016. The gap was negative i.e. NBR could not fulfilled its target of revenue collection from Sonali Bank ltd in 2013, 2015 and 2017. The forecasting process based on the growth rate that mostly depends on the previous year performance is responsible for this unbalanced trend.

The trend of tax revenue collection gap from Sonali Bank Ltd. is presented by the following figure-6.9.
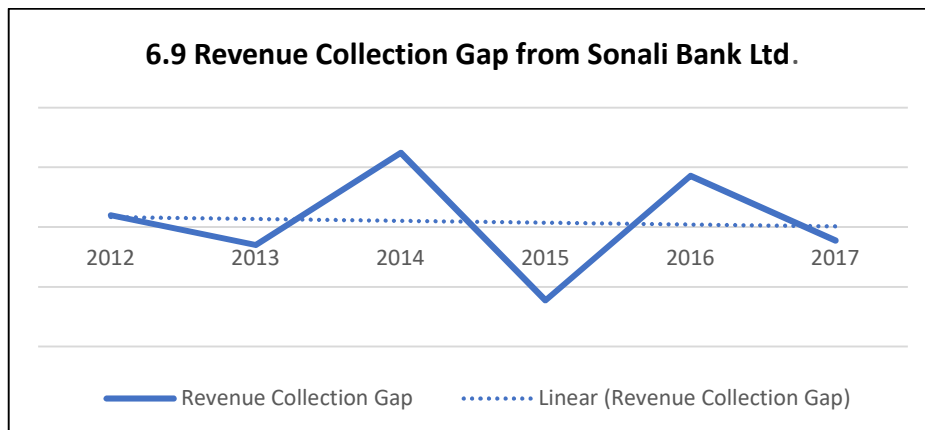
Source: Annual Reports (2011-2017) of Sonali Bank and NBR

The following table-6.7 represents revenue collection gap from Janata Bank Ltd. for the period of 2012 to 2017.

Table-6.7: Revenue Collection Gap from Janata Bank Limited. (in million BDT)

Year	Actual tax	Expected tax	Revenue gap
2012	*3,290.00*	*395.24*	*2,894.76*
2013	*3,487.83*	*3,948.66*	*(460.83)*
2014	*2,558.32*	*3,941.60*	*(1,383.28)*
2015	*2,630.85*	*2,915.20*	*(284.35)*
2016	*3,302.89*	*2,912.09*	*390.79*
2017	*1,995.64*	*3,611.38*	*(1,665.74)*

Source: Annual Reports (2011-2017) of Janata Bank and NBR.

The revenue gap is positive in 2012 and 2016 and a negative gap is observed in 2013 to 2015 and again in 2017. The trend of tax revenue collection gap from Janata Bank Ltd. is presented by the following figure-6.10.
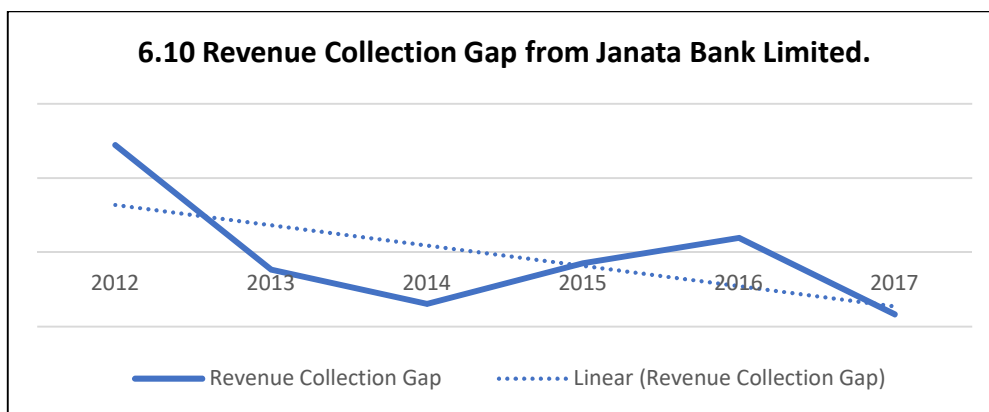
Source: Annual Reports (2011-2017) of Janata Bank and NBR

Table-6.8: Revenue Collection Gap from Agrani Bank limited.(in million BDT)

Year	Actual tax	Expected tax	Revenue gap
2012	*1.18*	*4.28*	*(3.09)*
2013	*20.56*	*1.41*	*19.15*
2014	*63.96*	*23.24*	*40.72*
2015	*10.93*	*72.88*	*(61.95)*
2016	*7.16*	*12.10*	*(4.94)*
2017	*2,187.95*	*7.83*	*2,180.12*

Source: Annual Reports (2011-2017) of Agrani Bank and NBR

In 2012 the revenue gap was negative but in 2013 and 2014 the revenue gap became positive. Agrani Bank has achieved a remarkable growth in its deposit mobilization, remittance

collection and other business activities in 2017 that works as a stimulator of its positive trend in this particular year. The trend of tax revenue collection gap from Agrani Bank Limited is presented in the following figure-6.11.
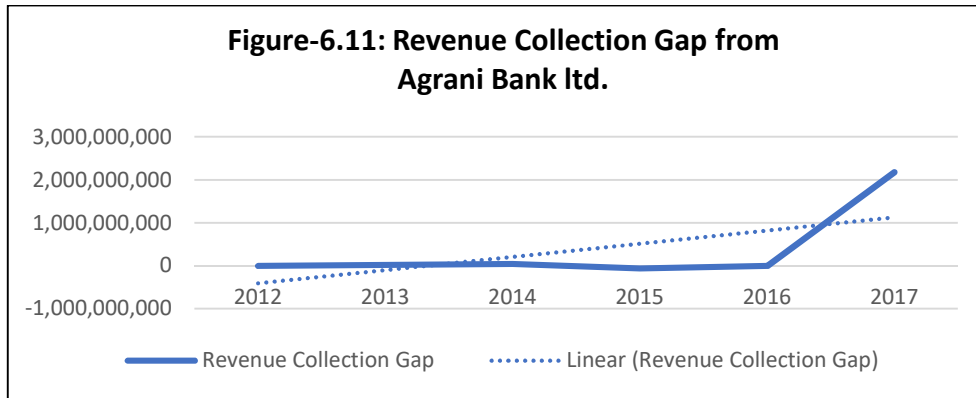
Source: Annual Reports (2011-2017) of Agrani Bank and NBR

The following table-6.9 represents revenue collection gap from Rupali Bank ltd. for the period of 2012 to 2017.

Table-6.9: Revenue Collection Gap from Rupali Bank Limited(in million BDT)

Year	Actual tax	Expected tax	Revenue gap
2012	*1.40*	*.31*	*1.09*
2013	*185.18*	*1.68*	*183.50*
2014	*7.14*	*209.27*	*(202.14)*
2015	*2.14*	*8.13*	*(5.99)*
2016	*812.68*	*2.37*	*810.31*
2017	*5.31*	*888.58*	*(883.27)*

Source: Annual Reports (2011-2017) of Rupali Bank and NBR

In 2012 and 2013 the revenue collection gap from Rupali bank was positive. In 2014, 2015and 2017 the gap was negative because of adverse business environment. The trend of tax revenue collection gap from Rupali Bank ltd is presented in the following figure-6.12.

The scenario of BDBL tax revenue collection gap as in the following table:

Table-6.10: Revenue Collection Gap from BDBL(in million BDT)

Year	Actual tax	Expected tax	Revenue gap
2012	202.72	179.73	22.99
2013	255.53	243.30	12.22
2014	294.36	288.77	5.59
2015	406.79	335.42	71.36
2016	307.70	450.27	(142.57)
2017	243.70	336.44	(92.74)

Source: Annual Reports of (2011-2017) of BDBL and NBR

In 2012 to 2015 the revenue gap of BDBL was positive.But in recent years the revenue gap from BDBL has been declining. The trend of tax revenue collection gap from DBBL is presented in the following figure-6.13.
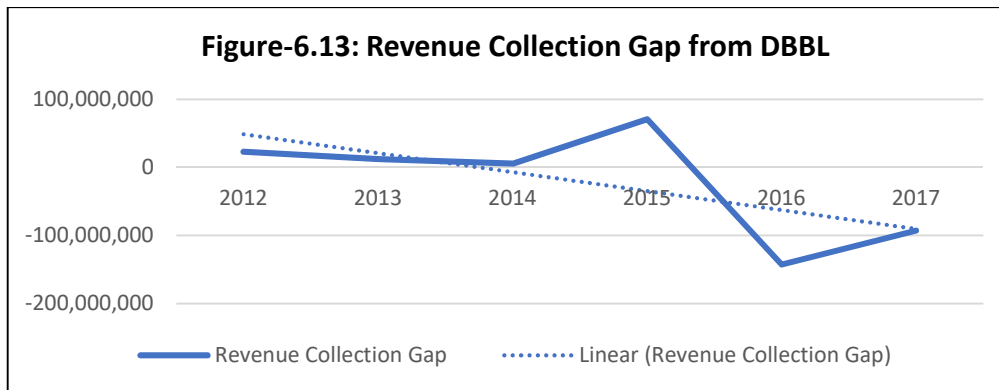
Source: Annual Reports of (2011-2017) of BDBL and NBR

The following table-6.11 represents revenue collection gap from AB Bank ltd. for the period of 2012 to 2017.

Table 6.11: Revenue Collection Gap from AB Bank (2012-2017) (in million BDT)

Year	Actual Tax	Expected Tax	Tax Difference
2012	*1,548.93*	*1,905.24*	*(356.31)*
2013	*1,489.85*	*1,859.02*	*(369.17)*
2014	*2,300.90*	*1,683.68*	*617.22*
2015	*2,169.42*	*2,621.88*	*(452.45)*
2016	*1,426.15*	*2,401.34*	*(975.18)*
2017	*587.95*	*1,559.35*	*(971.40)*

Source: Annual Reports (2012-2017) of AB Bank and NBR

A negative revenue collection gap from AB Bank Ltd is observed for the period of 6 years except 2014. The trend of tax revenue collection gap from AB Bank ltd is presented in the following figure-6.14.
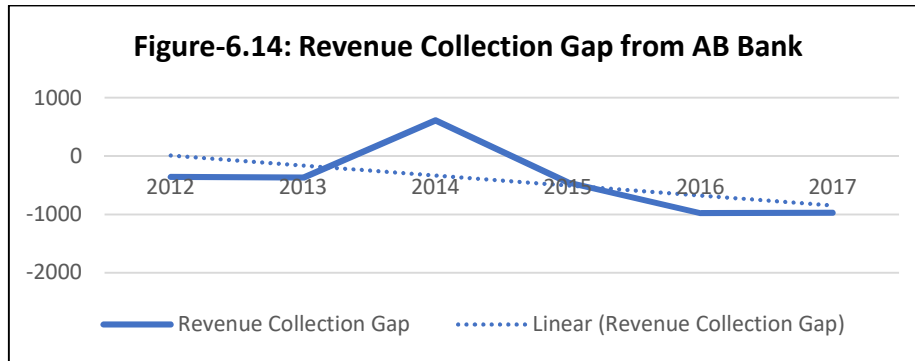
Source: Annual Reports (2012-2017) of AB Bank and NBR

Revenue collection gap from City Bank ltd. for the period of 2012 to 2017 is represented in the following table-6.12

Table 6.12: Revenue Collection Gap from City Bank Ltd (2012-2017)(in million BDT)

Year	Actual Tax	Expected Tax	Difference
2012	*1,322.7071*	*726.6270*	*596.0803*
2013	*1,023.3920*	*1,587.5131*	*(564.1211)*
2014	*873.7729*	*1,156.5353*	*(282.7624)*
2015	*927.0023*	*995.6642*	*(68.6619)*
2016	*1,919.2803*	*1,026.0988*	*893.1815*
2017	*1,517.1516*	*2,098.5411*	*(581.3895)*

Source: Annual Reports (2012-2017) of City Bank and NBR

The revenue gap from City Bank ltd. followed a negative trend in recent years except 2016. The positive gap is largest in 2016 which is 893.1815 million and the highest negative gap is (in million BDT) 564.1211 million in 2013.
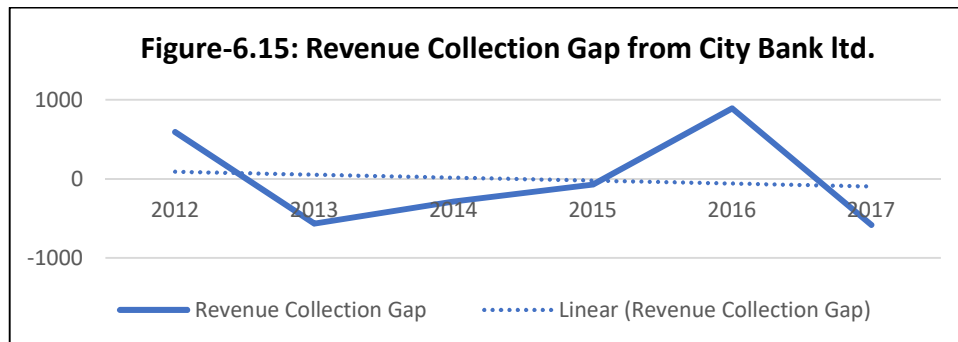
Source: Annual Reports (2012-2017) of City Bank and NBR

The above figure-6.15 shows the trend of tax revenue collection gap from City Bank ltd. for the period of 2007 to 2017. The moving average line of its trend shows on an average the tax collection gap is decreasing in case of city bank.

The following table-6.13 shows revenue collection gap scenario from IFIC Bank ltd. for the period of 2012 to 2017.

Table 6.13: Revenue Collection Gap from IFIC Bank ltd (2012-2017) (in million BDT)

Year	Actual Tax	Expected Tax	Tax Difference
2012	*808.3104*	*767.2078*	*41.1026*
2013	*1010.2406*	*970.1341*	*40.1065*
2014	*1158.8452*	*1141.6729*	*17.1723*
2015	*1,039.8551*	*1320.5041*	*(280.649)*
2016	*1,026.0169*	*1151.0156*	*(124.9987)*
2017	*796.4546*	*1121.8468*	*(325.3922)*

Source: Annual Reports (2012-2017) of IFIC Bank and NBR

In recent years revenue collection has followed a declining trend from IFIC Bank ltd. In 2017 the highest negative gap is observed in the above table. The trend of the tax collection gap from IFIC bank can be observed by the following figure:
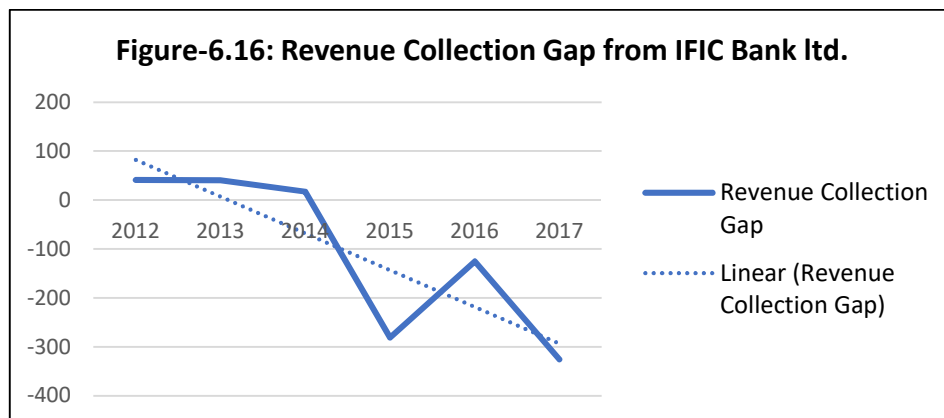
Source: Annual Reports (2012-2017) of IFIC Bank and NBR

The following table-6.14 represents the scenario of tax revenue collection gap from NCC Bank ltd. for the period of 2007 to 2017. In 2014 the highest negative gap is observed which is 764.5837, as the business volume of NCC Bank was deteriorated due to adverse socio-

political condition. But in recent year's revenue collections from NCC Bank are tend to be positive.

Table 6.14: RevenueCollection Gap from NCC Bank Ltd (2012-2017)(in million BDT)

Year	Actual Tax	Expected Tax	Tax Difference
2012	*1,392.6709*	*1,436.9350*	*(44.2641)*
2013	*1,379.6902*	*1,671.4836*	*(291.7934)*
2014	*794.6042*	*1,559.1879*	*(764.5837)*
2015	*604.7257*	*905.4515*	*(300.72258)*
2016	*1,027.5035*	*669.3709*	*358.13262*
2017	*1,724.1974*	*1,123.4723*	*600.725*

Source: Annual Reports (2012-2017) of NCC Bank and NBR

The following figure-6.17 represents the trend of revenue collection gap from NCC Bank ltd.
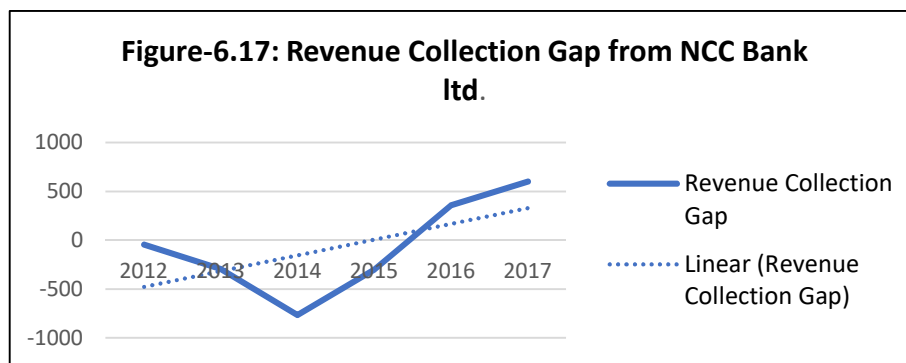
Source: Annual Reports (2012-2017) of NCC Bank and NBR

The table-6.15 represents revenue collection gap from UCBL for the period of 2012 to 2017.

Table 6.15: Revenue Collection Gapfrom UCBL (2012-2017) (in million BDT)

Year	Actual Tax	Expected Tax	Tax Difference
2012	*2,406.2589*	*1,630.6378*	*775.6211*
2013	*1,895.0538*	*2,887.9920*	*(992.9381)*
2014	*3,094.6289*	*2,141.6003*	*953.0286*
2015	*3,252.1155*	*3,526.3296*	*(274.2141)*
2016	*3,055.9271*	*3,599.7666*	*(543.8395)*
2017	*2,114.5715*	*3,341.3507*	*(1,226.7792)*

Source: Annual Reports (2012-2017) of UCBL and NBR

UCBL has faced both positive and negative gap during the research period. In 2013, 2015, 2016 and 2017there was negative gap where in 2012 and 2014NBR faced positive gap from

UCBL in case of revenue collection. The following figure shows the trend of tax revenue gap from UCBL.

Figure-6.18: Revenue Collection Gap from UCBL
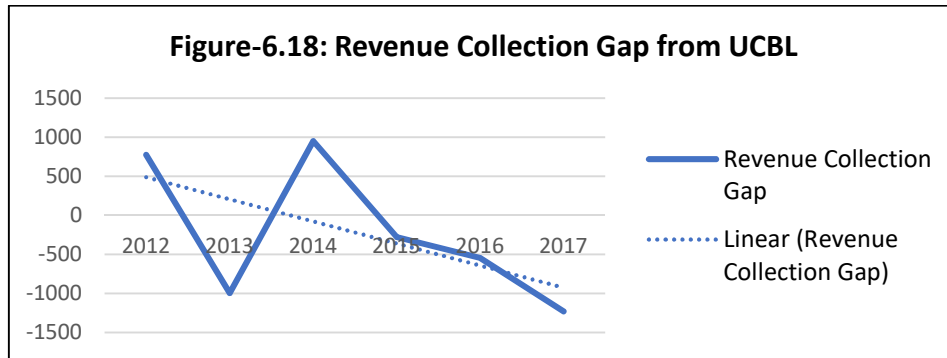
Source: Annual Reports (2012-2017) of UCBL and NBR

The following table-6.16 shows that the last six years tax gap amount of Dhaka Bank Ltd for the period of 2012 to 2017.

Table No-6.16: Revenue Collection Gap from Dhaka Bank(in million BDT)

Year	Expected Tax	Actual Tax Paid	Gap Amount
2012	*1,571.04*	*1,185.82*	*(385.22)*
2013	*1,423.22*	*849.77*	*(573.45)*
2014	*960.33*	*1,391.74*	*431.41*
2015	*1,585.89*	*1,126.54*	*(495.35)*
2016	*1,246.97*	*725.02*	*(521.95)*
2017	*792.73*	*1,290.31*	*497.58*

Source: Annual Reports (2012-2017) of Dhaka Bank Ltd. And NBR

The following figure-6.19 represents the trend of revenue collection gap from Dhaka Bank ltd over the period of 2012 to 2017.

Figure-6.19: Revenue Collection Gap from Dhaka Bank
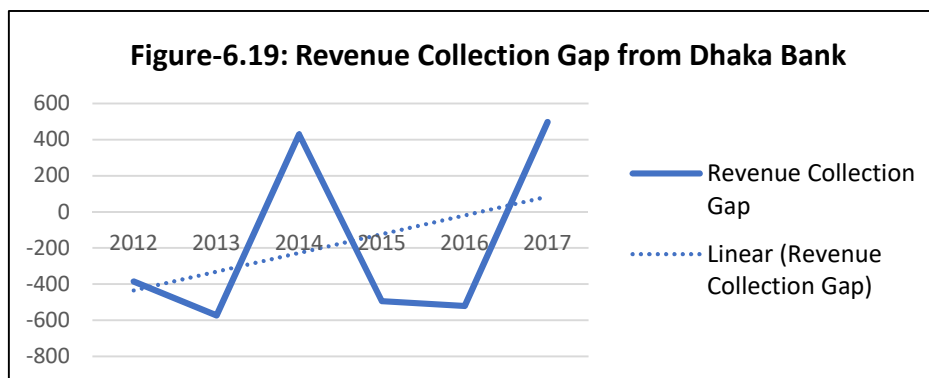
Source: Annual Reports (2012-2017) of Dhaka Bank Ltd. And NBR

In 2012, 2013, 2015 and 2016 there was negative gap where in 2014 and 2017 NBR faced positive gap from Dhaka Bank in case of revenue collection.In the year 2013, the negative tax collection was 579.45m that was highest among the last six years. In 2017, Dhaka Bank paid 498.58m tax more than the expected tax amount and that was the highest positive gap of last six years.

In following table shows tax revenue collection gap of NBRfrom Bank Asia over the period of 2012 to 2017.

Table No-6.17: Revenue Collection Gap from Bank Asia (in million BDT)

Year	Expected Tax	Actual Tax Paid	Gap Amount
2012	*1,424.25*	*1,614.56*	*190.30*
2013	*1,937.79*	*2,221.01*	*283.22*
2014	*2,509.96*	*1,513.87*	*(996.09)*
2015	*1,725.05*	*1,742.54*	*17.48*
2016	*1,928.82*	*1,567.51*	*(361.31)*
2017	*1,713.92*	*1,760.33*	*46.41*

Source: Annual Reports (2012-2017) of Bank Asia

The following graph is prepared based on the data presented on table 6.17. Here in the graph, both upward and downward trend is observed. The negative gap is less frequent but larger in amount that indicates NBR overestimates the prospective revenue as the performance of Bank is quite satisfactory in banking sector. The linear line of the tax collection gap shows a decreasing trend over the research period.
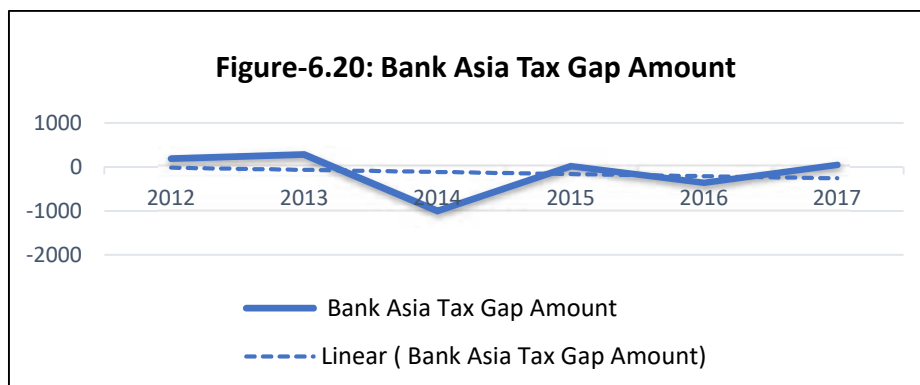
Source: Annual Reports (2012-2017) of Bank Asia Ltd.

The table 6.18 presents the tax revenue collection from DBBL over the period of 2012 to 2017. In 2012, 2014 and 2016 shows the positive gap where 2013, 2015 and 2017 shows the

negative gap. In 2014, the highest positive gap was 273.23m and in the year 2015, the negative tax collection gap (797.74m) was highest among the last six years.

Table No-6.18: Revenue Collection Gap from DBBL   (in million BDT)

Year	Expected Tax	Actual Tax Paid	Gap Amount
2012	2,036.05	2,134.15	98.10
2013	2,561.41	2,154.80	(406.61)
2014	2,435.14	2,708.37	273.23
2015	3,086.19	2,288.45	(797.74)
2016	2,533.08	2,642.29	109.21
2017	2,889.08	2,301.54	(587.54)

Source: Annual Reports (2012-2017) of DBBL and NBR

The following figure shows the trend of revenue collection gap from DBBL. As the expected revenue is calculated based on the previous years' performance, when NBR faces a negative gap the expected revenue for the next years is going to decrease. This could be the reason of the crisscross movement of revenue gap from year to year.
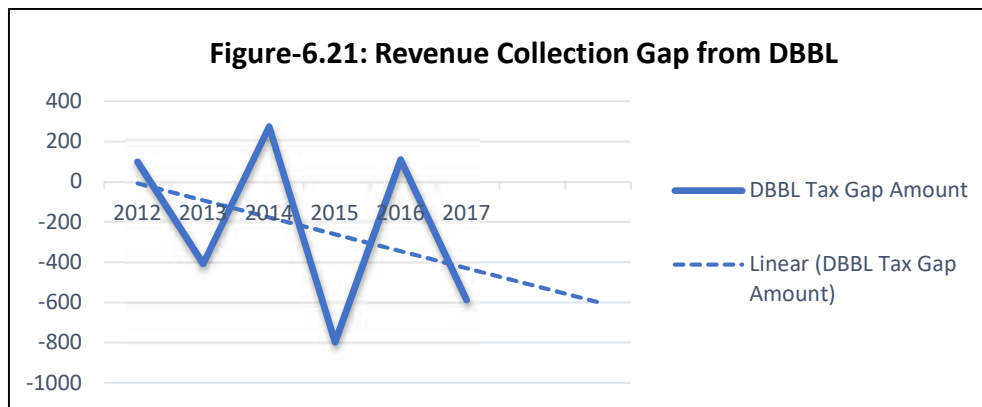
Source: Annual Reports (2012-2017) of DBBL and NBR

The table 6.19 presents the tax revenue collection from EBL over the period of 2012 to 2017.In 2012 the tax gap was positive then consecutive four years NBR has faced negative tax collection gap from EBL.

Table-6.19: Revenue Collection Gap from EBL   (in million BDT)

Year	Expected Tax	Actual Tax Paid	Gap Amount
2012	1,659.03	2,139.75	480.72
2013	2,568.13	2,498.02	(70.11)
2014	2,823.01	2,440.04	(382.97)
2015	2,780.43	1,725.97	(1,054.46)

| 2016 | 1,910.48 | 987.77 | (922.71) |
| 2017 | 1,080.03 | 2,036.13 | 956.10 |

Source: Annual Reports (2012-2017) of Eastern Bank Ltd. and NBR

Trend analysis of tax revenue gap from EBL is represented in figure 6.22. In last year of the study period EBL's performance was better considering the net profit before taxes and tax payable amount was also high that tends to a positive revenue collection gap.

Figure-6.22: EBL Tax Gap Amount
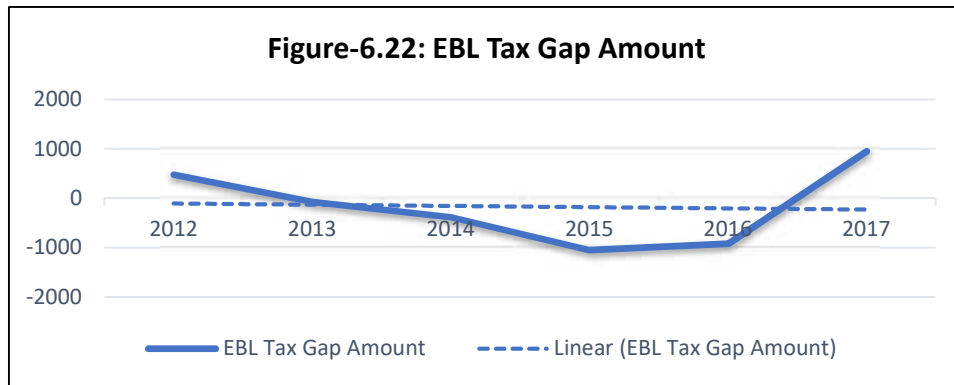
Source: Annual Reports (2012-2017) of Eastern Bank Ltd. and NBR

Thetable-6.20 presents the tax revenue collection gap from Southeast Bank ltd. over the research period.

Table-6.20: **Revenue Collection Gap from Southeast Bank Ltd.**   (in million BDT)

Year	Expected Tax	Actual Tax Paid	Gap Amount
2012	1,648.82	1,962.62	313.80
2013	2,355.54	2,025.35	(330.19)
2014	2,288.85	4,808.65	2,519.80
2015	5,479.46	2,544.70	(2,934.76)
2016	2,816.73	1,847.19	(969.54)
2017	2,019.72	2,630.31	610.59

Source: Annual Reports (2012-2017) of Southeast Bank Ltd. and NBR

In 2012, 2014 and 2017 NBR faced the positive gap from Southeast Bank where in 2013, 2015 and 2016 the negative gap occurred in tax revenue collection. In 2014, the highest positive gap was 2,519.8million and in the year 2015, the highest negative tax collection gap was (2,934.76million). In the year 2015 and 2016 shows the large negative gap. In 2017, shows the positive gap amounting (610.59million). The negative gap amount is comparatively large than the positive tax gap. The tax paid amount was in positive trend that increased from 1,847.19million to 4,808.65million.

The following figure prepared based on the data presented in table 6.20 shows trend analysis of tax revenue gap from Southeast bank.
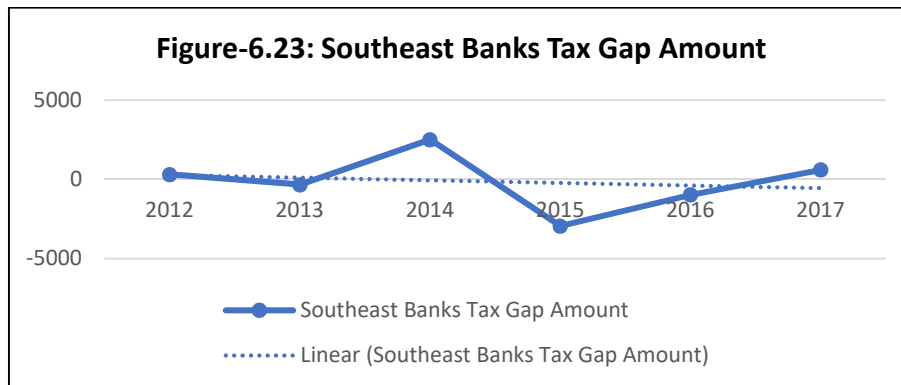
Source: Annual Reports (2012-2017) of Southeast Bank Ltd. and NBR

The following table-6.21 shows the gap in tax revenue collection from BRAC Bank Ltd. over the study period.

Table-6.21: Revenue Collection Gap from BRAC Bank Limited (in million BDT)

Year	Expected tax	Actual tax paid	Difference
2012	*1367.98*	*1448.27*	*80.29*
2013	*1738.21*	*1779.76*	*41.55*
2014	*2011.31*	*2072.12*	*60.81*
2015	*2361.18*	*2185.93*	*-175.25*
2016	*2419.61*	*2688.54*	*268.93*
2017	*2939.65*	*2647.45*	*-292.2*

Source: Annual Report of BRAC Bank Limited (2012-17) and NBR

In 2015 and 2017 the actual revenue collection was lower than the expected revenue. In 2012, 2013, 2014 and 2016 the revenue collection from BRAC Bank exceeded the expectation. More frequent positive gap indicates to the managerial efficiency of bank to maintain a smart profit. The following figure is prepared based on the data presented in table 6.21. It shows after being stable for several years the gap in tax collection is largely volatile in recent period.
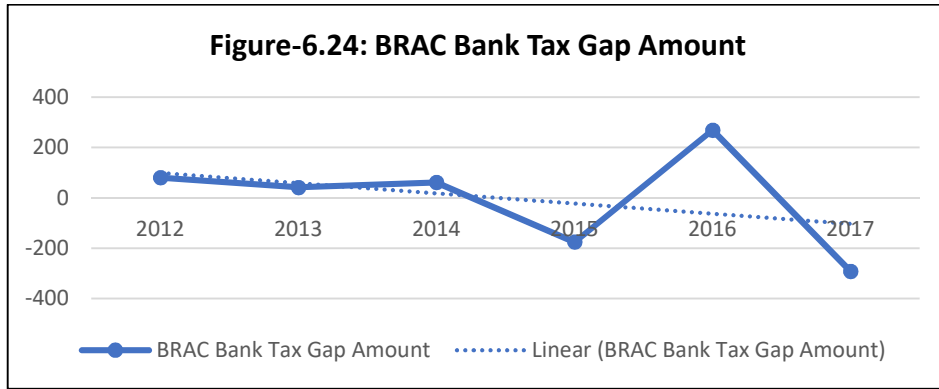
*Source: Annual Report of BRAC Bank Limited (2012-17) and NBR*

Tax revenue collection from Jamuna Bank Ltd. over the period from 2012 to 2017is presented in the following table-6.22.

Table-6.22: Revenue Collection Gap from Jamuna Bank Limited (in million BDT)

Year	Expected tax	Actual tax paid	Gap
2012	*975.26*	*1039.34*	*64.08*
2013	*1247.42*	*1150.56*	*-96.86*
2014	*1300.25*	*500.72*	*-799.53*
2015	*570.57*	*544.67*	*-25.9*
2016	*602.89*	*1139*	*536.11*
2017	*1245.38*	*1343.34*	*97.96*

Source: Annual Reports (2012-17) of Jamuna Bank Limited and NBR

In 2012 and 2016 the gap was positive but in the middle period 2013 to 2015 a negative trend in tax revenue gap is observed.
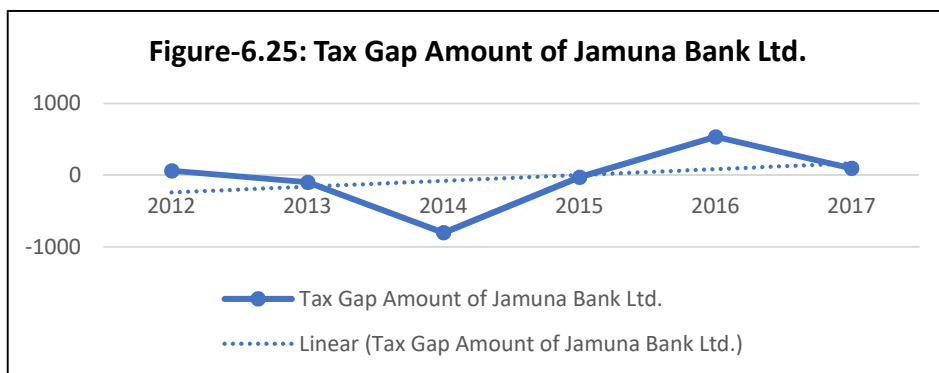
Source: Annual Reports (2012-17) of Jamuna Bank Limited and NBR

Revenue collection gap from Mutual Trust Bank ltd. for the period of 2012 to 2017 is represented in the following table-6.23. From 2013 to 2017 the gap was negative that indicates to the lower profitability of Mutual Trust Bank.

Table-6.23: Revenue Collection Gap from Mutual Trust Bank Limited (in million BDT)

Year	Expected tax	Actual tax paid	Gap
2012	*1109.47*	*1209.87*	*100.4*
2013	*1452.09*	*1182.59*	*-269.5*
2014	*1336.44*	*968.32*	*-368.12*
2015	*1103.4*	*907.65*	*-195.75*
2016	*1072.20*	*1008.6*	*-63.6*
2017	*1102.80*	*983.95*	*-118.85*

Source: Annual Reports (2012-17) of Mutual Trust Bank Limited and NBR

The trend of tax revenue gap presented in the following figure-6.26 shows little deviation in tax revenue gap collection.
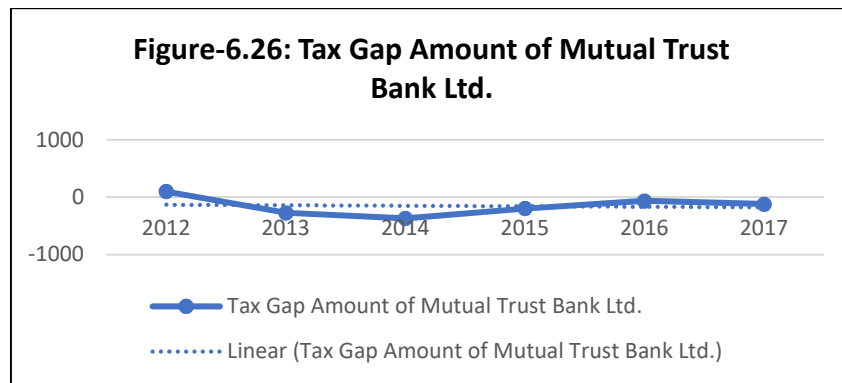
Source: Annual Reports (2012-17) of Mutual Trust Bank Limited and NBR

The following table-6.24 shows the gap in tax revenue collection from One Bank Ltd. over the study period.

Table-6.24: Revenue Collection Gap from One Bank Limited (in million BDT)

Year	Expected tax	Actual tax paid	Gap
2012	*1499.29*	*1005.00*	*-494.29*
2013	*1206.20*	*1428.58*	*222.38*
2014	*1614.43*	*1107.34*	*-507.09*
2015	*1261.81*	*776.91*	*-484.9*
2016	*859.96*	*885.05*	*25.09*
2017	*967.71*	*983.22*	*15.51*

Source: Annual Reports (2012-17) of One Bank Limited and NBR

Tax revenue gap from One Bank Ltd. seems to be volatile over the years with both positive and negative gap. The trend analysis for revenue collection gap for One Bank Ltd. is presented below.
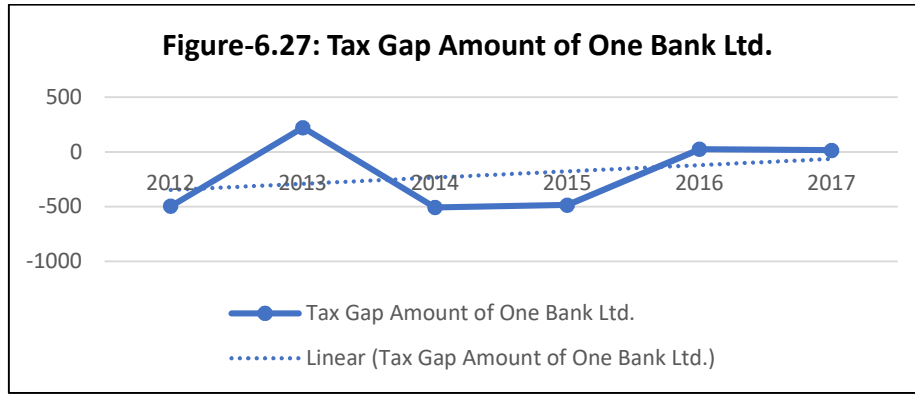
Figure-6.27: Tax Gap Amount of One Bank Ltd.

Source: Annual Reports (2012-17) of One Bank Limited and NBR

Revenue collection gap from Mercantile Bankltd. for the period of 2012 to 2017 is represented in the following table-6.25

Table-6.25: Revenue Collection Gap from Mercantile Bank Limited   (in million BDT)

Year	Expected tax	Actual tax paid	Gap
2012	*1113.21*	*1002.87*	*-110.34*
2013	*1203.64*	*1250.46*	*46.82*
2014	*1413.14*	*1106.65*	*-306.49*
2015	*1261.03*	*1250.12*	*-10.91*
2016	*1383.76*	*1260.45*	*-123.31*
2017	*1378.17*	*1305.67*	*-72.5*

Source: Annual Report of Mercantile Bank Limited (2012-17)

The trend analysis for revenue collection gap for One Bank Ltd. over the period of 2012-2017 is presented below.

Figure-6.28: Tax Gap Amount of Mercantile Bank Ltd.
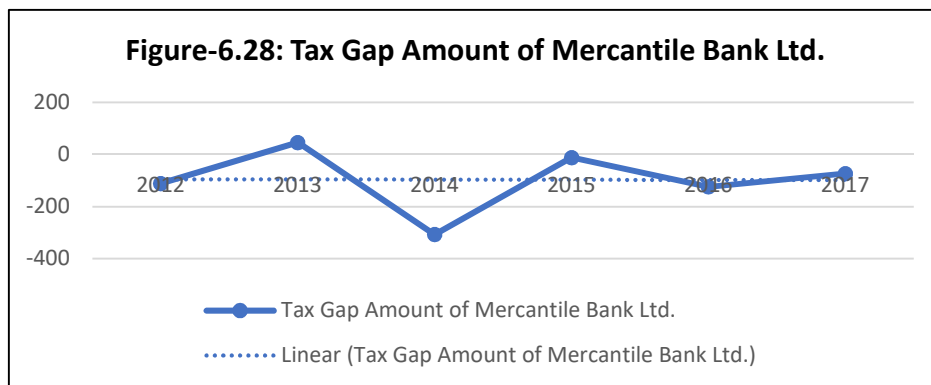
Source: Annual Report of Mercantile Bank Limited (2012-17)

Revenue collection gap from Meghna Bank Ltd. for the period of 2012 to 2017 is represented in the following table-6.26

Table-6.26: Revenue Collection Gap from Meghna Bank Limited(in million BDT)

Year	Actual	Expected	Gap
2013	*39.19*	*-*	*-*
2014	*32.00*	*46.78*	*-14.78*
2015	*140.00*	*38.41*	*101.59*
2016	*319.30*	*158.21*	*161.09*
2017	*332.45*	*357.69*	*-25.24*

Source: Annual Reports of Meghna Bank Limited (2013-2017) and NBR.

This bank started its operation from the year 2013. So, there is no expected revenue in the year 2013. The trend analysis of tax revenue gap from Meghna Bank Ltd, is shown in the following graph.
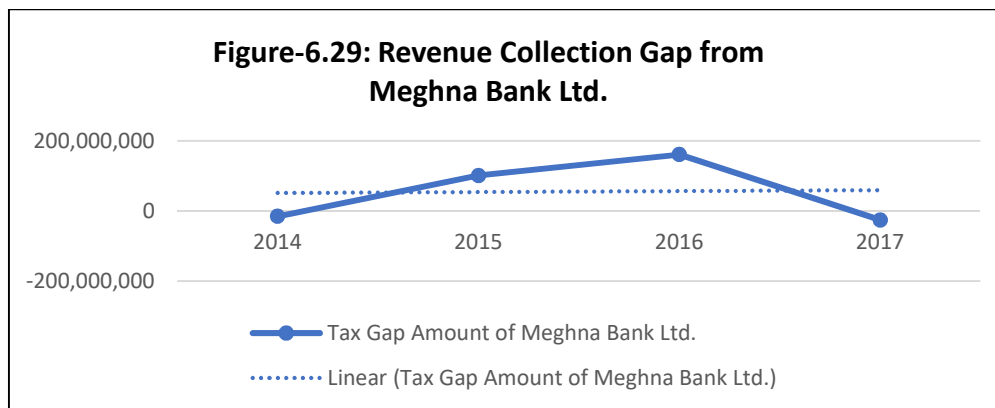
Source: Annual Reports of Meghna Bank Limited (2014-2017)

Meghna Bank Limited succeeded to provide the targeted revenue to NBR in the year 2015 and 2016. The bank hashigh operating costs. Due to aggressive banking practice, the NPL of this bank is increasing day by day. This has a negative effect in the net profit of the bank. The decrease in net profit also harms to achieve the targeted revenue expectation from this bank in recent years.

Midland Bank Limited also a fourth-generation bank. This banks performance in achieving the targeted revenue provided to NBR is praise worthy.This banks performance is quite satisfactory than others and is gradually ameliorating day by day. The bank needs to retain its past success to the future days. The tax revenue collection gap from Midland Bank Limited is presented in the following table-6.27

Table-6.27: Revenue Collection Gap from Midland Bank Limited(in million BDT)

Year	Actual	Expected	Gap
2013	*20.34*	-	-
2014	*49.60*	*24.28*	*25.32*
2015	*100.45*	*59.53*	*40.91*
2016	*200.78*	*113.62*	*87.15*
2017	*326.25*	*228.78*	*97.46*

Source: Annual Reports of Midland Bank Limited (2013-2017) and NBR

The trend of gap in tax collection from Midland Bank Ltd. over the research period is presented in the following figure-6.30.
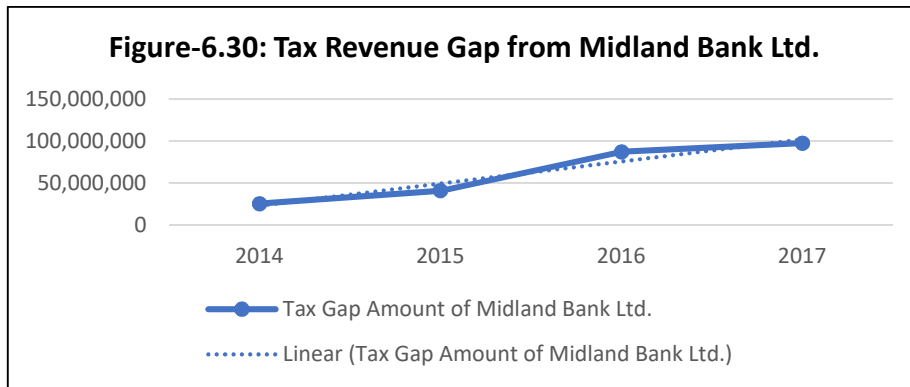
Source: Annual Reports of Midland Bank Limited (2013-2017)

Modhumoti Bank Ltd. has started its operation from the year 2013. So, there is no expected revenue in the year 2013. The following table shows the revenue collection gap from Modhumoti Bank Ltd over the research period.

Table-6.28: Revenue Collection Gap from Modhumoti Bank Limited(inmillion BDT)

Year	Actual	Expected	Gap
2013	*8.88*	-	-
2014	*257.91*	*10.60*	*247.31*
2015	*39.79*	*309.55*	*-269.76*
2016	*178.06*	*45.34*	*132.72*
2017	*384.62*	*202.90*	*181.73*

Source: Annual Reports of Modhumoti Bank Limited of years (2013-2017)

The following figure shows the trend of gap in tax collection from Modhumoti Bank Ltd. over the research period.

Figure-6.31: Tax Collection Gap From Modhumoti Bank Ltd.
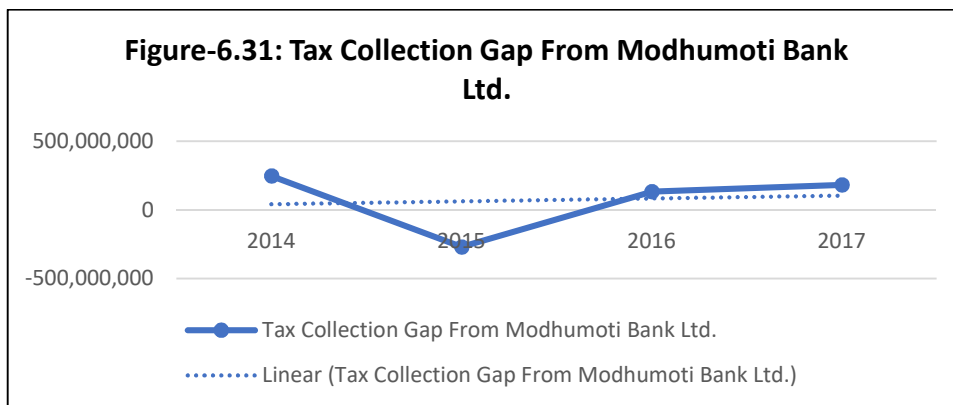
Source: Annual Reports of Modhumoti Bank Limited of years (2014-2017)

NRB Bank Ltd.also started its operation in 2013. In early period, the bank succeeded extraordinarilyin its financial operations in 2014. As the expected revenue is determinedbased on the actual collection in the previous year, the expectedrevenue from this bank in 2015 was very high that was not archived.

Table-6.29: Revenue Collection Gap from NRB Bank Limited(in million BDT)

Year	Actual	Expected	Gap
2013	*21.48*	*-*	*-*
2014	*58.35*	*25.64*	*32.71*
2015	*27.04*	*70.03*	*-42.99*
2016	*33.48*	*30.56*	*2.92*
2017	*131.20*	*38.15*	*98.04*

Source: Annual Reports (2013-2017) of NRB Bank Limited and NBR

The following figure shows the trend of gap in tax collection from NRB Bank Ltd. over the research period.

Figure-6.32: Tax Collection Gap From NRB Bank Ltd.
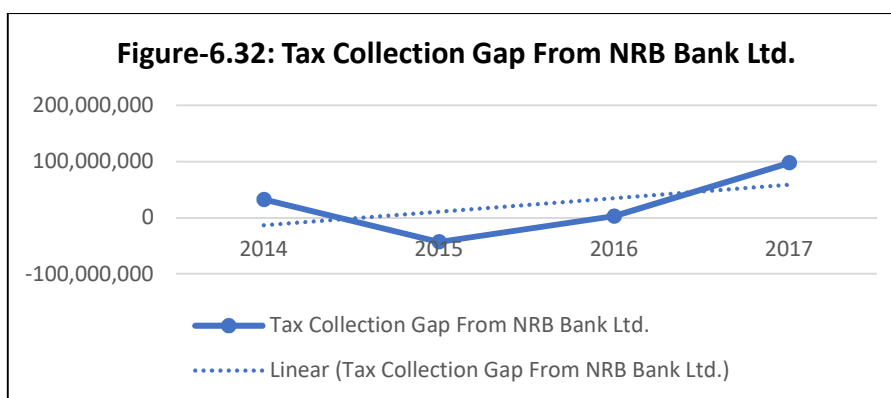
Source: Annual Reports (2013-2017) of NRB Bank Limited and NBR

NRB Global Bank has started its operation from the year 2013. So, there is no expected revenue in the year 2013. The following table shows revenue collection gap from NRB Global Bank Ltd. for the period of 2013 to 2017.

Table-6.30: Revenue Collection Gap from NRB Global Bank Limited(in million BDT)

Year	Actual	Expected	Gap
2013	*6.80*	-	-
2014	*6.82*	*8.12*	*-1.30*
2015	*71.19*	*8.19*	*63.00*
2016	*152.43*	*80.45*	*71.97*
2017	*454.17*	*173.69*	*280.48*

Source: Annual Reports of NRB Global Bank Limited (2013-2017) and NBR.

This newly created bank showing a satisfactory performance in the years 2015, 2016 and 2017. The negative revenue gap occurred only in the year 2014. Its overall performance is moderately good specially in 2017 that indicates the bank's internal strength to achieve the targets. The following figure shows the trend of gap in tax collection from NRB Global Bank over the research period.
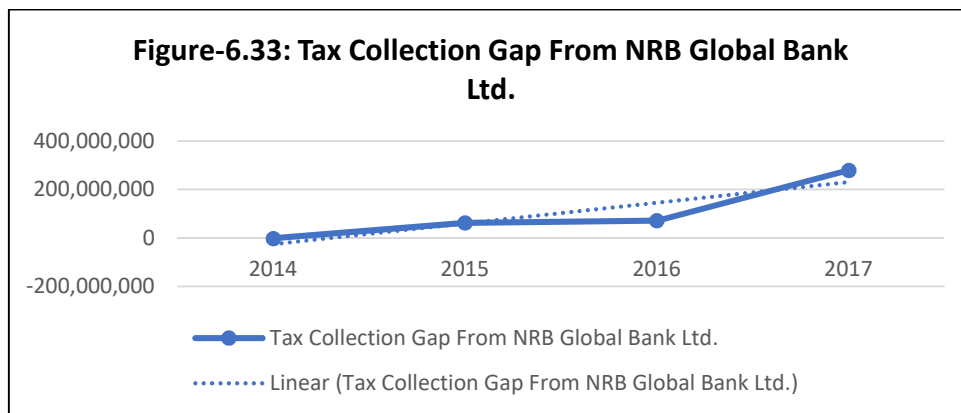
Source: Annual Reports of NRB Global Bank Limited (2014-2017) and NBR

SBAC Bank Limited is the best in terms of performance measure in revenue collection among new banks. The following table-6.31 shows that the bank didn't have any negative gap in the research period. The executives of this bank have efficiency and expertise fill up the targets. This bank has little Non-Performing Loan (NPL) also that stimulates its profitability to be better than others.

Table-6.31: Revenue Collection Gap from SBAC Bank Limited(in million BDT)

Year	Actual	Expected	Gap

2013	21.08	-	-
2014	96.02	25.167	70.85
2015	157.85	115.24	42.60
2016	305.96	178.38	127.57
2017	518.36	348.64	169.73

Source: Annual Reports of SBAC Bank Limited (2013-2017) and NBR.

This bank started its operation from the year 2013. So, there is no expected revenue in the year 2013.The following figure shows the trend of gap in tax collection from SBAC Bank over the research period. The linear line for tax revenue collection gap is in increasing trend because of positive deviation of tax collections from its expectation.
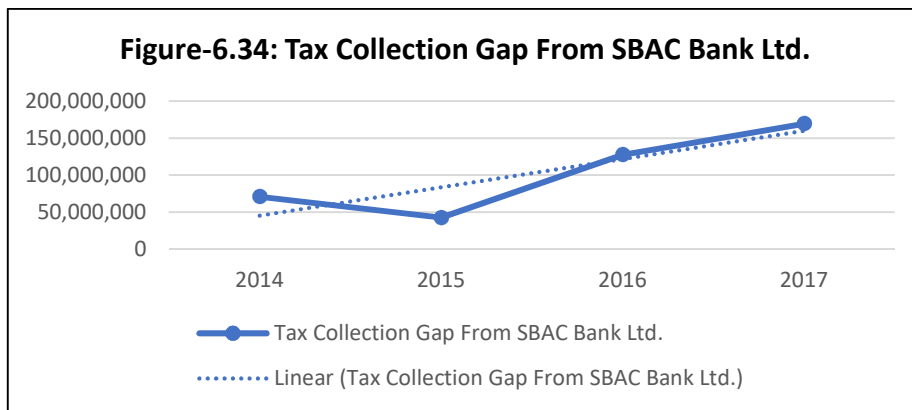
Source: Annual Reports of SBAC Bank Limited (2014-2017) and NBR

Revenue collection gap from IBBL for the period of 2012 to 2017 is represented in the following table-6.32

Table-6.32: Revenue Collection Gap from IBBL (2012-17)(in million BDT)

Year	Actual	Expected	Difference
2012	4,869.76	4,829.495	40.265
2013	5,731.91	5,844.686	-112.776
2014	5,597.11	6,477.631	-880.521
2015	9,126.55	6,377.907	2748.643
2016	6,720.35	10,102.18	-3381.83
2017	6,133.96	7,348.03	-1214.07

Source: Annual Reports of IBBL (2012-17) and NBR

The total tax revenue gap from IBBL is negative that indicates actual revenue from IBBL is less than the estimated revenue. In the financial year of 2012 and 2015 the revenue gap is

positive. The trend of gap in tax collection from IBBL over the period of 2012 to 2017 is presented in the following figure-6.35.

Figure-6.35: Tax Collection Gap From IBBL
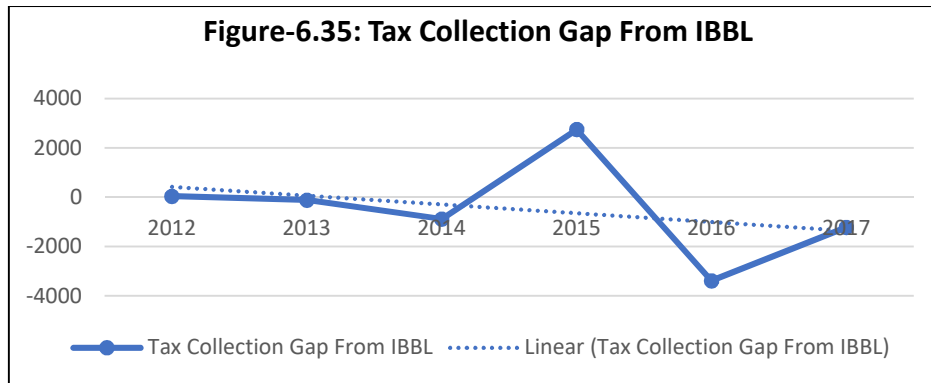
Source: Annual Reports of IBBL (2012-17) and NBR

Revenue collection gap from ICB Islamic Bankltd. for the period of 2012 to 2017 is represented in the following table-6.33

Table-6.33: Revenue Collection Gap from ICB Islamic Bank   (in million BDT)

Year	Actual	Expected	Difference
2012	*10.24*	*12.84421*	*-2.60421*
2013	*12.12*	*12.29005*	*-0.17005*
2014	*14.47*	*13.69681*	*0.77319*
2015	*12.51*	*16.48857*	*-3.97857*
2016	*4.67*	*13.84732*	*-9.17732*
2017	*1.90*	*5.10*	*-3.2*

Source: Annual Reports of ICB (2012-17) and NBR

The revenue gap of ICB Islami Bank is continuously negativewhich is the indication of its bad performance and less profitability. The trend of gap in tax collection from ICB Islamic Bank over the period of 2012 to 2017 is presented in the following figure-6.36.

Figure-6.36: Tax Collection Gap From ICB Islamic Bank
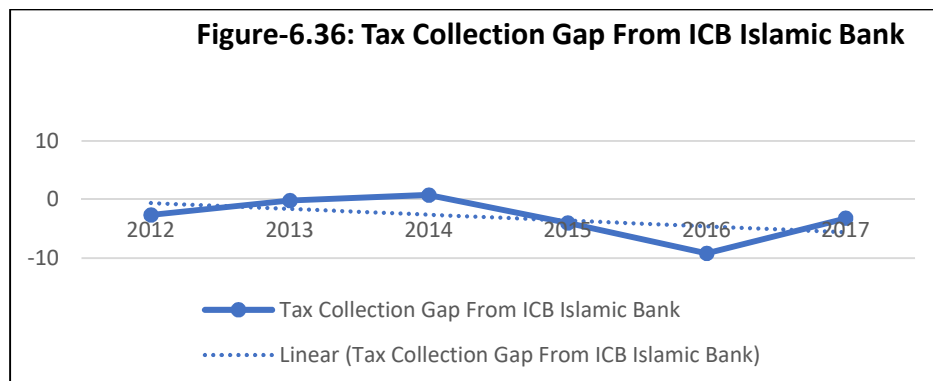
Source: Annual Reports of ICB (2012-17) and NBR

Revenue collection gap from FSIBL for the period of 2012 to 2017 is represented in the following table-6.34

Table-6.34: Revenue Collection Gap from FSIBL (2012-17)(in million BDT)

Year	Actual	Expected	Difference
2012	*710.80*	*704.8679*	*5.9321*
2013	*561.10*	*853.1022*	*-292.002*
2014	*720.26*	*634.0991*	*86.1609*
2015	*799.69*	*820.7363*	*-21.0463*
2016	*963.00*	*885.1769*	*77.8231*
2017	*1244.53*	*1052.94*	*191.59*

Source: Annual Reports of FSIBL (2012-17) and NBR

FSIBL's revenue gap shows that the estimated tax revenue of mostly greater than the actual revenue. Their tax revenue paid was only less than the estimation in 2013 and 2015.The following figure shows the trend of gap in tax collection from FSIBL over the research period.
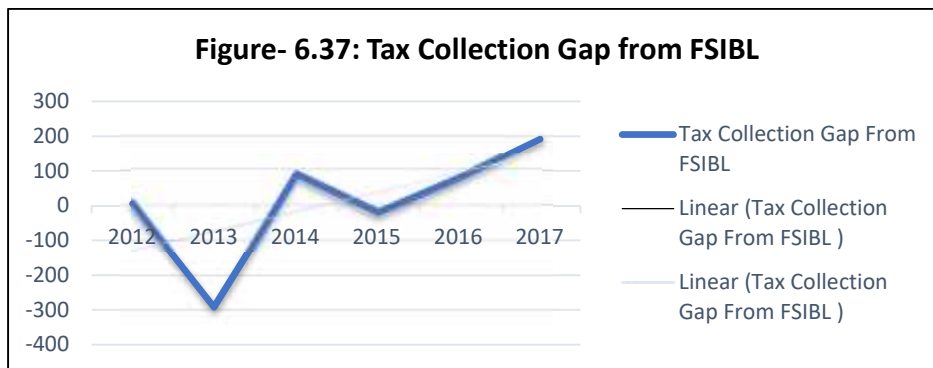
Source: Annual Reports of FSIBL (2012-17) and NBR

Revenue collection gap from SIBL for the period of 2012 to 2017 is represented in the following table-6.35

Table-6.35: Revenue Collection Gap from SIBL (2012-17) (in million BDT)

Year	Actual	Expected	Difference
2012	*929.89*	*742.1591*	*187.7309*
2013	*1,356.69*	*1,116.054*	*240.636*
2014	*801.11*	*1,533.195*	*-732.085*
2015	*1,170.46*	*912.8648*	*257.5952*
2016	*1,007.76*	*1,295.582*	*-287.822*
2017	*1,432.09*	*1,101.88*	*330.21*

Revenue collection from SIBL is also greater than the estimation in 2012, 2013, 2015 and 2017. In 2014 and 2016 the tax revenue paid was less than theestimation. The trend of gap in tax collection from SIBL over the period of 2012 to 2017 is presented in the following figure.
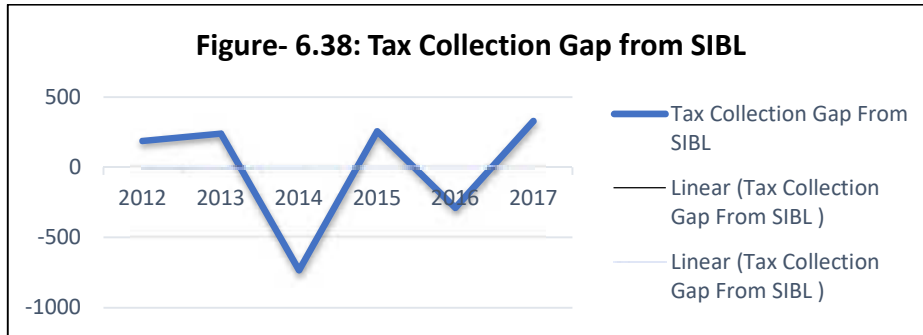
Source: Annual Reports of SIBL (2012-17) and NBR

In the following table-6.36 shows the revenue collection gap from SJIBL for the period of 2012 to 2017:

Table-6.36: Revenue Collection Gap from SJIBL (2012-17)(in million BDT)

Year	Actual	Expected	Difference
2012	*1,587.95*	*877.835*	*710.115*
2013	*1,714.7*	*1,905.858*	*-191.158*
2014	*967.42*	*1,937.782*	*-970.362*
2015	*606.24*	*1,102.375*	*-496.135*
2016	*586.05*	*671.0471*	*-84.9971*
2017	*911.42*	*640.79*	*270.63*

Source: Annual Reports of SJIBL (2012-17) and NBR

A negative tax revenue gap from SJIBL is observed in 2013 to 2016. In 2012 and 2017 its tax revenue paid was higher than theestimation.The following figure shows the trend of gap in tax collection from SJIBL over the research period.
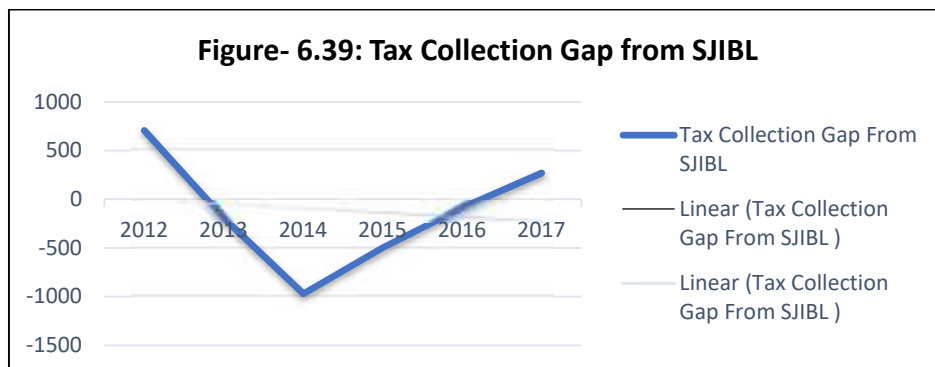
Source: Annual Reports of SJIBL (2012-17) and NBR

Revenue collection gap from Bank Al-Falah for the period of 2012 to 2017 is represented in the following table-6.25. In case of Bank Al Falah, LTU has faced positive gap. In 2017, LTU has faced a negative gap in terms of tax collection from Bank Al Falah. This is because of higher NPL, operating expenses and unfavorable business situation.

Table-6.37: Revenue Collection Gap from Bank Al Falah Ltd. (in million BDT)

Year	Tax Due	Expected Tax	Gap in Collection
2013	*46.95*	*49.06*	*-2.11*
2014	*187.26*	*53.06*	*134.20*
2015	*244.55*	*213.38*	*31.16*
2016	*288.52*	*270.69*	*17.83*
2017	*179.77*	*315.47*	*-135.70*

Source: NBR and Annual Reports of Bank Al Falah (2013-2017)

The following figure shows the trend of gap in tax collection from BAF over the five years.
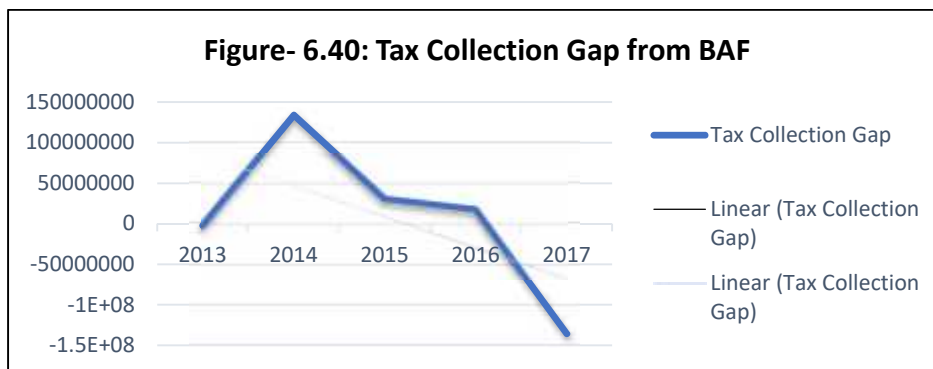
Source: Annual Reports of Bank Al Falah (2013-2017)

The tax gap analysis of Commercial Bank of Ceylon is described below:

Table-6.38: Revenue Collection Gap fromCommercial Bank of Ceylon(in million BDT)

Year	Tax Due	Expected Tax	Gap in Collection
2013	*591.91*	*631.24*	*-39.33*
2014	*672.45*	*668.92*	*3.53*
2015	*683.66*	*766.26*	*-82.60*
2016	*505.98*	*756.74*	*-250.75*
2017	*716.40*	*553.24*	*163.16*

Source: NBR and Annual Reports of CBC (2013-2017)

LTU had faced negative gap in 2013, 2015 and 2016. In 2017, LTU has faced a positive gap in terms of tax collection from Commercial Bank of Ceylon. This is because of tax collection efficiency of NBR and managerial efficiency of CBC to maintain the profit level in adverse

economic situation. The following figure shows the trend of gap in tax collection over the five years.
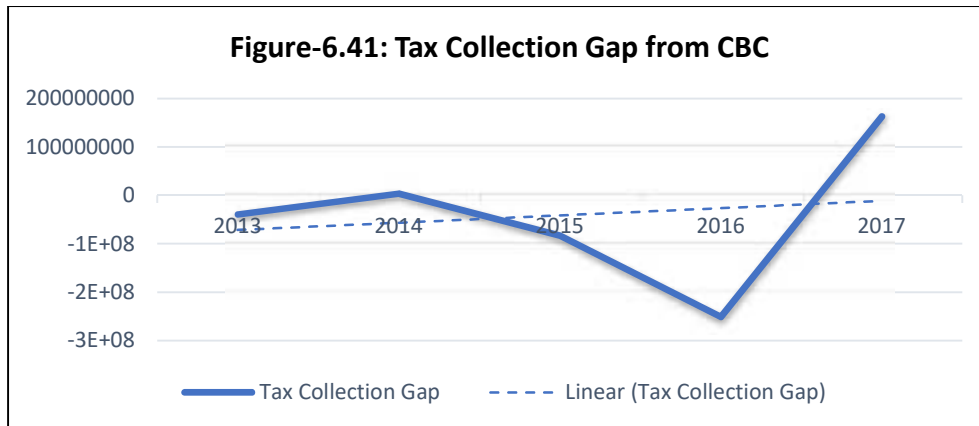
Source: Annual Reports of Commercial Bank of Ceylon (2013-2017)

The following table shows the tax gap analysis of Habib Bank Ltd. for the period of 2013 to 2017:

Table-6.39: Revenue Collection Gap fromHabib Bank Ltd.(in million BDT)

Year	Tax Collection	Expected Tax	Gap in Collection
2014	*23.59*	*24.86*	*-1.27*
2015	*26.24*	*26.88*	*-.64*
2016	*19.17*	*29.05*	*-9.87*
2017	*20.47*	*20.96*	*-.49*

Source: Annual Reports of Habib Bank Limited (2013-2017)

LTU had experienced a negative gap in terms of tax collection from Habib Bank Ltd over the research period. This is because of higher NPL over the years and inability of Habib Bank to manage adverse economic situation for gaining adequate profit.
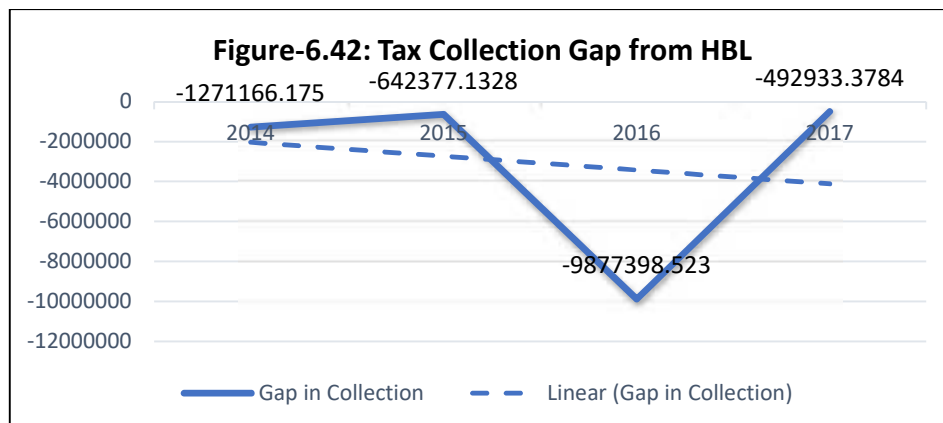
The abovefigure represents the trend of gap in tax collection from Habib Bank Ltd. over the five years. Here gap in tax collection is fluctuating over the research period but the moving average line shows that the magnitude of the tax revenue collection gap is decreasing.

National Bank of Pakistan is a major Pakistani commercial bank reputedly conducting its business activities in Bangladesh. LTU had faced positive gap in terms of tax collection from National Bank of Pakistan in almost all year over the research period except in 2015 and 2016. Managerial efficiency of NBP to cope up with the adverse movement of business situation is mentionable here.The tax collection gap from thisbank is presented below:

Table-6.40: Revenue Collection Gap from National Bank of Pakistan (in million BDT)

Year	Tax Collection	Expected Tax	Gap in Collection
2013	496.68	54.38	442.30
2014	237.36	561.29	181.23
2015	562.68	270.48	-214.22
2016	11.74	622.83	-611.08
2017	70.76	12.84	57.92

Source: Annual Reports of Habib Bank Limited (2013-2017)

The graph depicts a volatile scenario of tax revenue collection gap over the year. This is because of the growth-based estimation method that creates significant forecasting error. However, the moving average line shows that the magnitude of the gap is plummeting through years. The following figure 6.43 shows the trend of gap in tax collection from NBP over the period of 2013 to 2017.
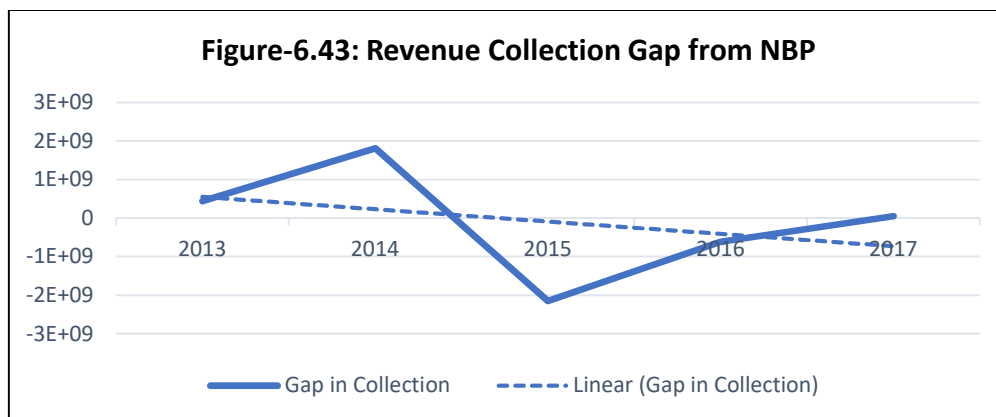
Source: Annual Reports of Habib Bank Limited (2013-2017)

The tax collection gap analysis of State Bank of India over the period of 2012 to 2017 is given below:

Table-6.41: Revenue Collection Gap from State Bank of India(inmillion BDT)

Year	Tax Collection	Expected Tax	Gap in Collection
2013	*292.66*	*32.56*	*260.09*
2014	*440.33*	*330.74*	*109.59*
2015	*553.83*	*501.76*	*52.07*
2016	*447.43*	*613.03*	*-165.60*
2017	*655.32*	*489.22*	*166.10*

Source: Annual Reports of State Bank of India (2012-2017)

LTU had faced positive gap in terms of tax collection from State Bank of India in almost all year over the research period except in 2016. Managerial efficiency to maintain profitability has created this positive scenario. The following Figure shows the trend of gap in tax collection from SBI over the five years.
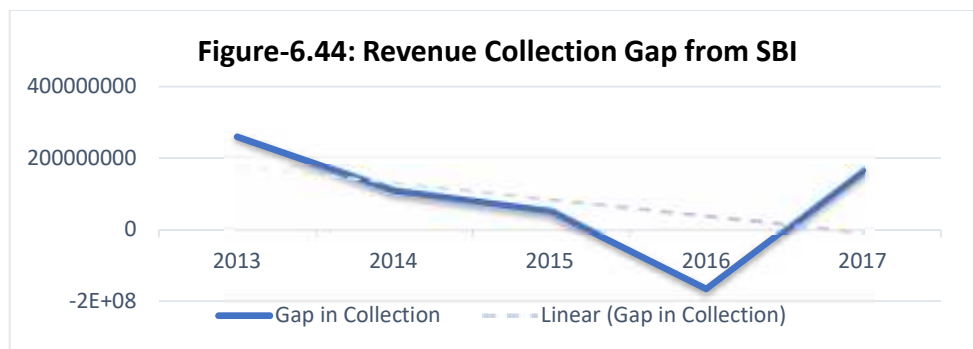
Source: Annual Reports of State Bank of India (2012-2017)

The tax revenue collection gap from individual banks, on an average, shows a decreasing trend in line with the trend of total revenue gap as well as revenue gap of LTU. The validity of this observation is subject to the limitations of expected revenue calculation which does not follow proper methodological standard rather than the growth method. As aconsequence, the tax revenue gap of individual banks over the 6 years period fluctuates at high rate where the moving average line of tax revenue gap appears to be downward except Agrani bank, NCC bank, Dhaka bank, Jamuna bank, One bank, Midland bank, NRB Bank, NRB bank, global bank, SBAC bank and FSIBL. Tax revenue gap from these banks shows an upward trend in its moving average line over the research period. In most of these cases, revenue collection gaps from those banks are positive that implies the actual collection of revenue

from the bank is higher than the expected amount and the magnitude of the gap is higher due to the estimation error.

6.8 Conclusion:

This chapter showed the tax revenue collection gap from banking sector over a period of time. Findings of this chapter suggest that some bank groups have positive revenue tax gap and some have negative revenue tax gap. This poses significant importance because in many cases the actual tax revenue collection is much lower than the expected. This creates burden for the government for a large amount of revenue loss they are incurring every year. This under estimation of the tax revenue collection is creating hindrance for the appropriate use of resources of the economy.

Chapter: Seven

7.0 Data Analysis Based on Econometric Models

7.1 Introduction:

Variables used in this thesis have been formulated from the work of pervious researchers. Both bank specific and macro-economic factors have been used in this research based on the economic journal reviews of international papers as well as previous works done by the researchers of Bangladesh. The econometric model used in this paper comprises different variables which have relevant uses in the current scenario of Bangladesh. Factors determining the gap between actual and expected revenue are discussed in the previous section. Among those factors, researcher aimed to find out the most influencing factor responsible for tax revenue collection and its gap in banking sector. The data collected from the sample (36 commercial banks) will be analyzed in this section with STATA.

7.2 Construction of Variables:

The factors of interest in this study are:

〕 Factors which affect the tax revenue collection from banks

〕 Determining factors of the gap between actual and expected revenue collection.

The researcher focuses on both bank specific and macro-economic variables based on past research. On previously conducted studies, it is found that the macro-economic factors are largely focused by researchers in this particular research area. To find out the bank specific factors, the researcher has reviewed past literatures on bank's profitability as the profitability is closely related to the taxable capacity of banks. Akhtar, Ali, Sadaqat (2011) and Macit (2011) found NPL and asset management to be significantly affecting the profitability of banks. Khrawish (2011) refers return on asset (ROA) and size of banks, leverage, capital adequacy ratio, net interest margin and expense management efficiency is positively related while the macroeconomic variables GDP, inflation are negatively related. Obamuyi (2013) found the relationship of different bank specific and macro-economic variables with the profitability of banks. The study reported that bank's capital, size, interest income and expense management efficiency and favorable economic conditions contribute to higher bank performance and growth. As previously mentioned, the profitability of banks is closely related to the taxable capacity of banks, and thus these factors can be referred as the determining factors for tax collection from banks.

A number of macro-economic factors directly related to the tax revenue collection have been identified by several authors. Dioda (2012), Velaj and Prendi (2014) has found a significant positive relationship between GDP growth and tax revenue collection. This result is contrary to the findings of Madhavi (2008). Inflation rate is found to be positively related with a statistically significant result in the findings of Velaj and Prendi (2014). Saibu and Sinbo (2013) found that the inflation is negatively related with tax revenue. They concluded that macroeconomic instability and the level of economic activity are the main drivers of tax to GDP ratio. Nandi, Chaudhury and Hasan (2014) observed that the tax revenue forecasting is conducted based on some familiar assumptions compatible with variables such as economic growth, national income, inflation rate, interest rate and other influencing factors. Tax rate is stated as a significant factor of tax revenue collection by Mansor and Gurama (2016).

Keeping these research activities in view, a panel analysis is used considering seven quantitative variables covering 36 listed commercial banks over the time period of 2012 to 2017 to identify the factors pertaining to banks that affect the tax revenue of government.

7.2.1 Dependent Variable:

Dependent variable is the prime factor of interest that a researcher measures in the analysis. It is called dependent because it "depends" on the independent variable and responds to the changes of independent variables. The changes to the dependent variable and finding out the influencing factors to the changes are what researcher aimed to do with various statistical techniques. The research is organized as follows:

Model	Dependent Variable
Model 1	Tax revenue collection gap from banking sector
Model 2	
Model 3	Tax revenue collection from banking sector

7.2.2 Independent Variables:

Among the determining factors those explain the dependent variable's value, the researcher selects 5 organization specific variables and 2 macro variables as independent variables considering the influences of those factors.

These independent variables are:

1) NPL
2) Operating cost
3) Fees and Commission
4) Interest rate Spread
5) Tax Rate
6) Inflation rate
7) GDP Growth rate

Variables selected for analysis are described in the previous section. These variables either show a positive or a negative effect on the magnitude of tax collection and its gap from banking sector in Bangladesh.

Table-7.1: Summary of Selected Variables

Variables	Explanation	Source	Expected sign
Dependent Variable			
Tax paid	*Actual tax due on every year*	*Annual Reports*	
Tax Gap	*The gap between actual tax paid (due) each year and expected tax*	*Annual Reports*	
Independent variable			
Operating Exp.	*Operating expense*	*Annual Reports*	-

Fees	*Fees and commission receipt*	*Annual Reports*	+
Tax Rate	*Profit after tax as a percentage of profit before tax*	*Annual Reports*	+/-
Spread	*Interest on loan minus interest on deposit*	*Annual Reports*	+
NPL	*Total non-performing loans*	*Annual Reports*	-
Inflation	*Rate of inflation in percent*	*Bangladesh Bank*	+/-
GDP Rate	*GDP growth rate (real)*	*World Bank*	+

Source: Prepared by the Researcher

7.3 Descriptive Statistics:

Summary statistics in table shows the mean, standard deviation, minimum and maximum value of tax collection volume and tax collection gap along with the explanatory variables. There are total 198 observations which comprises 36 banks forming the panel n and 5 years of data forming the time series T.

Table-7.2: Summary Statistics of the Variables

Variable	Observations	Mean	Std. Dev.	Min	Max
Rev. Gap	198	2.44E+08	6.57E+08	1.9	3.49E+09
NPL	198	3.05E+08	1.69E+09	0	1.48E+10
Operating cost	198	1.50E+08	3.20E+08	455.39	1.66E+09
Fees	198	3.54E+07	9.22E+07	0.0285	6.52E+08
Spread	198	749.4771	1921.787	-0.061	8839.2
Tax rate	198	0.4155303	0.0121579	0.4	0.425
Inflation	198	0.0676667	0.0107458	0.054	0.087
GDP	198	14.71667	3.138653	10.6	19.8

Source: Summary Output of STATA

7.4 Correlation Analysis

Correlation analysis widely used statistical evaluation technique to find out the strength of a relationship between two explanatory variables.

a) The correlation coefficient can have a value of negative one (-1) to positive one (+1)

    i. Negative one (-1) indicating a perfect negative correlation,

    ii. Positive one (+1) indicating a perfect positive correlation,

    iii. Zero indicating no correlation at all.

b) The correlation between any variable and itself is always 1.

Table-7.3: Correlation Matrix

	NPL	Operating Cost	Fees and Commission	Spread	Tax rate	Inf	GDP
NPL	*1.0000*						
Operating cost	*0.0782*	*1.0000*					
Fees	*0.1312*	*0.6544*	*1.0000*				
Spread	*-0.0707*	*-0.1843*	*-0.1506*	*1.0000*			
Tax rate	*0.1147*	*-0.2935*	*-0.0692*	*0.0001*	*1.0000*		
Inflation	*-0.0940*	*-0.2454*	*-0.1657*	*0.0003*	*0.5136*	*1.0000*	
GDP	*-0.0009*	*0.2020*	*0.1177*	*0.0196*	*-0.5596*	*-0.6473*	*1.0000*

Source: Summary Output of STATA

There is a negative relationship of spread with non-performing loan. It indicates that when all other factors remain constant, with an increase in non-performing loan, spread goes to the opposite direction to attract more deposit for maintaining profit margin and liquidity.

Here the value of correlation coefficient is largest in case of operating cost and fees & commission. It indicates a significant positive relationship between them as both are related to business volume. An increased business volume will generate more fees and commission, on the other hand operating cost will also show an increasing trend to handle this.

Operating cost, fees & commission are negatively but insignificantly related with spread and tax rate. Spread remains fixed by individual bank following the Bangladesh Bank's guideline. Tax rate is also determined by NBR with keeping in view the broader fiscal policy considering the potential tax expenses of government. Both variables (spread and tax rate) are insignificantly related to other variables and the movement of these variables are outside the individual bank's business environment.

GDP has a negative relation with NPL, tax rate and inflation. Inflation rate and GDP are interdependent with each other. In fact, it gives a cyclic change in the economy. Hence, high inflation increases the cost of factors of production i.e. raw materials, technology, labor etc., the increasing cost of production leads to lower aggregate demand and sales. In consequentially dumping in stocks leads to lowering in profit and a decline in production in the long-term and finally a fall in GDP. On the other hand, volatile inflation scares the foreign investors and results into lower cash inflow from foreign countries, again the GDP

will be affected negatively. In a balanced economy, both may go in same direction to ensure balanced growth but an imbalance between the inflation and GDP growth surely brings adverse effects to the economy. The analysis found no multicollinearity among variables.

7.5 Construction of Multiple Regression Model:

One of the important reasons for using panel data analysis is the flexibility that it provides for the modelling of differences in behavior across individuals. Assuming independent variable and an explanatory variable from panel information, if those variables are pooled, the following would have been the equation-

$$y_{it} = {}_0 + {}_1 x_{it} + {}_{it}$$

[Pooled OLS for panel data without considering heterogeneity]

7.5.1 Allowing for Individual Heterogeneity:

In an OLS regression analysis the beta coefficient is kept same for all the individual firms, banks, company etc. The assumption in OLS for a panel data requires that the intercept and the slope is same for all the *i*. This would be valid if samples (banks) were homogenous in terms of individuality.

But if the sample somehow different for the dependent variable or different in such sense that would cause the dependent variable to response differently, then OLS is not valid because of individual heterogeneity. Panel data allows for individual slope and thus allow for individual intercept. So individual heterogeneity can be isolated and could be handled.

7.5.2 Allowing Correlations within the Individuals or Panels:

Panel data allows for the controlling of the autocorrelation in the time series dataset and for the studying the behavior of cross-sectional units (N) observed over time periods. The OLS assumes that the errors are not serially correlated but this assumption is unrealistic in terms of individuals of the panel analysis. If the unobserved heterogeneity is not accounted for than there is a possibility that the μ_i will be absorbed in the error term and the error term $_{it}$ will be consecutively correlated.

7.5.3 Consequence of Estimating a Panel Data by OLS:

OLS estimation over a panel data is conducted assuming that the error assumptions of the OLS are valid in each panel. The error assumptions of the OLS or pooled least squares are as follows-

1. errors have zero mean, $E[\epsilon_{it}] = 0$

2. errors are homoscedastic, $var[\epsilon^2_{it}] = E[\epsilon^2_{it}] = \sigma^2$

3. errors have no autocorrelation, $cov[\epsilon_{it}, \epsilon_{js}] = E[\epsilon_{it}, \epsilon_{js}] = 0$ for $i \neq j$ or $t \neq s$

4. errors are not correlated with any of the explanatory variables that is the errors are strictly exogenous, $cov[\epsilon_{it}, x_{1it}] = 0$

The above assumptions are the same for multiple regression. Using panel data for an OLS estimation allowed for the possibility of violating the mentioned assumptions of OLS estimation.

Now from the perspective of the dependent variables, the expected tax revenue and the actual tax paid as cash, if pooled OLS is used without considering the fact that there could be unobserved effect among the 36 banks for tax the possibility of violating the OLS error assumption mentioned above will exist. In our case the N is 36 publicly held commercial banks and T is 5(yearly) spanning from 2012 to 2017. Now let us extract that individual effect (unobserved heterogeneity) μ_i from the error component or the residual term.

$$\epsilon_{it} = \mu_i + v_{i,t}$$

In this analysis μ_i can be considered as the individual effects of 36 banks which is unobservable but remains same across the time period for each bank. μ_i can come from each bank's level of individuality in terms of efficiency, management, ability to cope with shocks and other factors which remains same every year.

In this case where the independent variables are the gap in tax collection and the actual cash paid as tax, μ_i can denote individuality in terms of bank's capability or inherent characteristics to cope with tax. To be more specific, if there are some factors that could be different for each bank but stays the same with time in terms of tax incurred and paid by the banks then μ_i captures those effect.

7.5.4 Issue with Standard Errors:

In panel data model estimating a correct standard error is a bit difficult to achieve because of the correlation over time in errors and controlling for heteroskedasticity in a given panel or individual (Cameron and Trivedi, 2005).

$$Y_{it} = + X'_{it} + _{it}$$

As mentioned earlier, the above model can be pooled by an OLS estimator if the explanatory variables and the individual effect is uncorrelated with the error term. But as there are time dimensions in panel data the panels are likely to be correlated over time that is the errors of the individual panels are most likely to be correlated over time. In this case the conventional standard errors are downward biased (Cameron and Trivedi, 2005).

Considering tax revenue collection and expected tax revenue as the dependent variable and non-performing loan, operating expenses, spread, fees and commissions, tax rate, inflation and GDP as dependent variable following three models have been presented for conducting multiple regression analysis.

Model-1: Log GAP$= + _1$ lognpl$+ _2$ logopercost$+ _3$ logfeescom$+ _4$ spread$+ _5$ taxrate$+ _{it}$

Model-2: Log GAP$= + _1$ lognpl$+ _2$ logopercost$+ _3$ logfeescom$+ _4$ spread$+ _5$ taxrate$+ _6$inf$+ _7$gdprate$+ _{it}$

Model-3: Log Rev.collection$= + _1$ lognpl$+ _2$ logopercost$+ _3$ logfeescom$+ _4$ spread$+ _5$ taxrate$+ _{it}$

Where, $GAP_{TR}=$ Difference between actual and expected revenue from the selected banks
npl= Non-performing loan of selected Banks
opercost= Operating cost of selected banks
feescom=Fees and commission of selected banks
spread=Interest rate spread of selected banks
taxrate= Tax rate of selected banks

$=$ Constant Factor
$_1=$ Beta coefficient of NPL
$_2=$ Beta coefficient of operating cost
$_3=$Beta coefficient of fees & commission
$_4=$ Beta coefficient of spread
$_5=$ Beta coefficient of tax rate
$_6=$ Beta coefficient of inflation
$_7=$ Beta coefficient of GDP growth rate
$_{it}=$ Error

Table-7.4: Summary Output:

Beta coefficient P-value	Tax gap		Tax Paid
Explanatory variables	**Model 1**	**Model 2**	**Model 3**
Bank specific factors			

NPL	-1.059426 (0.000)	-1.125 (0.000)	-1.362499 (0.000)
Operating expense	1.619104 (0.000)	1.69669 (0.000)	2.005794 (0.000)
Fees and commission	0.3766692 (0.005)	.31708 (0.002)	0.3097809 (0.005)
Interest spread	0.0007514 (0.004)	.000644 (0.000)	0.0005473 (0.004)
Macroeconomic factors			
Inflation rate %		-44.87 (0.020)	
Real GDP growth rate %		1.2104 (0.005)	
Tax rate %	67.84375 (0.000)	120.98 (0.000)	53.48069 (0.000)
Constant	-27.31009 (0.000)	-54.0288 (0.000)	-23.1801 (0.000)
Number of observations	189	189	189
R-squared	0.8883	0.9007	0.8796
Adjusted R-squared	0.8852	0.8968	0.8763

Source: STATA output

7.6 Interpretation of Regression Results:

7.6.1 Model 1:

Table-7.5: Overall Model Fit

Number of Observation	:	189
F (4, 19)	:	291.05
Prob> F	:	0
R-squared	:	0.8883
Adjusted R-squared	:	0.8852
Root MSE	:	2.0465

Source: Summary Output of STATA

R squared indicates the coefficient of determination. It indicates how strong the linear relationship is and shows how much of y-values are explained by x-values. In this analysis the multiple R is 0.8883 which means only 88.83% of y-values are explained by the x-values or it can be said that 88.83% values fit the model. The adjusted value is 88.52%.

Table-7.6: Regression Analysis for Model 1

Log gap	Coefficient	Standard Error	T	P>t	[95% Con. interval]	
Log NPL	-1.059426	.0841151	-12.59	0	-1.225386	-0.89347
LogOE	1.619104	.1453442	11.14	0	1.332338	1.90587
Log Fees	0.3766692	.0948371	3.97	0.005	.1895544	0.563784
Spread	0.0007514	.0001657	4.54	0.004	.0004245	0.001078
Tax Rate	67.84375	12.53613	5.41	0	43.10981	92.57768
Constant	-27.31009	5.265158	-5.19	0	-37.69831	-16.9219

Source: Summary Output of STATA

Standard Deviation: This column gives information regarding the spread of the distribution of the variables. In statistics, the standard deviation is a measure that is used to quantify the amount of variation of data values. Standard Error of the regression is an estimate of the standard deviation of the error μ. These are the standard errors associated with the coefficients. The result shows SD is very high for tax rate (12.53). The value of SD for spread and NPL tends to be close to the mean.

Confidence interval: Confidence interval indicates that how much the sample mean can vary from the population mean. Confidence intervals consist of a range of values that act as good estimates of the unknown population parameter. The analysis based on the 95% confidence level ensures the NPL from population parameter will be between the ranges.

The coefficient column provides the values for $_1$**,** $_2$, $_3$, $_4$, $_5$ for this equation.

i. NPL: The coefficient is (-1.059426). So, for every percent increase in NPL, a -1.059426% decrease in positive revenue gap is predicted, holding all other variables constant. Because of increasing NPL, taxable profit of banks goes down, as a consequence, positive tax revenue collection gap will decrease.

ii. Operating Cost: Here for every percentage increase in operating cost, the gap is expected to be increased 1.62%, holding all other variables constant. Operating expense has two dimensional effects. As expense goes up, it reduces the bank's profit. On the other hand, generally, additional expenses of banks are related with higher volume of business which has a positive impact on bank's profitability.

iii. Fees and commission: The coefficient for fees and commission is 0.38. So, for every unit increase in fees and commission, an approximately 0.387% points increase is expected in tax collection gap, holding all other variables constant.

iv. Spread: The coefficient for log spread is 0.0007514. So, for every percentage change in spread, 0.07514-unit increase is expected in the positive gap.

v. Tax Rate: The positive significant association implies that with higher tax rate, tax revenue collection gap will increase. The coefficient for tax rate is 67.48. So, for every percentage change in spread, the analysis shows a 6748 unit increase in the revenue collection gap.

The value of   is negative (-27.31) in the above table. It implies, if independent variables remain constant then the value of revenue collection gap will decrease by 27.31. Here, the predictor variables of OE, NPL, Fees and Commission and Spread rate and Tax rate are significant because of their p-values are less than 0.05.

7.6.2 Model 2:

Table-7.7: Overall Model Fit:

Number of Observation	:	189
F (4, 19)	:	229.07
Prob> F	:	0
R-squared	:	0.8986
Adjusted R-squared	:	0.8946
Root MSE	:	1.9609

Source: Summary Output of STATA

In this analysis the multiple R is 0.8986 which means only 89.86% of y-values are explained by the x-values or it can be said that 89.86% values fit the model. The R-squared that penalizes the addition of extraneous predictors to the model is (.8946).

Table-7.8: Regression Analysis for Model 2

Log Gap	Coef. Std.	Err.	T	P>t	[95% Conf. Interval]	
Log NPL	-1.125004	0.081269	-13.88	.000	-1.263917	-.9432037
Log OE	1.69669	0.1414674	12.22	.000	1.446379	2.004653
Log Fees	0.3170865	0.0922665	3.49	.001	.1261324	.490245
Spread	0.0006446	0.0001609	4.06	.000	.0003219	.0009568
Tax Rate	120.9877	14.64936	7.40	.000	74.79637	132.6073
Inf.	-44.87083	31.4441	-2.35	0.20	-61.63665	62.45165
GDP	1.210498	0.1125915	2.86	.005	.0176575	.4619788
Constant	-54.02	7.632557	-6.44	.000	-60.88863	-30.76816

Source: Summary Output of STATA

The column of estimates provides the values for $_1$**,** $_2$, $_3$, $_4$for this equation.

i. NPL: The coefficient of NPL is (-1.125). So, for each unit increase in NPL, a 0.05703 unit decrease in positive tax revenue collection gap is predicted, holding all other variables constant. As NPL increases, taxable profit of banks goes down, tax revenue will fall and hence, as a consequence positive tax revenue collection gap will decrease.

ii.   Operating Expenses: This is a log-log relationship where for each percentage increase in operating cost, the tax revenue gap is expected to increase by 1.69% keeping all other variables constant. Here, additional expenses of banks are related with higher volume of business which has a positive impact on bank's profitability.

iii. Fees and commission: The coefficient for fees and commission is 0.3708. So, for a single unit increase in fees and commission, approximately 0.3708% increase in tax revenue gap is predicted, considering all other variables constant. With higher fees and commission, it is likely the taxable income will go up and hence the positive tax collection gap will be widened.

iv.   Spread: The coefficient for spread is 0.000644. So, for each percentage change in spread, 0.0644-unit increase is expected in the positive tax revenue gap. With higher rate of spread, the taxable income will go up and hence the positive tax collection gap will widen.

v.   Tax Rate: The positive significant association indicates that with higher tax rate, positive tax revenue collection gap will increase and vice versa. The coefficient for tax rate is 120.98. So, for one percentage change in tax-rate, 12098-unit change in the tax revenue collection gap can be predicted.

vi.   GDP: GDP is positively related with the tax revenue gap with coefficient 1.21. GDP is one of the basic factors of revenue estimation. If the actual GDP is higher than the forecasted GDP, then the positive tax revenue collection gap will widen. This is partly due to forecasting error.

vii. Inflation inversely affects the negative tax collection gap with a coefficient of -44.87. If inflation decreases, negative tax collection gap will increase.

The value of   is negative (-54.02) in the above table. It implies, if independent variables remain constant then the value of tax revenue collection gap will decrease by 54.02 due to the change in unobserved variables that may affect the tax revenue collection at this magnitude.

Here, the predictor variables of NPL, operating expense, fees and commission and spread rate and tax rate are significant because their p-values are less than 0.05.

7.6.3: Model 3:

Table-7.9: Overall Model Fit

Number of Observation	:	189
F (4, 19)	:	267.48
Prob> F	:	0
R-squared	:	0.8796
Adj R-squared	:	0.8763
Root MSE	:	2.3252

Source: Summary Output of STATA

Here the number of observations used in the regression analysis is 189.This is the F statistic is the Mean Square Model (1446.16) divided by the Mean Square Residual (5.40), yielding F=267.48. The numbers in parentheses are the Model and Residual degrees of freedom are from the ANOVA table above. Prob> F, this is the p-value associated with the above F-statistic. It is used in testing the null hypothesis that all of the model coefficients are 0.

R-Squared is an overall measure of the strength of association and does not reflect the extent to which any particular independent variable is associated with the dependent variable. In this analysis the multiple R is 0.8796 which means only 87.96% of y-values are explained by the x-values or it can be supposed that 87.96% values fit the model. Adjusted R-squared is an adjustment of the R-squared that penalizes the addition of extraneous predictors to the model. The adjusted R square is (.8763). Root MSE is the standard deviation of the error term, and is the square root of the Mean Square Residual (or Error).

Table-7.10: Regression Analysis for Model 3

Log taxpaid	Coefficient	Standard Error	T	P>t	[95% Con. interval]	
Log NPL	-1.362499	0.0955695	-14.26	0	-1.551059	-1.173939
Log OE	2.005794	0.1651363	12.15	0	1.679978	2.33161
Log Fees	0.3097809	0.1077516	2.87	0.005	0.0971857	0.5223762
Spread (log)	0.0005473	0.0001882	2.91	0.004	0.0001759	0.0009187

| Tax Rate | *53.48069* | *14.24326* | *3.75* | *0* | *25.37857* | *81.58282* |
| Constant | *-23.1801* | *5.98215* | *-3.87* | *0* | *-34.98295* | *-11.37724* |

Source: Summary Output of STATA

Coefficient: These are the values for the regression equation for predicting the dependent variable from the independent variable. The column of estimates provides the values for $_1$, $_2$, $_3$, $_4$, $_5$ for this equation.

i. NPL: The coefficient is (-1.362499). So, for every unit increase in NPL, a 0.05703 unit decrease in tax revenue collection is predicted, holding all other variables constant. Because, when NPL increases, the net income will decrease, taxable amount will also decrease.

ii. Operating cost: This is a log-log relationship, here for every percentage increase in operating cost, the gap is expected to be a 2.005794% increase in the revenue collection, holding all other variables constant. Tax collection depends on higher volume of business activities. As business activities of banks go up, operating cost will also increase and consequentially higher volume of business will bring more profits for the banks in case of large banks. Higher operating expenses due to management inefficiency is not explained by this finding.

iii. Fees and commission: The coefficient for fees and commission is 0.3097809. So, for every unit increase in fees and commission, the analysis shows an approximately 0.3097% points increase in tax collection gap, holding all other variables constant. It is because of the increased the net income due to increased fees and commission. The taxable income also will increase.

iv. Spread: The coefficient for log spread is 0.0005473. So, for every percentage change in spread, the analysis shows a 0.05473 unit increase in the revenue collection. With higher spread banks' profitability goes up, in consequence taxable income will also go up.

v. Tax Rate: The positive significant association implies that with higher tax rate tax revenue collection will increase. The coefficient for tax rate is 53.48. So, for every percentage change in spread, the analysis shows a 5348 unit increase in the revenue collection.

The value of   is negative (-23.28) in the above table. It implies, if independent variables remain constant then the value of revenue collection will decrease by 23.28. Here, the predictor variables of OE, NPL, Fees and Commission and Spread rate and Tax rate are significant because of their p-values are less than 0.05.

Statistical Result:

```
.
. summarize

    Variable |        Obs        Mean    Std. Dev.        Min         Max
-------------+--------------------------------------------------------------
          id |        198     18.0303    10.51463          1          36
           t |        198    2014.692    1.652881       2012        2017
      revgap |        198    2.44e+08    6.57e+08        1.9    3.49e+09
         npl |        198    3.05e+08    1.69e+09          0    1.48e+10
     opercost |       198    1.50e+08    3.20e+08     455.39    1.66e+09
-------------+--------------------------------------------------------------
        fees |        198    3.54e+07    9.22e+07      .0285    6.52e+08
      spread |        198    749.4771    1921.787      -.061      8839.2
     taxrate |        198    .4155303    .0121579         .4        .425
         inf |        198    .0665808    .0101936       .054        .087
         gdp |        198    6.612576    .4875152       6.01        7.28
-------------+--------------------------------------------------------------
      loggap |        198    11.74975    6.063448   .6418539    21.97255
      lognpl |        189    10.87864    4.633698   6.839037    23.41812
       logoe |        198    11.62467    5.097335   6.121154    21.22817
     logfees |        198    9.149578    6.941129  -3.557851    20.29619
```

```
. correlate npl opercost fees spread taxrate
(obs=198)

             |      npl opercost     fees   spread  taxrate
-------------+---------------------------------------------
         npl |   1.0000
     opercost|   0.0782   1.0000
        fees |   0.1312   0.6544   1.0000
      spread |  -0.0707  -0.1843  -0.1506   1.0000
     taxrate |   0.1147  -0.2935  -0.0692   0.0001   1.0000
```

```
. reg loggap lognpl logoe logfees spread taxrate
```

Source	SS	df	MS
Model	6094.94163	5	1218.98833
Residual	766.445317	183	4.18822577
Total	6861.38695	188	36.4967391

Number of obs = 189
F(5, 183) = 291.05
Prob > F = 0.0000
R-squared = 0.8883
Adj R-squared = 0.8852
Root MSE = 2.0465

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
lognpl	-1.059426	.0841151	-12.59	0.000	-1.225386 -.8934658
logoe	1.619104	.1453442	11.14	0.000	1.332338 1.90587
logfees	.3766692	.0948371	3.97	0.000	.1895544 .563784
spread	.0007514	.0001657	4.54	0.000	.0004245 .0010783
taxrate	67.84375	12.53613	5.41	0.000	43.10981 92.57768
_cons	-27.31009	5.265158	-5.19	0.000	-37.69831 -16.92188

```
. reg loggap lognpl logoe logfees spread taxrate gdp inf
```

Source	SS	df	MS
Model	6179.81406	7	882.83058
Residual	681.572892	181	3.76559609
Total	6861.38695	188	36.4967391

Number of obs = 189
F(7, 181) = 234.45
Prob > F = 0.0000
R-squared = 0.9007
Adj R-squared = 0.8968
Root MSE = 1.9405

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
lognpl	-1.125004	.0810793	-13.88	0.000	-1.284987 -.9650222
logoe	1.69669	.1388038	12.22	0.000	1.422808 1.970572
logfees	.3170865	.0908062	3.49	0.001	.1379115 .4962614
spread	.0006446	.0001587	4.06	0.000	.0003315 .0009578
taxrate	120.9877	16.34898	7.40	0.000	88.72858 153.2468
gdp	1.210498	.423504	2.86	0.005	.3748586 2.046138
inf	-44.87083	19.05931	-2.35	0.020	-82.47784 -7.263828
_cons	-54.02882	8.393331	-6.44	0.000	-70.59018 -37.46746

```
. reg loggap lognpl logoe logfees spread taxrate gdp inf
```

Source	SS	df	MS
Model	6179.81406	7	882.83058
Residual	681.572892	181	3.76559609
Total	6861.38695	188	36.4967391

Number of obs =	189
F(7, 181) =	234.45
Prob > F =	0.0000
R-squared =	0.9007
Adj R-squared =	0.8968
Root MSE =	1.9405

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lognpl	-1.125004	.0810793	-13.88	0.000	-1.284987	-.9650222
logoe	1.69669	.1388038	12.22	0.000	1.422808	1.970572
logfees	.3170865	.0908062	3.49	0.001	.1379115	.4962614
spread	.0006446	.0001587	4.06	0.000	.0003315	.0009578
taxrate	120.9877	16.34898	7.40	0.000	88.72858	153.2468
gdp	1.210498	.423504	2.86	0.005	.3748586	2.046138
inf	-44.87083	19.05931	-2.35	0.020	-82.47784	-7.263828
_cons	-54.02882	8.393331	-6.44	0.000	-70.59018	-37.46746

```
. xtreg loggap lognpl logoe logfees spread taxrate gdp inf, fe
```

Fixed-effects (within) regression   Number of obs   =   189
Group variable: id   Number of groups =   36

R-sq: within = 0.0390   Obs per group: min =   2
       between = 0.3825   avg =   5.3
       overall = 0.2598   max =   6

                                            F(7,146)   =   0.85
corr(u_i, Xb) = 0.4667   Prob > F   =   0.5502

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lognpl	.0308797	.1498284	0.21	0.837	-.2652331	.3269924
logoe	.089581	.1864977	0.48	0.632	-.279003	.4581651
logfees	-.0636434	.1363445	-0.47	0.641	-.3331071	.2058204
spread	-.0000354	.0001384	-0.26	0.799	-.0003089	.0002381
taxrate	18.06472	10.3059	1.75	0.082	-2.30331	38.43274
gdp	.0867988	.1966872	0.44	0.660	-.3019231	.4755207
inf	-16.68451	8.57042	-1.95	0.053	-33.62262	.253598
_cons	3.706558	6.234505	0.59	0.553	-8.614979	16.0281

sigma_u	6.0096205	
sigma_e	.83057633	
rho	.98125663	(fraction of variance due to u_i)

F test that all u_i=0:   F(35, 146) =   24.06   Prob > F = 0.0000

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```
. xtreg loggap lognpl logoe logfees spread taxrate gdp inf, re

Random-effects GLS regression          Number of obs      =        189
Group variable: id                     Number of groups   =         36

R-sq:  within  = 0.0086                Obs per group: min =          2
       between = 0.8702                               avg =        5.3
       overall = 0.8380                               max =          6

                                       Wald chi2(7)       =     329.75
corr(u_i, X)   = 0 (assumed)           Prob > chi2        =     0.0000
```

loggap	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
lognpl	-.4153599	.113391	-3.66	0.000	-.6376022	-.1931177
logoe	.9423409	.137193	6.87	0.000	.6734474	1.211234
logfees	.3240262	.0885524	3.66	0.000	.1504667	.4975857
spread	.0001958	.000142	1.38	0.168	-.0000826	.0004741
taxrate	42.3495	11.44079	3.70	0.000	19.92596	64.77304
gdp	.3680583	.2320627	1.59	0.113	-.0867763	.8228929
inf	-21.66272	10.16645	-2.13	0.033	-41.5886	-1.736842
_cons	-16.28343	5.700072	-2.86	0.004	-27.45537	-5.111498
sigma_u	1.4688718					
sigma_e	.83057633					
rho	.75772739	(fraction of variance due to u_i)				

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	f	r	Difference	S.E.
npl	-.0894068	-.0595772	-.0298296	.013509
opercost	.4496039	.2465014	.2031025	.1392897
fees	.0918561	.1860907	-.0942346	.1041016
spread	.6009568	-19411.41	19412.01	36307.32
taxrate	23732.97	1.19e+09	-1.19e+09	4.32e+08

```
                   b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

           chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                   =        7.53
           Prob>chi2 =      0.0061
```

7.7 Overall Findings of Regression Analysis:

After analyzing the variables based on the above three models a negative significant association between non-performing loan and tax revenue is found that indicates bad quality loans affect the tax revenue collection negatively. As NPL becomes higher, the negative impact on revenue becomes greater. In this perspective, the findings of analysis suggest effective internal control and enhanced compliance, an autonomous formation of audit committees and risk management committees, elimination of political interventions in approval of loans and reforming Bangladesh Bank as an autonomous central authority of banks are significant possible measures to curb the negative impacts of NPL. The positive significant association between tax revenue and operating expense found in this analysis is more applicable for large banks where operating expenses move with the business volume. Higher operating expenses due to management inefficiency is not reflected in this finding.

The positive significant association between tax revenue and fees income suggests that the higher the proportion of banks' profit comprised of non-traditional activities such as fees and commission, the higher will be the tax revenue. Positive association of tax revenue with spread indicates a high profitability with high spread and hence higher tax revenue. But in practice, without correcting management efficiency higher spread may not significantly bring higher tax revenue. With higher tax rate, tax revenue collection will generally increase. But higher tax rate may not bring about extra tax revenue if the profitability of banks is not generally increasing relative to the rate of tax. The tax authority will be wise to charge more tax in good economic conditions otherwise the impact of high tax rate will not bring any positive results. Higher GDP generally increases tax revenue collection and the findings of the analysis also support this notion. But at the same time if bad investments continue to persist, banks may experience less profit even in booming economic conditions. High inflation can discourage investments in low per capita income conditions which can reduce the demand for borrowing of funds and thus causes lower lending rate that can reduce banks' profitability as well as its taxable capacity.

7.8 Hausman Test:

The Hausman test is a general implementation of Hausman's (1978) specification test that is very beneficial to differentiate between fixed effects model and random effects model in panel data. In hausman test, Random effects (RE) is preferred under the null hypothesis due

to higher efficiency, while under the alternative Fixed effects (FE) is at least as consistent and thus preferred. The fixed effect model makes an assumption of homogeneity whereas random effect model will allow for modelling heterogeneity across units. A random effect model requires that the group-level effects and the explanatory variables must be uncorrelated; in these cases, random effect estimation is unbiased, consistent and efficient as it uses both within and between group variation whereas fixed effect uses only within-group variation.

Choice of a model is essentially a trade-off between precision and bias. The decision to choose between RE and FE models depends upon the statistical significance of the standard deviation of this random coefficient. If this standard deviation is statistically different from zero, random effect is the preferred model structure, otherwise fixed effect is the preferred model. However, considering these assumption and criteria of observation in OLS regression Hausman test is conducted for model that comprises the organization specific variables to determine the extent of influence on the dependent variable that is tax collection gap.

Model: GAP$_{TR}$ = + $_1$npl+ $_2$opercost+ $_3$feescom+ $_4$spread+ $_5$taxrate+ $_{it}$

Table: 7.11: Hausman Specification Test: Summary Output

Beta coefficient *P-value*	FE Model	RE Model
Explanatory variables		
NPL	*-.08940* *(0.004)*	*-0.0595* *(0.033)*
Operating expense	*0.4496* *(0.068)*	*0.2465* *(0.221)*
Fees and commission	*0.0918* *(0.849)*	*0.1860* *(0.692)*
Interest spread	*0.6009* *(1.000)*	*-19422* *(.604)*
Tax rate %	*23732* *(1.000)*	*1.19* *(0.623)*
Constant	*2.00* *(0.846)*	*-2.71* *(0.790)*
Number of observations	*198*	*198*
R-squared	*Within: 0.0695* *Between: 0.0077* *Overall: 0.0004*	*Within: 0.0629* *Between: 0.0003* *Overall: 0.0020*
Hausman Test		
Chi2	*7.53*	
Probability>Chi2	*.0062*	

Source: STATA output

When the hausman test shows a significant difference in the estimated coefficients (chi2 is less than probability .05) under both estimators, the use of fixed effects is generally recommended as the result of this analysis.

Also considering the data pattern, where data set in this analysis is comprised of 36 commercial banks selected with stratified convenience sampling, rationale for using fixed effect model can be identified. The whole population is divided here in seven strata considering the category of banks. Then the convenience sampling strategy is followed to select five or more samples within each stratum considering the availability of online financial statements that represents bank's exposure to digital technology, accountability and transparency.

7.9 Conclusion:

For the relevance of the research with its objectives, researcher has selected a unit from the whole population as representative to observe the overall scenario on the basis of the unit. Therefore, rather than a random sample, this is more likely clustered in a particular band or spectrum of characteristics. Going back to the relevance in choosing the fixed effect model, this research is trying to focus on a set of banks assuming that these banks should be more or less same in their activities or even in the way they conduct their business where fixed effect model will be the best alternative.

Chapter- Eight

8.0 Analysis of Interview Questionnaire

8.1 Introduction

Insignificant number of researches has been conducted on taxation of Bangladesh. Over the last 10 years, a number of reforms in terms of manpower restructuring, tax net expanding and business process re-engineering have been implemented in NBR. Though the amount of revenue collection is increasing, the tax to GDP ratio is still under 10%. The contribution of direct tax revenue is around 35%, which is much more below than 65% of indirect tax.Where the scenario is complex and creating a dilemma for drawing a direct conclusion on the basis of quantitative analysis only, the qualitative analysis on the basis of the perception, responses and experience of the tax officers who are dealing with the real scenario and problems may bring a pragmatic solution. This qualitative analysis will make the findings more objective oriented and the recommendation will also be more appropriate.

8.2 Sample Selection

To have a clear idea on NBR's operations and performance, the researcher has randomly selected twenty-five (25) field level officials directly involved with revenue collection and policy formulation of NBR, LTU and ADR out of 296 cadre officers performing in Dhaka. The sample size is 25 which represents 8.33% of the total population in the area of Dhaka.Face to face interview was conducted with these 25 cadre officers through the formulation of below mentioned 10 questions. They were asked to answer several open ended and close ended questions. The findings of interviews are aggregated below and the sample questionnaire is attached in appendix.

Question: 1

What is the prime problem faced by NBR in case of revenue collection from banking sector?

Valid Option	Frequency	Proportion
Inaccuracy in tax determination	4	16%
Tendency of tax avoidance	12	48%
Scarcity of Human Resource	6	24%
Others	3	12%
Total	25	100

The majority of respondents (48%) identified the tendency of tax avoidance by tax payer as a prime problem of NBR in case of revenue collection. Twenty four percent respondents said that there's a scarcity of skilled human resource in NBR. All of them are officials of different circles of NBR. LTU's officials didn't agree with this problem. Sixteen percent respondents said that inaccuracy in tax determination has a significant impact on tax collection gap. Twelve percent of respondent mentioned other factors those are not in the options. Those factors are: Lack of imposing the law, weakness of existing law and lack of proper monitoring.

Prime Problem faced by NBR

- Inaccuracy in tax determination
- Tendency of tax avoidance
- Scarcity of Human Resource
- Others

16%, 12%, 24%, 48%
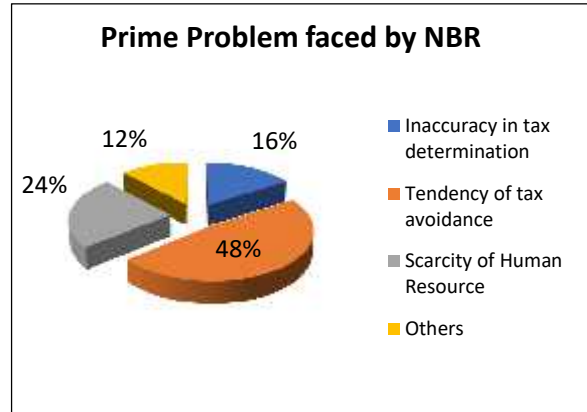
Question: 2

Which is the category of banks more likely having large deviation from expected Tax revenue?

Valid Option	Frequency	Proportion
SCBs	8	37%
PCBs	17	68%
FCBs	0	0%
Islamic Banks	0	0%
Total	25	100

The majority of respondents (68%) said Public commercial banks are having large deviation in case of expected and actual tax because of aggregated tax collection deviation from 32 PCBs in Bangladesh. Others mentioned state owned commercial banks considering on an average tax deviation.

Question: 3

How does NBR determine the revenue collection target for banking sector?

All of the respondents claimed that the NBR follows growth method to determine the revenue collection target in banking sector. The growth rate is calculated by combining the total economy growth i.e. GDP growth and inflation and also considering

Banks having Large Deviation

- SCBs
- PCBs

32%, 68%
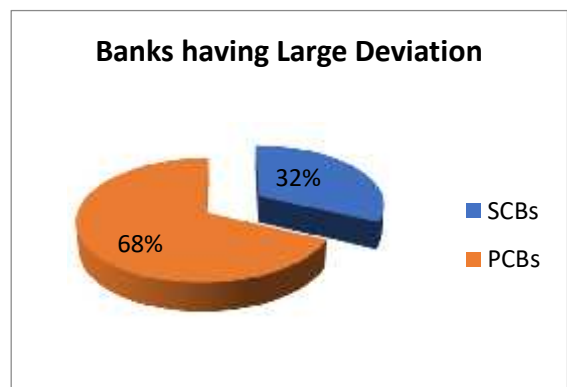
the national expenditure and other macro-economic factors that may influence the business environment.

Question: 4

What is the prime factor responsible for gap between expected and actual tax revenue from banking sector? (Forecasting gap)

Valid Option	Frequency	Proportion
Forecasting Inaccuracy	10	40%
Revenue collection process	5	20%
Underlying Economic Factors	6	24%
Others	4	16%
Total	25	100

The majority of respondents (40%) said forecasting inaccuracy is the prime factor responsible for the deviation between expected and actual revenue. Twenty percent (20%) of the respondents claimed complex revenue collection process as the prime responsible factor for tax collection deviation. Underlying economic factors i.e. GDP, inflation, tax rate and business

environment are mentioned as the prime factor responsible for revenue collection from banking sector by twenty four percent respondents.Sixteen percent of the respondent mentioned the other factors such as proper policy, fabricated annual report, non-performing loan, political environment and business environment as prime factor that was not mentioned in question's option.
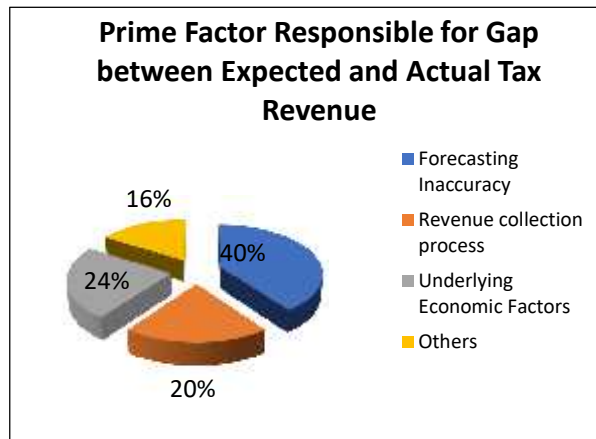
Question: 5

Are new banks having a large revenue gap?

Valid Option	Frequency	Proportion
Yes	20	80%
No	5	20%
Total	25	100

The majority of respondents (80%) said new banks are having large deviation in case of expected and actual tax. Because, those are faced by high NPL andinefficiency of management. The other 20% said they are on average performed like other banks.

New Banks having a Large Revenue Gap

20%

80%

- Yes
- No
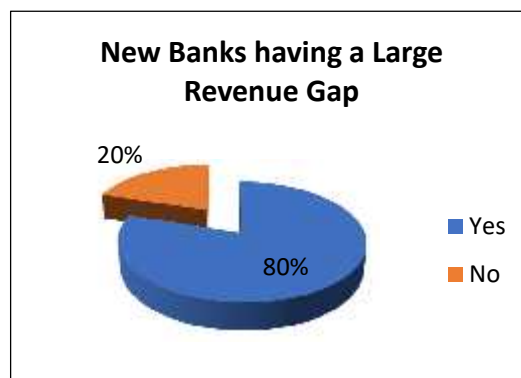
Question: 6

(If yes) What are the causes?

Valid Option	Frequency	Proportion
Political Intervention (High NPL)	12	48%
Tax avoidance tendency	3	12%
Management Inefficiency	5	20%
Not Applicable	5	20%
Total	25	100

The majority of respondents (48%) said political influence on management cause high non-performing loan and as a consequence it causes a large deviation in tax paid.

Tax avoidance tendency is mentioned by twenty

This question is based on the previous question's positive response. Therefore, this question was not applicable on twenty percent respondents who choose the negative answer on that question.

Causes of High Daviation in New Banks

20%

48%

20%

12%

- Political Intervention
- Tax avoidance tendency
- Management Inefficiency
- Not Applicable
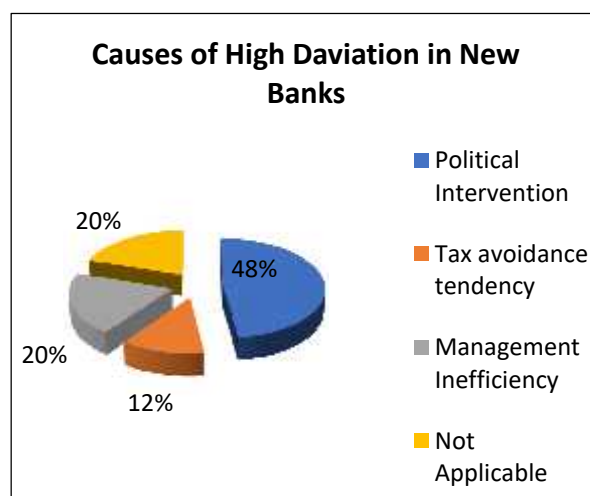
Question: 7

Which of these factors is mostly responsible for tax avoidance practice by tax payer?

Valid Option	Frequency	Proportion
Complexity in Process	5	20%
Corruption and lack of integrity	9	36%
Lack of proper monitoring by NBR	9	36%

Others	2	28%
Total	25	100

Equal number of respondent (36%) said that corruption, lack of integrity of taxpayer and the lack of proper monitoring are the prime factor that encourages tax avoidance practice by tax payer.Twenty percent of respondents stated that the complexity in the process of tax collection creates scope for tax avoidance practice. Among respondents, twenty percent (28%) mentioned other problem such as lack of proper policy and tax evasion as the most responsible factors for tax avoidance practice by taxpayers.

Causes of High Daviation in New Banks

- Complexity of Process — 17%
- Corruption and lack of Integrity — 30%
- Lack of proper monitoring — 30%
- Others — 23%
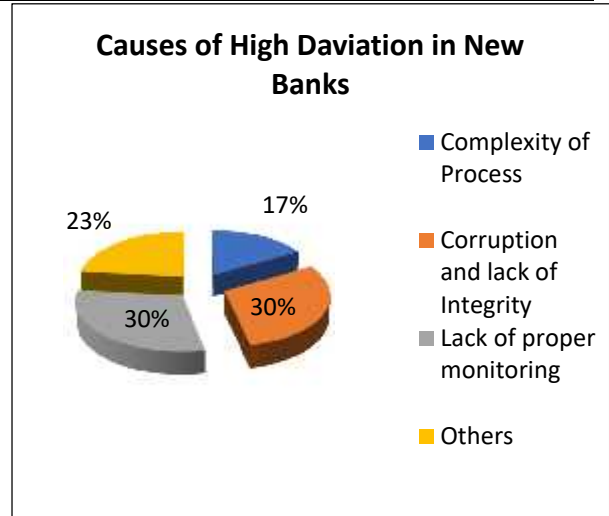
Question: 8

Is there any different practice for Foreign bank/Islamic Bank?

Everyone answered that there's no different practice in NBR at any phase for foreign banks or Islamic banks.

Question: 9

Which reform is more likely to be useful to minimize the forecasting gap?

Valid Option	Frequency	Proportion
Use of Technology	13	52%
Co-operation of Tax payer	5	20%
Training program for Employees	5	20%
Others	2	8%
Total	2	

Majority of the respondents (52%) have claimed that use of technology has improved NBR's operations. Equal number of respondents mentioned program to increase the co-operation of taxpayer and training program for employees as the most useful reform conducted by NBR. Eight percentage

Reform Useful to Minimize the Forecasting Gap

- Use of Technology — 52%
- Co-operation of Tax payer — 20%
- Training program for Employees — 20%
- Others — 8%
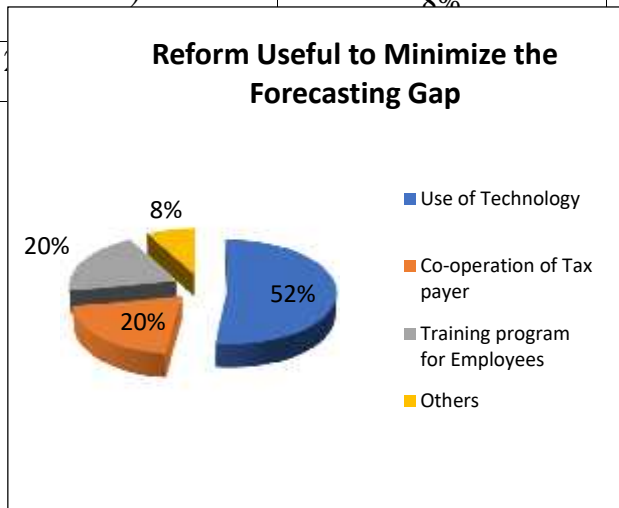
respondents said that the recent policy reform and its proper implementation has minimized the furcating gap.

Question 10:

What is about NBR's future plan to maximize the revenue collection from banking sector?

This question was open ended. All of the respondents answered this question based on their experience in as well as expectation from National Board of Revenue. The aggregated opinion of respondents is mentioned below.

a) Expanding Tax collection network for increasing the tax revenue collection.

b) Digitalizing the procedure of tax collection and processing.

c) Implementing the law strictly as every taxpayer will be bound to obey that law.

d) Enhancing professional knowledge among employee is important even in the root level.

e) Building direct connection with bank's database will minimize the chance of tax avoidance and will ensure transparency of their declaration of financial position.

f) Establishing a proper policy is crucial. The policy should be reformed after conducting a number of systematic studies on relevant field.

g) Having a specific methodological study for expected tax determination is a demand of time. NBR may follow the other country's method of tax collection with which the economic condition of Bangladesh is comparable.

8.3 Conclusion

It can be summarized that the face to face interview regarding the factors determining the tax revenue of Bangladesh has probedcrucial findings.

Series 1
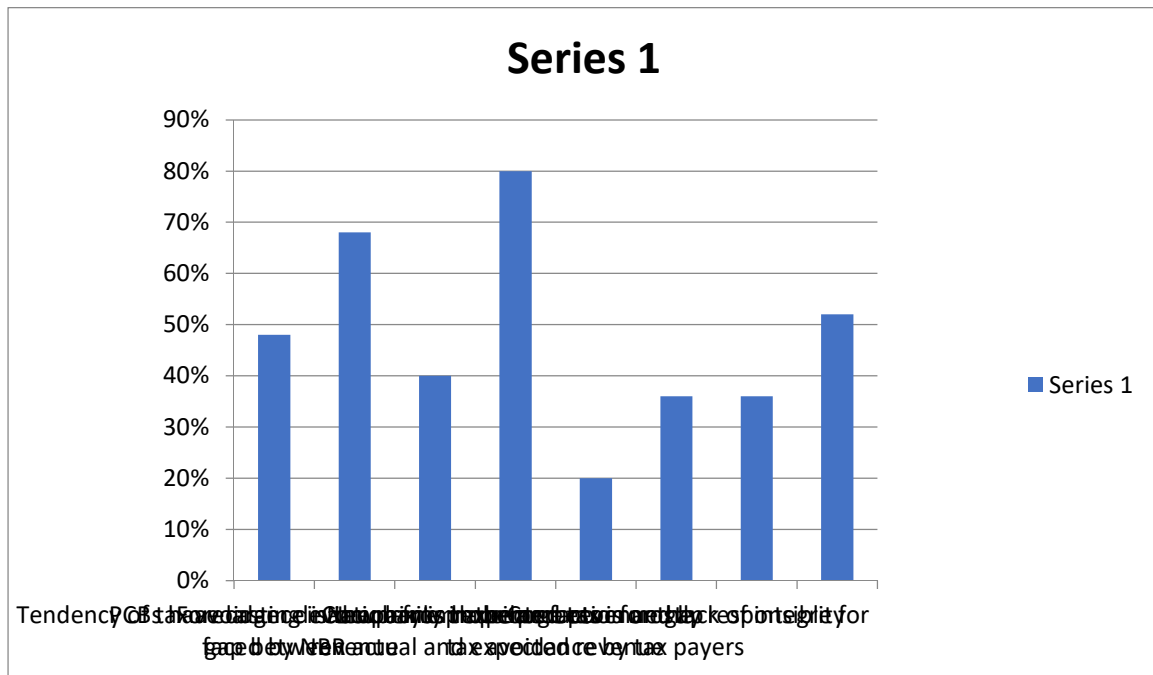
Source: Prepared by the Researcher based on the interview

Forty eight percent of the respondents agreed that tendency of avoidance of tax is the main problem faced by NBR. Another finding suggests that PCBs has the highest tax revenue gap in the banking sectors which indicates that private commercial banks have the huge potential of revenue collection by the government.

Forty percent of the respondents agreed that forecasting inaccuracies is the prime factor for the gap in expected and actual tax revenue. Almost 80 percent of the respondents agreed that new banks have huge amount of potential tax gap which needs to be addressed. More than 50 percent of the respondents agreed that use of old technologies is the main problem in forecasting the actual tax revenue gap in Bangladesh.

Chapter- Nine

9.0 Findings, Recommendations, Scope for Further Researchand Conclusion

9.1 Introduction:

As the banking sector plays an important role in the economy of Bangladesh, tax collection with actual forecasting is extremely necessary to acquire the actual tax amount from this sector. Furthermore, banking sector is the largest source of direct tax for the government of Bangladesh. It is unequivocally essential to implement the findings from this chapter in order to increase the revenue collection of Bangladesh. Based on the statistical and questionnaire analysis, appropriate recommendations and interpretations have been provided in this chapter. In addition, revenue collection from the banking sector has also been mentioned for further study.

9.2 Findings of the Study:

a. The entire process of tax collection by NBR is law-based, time-consuming and complex. On average a tax demand achieves its finality elapsing about two years. The banking sector, the largest tax yielding field, is also subject to these longer-term tax erosion issues.

i. The system is broadly manual-based with little exposure to the information technology. The department is run by territorial based tax administration except LTU where functional based system exists. Online annual return submission and e-payment systems are in its infancy. E-TIN registration process has shown remarkable success but computerized return processing is not available now. In absence of risk-based audit, the manual audit system fails to ensure the compliance of existing rules and regulations.

ii. Tax governance of banks is similar to the overall governance of the banking sector plagued with serious deficiency in terms of accountability, transparency and integrity. As a consequence, tax department of banks pursue different tax avoiding techniques that results disputes with the NBR. In many cases they try to dispute settled tax issues and go for different appeal stages in order to delay the tax payment and to hide taxable income.

b. Tax revenue collection from banking sector is highly volatile over the period without relating to any determinant factor because of adjusting deferred tax and tax exemption with the current tax. So, the tax revenue collection considered in this research, is calculated based on the tax due in concerned years. NBR calculates the expected revenue based on the economic growth rate, inflation, etc. No systematic study is conducted for this purpose. Expected tax revenue is documented by considering the previous year's data and the growth rate of each year from another. Both negative and positive tax collection gap is created in each bank by identifying the deviation between the actual tax collection and estimated tax amount. Positive gap is created when the actual tax collection is more than estimated tax and when the opposite scenario occurs, it creates negative gap.

The tax revenue gap of individual banks over the 6 years period fluctuates at high rate where the moving average line of tax revenue gap appears to be downward except Agrani bank, NCC bank, Dhaka bank, Jamuna bank, One bank, Midland bank, NRB Bank, NRB bank, global bank, SBAC bank and FSIBL. Tax revenue gap from these banks shows an upward trend in its moving average line over the research period. In most of these cases, revenue collection gaps from those banks are positive that implies the actual collection of revenue from the bank is higher than the expected amount and the magnitude of the gap is higher due to the estimation error.

c. Bank's performance based specific factors such as NPL, operating cost, fees and commission, spread are factors of managerial efficiency and business environment that influence tax revenue collection gap. The profitability and management efficiency of banks to control the expenses brings a positive revenue collection gap. Revenue collection from banks also depends on the business volume of banks and other macro-economic factors such as corporate tax rate, inflation and GDP.Other qualitative factors such as corruption, political interference, tax avoidance tendency, tax evasion, inefficiency of expected tax determination influence the tax revenue gap largely.

d. After analyzing the secondary data by developing three model it is found that:
  i.   NPL has a significant negative effect on the positive revenue gap in three models.

ii. Fees and commission are positively related with tax revenue collection and as well as with tax revenue gap.

iii. Operating cost also significantly affects the positive gap positively.

iv. The tax rate has a vital impact on tax revenue with its high coefficient. It is obvious that a single percentage point change in tax rate will bring a significant change in tax revenue collection.

v. Spread is also positively related with the tax revenue collection as well as affects the tax revenue gap.

vi. GDP and inflation positively affect the revenue gap in the third model.

vii. Inflation is negatively related with the tax revenue collection gap with a coefficient of -44.87 in the third model

e. The basic challenges of the revenue collection from the banking sector broadly are existing socio-economic and political environments of the country. Absence of proper governance, accountability, transparency, poor record keeping culture, aggressive tax avoidance tendency, tax evasion techniques, political intervention, high prevalence of corrupt practices and fast changing technological environment are particularly identifiable factors responsible for the inefficient functioning of this sector. Stable economy with higher growth rate, availability of national database, expanding digital economy, innovative tax policy, high export-import growth over the recent years, rapid shift from non-monetized to monetized economy, rapidly increasing remittance from abroad, shift of international business from China and Japan to South East Asian Countries and stable inflation rate have created enormous opportunity for the tax collection of NBR from banking sector.

f. Findings of the interview is more representative as officials shared their practical knowledge and experience for the purpose of fulfilling research objectives.

i. The main problem of NBR in case of revenue collection is the complexity in taxation process.

ii. The tax avoidance practice of taxpayer and inaccuracy in tax determination has broaden the revenue gap. Lack of proper monitoring is a prime cause that creates tax avoidance practice.

iii. The negative revenue collection gap is often occurred by the bank specific factors among which the high NPL is mostly responsible. After conducting regression analysis this study also found this factor as significant.

iv. The technological advantages have brought a positive change in tax collection of NBR.

v. Training program for officials are very useful to increase the efficiency. But the professional knowledge and skill should be increased in the field level among the supporting stuff also.

9.3 Recommendations

The tax environment in most rapidly growing economies like Bangladesh is highly informal and unnecessarily complex. Simplifying the tax code encourages voluntary compliance. Successful reform can enable a country to tackle the challenges of rapid growth and ensure that the flow of revenue is stable and longer lasting. The relationship between the tax administration and business entities needs to be strengthened by taking measures such as appreciation initiatives for highly compliant taxpayers. It is important to improve the tax administration's understanding of business and industry practices, and also to facilitate an intensification of the business sector's efforts towards full compliance, responsible tax behavior and acknowledgment of the role of government in mobilizing revenue. Improving clarity in the process of tax collection procedure is crucial. Anti-avoidance rules should be formulated to ensure the compliance. Dispute resolution mechanisms should be fair, independent, accessible to taxpayers and effective in resolving disputes in a timely manner. An effective tax practice can be ensured by a well-designed tax law, making and monitoring process which can include addressing complexity, improving clarity and implementing anti-avoidance rules. Developing countries must continue to influence new standards in international tax and participate in discussions and the development of such standards. Recommendations based on the study through analyzing secondary and primary data are in the following:

a. An effective system should be designed to simplify the complex process of tax payment. Such a system should ensure that any reliefs available are straightforward to understand and executable.

i. Digitalizing the whole process of tax collection can be a solution. Introducing electronic channels such as internet portals, mobile-payment options for individuals for simple taxpayer transactions will increase the level of voluntary payments.

ii. Auditing does not only detect and penalize evasion attempts but also signals a tax administration's intention to prioritize more aggressive enforcement. Strict and detail auditing procedure should be maintained.

iii. Voluntary compliance should be appreciated through better service to the tax payers. As a result, revenue from the corporate income tax will increase.

iv. Establishing a proper policy is crucial. The policy should be reformed after conducting a number of systematic studies on relevant field.

v. New tax code should be implemented according to the international best practices and existing practical situations in Bangladesh.

i. NBR should take steps to increase the revenue collection such as expansion of tax collection network, strict enforcement of law, automation of taxation process and business process reengineering of tax procedure etc.

The Gap minimizing operations include, ensure proper auditing and monitoring, strength the research and development wings of NBR, create and activate a central data processing unit, ensure technological advancement and digitalized the total system, increase the number of employees, provide strong and effective training program for employees, accurate tax forecasting, expand tax collection network, create awareness among banks and ensure appropriate punishment for the tax defaulters.

ii. Quantitative and qualitative factors determining the tax revenue collection gap should be managed properly.

i. Having a specific methodological study for expected tax determination is a demand of time. Because, the forecasting error often occurs due to inaccuracy of tax determination based on the growth method and annual expenditure-driven revenue need.

ii. Tax governance of the banks should be maintained keeping quality standards.

iii. Transparency of financial reporting should be maintained by the banks.

iii. The tax revenue collection and its gap are significantly affected by various bank specific and macro-economic factors according to the findings of the study. The following attempt should be taken to increase the net profit of the banks and as well as the taxable income.

i. Banking commission is to be formed by the government to review the problems and performance of banks. The reasons behind high NPL should be addressed pertinently.

Required change in laws and regulations related to the default loan practice is important in this perspective. Identifying bad debt, rehabilitating forceful defaulter, punishing willful defaulter are required to be ensured in an organized manner to deter prospective loan defaulter. The government should come out from non-punishing culture of corrupted officials and other stake holders. Internal control and compliance by banks are significant managerial issues need to be ensured. In the presence of deteriorating governance, managerial efficiency should be enhanced to come up with a solution. The Audit Committees and Risk Management Committees should be allowed to function autonomously. The practice of related lending should be totally avoided. There should be no political intervention in approval of loans, rescheduling/ restructuring and initiation of timely legal actions. Bangladesh Bank will have to be more independent in case of decision making and controlling. Monitoring and observation by Bangladesh Bank should be held professionally on regular basis. Centralization of ownership of banks must be prevented by regulations. The disorganized conditions of banking companies suggest for merger of private sector banks and public sector. A voluntary amalgamation can lead to a better performance and ensure obligations of banks to rules and regulations. A client must have to declare a mother account in a bank of his choice where it will work as tracking account to avail details of client's financial position. One stop service should be commenced where clients will be able to take care of matters related to the loan, fees and billing, deposit payments, and each type of banking services in one visit, without having to be referred elsewhere. It will simplify the procedure and will narrow the scope for corruption.

ii. Spread should be less volatile, sustainable and stable complying with the ceiling prescribed by regulatory authority.

iii. Operating expenses should be managed with managerial efficiency. Salary and remuneration should be based on the productivity, not on the basis on partisan act. Bank officials should be accountable for the expenses they made. Many fake expenses should be strictly regulated. Authority may give an expenditure guideline for the banks.

iv.   The fees and commissions require regulation from Bangladesh Banks. In an effort to increase its profit bank should not be allow to charge an increased fees and commission at their wings.

v.   The tax rate in banking sector should be revised with the objective of rationalizing corporate tax rate maintaining uniformity with neighboring countries and remain stable over a period of time.

vi.   GDP and inflation are two main bases of revenue estimation. Forecasting error on these two macro-economic variables leads to a larger deviation on tax revenue collection from its expectation. With a long-run systematic analysis based on stable economic environment may reduce the forecasting error.

iv. Finally, based on the findings of the study to minimize the forecasting gap, grab the opportunities and to face the challenges the following steps should be taken by NBR as prescribed by its official experts:

1. Expanding Tax collection network
2. Digitalizing the procedure
3. Implementing the tax law and rules strictly
4. Enhancing professional knowledge among employees
5. Establishing direct access to bank's database
6. Establishing data processing center for risk-based audit

9.4 Scope for Further Research:

This research was undertaken with the ultimate objective of finding the determining factors of tax revenue collection and examining the tax revenue gap scenario of banking industry in Bangladesh. A number of studies were reviewed for the purpose of the research. Result of the study proves several factors as the influencing elements of tax revenue collection gap from banking industry and thus opens up new grounds for further research. Further studies can address the following issues to have more insights on the subject. Studies can be done to find out a standard methodological process by examining the international best practices of estimating revenue collection and analyzing the arrangement of tax revenue collection in the countries of similar economy. Further, studies can extend to other determining factors those are not included in the model of this research. Here the study concentrates only the banking

sector of Bangladesh while a comparative study of other countries would be inordinate study to analyze the regional variations of the factors.

9.5 Conclusion:

Banking sector is the largest tax paying sector of LTU and also the largest source of direct tax revenue. In recent years, an unfavorable business situation accentuated by concentration of ownership placed many banks into a troubled financial position. Therefore, after observing a positive revenue gap for several years, LTU is now experiencing a negative tax collection gap from banking sector. These gaps are likely to be affected by many macro-economic factors such as inflation, economic growth, tax rates, national tax collection policy, etc. Change in bank specific factors such as NPL, operating expense, fees and commission, spread causes a significant change in tax revenue collection and its gap. High tax rates, corrupt practices and complexity of tax policy are positively related to the missing revenue since they promote tax avoidance, tax evasion and non-compliance. There are challenging and unsustainable issues persisting in NBR over the years, affecting the tax collection gap. The expected tax estimation process of NBR is merely based on behavior of historical data rather than an appropriate methodological standard in absence of efficient fully functioning research unit. This estimation process constructed by growth rate method creates predicaments in obtaining the revenue collection target achieved and in consequence, creating vulnerability in maintaining fiscal discipline. Deficiency of using information technology, lack of skilled officials and staff, absence of proper monitoring in different stages of tax administration, meagre effort in introducing tax education and also lack of societal consensus in favor of internal resource mobilization are noteworthy factors responsible for tax revenue collection gap. NBR is required to overcome these limitations through tax reform, stable tax policy, and structural re-organization and efficient enforcement measures to ensure that the corporate tax payers especially banks are compelled to pay the due and fair taxes according to the income tax law and their economic tax potential.

Bibliography:

Addison, T., and Levin, J. (2012).The determinants of tax revenue in sub-Saharan Africa.*Journal of International Development.*

Agbeyegbe, T., Stotsky, J., and Wolde, A. (2006). Trade liberalization, exchange rate changes, and tax revenue in Sub-Saharan Africa. *Journal of Asian Economics*, *17*(2), 261-284.

Akhtar, M., Ali, K., and Sadaqat, S. (2011). Factors Influencing the Profitability of Islamic Banks of Pakistan.*International Research Journal of Finance and Economics*, Vol. 66.

Alfirman, L. (2003). Estimating Stochastic Frontier Tax Potential: Can Indonesian Local Governments Increase Tax Revenues Under Decentralization? *Discussion Papers in Economics Working Paper*, No. 03-19, University of Colorado at Boulder Boulder, Colorado.

Ali Khrawish, H. (2011). Determinants of Commercial Banks Performance: Evidence from Jordan. *International Research Journal of Finance and Economics.* 81.

Ali, H. (2013). An Integrated Macro-Fiscal Forecasting Model and Its Application for the Bangladesh Economy, *International Conference on Economic Modeling,* EcoMod2013, Prague, Czech Republic.

Bird, Richard M., (2008), Tax Challenges Facing Developing Countries.*Institute for International Business*, Working Paper No. 9.

Bird, R., and Zolt, E. (2008). Technology and Taxation in Developing Countries: From Hand to Mouse. *National Tax Journal,61*(4), 791-821.

Bornhorst, F., Gupta, S., and Thornton, J. (2009).Natural Resource Endowments and the Domestic Revenue Effort.*European Journal of Political Economy*, 25(4), (439-446).

Boyd, D., and Dadayan, L. (2014).State tax revenue forecasting accuracy.*Rockefeller Institute of Government*, State University of New York, pp. 1-54.

Brown, C.V. (1983). Taxation and Incentive to Work.*Oxford University Press*, pp-2-32.

Buettner, T., and Kauder, B. (2010).Revenue Forecasting Practices: Differences across Countries and Consequences for Forecasting Performance, *Fiscal Studies*, *31*(3), 313-340.

Buch, C. M., Hilberg, B., and Tonzer, L. (2013), Taxing Banks: An Evaluation of the German Bank Levy. *Journal of Banking and Finance*, Volume 72, Pages 52-66

Cameron, A. C. and Trivedi, P. K. (2005). Micro-econometrics: Methods and Applications. *Cambridge University Press,* New York.

Castro, A. G.,and Camarillo, D. (2014).Determinants of tax revenue in OECD countries over the period 2001–2011.*Contaduria Y Administracion,* 59.35-59.

Chand, S. K., and Moene, K. O., (1999).Controlling Fiscal Corruption.*World Development, Elsevier*, vol. 27(7), pages 1129-1140.

Chaudhry, I. S., and Munir, F. (2010).Determinants of Low Tax Revenue in Pakistan.*Pakistan Journal of Social Sciences (PJSS),* 30 (2).439-452.

Chowdhury, O. H., and Hossain.M.(1988). Tax Structure of Bangladesh: An Overview. *The Bangladesh Development Studies*, 16(4): 65-91.

Devereux, M., Fuest, C. and Lockwood, B. (2015). The Taxation of Foreign Profits: A Unified View. *CBT Discussion Paper,* Series No. 5231. Available at SSRN: https://ssrn.com/abstract=2576641

Dioda, L. (2012). Structural Determinants of Tax Revenue in Latin America and the Caribbean:1990-2009. *Revenue Law Journal,* Working Paper No LC/MAX/L 1087, 1–43.

Donald, J. B., and Lucy, D. (2014).State Tax Revenue Forecasting Accuracy.*The Public Policy Research Arm of the State University of New York.*

Dutt, C. S., Friedrich, H., Marcel, O., Olena, P., Thomas, S., and Kathrin, S. (2018). Analysis of US Corporate Tax Reform Proposals and their Effects for Europe and Germany Final Report.*Leibniz Centre for European Economic Research*

Eltony, M. (2002).The Determinants of Tax Effort in Arab Countries.*Arab Planning Institute,* Kuwait. Working paper No. 0207,

Franklin, E. (2017). Revenue Forecasting Practices: Accuracy, Transparency and Practical Acceptance. *The Center for State and Local Finance.*

George K. (2006). Is the Tax System Beyond Reform? *University of Virginia: School of Law.*

Gerger, G. C., Gercek, A., Taskin, C., Bakar, F., and Guzel, S. (2014).Determining the Factors That Affect Taxpayers' perspective On Tax Administration: Research in Turkey.*International Journal of Economics and Finance Studies,* Vol 6, No 1, ISSN: 1309-8055.

Golosov, M.and J. King. (2002). The Revenue Forecasts in IMF-Supported Programs. *IMF Working Paper* No.WP/02/236, Washington D.C., USA.

Grapperhaus,and Ferdinand H.M. (2009). *Tax tale: From the second millennium.* Amsterdam. The Netherlands, IBFD

Gupta, S. (2007).Determinants of Tax Revenue Efforts in Developing Countries.*IMF Working Paper.no*. 07. 10.5089/9781451867480.001.

Gupta, S.,and Newberry, K. (1997).Determinants of the Variability in Corporate Effective Tax Rate.*Journal of Accounting and Public Policy*. 16. 1-34. 10.1016/S0278-4254(96)000555.

Gurama, Z. U. (2015). Tax evasion determinants: Evidence from Nigeria. *Doctoral dissertation, University Utara Malaysia.*

Heckemeyer, J., and Mooij, R.D. (2013). Taxation and Corporate Debt: Are Banks any Different? *IMF Working Paper* 13/221, Fiscal Affairs Department, IMF.

Heckemeyer, J., and Mooij, R. (2017). Taxation and corporate debt: Are banks any different. *National Tax Journal*, *70*(1), 53-76.

HM Revenue and Custom (2012): Measuring Tax Gaps 2012.

Hossain, M. T. (1997). *Direct Taxes in Bangladesh*.ShafkatProkashoni, Dhaka, Bangladesh.

Humphrey, A. (2005). SWOT Analysis for Management Consulting. *SRI Alumni Newsletter,* SRI International, United States.

Hutton, E. (2017). The Revenue Administration–Gap Analysis Program: Model and Methodology for Value-Added Tax Gap Estimation, *IMF Working Paper* (p. 32).

International Monetary Fund. (2001). Revised Manual of Fiscal Transparency. Washington D.C. USA.

J. M. (2003). Determinants of Tax Revenue Share in Uganda.*University of Bath*.

James, S. (2009). Tax and Non-Tax Incentives and Investments: Evidence and Policy Implications. *Investment Climate Advisory Services of the World Bank Group*.

Kairala, T. P. (2011). Government Revenue Forecasting in Nepal.*NBR Economic Review*, 4(2).

Kanga and Palkhivala (1990).*The law and practice of income tax*. N.M. Tripathi Private Ltd.

Kariuki, M. (2002).Height estimation in complete stem analysis using annual radial growth measurements.*Forestry: An International Journal of Forest Research*, Volume 75, Issue 1, Pages 63–74, https://doi.org/10.1093/forestry/75.1.63

Karim, S. M. A. (2013). Enforcement Trends and Compliance Challenges.*The Fourth IMF Japan Tax Conference.*

Kauder, B., *(2010).* Revenue Forecasting Practices: Differences across Countries and Consequences for Forecasting Performance. *Revenue Law Journal,* Vol. 21, Iss. 1, pp. 2-21.

Kau alya. (1992). TheArthashastra. Trans. L.N. Rangarajan. New Delhi; New York, N.Y., USA: Penguin Books India

Kawser, A. (2018). RajaswaBhabonaJetehobeBahudur (Thoughts on Revenue Sector: Miles to go). Dhaka: MS Doha of Mela

Keen, M., and Toro, J. (2015). Current Challenges in Revenue Mobilization: Improving Tax Compliance, *IMF Working Paper,* pp. 1-80. International Monetary Fund. Washington, D.C.

Khwaja, Munawer S., andIyer, I. (2014)Revenue potential, tax space, and tax gap: a comparative analysis. *Policy Research working paper*; no.WPS 6868. Washington, DC: World Bank Group.

Kobayashi, S. and Saita, Y. (2011).Calibrating the Level of Capital: The Way We See It. Journal of Mathematics and System Science. 1.

Koirala, T. P. (2011). Government revenue forecasting in Nepal. *NBR Economic Review*, *4*(2).

Kyobe, A., and Danninger, S. (2005). Revenue Forecasting: How is it Done? Results from a Survey of Low-Income Countries, *IMF Working Papers*, Washington, USA.*05*(24), 5-23.

Langenmayr, D., and Reiter, F., (2017).Trading Offshore: Evidence on Banks' Tax Avoidance.*Journal of Banking & Finance* 68, 57–68. Available at SSRN: https://ssrn.com/abstract=3057458

Lutfunnahar, B. (2007). A Panel Study on Tax Effort and Tax Buoyancy with Special Reference to Bangladesh.*Working Paper 715: Policy Analysis Unit (PAU)*, Research Department, Bangladesh Bank.

Macit, F. (1997). Bank Specific and Macroeconomic Determinants of Profitability: Evidence from Participation Banks in Turkey. *Economics Bulletin,* 32.

Madhavi, S. (2008).The Level and Composition of Tax Revenue in Developing Countries: Evidence from Unbalanced Panel Data. *International Review of Economics and Finance*, 17,607-617. http://dx.doi.org/10.1016/j.iref.2008.01.001

Makridikis, S., Wheelwright, S.C., and Hyndman R.J. (1998). Forecasting Methods and Applications.*John Wiley and Sons (Asia) Pte Ltd. Singapore.*

Mansur, A. H., Younus, M., and Nandi, B. K. (2011).An Evaluation of the Bangladesh Tax System.*Policy Brief, IGC*

Mansora, M., Guramab, Z., Corresponding researcher: Mansor, M. (2016). Factors Influencing Tax Evasion in Gombe State Nigeria. ISSC 2016: *International Soft Science Conference.*

Mascagni, G., and Moore, M. (2014).Tax Revenue Mobilization in Developing Countries: Issues and Challenges, Policy Department WIB 06 M049, pp. 1-38.

Mujeri, M., and Younus, S. (2009). An Analysis of Interest Rate Spread in the Banking Sector in Bangladesh, *The Bangladesh Development Studies,* Vol. XXXII, No. 4

Murphy, Kristina. (2004). The Role of Trust in Nurturing Compliance: A Study of Accused Tax Avoiders. *Law and human behavior. Kluwer Academic Publishers-Plenum Publishers*, 28: 187. https://doi.org/10.1023/B:LAHU.0000022322.94776.ca

Murphy, K.,and Byng, K. (2002).Preliminary Findings from the Australian Tax System Survey of Scheme Investors.*Working paper, ANU Research Publications.*

Nandi, B.K., Chaudhury, M., Hasan, G.Q. (2014).Univariate Time Series Forecasting: A Study of Monthly Tax revenue of Bangladesh, *East West University Center for Research and Training*, Working Paper No 9.

Obamuyi, T. M. (2013), Factors influencing in investment decision in capital market: A study of individual investors in Nigeria.*Organizations and Markets in Emerging Economies, 4.*

Oviska, M., and Hunady, J. (2014).Selected Challenges of Tax Administration in the Context of Fiscal Consolidation in European countries.*8th International Conference on Currency, Banking and International Finance,* Bratislava, Volume: 8, pp. 1-28.

Pindyck, R.S. and D.L. Rubinfeld.(1997). *Econometric Models and Economic Forecasting.*4th Edition, Singapore, McGraw-Hill.

Raczkowski, k. (2015).Measuring the tax gap in the European economy. *Journal of Economics & Management"* Economic Policy 6, 65–91.

Rahman, M. (2005). Non-compliance of Income Tax Laws: A Growing Problem in Bangladesh under Direct Taxation. Ph.D thesis, *London Institute of Technology and Research*, London, UK.

Ramanathan R. (2002). *Introductory Econometrics with Applications.*5th Edition, Singapore, Thomson Asia Pte Ltd.

Retselisitsoe, T., Neo (2015). The Existence of Revenue Gap in South Africa*, Studies in Business and Economics* no. 10(2)/2015

Richard B. And Richard O. (2008). It's Time to Do Something about The Tax Gap. *Houston business and tax journal.*

Saibu, O. and Sinbo, O. (2013). Macroeconomic Determinants of Tax Revenue in Nigeria (1970-2011).*World Applied Sciences Journal.*28. (27-35).

Sarkar, Tapan K. (2003). Improving Tax Compliance in Developing Countries via Self-assessment System- What Could Bangladesh Learn from Japan? *Asia Pacific Tax Bulletin*, Vol.9 No. 6

Schoefisch, U. (2005). Examination of the New Zealand Treasury's Tax Forecasting Methods and Processes. *Working Paper Series*, No. 21, The New Zealand Treasury, Wellington.

Siddiqi, M.W. and Ilyas, M. (2011). Impact of revenue gap on budget deficit, debt burden and economic growth: An evidence from Pakistan. *World Academy of Science, Engineering and Technology.*50. 1024-1033.

Teera, J. M. (2003). Determinants of Tax Revenue Share in Uganda. University of Bath

Tiwari, P. (2017). Assessing Factors Affecting Revenue Management in Public Sector: The Case of Halaba Special Woreda Town Administration Ethiopia (SNNPR)". *IRA-International Journal of Management & Social Sciences* (ISSN 2455-2267), 6(2), 188-234.

Vazquez-Caro, J., Bird, R.M. (2011).Benchmarking Tax Administrations in Developing Countries: A Systematic Approach.*E. Journal of Tax Research* 9. International Studies Program, Working Paper 11-04, Georgia State University, Atlanta, Georgia

Velaj, E. and Prendi, L. (2014). Tax Revenue- The Determinant Factors- the Case of Albania. *European Scientific Journal.* Vol.1 ISSN: 1857–7881 (Print) e - ISSN 1857-7431.

Wahrig, L., and Vallina, I. G. (2011).The effect of the economic and financial crisis on government revenue and expenditure, *Eurostat Statistics in Focus*, 45, 1-12.

Waly, W., and Waly, W. (1999).Tax Evasion, Corruption, and the Remuneration of Heterogeneous Inspectors. *The World Bank,* Washington, D.C

Winters, P.R. (1960).Forecasting sales by exponentially weighted moving averages.*Management Science*- 6, p.p.324-342

World Bank.(2015). World Development Indicators. Washington D.C. World bank.

Zarra-Nezhad, M., Sheikh Ansari, M. and Moradi, M. (2016). Determinants of Tax Revenue: Does Liberalization Boost or Decline It? *Journal of Economic Cooperation and Development*, 37.103-126.

Appendix- A

Interview Questions

Title of the study: A Study into the Factors Determining the Gap between Projected and Actual Revenue Collection from the Banking Sector in Bangladesh: A Trend Analysis

Notes for respondents: The main purpose of this study is to explore the determining factors of the deviation between actual and expected revenue collection from banking sector. I will try to identify the challenges and prospects of this sector in terms of revenue collection by NBR also. This study is a part of my DBA program requirement. The findings of this interview will be used only for academic purpose and here your participation is voluntary. Your kind response can help to fulfill our knowledge gap in this area. Thank you for your co-operation.

Date Scheduled for Interview: July- August, 2018

Section I: Information about Respondent

Name of Interviewee :

Designation   :

Section II: Revenue Collection from Banking sector- Basic Process of NBR

1. What is the prime problem faced by NBR in case of revenue collection from Banking sector?

Inaccuracy in tax determination	Tendency of tax avoidance	Scarcity of Human Resource	Others

2. Which is the category of banks more likely having large deviation from expected Tax revenue?

SCBs	PCBs	FCBs	Islamic Banks

3. How does NBR determine the revenue collection target for banking sector?

Section III: Discussion about the Gap Determining Factors

4. What is the prime factor responsible for gap between expected and actual tax revenue from banking sector? (Forecasting gap)

Forecasting Inaccuracy	Revenue collection process	Underlying Economic Factors	Others (Specify)

5. Are new banks having a large revenue gap?   Yes   ♦ No

6. (If yes) What are the causes?

Political Intervention (High NPL)	Tax avoidance tendency (Huge CSR investment)	Management Inefficiency	♦ Others (Specify)

7. Which of these factors is mostly responsible for tax avoidance practice by tax payer?

Complexity in Process	Corruption and lack of integrity	Lack of proper monitoring by NBR	Others (Specify)

8. Is there any different practice for Foreign bank/Islamic Bank?

Section IV: Present Attempt and Future Plan to Mitigate the Gap

9. Which reform is more likely to be useful to minimize the forecasting gap?

Use of Technology	Co-operation of Tax payer	Training program for Employees	Others (Specify)

10. What is about NBR's future plan to maximize the revenue collection from banking sector?

"I hereby give my permission for _____ to interview me and quote my responses in his/her thesis paper. I know that this thesis paper will be submitted to Professor Dr. Md. Rafiqul Islam, University of Dhaka and the author will not maintain my anonymity as a part of this interview. I hereby give my permission in the form of my signature below."

Signature_____ **Date**_____

Appendix- B

Panel Data Set

Id	t	revgap	Npl	Opercost	Fees	Spread	taxrate	inf	GDP
1	2012	1548.9306	4120.21	4072	4120.21	0.0557	0.425	0.087	6.52
1	2013	1489.8513	4574.56	4465	4574.56	0.052	0.425	0.068	6.01
1	2014	2300.9097	5932.92	5230	5932.92	0.0573	0.425	0.074	6.06
1	2015	2169.429	6619.1	5628	6619.1	0.0577	0.4	0.064	6.55
1	2016	1426.1539	11364.8	5999	11364.8	0.0567	0.4	0.059	7.11
1	2017	587.9538	16409	5871	16409	0.0495	0.4	0.054	7.28
2	2012	1322.7071	6231	3993	9482.6722	0.0545	0.425	0.087	6.52
2	2013	1023.392	7251	4627	1044.7392	0.0511	0.425	0.068	6.01
2	2014	873.7729	6859	5403	1269.6732	0.0534	0.425	0.074	6.06
2	2015	927.0023	10845	6111	1107.07	0.0529	0.4	0.064	6.55
2	2016	1919.2803	10582	6880	1317.07	0.0532	0.4	0.059	7.11
2	2017	1517.1516	10678	8047	1516.2526	0.0501	0.4	0.054	7.28
3	2012	808.3104	4096	2693	1132.6743	0.0568	0.425	0.087	6.52
3	2013	1010.2406	3168	2965	1298.4092	0.0549	0.425	0.068	6.01
3	2014	1158.8452	5061	3210	1393.5561	0.0594	0.425	0.074	6.06
3	2015	1039.8551	7962.05	3775	1414.23	0.0583	0.4	0.064	6.55
3	2016	1026.0169	7250.94	4405	1501.86	0.0578	0.4	0.059	7.11
3	2017	796.4546	11478	9763	1667.1942	0.0511	0.4	0.054	7.28
4	2012	1392.6709	4369.02	2756.66	690.3887	0.0494	0.425	0.087	6.52
4	2013	1379.6902	4862.41	2899.95	734.4916	0.0519	0.425	0.068	6.01
4	2014	794.6042	6735.52	2956.91	631.9843	0.0553	0.425	0.074	6.06
4	2015	604.7257	7409.95	3084.73	589.0457	0.051	0.4	0.064	6.55
4	2016	1027.5035	7274.01	3078.97	607.5917	0.0473	0.4	0.059	7.11
4	2017	1724.1974	8490.07	3780.01	663.8857	0.0409	0.4	0.054	7.28
5	2012	2406.2589	5015.58	6345.69	1493.6835	0.0465	0.425	0.087	6.52
5	2013	1895.0538	5985.17	6573.9	1632.6392	0.0498	0.425	0.068	6.01
5	2014	3094.6289	8050.04	6904.87	1840.5738	0.0488	0.425	0.074	6.06
5	2015	3252.1155	10324.69	7145.77	1973.3359	0.0493	0.4	0.064	6.55
5	2016	3055.9271	17920.57	8754.7	2072.4898	0.0477	0.4	0.059	7.11
5	2017	2114.5715	19268.09	9430.89	2451.6645	0.0398	0.4	0.054	7.28
6	2012	1571.04	5656.31	2179.08	1050	0.041	0.425	0.087	6.52
6	2013	1423.22	4136.68	2781.08	1093	0.0432	0.425	0.068	6.01

6	2014	960.33	5657.25	3117.6	1127	0.0444	0.425	0.074	6.06
6	2015	1585.89	5490.64	3275.37	1316	0.0402	0.425	0.064	6.55
6	2016	1246.97	5402.94	3409.12	1517	0.0458	0.4	0.059	7.11
6	2017	792.73	9208.85	4251.5	2877	0.039	0.4	0.054	7.28
7	2012	1424.25	5251.48	2768.87	1760.31	0.0527	0.425	0.087	6.52
7	2013	1937.79	5878.79	3117.35	1912.11	0.0541	0.425	0.068	6.01
7	2014	2509.96	6200.55	3907.36	2009.02	0.0524	0.425	0.074	6.06
7	2015	1725.05	5808.87	4321.25	2156.11	0.041	0.425	0.064	6.55
7	2016	1928.82	8847.33	4852.16	2620.17	0.042	0.4	0.059	7.11
7	2017	1713.92	8642.3	5437.86	3346.78	0.0395	0.4	0.054	7.28
8	2012	2036.05	2728.3	6087.97	1725	0.045	0.425	0.087	6.52
8	2013	2561.41	4175.6	8114.28	1601	0.0485	0.425	0.068	6.01
8	2014	2435.14	5475.3	8544.4	1349	0.055	0.425	0.074	6.06
8	2015	3086.19	5624.9	9174.9	1502.83	0.0485	0.425	0.064	6.55
8	2016	2533.08	8999	10409.2	1545.24	0.041	0.4	0.059	7.11
8	2017	2889.08	9644.5	12827.1	1917.84	0.047	0.4	0.054	7.28
9	2012	1659.03	3071	3308	2350	0.075	0.425	0.087	6.52
9	2013	2568.13	3697	3594	2420	0.0884	0.425	0.068	6.01
9	2014	2823.01	5157	4214	2637	0.0726	0.425	0.074	6.06
9	2015	2780.43	4263	4691	2774	0.0612	0.425	0.064	6.55
9	2016	1910.48	4096	5063	2636	0.0487	0.4	0.059	7.11
9	2017	1080.03	4600	5605	3241	0.0506	0.4	0.054	7.28
10	2012	1648.82	5687.92	2336.43	2053.67	0.067	0.425	0.087	6.52
10	2013	2355.54	5350.24	2984.6	2440.37	0.07	0.425	0.068	6.01
10	2014	2288.85	5387.74	3327.43	2666.72	0.057	0.425	0.074	6.06
10	2015	5479.46	7193.82	3570.11	2759.45	0.062	0.425	0.064	6.55
10	2016	2816.73	9257.79	4349.23	2847.69	0.053	0.4	0.059	7.11
10	2017	2019.72	13878.53	4870.74	3360.67	0.051	0.4	0.054	7.28
11	2012	1209.87	2175.22	672.33	0.0471	2538.72	0.425	0.087	6.52
11	2013	1182.59	2593.76	766.77	0.0452	1832.16	0.425	0.068	6.01
11	2014	968.32	3087.09	949.28	0.0494	2344.79	0.425	0.074	6.06
11	2015	907.65	4769.17	974.04	0.0492	2034.17	0.425	0.064	6.55
11	2016	1008.6	4107.82	1228.62	0.0491	4983.34	0.4	0.059	7.11
11	2017	983.95	6864.47	1342.69	0.0461	5268.56	0.4	0.054	7.28
12	2012	1005	2284.66	998.97	0.0468	2075.43	0.425	0.087	6.52
12	2013	1428.58	2998.37	1067.12	0.0607	2683.18	0.425	0.068	6.01
12	2014	1107.34	3263.42	1242.9	0.0641	3706.97	0.425	0.074	6.06
12	2015	776.91	3492.4	1154.71	0.0775	3450.28	0.425	0.064	6.55
12	2016	885.05	3946.56	1416.35	0.0576	4329.25	0.4	0.059	7.11
12	2017	983.22	4471.35	1623.54	0.0602	4233.48	0.4	0.054	7.28
13	2012	1039.34	2097.94	1132.23	0.0376	5338.82	0.425	0.087	6.52
13	2013	1150.56	2688.12	1007.82	0.0455	5134.09	0.425	0.068	6.01
13	2014	500.72	3047.73	1064.28	0.0511	4422.67	0.425	0.074	6.06

13	2015	544.67	3371.36	1187.76	0.0575	5840.51	0.425	0.064	6.55
13	2016	1139	3964.8	1390.34	0.0588	4744.9	0.4	0.059	7.11
13	2017	1343.34	4481.07	1847.05	0.0611	5383.45	0.4	0.054	7.28
14	2012	1448.27	5750.04	2525.86	0.0846	7637.22	0.425	0.087	6.52
14	2013	1779.76	6549.73	2601.9	0.0925	7601.08	0.425	0.068	6.01
14	2014	2072.12	6635.41	2567.98	0.0952	6980.37	0.425	0.074	6.06
14	2015	2185.93	7286.76	2915.21	0.1027	8839.2	0.425	0.064	6.55
14	2016	2688.54	7962.21	2538.45	0.0944	5911.68	0.4	0.059	7.11
14	2017	2647.45	8400.92	2976.34	0.0982	5649.5	0.4	0.054	7.28
15	2012	1002.87	2759.98	1370.1	0.0343	4005.28	0.425	0.087	6.52
15	2013	1250.46	3039.25	1457.89	0.0285	4659.75	0.425	0.068	6.01
15	2014	1106.65	3585.45	1552.57	0.0296	4831.63	0.425	0.074	6.06
15	2015	1250.12	4008.26	1673.09	0.0464	6250.77	0.425	0.064	6.55
15	2016	1260.45	5652.54	1871.88	0.0426	7745.88	0.4	0.059	7.11
15	2017	1305.67	6208.77	2107.34	0.0443	7932.28	0.4	0.054	7.28
16	2014	32000000	0	461343455	51006125	0.0394	0.4	0.074	6.06
16	2015	140000000	0	652079303	106610269	0.0394	0.4	0.064	6.55
16	2016	319300000	2.08E+08	874518123	152878311	0.0394	0.4	0.059	7.11
16	2017	332450000	9.31E+08	1094811622	218333256	0.0394	0.4	0.054	7.28
17	2014	49601743	0	464500184	42374052	0.0416	0.4	0.074	6.06
17	2015	100451844	1.4E+08	655030316	102925950	0.0416	0.4	0.064	6.55
17	2016	200776072	1.44E+08	830540591	133303904	0.0416	0.4	0.059	7.11
17	2017	326249540	4.58E+08	835569769	242541015	0.0416	0.4	0.054	7.28
18	2014	257912480	0	308717398	79981527	0.0525	0.4	0.074	6.06
18	2015	39789151	0	527642499	108730309	0.0525	0.4	0.064	6.55
18	2016	178057115	45119313	643141423	161029807	0.0525	0.4	0.059	7.11
18	2017	384625191	88287680	780396792	391824292	0.0525	0.4	0.054	7.28
19	2014	58351840	0	451997237	26546397	0.0419	0.4	0.074	6.06
19	2015	27041571	22140296	730519196	60894921	0.0419	0.4	0.064	6.55
19	2016	33483080	2.45E+08	869945028	87682055	0.0419	0.4	0.059	7.11
19	2017	131196316	5.63E+08	1171506735	215458048	0.0419	0.4	0.054	7.28
20	2014	6821716	0	534822282	17059068	0.0417	0.4	0.074	6.06
20	2015	71189900	1.32E+08	936999480	48901002	0.0417	0.4	0.064	6.55
20	2016	152429042	1.46E+08	1212122587	70500747	0.0417	0.4	0.059	7.11
20	2017	454172726	7.75E+08	1553289423	98658588	0.0417	0.4	0.054	7.28
21	2014	96019586	0	536994914	79061103	0.0496	0.4	0.074	6.06
21	2015	157849063	22325617	1025455276	138066068	0.0496	0.4	0.064	6.55
21	2016	305957715	0	1442184096	213022174	0.0496	0.4	0.059	7.11
21	2017	518365765	3.75E+08	1656819622	418979605	0.0496	0.4	0.054	7.28
22	2012	1000000000	9715	115568	114661	0.0189	0.425	0.087	6.52
22	2013	600000000	1037	121543	905686	0.0195	0.425	0.068	6.01
22	2014	3166323815	8643	131128	107374	0.021	0.425	0.074	6.06
22	2015	1160000000	8684	142573	934720	0.0283	0.425	0.064	6.55

22	2016	2894954135	1024	195795	849699	0.0353	0.425	0.059	7.11
22	2017	2724637595	1493	197051	125874	0.038	0.425	0.054	7.28
23	2012	3290000000	5320	757288	535802	0.051	0.425	0.087	6.52
23	2013	3487830807	3176	887152	385625	0.0464	0.425	0.068	6.01
23	2014	2558317615	3737	983733	419070	0.041	0.425	0.074	6.06
23	2015	2630851945	4318	110624	502308	0.0259	0.425	0.064	6.55
23	2016	3302887388	5935	132592	423645	0.0305	0.425	0.059	7.11
23	2017	1995638228	7599	141333	495301	0.0449	0.425	0.054	7.28
24	2012	1178976	5380	731877	415003	0.0444	0.425	0.087	6.52
24	2013	20564392	3580	821314	514810	0.0449	0.425	0.068	6.01
24	2014	63965637	3966	910187	447473	0.0456	0.425	0.074	6.06
24	2015	10934441	4640	114994	338462	0.0489	0.425	0.064	6.55
24	2016	7164586	6804	156468	319958	0.0447	0.425	0.059	7.11
24	2017	2187959214	5702	158072	348573	0.0464	0.425	0.054	7.28
25	2012	1404606	2262	306404	141402	0.0532	0.4	0.087	6.52
25	2013	185183986	1799	341282	138675	0.0534	0.4	0.068	6.01
25	2014	7137622	1519	381159	143318	0.0464	0.4	0.074	6.06
25	2015	2141595	2341	215297	523380	0.0496	0.4	0.064	6.55
25	2016	812677318	3484	275131	159737	0.0534	0.4	0.059	7.11
25	2017	5308088	3568	527665	129222	0.0473	0.4	0.054	7.28
26	2012	202720408	5417	875336	487537	0.0046	0.425	0.087	6.52
26	2013	255529123	5202	116893	634882	0.0045	0.425	0.068	6.01
26	2014	294361020	5241	120980	543317	0.0043	0.425	0.074	6.06
26	2015	406785796	6945	995739	438493	0.009	0.425	0.064	6.55
26	2016	307700625	7302	129367	492298	0.0116	0.425	0.059	7.11
26	2017	243700911	7645	123207	881782	0.0092	0.425	0.054	7.28
27	2012	4869.76	10823.3	8867.1	5249.69	0.0477	0.425	0.087	6.52
27	2013	5731.91	12581.53	11039.14	4969.12	0.0426	0.425	0.068	6.01
27	2014	5597.11	19059.01	12074.13	5870.37	0.0398	0.425	0.074	6.06
27	2015	9126.55	18309.52	13466.17	6198.73	0.0366	0.425	0.064	6.55
27	2016	6720.35	20195.82	17687.22	5738.17	0.0383	0.4	0.059	7.11
27	2017	6133.96	21080.67	18751.44	6259.96	0.0362	0.4	0.054	7.28
28	2012	10.24	6321.37	580.68	6.28	0.0447	0.425	0.087	6.52
28	2013	12.12	7078.38	584.06	3.06	0.0224	0.425	0.068	6.01
28	2014	14.47	7134.51	536.5	4.18	0.0172	0.425	0.074	6.06
28	2015	12.51	6895.96	497.84	7.98	0.0144	0.425	0.064	6.55
28	2016	4.67	6621.4	475.02	4.74	0.0069	0.4	0.059	7.11
28	2017	1.9	6935.5	455.39	7.25	-0.0016	0.4	0.054	7.28
29	2012	710.8	1785.35	1792.72	404.24	0.0315	0.425	0.087	6.52
29	2013	561.1	1391.73	2383.87	326.77	0.0321	0.425	0.068	6.01
29	2014	720.26	2912.43	2906.12	388.31	0.0278	0.425	0.074	6.06
29	2015	799.69	2992.96	3696.36	532.58	0.028	0.425	0.064	6.55
29	2016	963	3635.8	4298.82	444.98	0.0318	0.4	0.059	7.11

29	2017	1244.53	5253.12	4956.55	796.09	0.0306	0.4	0.054	7.28
30	2012	929.89	933.59	1906.62	601.84	0.0498	0.425	0.087	6.52
30	2013	1356.69	3610.89	2626.19	584.82	0.0459	0.425	0.068	6.01
30	2014	801.11	2819.13	2775.27	604.11	0.0461	0.425	0.074	6.06
30	2015	1170.46	4415.99	3435.25	705.29	0.0468	0.425	0.064	6.55
30	2016	1007.76	6060.29	3986.8	885.41	0.0424	0.4	0.059	7.11
30	2017	1432.09	13993.6	4757.63	993.79	0.0458	0.4	0.054	7.28
31	2012	1587.95	2140.07	1941.38	1768.07	0.0231	0.425	0.087	6.52
31	2013	1714.7	4108.06	2337.59	1364.7	0.0354	0.425	0.068	6.01
31	2014	967.42	4971.02	2683.05	1112.46	0.0375	0.425	0.074	6.06
31	2015	606.24	5246.28	2778.2	1036.12	0.0368	0.425	0.064	6.55
31	2016	586.05	5262.72	2998.95	1222.56	0.0339	0.4	0.059	7.11
31	2017	911.42	5539.09	3541.88	1614.17	0.028	0.4	0.054	7.28
32	2013	46955381.68	5.78E+08	426446297	32461018	0.045	0.425	0.068	6.01
32	2014	187261913.1	2.03E+08	432298428	28408056	0.049	0.425	0.074	6.06
32	2015	244546657.1	3.11E+08	477926390	35082741	0.045	0.425	0.064	6.55
32	2016	288519450	2.7E+08	511409018	27900668	0.037	0.425	0.059	7.11
32	2017	179769359.4	2.54E+08	524789204	24507225	0.035	0.425	0.054	7.28
33	2013	591910797.8	67247821	634340465	259761663	0.066	0.425	0.068	6.01
33	2014	672454080	2.26E+08	637595437	260979219	0.069	0.425	0.074	6.06
33	2015	683656226.1	2.92E+08	618870670	253293549	0.057	0.425	0.064	6.55
33	2016	505980252.3	4.67E+08	720438725	283689631	0.048	0.425	0.059	7.11
33	2017	716403480	3.24E+08	733526936	327038848	0.046	0.425	0.054	7.28
34	2014	23593427.48	6.23E+08	266260410	102527507	0.041	0.425	0.074	6.01
34	2015	26242333.48	4.29E+08	292852179	106346335	0.049	0.425	0.064	6.06
34	2016	19170240.4	4.73E+08	315033996	77265063	0.03	0.425	0.059	6.55
34	2017	20467807.48	4.24E+08	326722443	86701672	0.038	0.425	0.054	7.11
35	2013	496681520.9	2.41E+09	129878921	6945989	-0.018	0.425	0.068	7.28
35	2014	2373649530	7.09E+09	226750404	42103245	-0.024	0.425	0.074	6.01
35	2015	562676617.8	1.04E+10	217938435	225056279	-0.025	0.425	0.064	6.06
35	2016	11743915.78	1.48E+10	172726381	53154222	-0.061	0.425	0.059	6.55
35	2017	70764411.23	1.38E+10	191136087	22900571	0.053	0.425	0.054	7.11
36	2013	292661027.4	5.71E+08	271856920	345279827	0.031	0.425	0.068	7.28
36	2014	440334760.8	8.35E+08	250878120	447758302	0.062	0.425	0.074	6.06
36	2015	553827734.4	5.66E+08	343125404	652416442	0.055	0.425	0.064	6.55
36	2016	447429540.3	4.43E+08	384373416	25469769	0.057	0.425	0.059	7.11
36	2017	655323784.7	1.37E+08	377818674	7033368	0.053	0.425	0.054	7.28

Appendix-C

Outputs from STATA

```
. summarize
```

Variable	Obs	Mean	Std. Dev.	Min	Max
id	198	18.0303	10.51463	1	36
t	198	2014.692	1.652881	2012	2017
revgap	198	2.44e+08	6.57e+08	1.9	3.49e+09
npl	198	3.05e+08	1.69e+09	0	1.48e+10
opercost	198	1.50e+08	3.20e+08	455.39	1.66e+09
fees	198	3.54e+07	9.22e+07	.0285	6.52e+08
spread	198	749.4771	1921.787	-.061	8839.2
taxrate	198	.4155303	.0121579	.4	.425
inf	198	.0665808	.0101936	.054	.087
gdp	198	6.612576	.4875152	6.01	7.28
loggap	198	11.74975	6.063448	.6418539	21.97255
lognpl	189	10.87864	4.633698	6.839037	23.41812
logoe	198	11.62467	5.097335	6.121154	21.22817
logfees	198	9.149578	6.941129	-3.557851	20.29619

```
. correlate npl opercost fees spread taxrate
(obs=198)
```

	npl	opercost	fees	spread	taxrate
npl	1.0000				
opercost	0.0782	1.0000			
fees	0.1312	0.6544	1.0000		
spread	-0.0707	-0.1843	-0.1506	1.0000	
taxrate	0.1147	-0.2935	-0.0692	0.0001	1.0000

```
. reg loggap lognpl logoe logfees spread taxrate
```

Source	SS	df	MS
Model	6094.94163	5	1218.98833
Residual	766.445317	183	4.18822577
Total	6861.38695	188	36.4967391

Number of obs = 189
F(5, 183) = 291.05
Prob > F = 0.0000
R-squared = 0.8883
Adj R-squared = 0.8852
Root MSE = 2.0465

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
lognpl	-1.059426	.0841151	-12.59	0.000	-1.225386 -.8934658
logoe	1.619104	.1453442	11.14	0.000	1.332338 1.90587
logfees	.3766692	.0948371	3.97	0.000	.1895544 .563784
spread	.0007514	.0001657	4.54	0.000	.0004245 .0010783
taxrate	67.84375	12.53613	5.41	0.000	43.10981 92.57768
_cons	-27.31009	5.265158	-5.19	0.000	-37.69831 -16.92188

```
. reg loggap lognpl logoe logfees spread taxrate gdp inf
```

Source	SS	df	MS
Model	6179.81406	7	882.83058
Residual	681.572892	181	3.76559609
Total	6861.38695	188	36.4967391

Number of obs = 189
F(7, 181) = 234.45
Prob > F = 0.0000
R-squared = 0.9007
Adj R-squared = 0.8968
Root MSE = 1.9405

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
lognpl	-1.125004	.0810793	-13.88	0.000	-1.284987 -.9650222
logoe	1.69669	.1388038	12.22	0.000	1.422808 1.970572
logfees	.3170865	.0908062	3.49	0.001	.1379115 .4962614
spread	.0006446	.0001587	4.06	0.000	.0003315 .0009578
taxrate	120.9877	16.34898	7.40	0.000	88.72858 153.2468
gdp	1.210498	.423504	2.86	0.005	.3748586 2.046138
inf	-44.87083	19.05931	-2.35	0.020	-82.47784 -7.263828
_cons	-54.02882	8.393331	-6.44	0.000	-70.59018 -37.46746

```
. reg loggap lognpl logoe logfees spread taxrate gdp inf
```

Source	SS	df	MS
Model	6179.81406	7	882.83058
Residual	681.572892	181	3.76559609
Total	6861.38695	188	36.4967391

```
Number of obs =      189
F(  7,  181) =   234.45
Prob > F     =   0.0000
R-squared    =   0.9007
Adj R-squared =  0.8968
Root MSE     =   1.9405
```

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lognpl	-1.125004	.0810793	-13.88	0.000	-1.284987	-.9650222
logoe	1.69669	.1388038	12.22	0.000	1.422808	1.970572
logfees	.3170865	.0908062	3.49	0.001	.1379115	.4962614
spread	.0006446	.0001587	4.06	0.000	.0003315	.0009578
taxrate	120.9877	16.34898	7.40	0.000	88.72858	153.2468
gdp	1.210498	.423504	2.86	0.005	.3748586	2.046138
inf	-44.87083	19.05931	-2.35	0.020	-82.47784	-7.263828
_cons	-54.02882	8.393331	-6.44	0.000	-70.59018	-37.46746

```
. xtreg loggap lognpl logoe logfees spread taxrate gdp inf, fe

Fixed-effects (within) regression          Number of obs     =      189
Group variable: id                         Number of groups  =       36

R-sq:  within  = 0.0390                     Obs per group: min =        2
       between = 0.3825                                    avg =      5.3
       overall = 0.2598                                    max =        6

                                           F(7,146)          =     0.85
corr(u_i, Xb)  = 0.4667                     Prob > F          =   0.5502
```

loggap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lognpl	.0308797	.1498284	0.21	0.837	-.2652331	.3269924
logoe	.089581	.1864977	0.48	0.632	-.279003	.4581651
logfees	-.0636434	.1363445	-0.47	0.641	-.3331071	.2058204
spread	-.0000354	.0001384	-0.26	0.799	-.0003089	.0002381
taxrate	18.06472	10.3059	1.75	0.082	-2.30331	38.43274
gdp	.0867988	.1966872	0.44	0.660	-.3019231	.4755207
inf	-16.68451	8.57042	-1.95	0.053	-33.62262	.253598
_cons	3.706558	6.234505	0.59	0.553	-8.614979	16.0281

sigma_u	6.0096205	
sigma_e	.83057633	
rho	.98125663	(fraction of variance due to u_i)

```
F test that all u_i=0:     F(35, 146) =    24.06          Prob > F = 0.0000
```

```
. xtreg loggap lognpl logoe logfees spread taxrate gdp inf, re

Random-effects GLS regression              Number of obs      =        189
Group variable: id                         Number of groups   =         36

R-sq:  within  = 0.0086                     Obs per group: min =          2
       between = 0.8702                                    avg =        5.3
       overall = 0.8380                                    max =          6

                                           Wald chi2(7)       =     329.75
corr(u_i, X)   = 0 (assumed)               Prob > chi2        =     0.0000

      loggap |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      lognpl |  -.4153599    .113391    -3.66   0.000    -.6376022   -.1931177
       logoe |   .9423409    .137193     6.87   0.000     .6734474    1.211234
     logfees |   .3240262   .0885524     3.66   0.000     .1504667    .4975857
      spread |   .0001958    .000142     1.38   0.168    -.0000826    .0004741
     taxrate |    42.3495   11.44079     3.70   0.000     19.92596    64.77304
         gdp |   .3680583   .2320627     1.59   0.113    -.0867763    .8228929
         inf |  -21.66272   10.16645    -2.13   0.033     -41.5886   -1.736842
       _cons |  -16.28343   5.700072    -2.86   0.004    -27.45537   -5.111498
-------------+----------------------------------------------------------------
     sigma_u |  1.4688718
     sigma_e |  .83057633
         rho |  .75772739   (fraction of variance due to u_i)
```

```
                 ---- Coefficients ----
              |    (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |     f            r           Difference          S.E.
--------------+----------------------------------------------------------------
          npl |  -.0894068    -.0595772      -.0298296          .013509
     opercost |   .4496039     .2465014       .2031025         .1392897
         fees |   .0918561     .1860907      -.0942346         .1041016
       spread |   .6009568    -19411.41       19412.01         36307.32
      taxrate |   23732.97     1.19e+09      -1.19e+09         4.32e+08
```

```
              b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

           chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                   =        7.53
           Prob>chi2 =      0.0061
```