COMPETITION, CONCENTRATION AND BANKING SECTOR STABILITY

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Foreword

As part of the ongoing dissemination of BIBM research outputs, the present research monograph contains the findings of the research project: *"Competition, Concentration and Banking Sector Stability"*. This publication investigates the status of competition and concentration in the banking sector of Bangladesh and assesses the impact of competition and concentration on the stability of banking sector. It gives me great pleasure, on behalf of BIBM, to offer this important resource to the practitioners of the banks, as well as to the academics and common readers. I hope this monograph will be a useful reference point for financial institutions involved in providing financial services in Bangladesh. We do encourage feedback from our esteemed readers on this issue which certainly would help us improve upon our research activities in the years to come.

Md. Akhtaruzzaman, *Ph.D.*
Director General, BIBM

Acknowledgement

Competition, Concentration and Banking Sector Stability

Contents

Abbreviations

ADR	Advance Deposit Ratio
BACPS	Bangladesh Automated Cheque Processing Systems
BB	Bangladesh Bank
BBS	Bangladesh Bureau of Statistics
BKB	Bangladesh Krishi Bank
BSB	Bangladesh Shilpa Bank
BOT	Bank Of Thailand
BRC	Banking Reform Committee
CBR	Central Bank of The Russian Federation
CEO	Chief Executive Officer
CBRP	Commercial Bank Restructuring Project
ESH	Efficient Structure Hypothesis
ECB	European Central Bank
EU	European Union
FSAC	Financial Sector Adjustment Credit
FSC	Financial Stability Council
FSD	Financial Stability Department
FSR	Financial Stability Report
FSS	Financial Supervisory Service
FE	Fixed Effect
FX	Foreign Exchange
GMM	Generalized Methods of Moments
G-SIBS	Globally Systemically Important Banks
GDP	Gross Domestic Product
GCC	Gulf Cooperation Council
HHI	Herfindahl-Hirschman Index
INF	Inflation
ICC	Internal Control and Compliance
IMF	International Monetary Fund
JPC	Joint Policy Committee
LR	Lending Rate
LCR	Liquidity Coverage Ratio
LTV	Loan-To-Value
MFIS	Microfinance Institutions
MOSF	Ministry Of Strategy and Finance
MLC	Money Loan Court Act
MRTP	Monopolies And Restrictive Trade Practices
NPSB	National Payment Switch Bangladesh
NIM	Net Interest Margin
NEIO	New Empirical Industrial Organization
NPL	Non-Performing Loan
OECD	Organisation For Economic Co-Operation and Development
OJK	Otoritas Jasa Keuangan
OTC	Over The Counter

PCBS	Private Commercial Banks
PSES	Public Sector Enterprises
RE	Random Effects
R&D	Research And Development
RBI	Reserve Bank of India
ROA	Return On Asset
RWA	Risk Weighted Asset
SND	Special Notice Deposit
SOCB	State-Owned Commercial Banks
SCP	Structure-Conduct-Performance
D-SIBS	Domestically Systemically Important Banks
BSP	The Bangko Sentral ng Pilipinas
BIS	The Bank for International Settlements
BOK	The Bank of Korea
FSRP	The Financial Sector Reform Program
FSC	The Financial Services Commission
FSDC-SC	The Financial Stability and Development Council Sub-Committee
FSB	The Financial Stability Board
FSU	The Financial Stability Unit
IC	The Insurance Commission
KDIC	The Korea Deposit Insurance Corporation
MAS	The Monetary Authority of Singapore
OIC	The Office of Insurance Commission
PBOC	The People's Bank of China
SEC	The Securities and Exchange Commission
WB	The World Bank
TA	Total Asset
US	United Sates
ZS	Z Score

Executive Summary

Financial Sector development is an essential determinant of a country's economic growth and stability. A more developed banking system promotes a country's economic growth during normal periods (Rajan and Zingales, 1998; Levine, 2005; Ongena and Giannetti, 2009). In the development of financial sector, the tradeoff between competition and stability in the banking industry is a great concern for the policymakers and researchers. Although in many studies it has been well articulated that competition boosts market efficiency but it reduces banking system stability by squeezing profits, lowering bank valuations, and encouraging bankers to make riskier investments because they have less to lose. However, the USA financial crisis in 2008, has raised the concern for both advanced and emerging economies to focus on stability in the banking sector. According to World Bank (2013), competition in the banking system is always appreciated for efficiency and maximization of social welfare. However, competition can be both good and bad for banking stability (OECD 2011; Claessens, 2009). Furthermore, the stable and efficient banking sector is very crucial for economic growth of developing countries like Bangladesh.

Considering the importance of stable banking sector for emerging economies, the main objective of the study is to examine the impact of competition and concentration on banking sector stability. The specific objectives are *(i)* to review the policies and practices addressing competition, concentration and banking sectors' stability, *(ii)* to investigate the status of competition and concentration in the banking sector of Bangladesh, *(iii)* to assess the impact of competition and concentration on the stability of banking sector.

Though secondary data has been mainly used in this study, for more specification, , the researchers also interview industry experts and academics in this regard. Moreover, a panel regression model for the period 2014-2018 is used to understand the relationship between concentration and stability of the banking sector in Bangladesh. Both Random Effect (RE) and Fixed Effect (FE) models are estimated here.

Significant structural changes in the prudential frameworks of banking sectors are evident after the global financial crisis. Moreover, technological innovation, increased non-bank competition and shifts in globalization are also considered for the broader smoothness in the banking system (BIS, 2018). Now regulators are addressing the challenges by reforming the global prudential framework and enhancing supervision. At the same time, they have adopted new operating landscape; re-assessed and adjusted their business strategies and models, including their balance sheet structure, cost base, scope of activities and geographic presence. All these activities are targeted to the stability and efficiency of banking markets.

Bangladesh is not different in this adaptation process. The ownership reform program or privatization of banks, the financial sector reform program (FSRP), the formation of Banking Reform Committee (BRC) etc. are the remarkable steps in this process. In addition to address stability the central bank of Bangladesh formed Financial Stability Department back in 2010 in the financial sector with an objective to assess the resilience of the financial system of Bangladesh to withstand risks and vulnerabilities, and the course of actions taken by the sector that have implications to the stability of the financial system. Due to the increasing importance of financial stability towards sustainable economic growth, BB initiated steps to prepare a financial stability report from 2010 onward on a regular basis replacing the Off-site Supervision Report.

In data analysis of the study, it has been found that, the banking sector in Bangladesh was mainly concentrated up to 1995. However, the sector has gradually become less concentrated over the years in terms of all four parameters (total asset, total deposit, total advance and trade service). Moreover, the volume of banking operations increased in manifolds due to the expansion of banking license, bank branches, regulatory supports, new banking products, technology etc.

In the empirical analysis, a negative and statistically significant relationship between the Total Asset (TA) and NPL is evident in model 1, which implies banks could reduce NPL if they can increase their asset portfolio in a prudent manner which will eventually reduce credit risk and ensure stability. The estimated highly significant coefficient for the ownership dummy variable reveals that NPL is higher in public sector banks compared to their private and foreign counterparts. Similarly, in Model 2, the estimated negative and statistically significant coefficient for Total Assets (TA) implies that increase in bank assets will reduce Z-score which indicates an increase in insolvency risk. One possible reason for such insolvency is the deteriorating asset quality of the sample banks. The estimated positive and significant coefficient for Lending Rate (LR) reveals that higher lending rate may help banks to be more solvent though increasing interest income. The estimated negative and significant coefficient for inflation rate implies increased inflation may have adverse effect on bank solvency which might trigger financial instability. However, in the opinion survey, no experts think that there is significant instability in the banking sector.

To ensure stability in a healthy competitive environment, bank management is suggested to consider target oriented segmented market with innovative products. Moreover, the senior management and board of the banking sector should device policies and strategies for making the competition progressive. Regulatory stakeholders may come up with more comprehensive policy framework in addressing this issue. Digitization and technology adoption is making a disparity in smooth banking operation among bankers. Though pioneers are getting the advantage of digitalization, there remain ample scopes of

integrating all banking activities under the digitization efforts to foster smooth operation and facilitate customer transaction. In the study, different indices clearly indicate that the banking sector of Bangladesh is moderately competitive and concentrated. But there are some kinds of concentration in different functional areas amongst different group of Banks. This concentration risk may cause instability in long run which is needed to be addressed with care by management and regulators. In addition, for better stable banking sector, Financial risk dashboard, Systemic risk survey, Annual industry-wide stress test, Early warning systems, Credit conditions, market expectations surveys, Probability-of-default model for large corporate borrowers, Evolution of real estate prices, Indebtedness and currency mismatches in the corporate sector etc. tools are pre-requisite.

As banking sector is playing a vital role for economic development, Bangladesh should focus on the stability issues with priority to make a smooth landing at the Middle-income status. The diversification in the target market and innovation in the product are now on demand. But ensuring stability with efficiency will be a challenge if unmanaged competition is unaddressed by the stakeholders. Proper care is needed to be taken that no undue concentration arise in any of the functional areas of banks neither competition take any unhealthy shape and feature. Moreover, an integrated approach among all stakeholders is prerequisite in ensuring efficient stability with healthy competition in the banking sector of Bangladesh.

Competition, Concentration and Banking Sector Stability

1.0 Introduction

1.1 Background

The new millennium started with relatively stable banking system across the world. But, the global financial crisis from the second half of its first decade associated to the U.S. subprime crisis has multiplied concerns for policy makers on the stability both in developed, developing and undeveloped economies. Against this backdrop, bank stability has become the prime focus of the banking sector policy debate. The impact of banks' competition on stability is an extensively discussed issue among the policy makers (Beck 2008). Competition may benefit the market players, national economy and the society significantly. Alternatively, it also can be a source of potential instability due to taking more risks. Recent empirical studies (World Bank 2013; OECD 2013; Beck *et al.,* 2013; Schaeck *et al.,* 2009; Boyd *et al.*, 2009; Beck *et al.*, 2006) support the positive relationship between the stability of the banking sector and the level of competition between banks. According to World Bank (2013), competition in the banking system is always appreciated for efficiency and maximization of social welfare. However, competition can be both good and bad for banking stability (OECD 2011; Claessens, 2009). Several cross-country analyses suggest that systemic crisis is likely to occur in countries with concentrated and less competitive banking systems (Beck *et al.*, 2006; Schaeck *et al.*, 2009; Boyd *et al.,* 2009). However, micro-level evidence from individual banks designates that bank risk is lower if competition is lower (Beck *et al.,* 2013).

The global financial crisis has not only traumatized most of the financial market and institutions, but also has risen fundamental issues about the market power, such as concentration or market share, especially the role of bank equity capital, particularly from the standpoint of bank survival. The intensifying concerns among policy makers about bank concentration are reflected in the major reports by the Bank for International Settlements (BIS), International Monetary Fund (IMF) and the Group of Ten (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom and United States). However, there is both positive and negative connotation of market concentration on bank stability (Kasman and Carvallo, 2014). It may stimulate stability and at the same time can be a source of bank fragility (Beck, *et al.,* 2006; Evrensel, 2008; De Haan and Poghosyan, 2012a; De Haan and Poghosyan 2012b; Boyd and De Nicoló, 2005; Boyd, *et al.,* 2006; Uhde and Heimeshoff, 2009; Fu, *et al.,* 2014; Pawlowska 2016). If the impact of concentration affect instability of banks that is costly for developing countries (Demirguc-Kunt and Kane 2002). Therefore, whether banking concentration is a

source of stability or, a factor of banking crises, this subject requires particular attention **as** the financial situation of banks heavily affects the performance of the real economy (Dell'Ariccia, *et al.,* 2008).

As a developing country, there is every need of a stable banking sector as it affects the economy as a whole. In Bangladesh, very limited number of studies has been carried out on the subject. One such study is done by Uddin and Gupta, (2012) on financial institutions. The findings reveal a highly concentrated market in 1997 and till 2010 there has been a considerable reduction in concentration. It indicates that high competition promotes less concentration. With this background, the study aims at examination of the impact of competition and concentration on banking sector stability.

1.2 Objectives of the Study

The specific objectives are *(i)* to review the policies and practices addressing competition, concentration and banking sectors' stability, *(ii)* to investigate the status of competition and concentration in the banking sector of Bangladesh, *(iii)* to assess the impact of competition and concentration on the stability of banking sector.

1.3 Organization of the Study

The study has been divided into nine sections. Introductory section covers background, objectives and limitations of the study, while section two presents review of relevant literature. Section three illustrates the data and methodology, while Section four illuminate efforts to address stability in the financial sector. Section five depicts the current status of competition and concentration in the banking sector of Bangladesh while Section six analyzes the data and presents empirical findings. Section-seven demonstrates the summery of opinions from bank executives and experts. Recommendation and concluding remarks are placed in Section eight and Section nine, respectively.

1.4 Limitations of the Study

The research is mainly based on secondary data and few opinions from bankers and experts. Impact assessment of competition and concentration on stability is a wide area and can be judged from different angles. Due to paucity of time and non-availability of bank specific data, some of the indicators of competition and concentration could not be measured elaborately on stability. However, there is a scope of further study by using some other parameters.

2.0 Review of Relevant Literature

2.1 Defining Competition, Concentration and Stability

2.1.1 Competition

Probably The Wealth of Nations (Smith, 1776) is the originating source of the idea of competition in an economy. Competition can be better described as a race between competitors to gain market share as Smith believed rather he opposes to accept the competition as a state or situation. The rivalry latent with competition forces price towards the equilibrium of supply and demand. The number of rivals may help building good competition but the really essential condition to reach competition is rather individual freedom. Inspired by Smith, subsequent works have developed two major views of competition (McNulty, 1967; Vickers, 1995; Blaug, 2001). The first view measures competition as a static equilibrium outcome, and the later view measures competition as dynamic competitive process. According to the former theory, abnormal profit through charging overprice is not possible by firms. The two major views however, not necessarily follow such generalization rather believes the matters to be more complex.

This conception of competition is also challenged by other economists, particularly the Austrian School, which focuses on dynamic aspects of competitive rivalry (Leon, 2014). With respect to latter theory, to survive with competition, firms require to develop and innovate new products and services. Stigler (1957) defines competition as "a rivalry between individuals (or groups or nations), and it arises whenever two or more parties strive for something that all cannot obtain". Vickers (1995) finds that rivalry "encompasses all sorts of forms of rivalry (market trading, auctions, races, wars of attrition, etc.), instruments of rivalry (prices, advertising, R&D, takeover bids, effort levels, etc.), objects of rivalry (profits, market share, corporate control, promotion, prices, survival, etc.), as well as types of rival". At the very basic level, competition demonstrates rivalry by capturing all existing and prospective competitors' offerings and substitutes a buyer might consider (Kotler, *et al.* 2009). In business, these rival actions are intended to take actions that are beneficial to consumers by lower prices, increased quality, accelerated innovation and hence improved firm level efficiency (Mayo, 2006).

Therefore, competition is a process of winning customers' business by undertaking different strategies in terms of product innovation, price setting, distributing & communicating services. The central element of all these activities is R & D on customers and deployment of resources accordingly to foster service excellence.

2.1.2 Concentration

In economics, market concentration is a way to quantify the market (OECD, 2018). Suharto (2008) defines "market concentration is related to industrial concentration, which refers to

a structural characteristic of the business sector. It is the degree to which production in an industry—or in the economy as a whole—is dominated by a few large firms". As banking operation is carried out with multiple and complex products, concentration of banking sector can be in terms of geography, size (asset-liability), products, sector etc.

2.1.3 Financial Stability

Financial system consists of three components-financial institution, financial market and financial instrument. The smooth functioning of the three components in a financial system complex is defined as financial stability. European Central Bank (ECB) (2007) defines financial stability as "a condition in which the financial system – comprising financial intermediaries, markets and market infrastructure – is capable of withstanding shocks and the unraveling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities". According to Schinasi (2004), financial stability can be viewed in three dimensions:

> (a) Facilitating the allocation of economic resources and efficiency of other macroeconomic indicators;
>
> (b) Identifying and managing financial risks; and
>
> (c) Maintaining the ability to perform these key functions.

The above approach to exhibit stability of the financial system supports *the logic* accepted by the central bank of Bangladesh. The Bangladesh Bank views stability in terms of assessing resilience of the financial system to tolerate risks and vulnerabilities as well as rules and regulations governing internal operations (Financial Stability Report, BB, 2018).

2.2 A Nexus between Banking Competition and Financial Stability

The relationship between banking competition and the overall financial stability is evident in literature. Primarily, competition-fragility (negative relationship) and competition-stability (positive relationship) are tested in different countries & regions and have obtained contrasting results.

Empirical studies conducted by Marcus, 1984; Keeley, 1990; Carletti and Hartmaan, 2002 shows that financial instability incurs due to increased bank competition which ultimately narrows down the market power. Form the less market power, financial performance of banks goes down advocating the competition-fragility view. Hence, in this market mechanism, banks expose to more risks to achieve more returns by deteriorating the asset quality of the banks, encourage moral hazards, NPLs and sometimes bank failures (Jimenez *et al.* 2007; Murdock and Stiglitz, 2000; Keeley, 1990). However, Vives, (2010) finds that though competition does not bring instability, it might increase sources of instability.

Some studies claimed the positive relationship of bank competition and financial stability. One such study is conducted by Beck *et al.* in 2006. The author empirically tested competition with stability in a group of 69 countries. The cross country scenario showed a positive relationship. Moreover, riskier investment may arise due to "too-big-to-fail" theory perception in the minds of banks in a highly concentrated market (Berger *et al.*, 2008).

2.2.1 Theoretical Evidence

Two approaches, from the literature, have been found to be applied to measure bank competition viz., structural approaches and non-structural approaches. Structural approaches infer that the likelihood of collusion increases with market concentration. Non-structural approaches directly measure the competitive conduct of firms (Leon, Florian 2015). Two schools of thoughts emerged according to the development of structural approach i.e., the Structure Conduct Performance (SCP) paradigm and Efficient Structure Hypothesis (ESH). SCP hypothesis assumes a causal relationship between market structure and price setting behavior of firms having an ultimate relation with the profitability too (Prasad and Ghosh 2005). SCP determines the degree of competition in an industry from its structural features (Bain 1951). The SCP implies that low competition in the banking sector industry creates market power to offer lower deposit rates and higher lending rates. Monopolistic profit of firms (banks) is ensured by the lesser number of firms along with the more concentrated market structure, (Bain 1951, Staikouras and Koutsomanoli-Fillipaki 2006, Berger and Hannan 1989). This finding is also supported by Heggestad and Mingo (1977), Spellman (1981), Rhoades (1982) and Lloyd-Williams *et al.* (1994). The studies supporting SCP hypothesis on emerging banking markets are Katib (2004) on Malaysia, Al-Muharrami and Mathews (2009) on Arab Gulf Cooperation Council (GCC), Bhatti and Hussain (2010) on Pakistan and Sharma and Bal (2010) on India.

On the other hand, Efficient Structure Hypothesis (ESH) contradicts SCP hypothesis and proposes an inverse linking between market structure and performance. ESH was advocated by Demsetz (1973) and Peltzman (1977). Numerous studies support this hypothesis including Smirlock (1985), Evanoff and Fortier (1988) and Samad (2008). Seelanatha (2010) on Sri Lanka and Chortareas *et al.* (2011) tested ESH on Latin America with a conclusion that market share of efficient banks is due to their higher profitability. Moreover, Staikouras and Koutsomanoli-Fillipaki (2006) demonstrated that "a bank with a higher degree of efficiency than its competitors (i.e., low cost of production) can adopt two different strategies namely, maximizing profits by maintaining the present prices & company size and maximizing profits by reducing prices & expanding the size of the company".

However, some authors, doubted about the SCP paradigm regarding the structural measures of competition. In response to the deficiencies, non-structural measures of competition have been developed which has been named as New Empirical Industrial Organization (NEIO). It assesses the competitive conduct of firms directly. The first school of thought of non-structural measures is based on oligopoly theory and a static model of competition which is assessed by the Lerner index, the conjectural variation model and the Panzar-Rosse model. Subsequently, other non-structural measures, especially the Boone indicator, have been developed to capture the dynamism of the market rather than static analysis (Leon, 2014).

2.2.2 Empirical Evidence

Empirically, several studies in the post crisis period have supported positive relationship hypothesis to determine the linkage between competition and stability. Boyd, *et al.* (2006) and De Nicolo and Loukoianova (2006) both found negative association between higher market competition and financial stability. The study suggested that highly concentrated markets face the risk of bank failures. They used Z-index (an inverse measure of bank risks) to estimate financial stability and also applied Herfindahl-Hirschman index to measure market competition. Cihak and Wolfe (2006) applied Logit model and duration analysis to estimate the Rosse-Panzar H-statistic as a measure of competition. Their findings suggested that more competitive banking sectors has a lower risk of bank failure. Lerner Index has also been used to measure competition and bank stability. Berger *et al.* (2008) employed Generalized Methods of Moments (GMM) for a sample of over 8,000 banks in 23 countries for dynamic panel data framework. Findings supported competition-fragility hypothesis.

In 2010, the study of Turk-Ariss on bank efficiency and financial stability of emerging economies used the Learner and Z index for competition and financial stability. Using the same index, Liu *et al.* (2013) analyzed the competitive conditions in 11 EU countries for the period of 2000-2008. Their results revealed a non-linear relationship between competition and stability in European banking.

Liu *et al.* (2012) introduced a variety of bank-specific risk indicators (the ratio of loan-loss provisions to total loans, loan-loss reserves to total loans, after-tax ROA volatility, and the natural logarithm of the Z-index) to investigate similar relationships for banks operating in South East Asia between 1998 and 2008. They found that competition does not erode bank stability.

2.3 A Nexus between Concentration and Stability

Similar to competition-stability nexus the theoretical literature on concentration-stability interdependency, illustrates the significant interrelation. There are two major streams to explain the relation: concentration-stability view and concentration-fragility view.

2.3.1 Theoretical Evidence

Keeley (1990) proposed concentration-stability paradigm which states that that banks operating in a concentrated market have some market power and are more prudent in risk-taking. Financial stability of larger banks depends on more qualitative credit investments to increase the return of investment (Boot and Thakor, 2000). Similarly, banks in concentrated market may enhance profits, through either higher interest rates or less loan loss provision (Boyd, *et al.*, 2004). Higher profits gives higher "capital buffer" to protect banks from adverse external macroeconomic, loan losses and liquidity shocks. The increased capital buffer adds value of the bank, reduce incentives to expose to high risk and thus minimize the probability of default (Beck, *et al.,* 2006; Berger and Bouwman, 2013). Lager banks can better manage loan portfolio diversification due to higher economies of scale (Diamond and Dybvig, 1983; Uhde and Heimeshoff, 2009). Besides, according to Allen and Gale, (2004), regulators can better supervise a few banks in a concentrated banking system.

The concentration-fragility thought argues moral hazards from borrowers can be found in in a more concentrated banking environments due to the monopoly power by the banks in loan disbursement. (Boyd and De Nicolo, 2005; Berger, *et al.,* 2009; Mirzaei, *et al.,* 2013). In concentrated market, the likelihood of default is high due to the perception of larger banks that they are "too big to fail" for a financial system as a whole (De Haan and Poghosyan, 2012a; De Haan and Poghosyan, 2012b). Consequently larger banks may intensify risk-taking incentives and hence increase banking fragility (Mishkin, 1999; Moch, 2013). Cetorelli, *et al.* (2007) states that a lower degree of diversification may end up deteriorating managerial efficiency, less effective internal control and increased operational risk that may be vulnerable to supervisory failures.

2.3.2 Empirical Evidence

With the existing theoretical literature it is challenging to show empirical relationship between market concentration and stability in the banking system. Keeley (1990) and Demsetz *et al.,* (1996) showed negative relationship between concentration and stability in U.S by using Tobin's q, indicator of market power.

Similarly, adopting the model developed by Allen and Gate (2004), Boyd and De Nicolo (2005) also presented a model which explained that banks operating in a concentrated market take high risk and increase the market share in asset and liability markets which

eventually charge high rates to borrowers. Beck *et al.* (2006) inspected the association between market concentration and banking crises by applying country-specific data and a concentration index on 69 countries for the period 1980-1997. De Nicolo *et al.* (2004) showed that crises are less likely to occur in economies with more concentrated banking systems. De Haan and Poghosyan (2012b) and Boyd *et al.* (2006) used ROA and ROE as measure of bank profitability. They also used Z Index & HHI in assessing the joint effects of market structure and risk on profitability. However, Matutes and Vives (2000) and Uhde and Heimeshoff (2009) exhibited, using Z score, an inverse relationship between market concentration and financial soundness of European banking system but a positive realationship was found between market concentration and profitability of banks In Spanish banking system, Jimenez *et al.* (2013) conducted a study using Lerner Index and revealed that market concentration was not a driving force for non-performing asset

Boyd *et al.,* showed in a study conducted in 2006 that effect of riskier portfolios dominated despite increased revenue for the period of 1993-2004. The increased revenue was due to the banks' more concentration. In the study, HHI and Z-score were used for a cross-section of 2500 banks and a panel of 134 countries. The study prolonged by De Nicolo and Loukiaonova (2007) by applying data from 133 non-industrialized countries for the years of 1993-2004. Found that when bank ownership was considered, the outcome was stronger.

Schaeck, *et al.,* (2009) used Panzar and Rosse H statistics and standard deviation of concentration measure for 38 countries over the period of 1980-2033 and found evidence in favor of a concentration-fragility view.

Pawlowska (2016) investigated the role of market concentration (using Z-score and HHI) and loan risk (measured by NPL) in the banking system of European Union. The paper found that homogeneity was not observed in the banking sector of EU while supporting competition fragility view. Similarly, Wei, *et al.* (2014) found a significant increase in both the idiosyncratic default and the systemic risk of acquirers following bank mergers, thus confirming the "concentration-fragility" hypothesis.

Besides, Caminal and Matutes (2002) and Martinez-Miera and Repullo (2010) found support on both concentration-stability and concentration-fragility approaches by proposing a nonlinear U-shape relationship between the two approaches. Due to the bank completion, the probability of default first goes down but then rises after a certain point Similarly, Berger, *et al.,* (2009) tested the impact of market structure on risk potential in 23 developed nations and the result supported the "concentration-fragility view" stating increased loan portfolio risk due to market power.

In Bangladesh, study conducted by Uddin and Gupta, (2012) on financial institutions finds a highly concentrated market in 1997. Till 2010 there has been a considerable reduction

in concentration. The study indicates that in a highly competitive market there will be less concentration. Another study is conducted by Ahmed (2012) who used RE estimator to study the level of concentration and banks' performance during 1999-2011. The study used both the theory of SCP and ESH to examine the association of banking sector's competition concentration. The study could not find any support for either of the hypotheses. Though, a sub-sample (2002-2011) of the study came up with a conclusion that the profitability of the banks in Bangladesh captured by concentration but not by the banks' market share.

3.0 Methodology

As has been recognized that there are very few works on this tripod, availability of data in required size and shape is also a few to conclude on policies, status, and impact assessment for competition-concentration-stability, natural focus took bend on post fact information. Due to the very nature of the study the research is mainly based on secondary data. To reach more convincing conclusion the researchers also interviewed a number of industry experts and academics of this discipline.

3.1 Data Selection Process

The study covers descriptive and empirical analysis to examine baking sector's competition, concentration and stability. For descriptive analysis, data on key banking parameters are used for the outstanding balance on the year end for every five-year interval starting from 1980 to 2010. However, annual data of each subsequent year starting from 2014 to 2018 for the same purpose are used. Moreover, each year annual data from 2014 to 2018 are used to make a balanced panel data for empirical analysis.

3.2 Data Sources, Data Collection and Period for Analysis

A panel regression model is used to understand the relationship between the banking sector stability and concentration of the period 2014-2018. The study attempted to construct a unique data set using the annual data from 52 commercial banks of Bangladesh (Appendix-I), consisting seven (07) state-owned commercial banks (SOCBs), 38 private commercial banks (PCBs) and seven (07) foreign banks. Two panel regressions with measures of stability have been estimated, having, concentration index and macroeconomic indicators as independent variables Z-score and NPL ratio as dependent variables along with the set of bank-specific variables.

The sample data on banks have been collected from the published balance sheets of individual banks in Bangladesh. Whereas the source of macro-level data are, Bangladesh Bureau of Statistics (BBS), Bangladesh Bank (Central Bank of Bangladesh) and the Ministry of Finance, Government of Bangladesh, Etc. The total number of observations is 260.

3.3 Measurement of Market Concentration Indices

K-Concentration Ratio (CRk)

K-concentration ratio (CRk) that provides information on shifts in market shares between the top n banks is widely used in empirical literature. It is defined as the sum of market shares of 'n' largest companies in the market (Bikker and Haaf; 2000) and exhibited as per following equation:

$$CRk = \sum_{i=1}^{k} Si$$

Here, 'Si' stands for the market share of the banks, while 'i' and 'k' are the number of banks in the industry (i = 1 2…k). Any general rule is yet to establish determining the optimal value for 'k'. However, in banking literature, 'k' is generally thought to be 3, 4 or 5. The study uses CR4 ratio using the four (04) systemically important banks (D-SIBS) in Bangladesh.[1]

Herfindahl-Hirschman Index (HHI)

Similarly, most common measure of estimating concentration in the industry is HHI. The HHI index is the sum of the squares of the proportionate sizes against the total size of the market) of the companies in the market. The index is presented through the following formula

$$HHI = \Sigma_{i=1}^{n} S_i^2$$

Where, 'Si' is the market share of the 'i-th' bank in the industry.

A HHI index below 0.01 (100) indicates highly competitive market and below 0.1 (1000) indicates a concentrated market. A HHI index between 0.1 and 0.18 (1000 to 1800) indicates moderate market concentration. A HHI index above 0.18 indicates high market concentration.

In other words, HHI index is a spectrum between 0 and 1. A zero ('0') value indicates perfect competition while the monopoly is translated through the value one ('1'). More illustriously, a value between 0 and 0.10 indicates highly competitive market (having no concentration), and the value within 0.10 to 0.20 indicates that there is no adverse effect on competition. However, the value above 0.20 represents poor competition so is a concern and needs to increase competition further in the industry. (The values may be expressed

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[1]D-SIBS banks for Bangladesh are Sonali Bank Limited, Janata Bank Limited , Agrani Bank Limited and Islami Bank Bangaldesh Limited

through a range from 0 to 10,000, if market shares are expressed in terms of percent rather than in fractions)

3.4 Measures of Competition, Concentration and Financial Stability

Three indices, HHI, CR4 and CR7, have been used to measure the competition and concentration of the banking sector in Bangladesh. Besides, Z-scores and NPL ratios are taken into account as stability measures in our analysis.

3.4.1 Construction of the Variables

The stability of a bank can be evaluated with regard to different sources of risks, for example, credit risk, liquidity risk, and solvency risk. In the literature Z-score is widely used as an indicator of bank solvency so as a stability indicator (Boyd and Runkle, 1993; Lepetit *et al.,* 2008; Laeven and Levine, 2009). Using ratios like return on asset, its volatility and leverage, the Z-score is calculated as follows:

$$Zit = \frac{ROA_{it} + Eit/\text{TA}_{it}}{\sigma(ROA)_{it}}$$

Where, TA is the total assets, E/TA is the equity to total assets ratio, σ (ROA) is the standard deviation of return on assets, and ROA is the return on assets. The Z-score is inversely related to the probability of a bank's insolvency. The Z-score shows the multiple of standard deviations that a bank's return may be or going to fall below its expected value to diminish equity and make the bank insolvent as a bank becomes insolvent when its asset value drops below its debt.

Another key risk relating to stability is credit risk. We have considered NPL ratio as the measure of credit risk in our analysis. Table-1 shows the definitions of independent and dependent variables as given below:

Table 1: Dependent and Independent Variables

Dependent Variables	
Non-performing Loan ratio (NPL)	Total non-performing loans divided by total outstanding loans
Z Score (ZS)	Bank level Z-Score solvency risk
Independent Variables	
Net Interest Margin (NIM)	Bank's net interest income as a share of its total earning assets.
Total Asset (TA)	Natural logarithm of Total Assets
4-bank Concentration ratio (CR4)	Annual index that measures the asset share of 4 D-SIBs

7-bank Concentration ratio (CR7)	Annual index that measures the asset share of 7 top banks
Interest rate (LR)	Lending (Credit) interest rate
Rate of Inflation (INF)	CPI inflation
GDP	Nominal GDP growth rate
Ownership (OWN)	A dummy variable for bank ownership having its value (1) one for public bank and otherwise (0) zero

3.5 Empirical Models and Estimations

We estimate the following panel regression models:

Model 1:

$$NPL_{it} = \alpha + \beta 1 TA_{it} + \beta 2 NIM_{it} + \beta 3 CR_{it} + \beta 4 LR_{it} + \beta 5 INF_{it} + \beta 6 GDP_{it} +$$

$$\beta 7 OWN_{it} + U_{it} + V_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where, β1, β2, β3, β4, β5, β6, and β7 are panel data regression coefficients. U_{it} and V_{it} are two errors terms.

Model 2:

$$ZSCORE_{it} = \alpha + \beta 1 LTA_{it} + \beta 2\ NIM_{it} + \beta 3 CR_{it} + \beta 4 TA_{it} + \beta 5 LR_{it} +$$

$$\beta 6\ INF_{it} + \beta 7\ GDP_{it} + U_{it} + V_{it} \ldots\ldots\ldots\ldots\ldots.(2)$$

Where, β1, β2, β3, β4, β5, β6, and β7 are panel data regression coefficients. U_{it} and V_{it} are two errors terms.

These two models were then illustrated through the Random Effect Model and Fixed effect Model and after which the Hausman specification test was carried out to ascertain appropriateness of the model for representing the sample data. This specification test results indicate that Random Effect model is appropriate for model (1) and Fixed Effect model is appropriate for model (2). The estimated results are presented in analysis section through various tables.

4.0 Review on the Policies and Practices Addressing Competition, Concentration and Banking Sectors' Stability

Financial stability is considered as a precondition for the real economy to provide jobs, credit and growth. For this reason, it is very important for any economy to assess its stability. Recent financial crisis has again exposed the deficiencies of financial supervision

that frustratingly failed to anticipate adverse macro-prudential developments and to raise flag against the accumulation of excessive risks within the financial system. Since beginning of this century the policy discussion has a focus on the macro prudential approach to financial regulation and supervision. But it took the financial crisis to emphasize that a micro prudential approach is highly required for financial stability of any economy. Yet we recognize a number of efforts round the globe including Bangladesh to address stability or in other words to combat instability in the financial sector. In this section we have attempted to identify the efforts and effects as much so far revealed.

4.1 Global Policy Developments in Strengthening Stability

Significant structural changes have been brought in the banking sector after the global financial crises that unearthed substantial weaknesses in the banking system and its prudential framework. Bank sector performance, financial stability and overall economic growth of many countries were severely affected by the crisis. High paced technological changes, amplified non-bank competition and uncalled for transferals in globalization are still wide-ranging environmental challenges before the banking system (BIS, 2018). As a result, regulators have retorted to the reformation in the global prudential framework and enhanced supervision. At the same time, they have adopted new operating landscape; re-assessed and adjusted their business strategies and models, including their balance sheet structure, cost base, scope of activities and geographic presence. All these activities are targeted to the stability and efficiency of banking markets. Salient features of the regulatory changes in banking are presented below:

- Stricter risk-weighted requirements for enhanced quantity and quality of capital.

- New measures like higher capital buffers, additional requirements for large exposures and enhanced disclosure requirements for globally systemically important banks (G-SIBs) are introduced. Many countries have introduced even tougher capital and other rules including stricter stress-testing necessities for banks considered systemically important for their local economy.

- Prudential regulation of liquidity risk in international banking has been redesigned, with two quantitative instruments – the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NFSR) at its linchpin.

- A rephrased global framework for the recapture and perseverance of banks has been established. Many countries are in revision of their national steadfastness commands to attain more orderly firmness of their banks. Attempts include changes to legislation and enhanced requirement for banks to have plans for their recovery and wind down whatsoever.

Source: BIS, 2018

The global supervisory regulatory reforms also comprehend rudiments outside banking. Systemically important non-bank financial institutions also have been brought under enhanced monitoring and further policy frameworks have been established including market-based finance for them too. Other changes in most of the countries are mainly includes the mandatory clearing of certain standardized OTC derivatives with central counterparties, surcharges for positions cleared bilaterally with other banks and introduction of capital charges on these exposures.

In addition to strict regulation of banks more intensive bank supervision, particularly for systemically important banks, has introduced. This supervision fosters greater assignation between supervisors and bank boards and senior executives, broader and more stringent use of directorial stress tests, amplified risk data requirements, more focused risk reviews, and higher attention placed on bank risk taking/managing culture and crisis preparedness. Governments have also drilled greater influence over banks. In addition, there have been substantial regulatory fines for misconduct at some banks in the lead-up to the crisis and subsequently.

Besides the global initiatives, as a whole of the financial sector, the paper also reviews country perspectives on macro prudential policies.

The Monetary Authority of Singapore (MAS): The central bank and integrated financial regulator has taken a holistic approach. Given the systemic risks posed by the property sector, macro prudential measures have centered on the property market, assuming its stability is closely linked to that of the macro economy and the financial sector. Sharing of surveillance findings and policy coordination across the relevant agencies has also been prirotised and an inter-agency working group has been set up to promote such sharing for a stable and sustainable property and financial market.

Central Bank of the Russian Federation (CBR) has redefined its objectives and **incorporated** financial stability at a centerpiece. CBR also has defined the institutional setup for macro prudential policy after drawing lessons from the financial crisis. The ground work for the present financial stability framework in Russia was placed in 2013 with a formal financial stability mandate.

The People's Bank of China (PBOC) has currently introduced joint conference on financial regulation and coordination to strengthen the harmonization of financial regulation policy, instruments and implementation through markets. The aim is to expand financial stability and affluence systemic financial risks. In 2016, PBOC extended the scope of macro prudential management to all financial institutions and companies through the country for cross-border financing.

In Korea, the organizations responsible for financial stability policy comprise the Financial Services Commission (FSC), the Financial Supervisory Service (FSS), the Bank of Korea (BOK), the Korea Deposit Insurance Corporation (KDIC) and the Ministry of Strategy and Finance (MOSF). The responsibilities of the agencies are clearly stated to stable the sector. The BOK performs a signaling function related to financial stability conditions through a variety of channels but it has no financial stability policy instruments as such. The BOK invites attention to potential risk factors at home and abroad through press conferences of the Governor, meetings with heads of financial institutions and its Financial Stability Report.

Bank Indonesia (the Central Bank of Indonesia) has been exercising macroprudential function since 2002 as a part of the overall transformation programme and to-strengthen microprudential regulation and supervision for financial stability. In 2010 it started to implement a mix of monetary and macroprudential policies (Warjiyo (2016a, 2016b) and continued even after 2013, when microprudential supervision task was transferred to the newly established Financial Service Authority (Otoritas Jasa Keuangan, OJK) under the OJK Law no 21 of 2011. The OJK however maintains coordination with Bank Indonesia in discharging the regulatory and supervisory functions. In 2016, another law was added aiming strengthening of policy coordination and to resolve/ prevent any financial system crisis (i.e., the Prevention and Resolution of Financial System Crisis or Pencegahan dan Penanganan Krisis Sistem Keuangan, PPKSK Law no 9). The Financial System Stability Committee (Komite Stabilitas Sistem Keuangan, KSSK), which was set up in 2013 was formalized and clarifies the roles and responsibilities of each of four-member institute viz. Ministry of Finance, Central Bank, OJK and Deposit Insurance Institution, having the Minister of Finance in its chair and other heads as members.

In Philippines, The Bangko Sentral ng Pilipinas (BSP) is the institute on pivot to ensure the financial system stability. Other financial system regulators like The Insurance Commission (IC), and the Securities and Exchange Commission (SEC), etc. also play important role in regulating corporates, capital market participants, the securities and investment instruments market, insurance companies and the investing public. The BSP uses several surveillance and analytical tools in addition macro prudential tool, to guarantee the overall safety and reliability of banks and other financial institutions under its regulation. The tools comprise of network analysis, stress tests, early warning systems (for currency crisis and external debt crisis), rating systems including various periodic reports and publications. Moreover, an internal committee – the Financial Stability Committee (FSC) within the BSP was established in 2010 that help achieve adequate monitoring and build-up of systemic risks mitigation in the financial system. The FSC has been allowed with the authority to propose any macro prudential measures that it considers suitable to preserve the stoutness of the financial system before the Monetary Board.

Bank of Thailand (BOT)

In Thailand, a joint responsibility structure has been developed to maintain financial stability where three main regulators, the Bank of Thailand (BOT), the Securities and Exchange Commission (SEC) and the Office of Insurance Commission (OIC) working shoulder to shoulder. In April 2016, the BOT established the Financial Stability Unit (FSU) as the focal point of its financial stability functions that comprehends identification and monitoring the areas of financial risk build-up. The main objectives of Thailand's macro prudential framework are to align with the explanation the Bank for International Settlements (BIS), the Financial Stability Board (FSB) and the World Bank (WB), thereby increasing the elasticity of the financial system and comprehend the build-up of systemic vulnerabilities. With this in mind, macro prudential policy has been used periodically – primarily in the forms of measures on loan-to-value (LTV) ratios, maximum credit limits on credit cards and personal loans, and dynamic loan loss provisioning.

The Central Bank of Malaysia (Bank Negara Malaysia) has implemented macro prudential policies to avert or reduce risks to financial stability. The function is discharged by two committees: the Financial Stability Committee (FSC) and Monetary Policy Committee which are brought in a platform like Joint Policy Committee (JPC) and aided by a Financial Stability Executive Committee (FSEC). While Monetary Policy Committee is entrusted to maintain price stability with due regard to economic developments and Monetary policy formulation the Financial Stability Committee is responsible for Macro- and microprudential responses through Supervisory intervention and Recommendation / monitor implementation of actions approved by FSEC. Where necessary, it decides on policy responses to avert or reduce risks to financial stability.

Reserve Bank of India (RBI), in 2010, set up its The Financial Stability and Development Council (FSDC) and sub-committee named FSDC Sub-Committee (FSDC-SC). The council is responsible to institutionalize and strengthen the mechanism for maintaining financial stability, financial sector development and inter-regulatory coordination. Since 2004, RBI has a legal mandate to secure financial stability along with monetary stability. A number of permanent technical groups are designed under the FSDC-SC to discuss issues relating to financial stability risks and inter-regulatory coordination. The aim is to take a holistic view of the financial system through an ongoing systemic risk analysis process that includes stress tests, network analysis and contagion simulation to issue directions to banks or bank groups. No single statutory authority or body is explicitly tasked with macro prudential policy for the financial system as a whole in India.

4.2 Policy Developments in Addressing Competition, Concentration and Stability in Bangladesh

Initial attempts are observed since early seventies. In 1970, Monopolies and Restrictive Trade Practices (Control and Prevention) Ordinance, 1970 (the "MRTP, 1970") was introduced. The MRTP, 1970 although aimed at regulating monopolistic, restrictive and unfair trade practices within Bangladesh, was never fully implemented.

4.2.1 Post-Liberation Period: The First Decade (1972-1981)

Prior to the independence in 1971 The Banking system was basically concentrated in the urban areas of Bangladesh. Ownership of Banks were mainly private and again largely by few Non-Bengalis. The Banking system were meant to serve Non-Bengali enterprises. Apparent preference was to enabling them to establish supremacy over the economy. After the liberation, both Bank owners and non-Bengali enterprises fled away and the then government reorganized and brought all banks and financial institutions, excepting a few foreign banks under nationalisation. Two specialized banks namely Bangladesh Shilpa Bank (BSB) and Bangladesh Krishi Bank (BKB) in addition to six nationalised Banks were established by the government to cater to the industrial and agriculture financing needs of the rehabilitating economy of the country. The then government adopted a confine financial framework based on firm government control and central bank regulations. The regulation largely covered fixation of interest rate on deposits and credits, direction of credit to public sector enterprises (PSEs), priority sectors and expansion of bank branches.

4.2.2 The Ownership Reform Program (1982-1989)

The ownership reform program or privatization of banks was initiated in 1980-82. The Government itself pioneered the program through denationalizing two (Pubali Bank and Uttara Bank) out of six nationalised banks; and permitted the opening and operation of new private banks. The objective was to exhibit government's commitments to inspire the private sector banks and to bring about overall banking sector efficiency through competition and innovations. Banks started to change lending strategies to farmers, fishermen and entrepreneurs to boost agriculture and private sector credit. As the number of banks was very few even though banks offer personilised services and or send gifts to prime customers for hunting deposits and give highly attentive credit structure and rate to divert borrowers from other banks. Growth of NPL was at threat and a "National Commission on Money, Banking and Credit" was formed by the government in 1986 to diagnose the malady and recognize ways and means for recovery. New set of Rules and practice for Loan Classification and Loan Loss Provisioning with highly mathematical and translucent objective criteria including subjective options for the worst category were issued by Bangladesh Bank.

4.2.3 Financial Sector Reform Program (1990-1995)

Under the Financial Sector Adjustment Credit (FSAC) of the World Bank the financial sector reform program (FSRP) was launched in 1990 having objectives like deregulation of interest rate structure, introducing market-oriented incentive for priority lending, providing subsidies for the priority sectors, improvement in debt recovery environment, embracing of appropriate monetary policy, and strengthening of the capital markets. FSRP brought about a number of improvements in the banking system of Bangladesh. Such development may be characterized into four broad groups as screening, monitoring, transparency and lender's recourse regulations.

Before introduction of FSRP the banking sector was not much concerned about Minimum Capital Requirement. According to section 13(2) of the Bank Companies Act, 1991 it was mandatory under to retain 6% of total demand and time liabilities as capital, only few could fulfill the condition. Almost all 6 of the state-controlled banks had been suffering under-capitalisation. The private banks were alright in terms capital adequacy but their market share was quite insignificant. Moreover, provision shortfall and down trend of asset quality had been causing further erosion of capital. Of late in January 1996 risk weighted capital adequacy requirement was introduced to protect the interest of depositors and bring about a universally putative status for our banking sector. Under this reform it was mandatory for the banks to maintain capital equivalent to 8% of the risk weighted assets. Strict advises were issued by Bangladesh Bank to maintain capital adequacy.

4.2.4 Restructuring Measures (1996-2002): BRC and CBRP

Number of problems were unearthed from the implementation efforts of FSRP and to address the same a Banking Reform Committee (BRC) in October 1996 was formed by the government. Broad term objectives of BRC were to: formulating recommendations to improve debt recovery environment of banks; increase in income, reduction of unnecessary expenditure, improving service quality/standard of banks, enhancement in personnel quality of the banks, strengthening supervisory capacity of Bangladesh Bank and any other related important issues, considered by the committee.

Another program funded by the World Bank, the Commercial Bank Restructuring Project (CBRP) was taken up by the government in May, 1997. The CBRP principally focused on implementation of the power of Bangladesh Bank in loan monitoring and restructuring, the legal framework related to finance and banking and improving the supervisory and regulatory framework of the commercial bank.

Separate court in every district to handle loans defaulted at financial institutions was enacted (Financial Loan Court Act 1990). In 1997 the Bankruptcy Act was revised to make

it more operational as a tool of Bank loan recovery which included enterprises and companies against whom suit can be filed.

4.2.5 Current Reforms: New Millennium (2003 onwards)

Amendments on several provisions of the three important Acts relating to banking, like: Bangladesh Bank Order, 1972; Banks Nationalization Order, 1972 and Bank Company Act, 1991 etc. were made during the period 2003 and 2013. The aim was to further strengthening the activities of banking sector, bringing dynamism and extending greater autonomy to the central bank. Besides, the Money Loan Court Act 2003 was enacted to provide speedy procedures for obtaining decrees and execution. Provision was made for Alternative Dispute Resolution in the MLC Act-2003 to ensure early settlement of disputes through settlement conference and negotiations. Circulation of "Money Laundering Prevention Act, 2012" was issued repealing "Money Laundering Prevention Act, 2009" and "Anti-Terrorism (Amendment) Act, 2012". Introduction to Revised Capital Accord (Basel II) in 2008 (fully implemented in 2010) where mandatory capital adequacy ratio has been increased to 10% of RWA, and Revised Capital Accord (Basel III) in 2014 (implementation starts from 2015, full implementation has been planned by Dec'19). Moreover, circulation of comprehensive Risk Management Guidelines for Banks – 2012 is enacted to strengthen risk management through recognition of different components of risk according to various core risk guidelines. In addition to these, many other rules, regulations, guidelines and important issues are being addressed to mark the financial sector strengthen and vibrant.

Besides, so many initiatives a notable initiative in terms of competition is originated in the year 2012 though not particularly for the financial sector. In 21st June 2012, Monopolies and Restrictive Trade Practices (Control and Prevention) Ordinance, 1970 (the "MRTP, 1970") was repealed while passing the newly designed Competition Act, 2012 in the parliament. The new Act is deemed to be able to recognize, define and prohibit, anti-competition agreements and abuse of dominant positions, combinations (i.e., amalgamations or acquisitions, etc.) that cause an adverse effect on competition in the market of goods and services.

4.2.6 Formation of Financial Stability Department in Bangladesh Bank

To address stability in the financial sector, the Bangladesh Bank formed its Financial Stability Department back in 2010. The department assesses the resilience of the financial system of Bangladesh to withstand risks and vulnerabilities, and the course of actions taken by the sector that have implications to the stability of the financial system. The main functions of the department are presented below:

- To examine the stability of the Bangladesh financial system.

- To assess and quantify systemic risks and vulnerabilities, analyze their outlooks and formulate appropriate policy for safeguarding financial stability.

- To design and conduct stress testing exercises in order to assess the resilience of the banking system and the potential risks on the real economy.

- To analyze the means of payment and the clearing and settlement systems operating in Bangladesh aiming at ensuring their reliability and efficiency and, in particular, the containment of systemic risk.

- To analyze developments in the insurance sector, as well as capital markets participants such as securities firms and collective investment firms, which are not supervised by Bangladesh Bank (BB).

- To publish Financial Stability Report (FSR) in cooperation with other departments of BB focusing on the existing analysis of financial stability and on stress testing of the financial system.

- To recommend macro prudential regulations and engage in macro prudential oversight, which are focused on analyzing, assessing and mitigating systemic risk.

- To develop policies and guidelines related to Contingency Planning and Bank Intervention/Resolution Framework.

- To conduct research works as it deems relevant.

- To organize international events linked with financial stability.

Source: The Financial Stability Department, BB

4.2.7 Financial Stability Report of Bangladesh Bank

Due to the increasing importance of financial stability towards sustainable economic growth, BB has put special emphasis on maintaining stability in the banking sector. BB initiated steps to prepare a financial stability report from 2010 onward on a regular basis replacing the Off-site Supervision Report. Till 2019, BB has issued nine editions of Financial Stability Report. The first edition of the Financial Stability Report was issued, in 2011, by Department of Off-Site Supervision in the name of "Financial Stability Report 2010". From 2011 and onwards, after the formation of Financial Stability Department (FSD), Financial Stability Reports are regularly being issued from the FSD. The Financial Stability Report contains recent performances of the financial system of Bangladesh as compared with world economy along with their possible impacts on financial stability. The report starts with the status of global macro-financial environment and domestic

macroeconomic development in the context of financial stability. It also includes the status of banking sector's performance, risk, resilience, etc. The broad parameters of the report are:

- Global macro-financial environment and domestic macroeconomic development

- Banking sector's performance and risks

- Financial institutions' performance

- Insurance sector in Bangladesh, Microfinance Institutions (MFIs) in Bangladesh

- Money and capital market, foreign exchange market

- Financial infrastructure

The broad parameters of the reports and their sub-areas are presented at Appendix-II

Besides, BB conducts regular training for all banks about how to conduct periodic stress tests and various risk management tools to withstand different endogenous and exogenous shocks.

4.2.8 Formation of Financial Stability Council in Bangladesh

The formation of the Financial Stability Council (FSC) has long been demanded by the international development partners, particularly the World Bank and the IMF. Furthermore, following the macro-prudential policy and measures of both the developed and developing countries around the globe, the government of Bangladesh is also trying to form the council for the financial sector regulators. The council will assist systemically troubled banks and financial institutions & manage stability in the whole sector. The other major roles of the council will be to improve the resolution regime for financial institutions and design macro-prudential regulations and instruments, said the central bank in a statement yesterday. The proposed group will include all the financial sector regulators such as the Finance Ministry, the Bangladesh Bank, the Bangladesh Securities and Exchange Commission, the Microcredit Regulatory Authority and the Insurance Development and Regulatory Authority as well as relevant government agencies such as the National Board of Revenue. A preliminary organizational structure for the proposed council was proposed. In order to form the FSC, related laws have to be amended. After taking inputs from stakeholders, the proposal to set up the body would be sent to the cabinet division. It will have to be passed by the parliament before it is formed[2].

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[2] The Daily Star, August 04, 2017

5.0 Current Status of Competition and Concentration in The Banking Sector of Bangladesh

While in determining HHI, CR4, CR7, and the Regression Model, limited parameters were used, the researchers took an attempt to make further insight over the competition and concentration considering few more relevant parameters to reach analytical explanation regarding present day status and future day's projections. With such an idea a pictographic presentation is appended in Figure- 1.

Figure 1: Status of Key Banking Parameters during 1980 to 2018
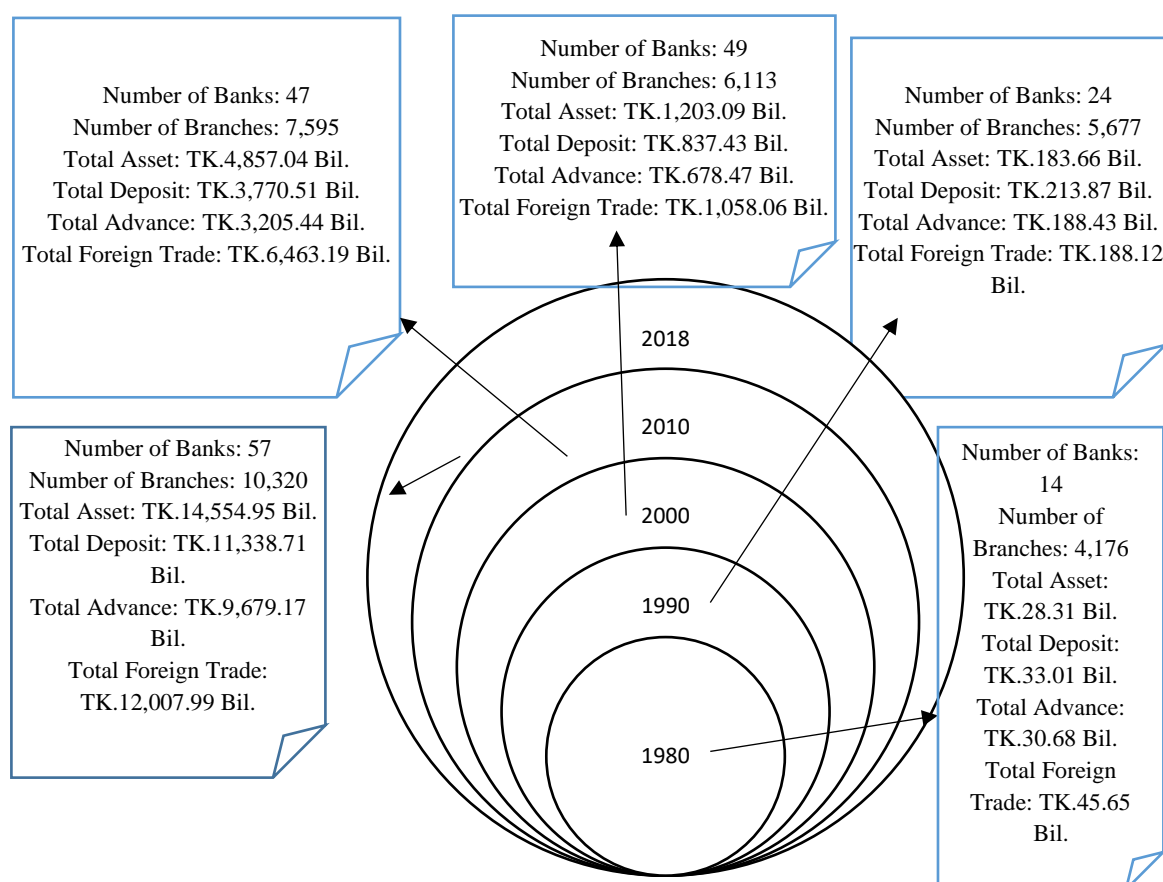
Main area of activities in banking enjoyed manifold growth over the last four decades. Whereas the number of banks grew by more than 400% the number of branches grew slightly lower than 250%. It is noticeable that branch outlets grew by about 36% in eighties and in current decade although number of bank increased the highest during nineties.

Growth in total asset, deposit and advance enjoyed are ranging from 500 to 550% during eighties i.e., after the emergence of private sector banking in the country. All these three activity area had been in very small sized in the year 1980, probably this was one of the main reason to register such huge growth. More interestingly all the following decades are

of growth by multiple and even in running decade (yet to grow for another two years) already showed three-fold growth in these three areas. Foreign exchange activities are showing us a steep growth in all the preceding decades (312.80% during eighties, 462.43% in nineties and highest 510.85% in the last decade). FX trade however exhibits worryingly slower growth (only 85.79%) during the first eight years of the current decade. Definitely the market players should hunt for the reasons behind. A summery statistics of nine banking operational areas are given in Table-2.

Table 2: Status of Asset, Deposit and Foreign Trade of the Banking Sector

(Taka in billion)

Year	Total Asset	Demand Deposit	Term Deposit	Total Deposit	Agri Credit	Industrial Credit	Business Credit	Total Advance	Foreign Trade
1990	183.66	88.93	124.63	213.87	44.85	50.44	49.89	188.43	188.12
1995	601.84	123.82	308.44	434.25	56.31	159.79	101.96	379.90	531.05
2000	1,203.09	185.29	643.71	837.43	72.85	241.25	143.39	678.47	1,058.06
2005	2,000.80	444.12	1,156.58	1,611.42	104.95	348.85	573.65	1,335.83	2,305.81
2010	4,857.04	762.13	2,832.43	3,770.51	149.94	596.12	1,097.49	3,205.44	6,463.19
2014	9,144.32	1,230.51	5,977.22	7,279.37	262.73	1,012.50	1,699.79	5,392.90	8,518.75
2015	10,314.39	1,573.15	7,104.76	8,677.91	303.67	1,163.44	2,029.02	6,203.36	9,002.82
2016	11,621.82	1,693.21	7,742.73	9,478.66	342.83	1,430.39	2,231.58	7,136.00	9,215.55
2017	13,051.03	1,954.70	8,300.17	10,269.04	381.67	1,685.18	2,490.43	8,484.50	10,621.48
2018	14,554.95	2,131.76	9,200.21	11,338.71	387.03	2,027.20	2,642.04	9,679.17	12,007.99

Source: Publications of MoF, BB and Annual Reports of Banks

Table-2 displays a summary statistics in absolute amount for all banks in nine key areas for the last three decades. From the table, it is clearly seen that volume of banking operations increased in manifolds due to the expansion of banking license, bank branches, regulatory supports, new banking products, technology etc. The dream to reach a Trillion Dollar Economy probably is not too far if banking sector continues to grow like this, as it is believed that banking sector works as an amplifier for rest of the sectors contributing GDP.

The share of fixed deposit has increased to about double (from 24% to 46%) in 2018 as compared to 1980 (Table-3). On the other hand, though, share of current account deposit significantly went down over the four decades even after a significant jump in 2018. Rather

the concentration of SND seems discretely stable whereas both current and savings deposit suffered decrease.

Table 3: Deposit Distributed by Types of Accounts All Banks (In Percentage)

Year	Current and Cash Credit Deposits	Savings Deposits	Special Notice Deposits	Fixed Deposits	Pension Scheme Deposits
1980	23.05%	24.06%	1.05%	24.19%	n/a
1983	21.17%	21.84%	1.48%	34.24%	n/a
1986	15.97%	22.24%	0.49%	42.36%	n/a
1990	13.41%	23.50%	10.17%	41.99%	4.37%
1992	11.82%	25.03%	10.26%	40.28%	5.70%
1995	14.15%	29.52%	12.19%	31.04%	6.69%
1998	13.11%	29.89%	11.04%	31.62%	8.65%
2000	11.50%	30.26%	11.84%	32.03%	10.11%
2002	10.20%	29.45%	11%	34.02%	10.53%
2004	9.76%	28.05%	11.19%	36.57%	10.40%
2006	9.37%	25.87%	11.67%	39.14%	9.79%
2008	9.46%	22.94%	12.13%	43.13%	7.80%
2010	10.73%	22.64%	12.54%	42.92%	7.07%
2012	8.16%	18.75%	7.70%	50.58%	6.56%
2014	7.63%	16.88%	7.92%	53.26%	6.97%
2016	7.86%	20.02%	9.28%	47.39%	8.01%
2018	18.18%	19.93%	10.12%	46.35%	7.87%

Source: Publications of BB

The significant upward concentration in fixed deposit observed over the last four decades should remain as a point to worry in the banking market, as it causes both high cost on deposit and cost of fund. At one point of time dependency on high cost deposit may cause deep threat of liquidity crisis as there will have no space to offer higher profits for the depositors.

The market share of deposits as well as advance in urban and rural areas remained almost same over the four decades (Table-4).

Table 4: Distribution of Deposit and Advance by Geography

	Distribution of Deposit		Distribution of Advance	
Year	Urban	Rural	Urban	Rural
1980	84.03%	15.97%	88.13%	11.87%
1985	81.69%	18.31%	73.84%	26.16%
1990	78.83%	21.17%	76.60%	23.40%
1995	77.90%	22.10%	80.22%	19.78%
2000	80.49%	19.51%	85.38%	14.62%
2005	85.73%	14.27%	89.98%	10.02%
2010	86.82%	13.18%	92.16%	7.84%
2014	80.87%	19.13%	90.05%	9.95%
2015	80.16%	19.84%	90.15%	9.85%
2016	79.50%	20.50%	89.83%	10.17%
2017	79.44%	20.56%	89.41%	10.59%
2018	79.36%	20.64%	89.58%	10.42%

Source: Publications of BB

Share of rural deposit slightly increased during the subject four decades but suffered slight decrease in the share of advance which indicates that although number of rural branches has increased due to regulatory pressure but bank sector's tendency for providing rural credit could not enjoyed any little shift in the same direction. So, there is no significant change in concentration of deposit and advance in terms of urban and rural.

Over the last four decades, industrial loan exhibits regular ups and down but agricultural credit has gone down to 4.63% from 17.50% (Table-5).

Table 5: Advance Classified in selected Economic Purpose

Year	Agriculture, Fishing & Forestry	Industry (Other than Working Capital)	Working Capital Financing	Construction/ Transport, Storage & Communication	Trade
1980	17.50%	41%	n/a	3.70%	25.20%
1983	22.08%	32.89%	n/a	3.44%	21.65%
1986	27.34%	21.20%	4.65%	2.77%	36.33%
1990	22.70%	26.52%	9.72%	3.90%	30.98%
1992	18.74%	27.17%	9.14%	5.12%	32.69%
1995	17.63%	28.22%	9.36%	5.40%	29.59%
1998	14.69%	29.52%	10.45%	5.36%	28.41%
2000	14.235	26.49%	8.81%	5.66%	30.66%
2002	11.79%	20.49%	17.30%	6.78%	31.76%
2004	10.24%	18.60%	19.50%	6.79%	33.75%

2006	8.40%	19.86%	19.33%	6.88%	34.11%
2008	6.87%	21.30%	16.65%	6.50%	35.26%
2010	5.69%	20.65%	15.08%	7.00%	38.135
2012	4.85%	20.42%	13.37%	9.09%	38.60%
2014	5.08%	15.84%	18.49%	8.71%	39.03%
2016	5.14%	19.44%	17.51%	9.41%	36.32%
2018	4.63%	19.48%	21.29%	9.52%	33.66%

Source: Publications of BB

Share of working capital finance has experienced a significant growth (4.5 times) up to 2018 since 1986 but the share of trade remains stable over the decades. The significant downward concentration of agricultural credit was observed over the last four decades gives us a clear message that all our provocation to enhance agricultural credit could not make any effect on credit competition of the banks.

Table-6 indicates the 35.39% share of public sector deposits in 1980 has decreased to 19.21% in 2018 that privileged the growth in private sector deposit. On the other hand, the share of public sector advance, in 2018, decreased significantly from 48.61% to 1.70% and the deployment of credit is now highly concentrated on private sector. Policy makers have scopes to review the status if it goes in alignment of national strategies.

Table 6: Deposits & Advance Distributed in Public and Private Sectors

	Deposit		Advance	
Year	Public Sector	Private Sector	Public Sector	Private Sector
1980	35.39%	64.03%	48.61%	51.39%
1983	31.04%	68.96%	36.12%	63.88%
1986	26.72%	73.28%	20.22%	79.78%
1990	21.73%	78.27%	18.76%	81.24%
1992	23.18%	76.82%	17.31%	82.69%
1995	23.51%	76.49%	11.17%	88.83%
1998	20.72%	79.28%	9.76%	90.24%
2000	18.47%	81.53%	8.03%	91.97%
2002	16.78%	83.22%	7.85%	92.15%
2004	17.08%	82.92%	3.72%	96.28%
2006	15.77%	84.23%	4.99%	95.01%
2008	16.84%	83.16%	4.27%	95.73%
2010	17.65%	82.35%	3.18%	96.82%
2012	15.50%	84.50%	2.89%	97.11%
2014	17.59%	82.41%	2.29%	97.71%
2016	18.33%	81.67%	1.44%	98.56%
2018	19.21%	80.79%	1.70%	98.30%

Source: Publications of BB

Bank Specific Performance in Various Functional Areas

To make an insight over the competition amongst banks first we ranked different banks into Top 4, Top 7 and Top 10, for each of the nine functional areas selected. From these nine lists, we have separated the banks entered in the top 4,7,10 list during whole four decade under consideration. Interestingly 19 banks are competing for the top 4 positions, while 34 banks for the top 7 and 43 banks for the top 10 positions. Indeed it gives us a moderately competitive scenario of the banking sector. But relatively poor concentration is seen while considered the functional areas separately. Most dense is the total deposit, total advance and term deposit area; only 6 competitors are there in total. Another specialized bank is added for the agro-credit in the list of competition. Bank specific ranking in some selected functional areas are given in Appendix-III.

We cannot say it a competition but we found that NPL is concentrated with 5, 7, 12 banks; whereas number of banks running with deposit crisis are 7, 11, 15 when ranked for the higher 4, 7, 10 respectively. At the end of 2018, 10 banks were running with advance higher than their deposit. The sector leaders and policy maker as well as the regulator may give their prime concentration on these issues as it goes against the stability of the banking sector as a whole. Bank specific ranking in the area of Non-Performing Loans (NPLs) and Advance Deposit Ratio (ADR) are given in Appendix-IV for the period of 2016-2018.

6.0 Empirical Findings and Analysis

6.1 Competition and Concentration Index

Different indices measuring competition and concentration are demonstrated in Table-7, 8, 9 and 10.

Table 7: Measuring Competition, Concentration and Trends of Concentration Ratios in Bangladesh Banking Industry in terms of Total Assets			Table 8: Measuring Competition, Concentration and Trends of Concentration Ratios in Bangladesh Banking Industry in terms of Total Deposit		
Year	HHI	CR4	CR7	HHI	CR4	CR7
1995	0.11	57.28%	71.18%	0.13	62.35%	73.89%
2000	0.08	46.70%	60.30%	0.10	54.08%	65.26%
2005	0.06	40.20%	52.41%	0.06	42.51%	53.69%
2010	0.04	32.75%	42.25%	0.04	33.50%	42.72%
2014	0.04	30.29%	39.11%	0.04	31.09%	39.94%
2015	0.04	30.08%	38.80%	0.04	35.37%	43.65%
2016	0.04	29.88%	38.50%	0.04	29.98%	38.74%
2017	0.03	28.37%	37.06%	0.04	29.61%	38.73%
2018	0.03	28.06%	37.00%	0.04	28.76%	37.92%
Average	**0.05**	**35.95%**	**46.29%**	**0.06**	**38.53%**	**48.28%**
Source: Authors' computation based on Total Assets and Total Deposits of all banks during the sample period.						

The tables demonstrate that the banking sector in Bangladesh was mainly concentrated up to 1995. However, the sector has gradually become less concentrated over the years in terms of all four parameters (total asset, total deposit, and total advance and trade service) as shown by estimated HHI and CR indices. In terms of total assets, total deposit, total advance and foreign trade services[3] (Table- 7, 8, 9 & 10), HHI index ranges greater than 0.01 (100) but below 0.1 (1000) over the years during which means the banking sector is neither highly competitive nor concentrated. Overall, concentration shows a decreasing trend in all four key parameters (total asset, total deposit, total advance and trade service) over the years. CR4 and CR7 indices indicate the concentration status of four (04) Domestically Systemically Important Banks (DSIBs) and seven (07) top banks. Average highest market share of DSIBs and seven top banks are 38.53% and 48.28% respectively in terms of deposits as compared to other parameters. On the other hand, lowest average market share of DSIBs and seven top banks are 31.86% and 40.82% respectively in terms of trade services. By and large, the sector experienced less concentration in 2018.

Table 9: Measuring Competition, Concentration and trends of Concentration Ratios in Bangladesh Banking Industry in terms of Total Advance			Table 10: Measuring Competition, Concentration and trends of Concentration Ratios in Bangladesh Banking Industry: in terms of Total Trade Services (Export, Import and Remittance)		
Year	HHI	CR4	CR7	HHI	CR4	CR7
1995	0.10	55.30%	68.67%	0.09	51.44%	66.51%
2000	0.08	50.09%	62.40%	0.06	37.53%	51.03%
2005	0.06	40.76%	51.83%	0.06	33.04%	47.01%
2010	0.04	29.27%	39.01%	0.05	28.47%	43.01%
2014	0.03	25.38%	35.30%	0.04	30.28%	43.12%
2015	0.03	24.46%	34.30%	0.04	28.88%	40.81%
2016	0.03	23.67%	33.20%	0.04	26.81%	38.37%
2017	0.03	22.82%	32.23%	0.04	27.34%	37.52%
2018	0.03	22.98%	32.71%	0.04	22.98%	38.41%
Average	**0.05**	**32.74%**	**43.29%**	**0.05**	**31.86%**	**40.82%**
Source: Authors' computation based on Total Advance and Total Trade Services of all banks in the sample period.						

6.2 Descriptive statistics

The summary of the descriptive statistics is depicted in Table-11. The arithmetic mean and standard deviation of NPL is 10.2% and 19.30% respectively which indicates that the dependent variable (NPL) has higher variation as compared to ZS with mean of 6.6% and standard deviation of 11.3% respectively. The dependent variable ZS varies from negative 76% to 45%.

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[3] Foreign trade services mainly include facilitation of export receipt, import payment and inward remittances by banks for the period of 1995 to 2018.

Table 11: Descriptive Statistics

Variables	Observation	Mean	Standard Deviation	Min	Max
Dependent Variables					
ZS	260	0.066	0.113	-0.767	0.453
NPL	260	0.102	0.193	0	2.12
Independent Variables					
NIM	260	0.025	0.015	-0.02	0.064
TA	260	4.130	0.492	3.015	5.133
LR	260	0.109	0.013	0.096	0.131
GDP	260	0.07	0.006	0.061	0.079
INF	260	0.062	0.007	0.054	0.074
CR4	260	0.294	0.015	0.280	0.320
OWN	260	0.135	0.342	0	1

Source: Authors' calculation

The correlation matrix is shown in Table-12. The correlation matrix shows the degree of correlation between the dependent and the explanatory variables used in the regression analyses. The matrix depicts generally weak correlation among the independent variables.

Table 12: Correlation Matrix

	ZS	NIM	TA	LR	GDP	INF	CR4	OWN	NPL
ZS	1.000								
NIM	0.247	1.000							
TA	-0.143	-0.168	1.000						
LR	0.052	-0.073	-0.161	1.000					
GDP	-0.082	0.113	0.169	-0.904	1.000				
INF	0.020	-0.054	-0.153	0.988	-0.848	1.000			
CR4	0.039	-0.078	-0.165	0.989	-0.937	0.979	1.000		
OWN	-0.108	-0.634	0.316	-0.000	0.000	0.000	0.000	1.000	
NPL	-	-0.383	-0.063	0.005	-0.005	-0.003	-0.003	0.400	1.000

Source: Authors' calculation

6.3 Empirical Results and Discussion

Table-13 reports the empirical results for the panel regression models. In Model 1, the results show a negative and statistically significant relationship between the total asset (TA) and NPL, which implies banks could reduce NPL if they can increase their asset portfolio in a prudent manner which will eventually reduce credit risk and ensure stability. The estimated highly significant coefficient for the ownership dummy variable reveals that NPL is higher in public sector banks compared to their private and foreign counterparts.

Similarly, in Model 2, the estimated negative and statistically significant coefficient for total assets (TA) implies that increase in bank assets will reduce Z-score which indicates an increase in insolvency risk. One possible reason for such insolvency is the deteriorating asset quality of the sample banks. Therefore, banks should be prudent in increasing their asset portfolio. The estimated positive and significant coefficient for lending rate (LR) reveals that higher lending rate may help banks to be more solvent though increasing interest income. The estimated negative and significant coefficient for inflation rate implies increased inflation may have adverse effect on bank solvency which might trigger financial instability.

Table 13: Random Effect and Fixed Effect Model

	Model 1		Model 2	
	NPL		Z Score	
	(Random Model)	Effect	(Fixed Effect Model)	
NIM	-1.644	(1.08)	-0.457	(0.39)
TA	-0.075**	(0.03)	-0.084**	(0.04)
LR	1.20	(1.3)	1.8***	(3.90)
GDP	0.70	(3.2)	0.84	(1.0)
INF	-0.17	(5.9)	-0.34**	(2.0)
CR4	0.52	(0.28)	0.29	(0.84)
OWN	0.22***	(0.06)	-----	
R-squared	0.30		0.25	
Probability (F, Chi-square)	0.000		0.000	
Total Observations	260		260	

Source: Authors' calculation

6.4 Robustness Check

To check the robustness of the results in Section 5.2.2, a pooled ordinary least square (OLS) regression model is estimated using the sample data. Table-14 reports the results obtained from OLS regression. It is evident from the table that we obtain similar sign magnitude and the level of statistical significance of the estimated coefficients for total assets (TA) and ownership (OWN) for Model 1. As an exception, the relationship between NPL and NIM is significant in the OLS regression, unlike the random-effect model (Model 1 in Table-13). The significant inverse relationship between NPL and NIM indicates a higher net interest income from quality assets portfolio could decrease the credit risk of the sample banks.

For model 2, we obtain similar significant relation between Z score and lending rate (LR) in the pooled regression model. However, we obtain a positive significant relationship between NIM and Z score unlike the fixed effect model (Model 2 in Table-13). The

estimated positive coefficient for NIM implies that increased net interest income would help banks to be more solvent and eventually ensure financial stability.

Table 14: OLS Model

	NPL		Z Score	
NIM	-2.60***	(01.06)	2.60**	(1.00)
TA	-0.08***	(00.027)	-0.03	(0.02)
LR	1.50	(18.851)	3.00**	(11.726)
GDP	0.50	(00.28)	0.15	(0.23)
INF	-0.12	(05.8)	-0.52	(4.0)
CR4	-1.537	(00.24)	10.465	(0.20)
OWN	0.188***	(00.04)	0.051*	(0.03)
R-squared	0.28		0.23	
Probability (F)	0.000		0.000	
Total Observations	260		260	

Source: Authors' estimation.
Note: Standard errors are in parentheses.
*** Denote statistical significance level at 1%.
** Denote statistical significance level at 5%.
* Denote statistical significance level at 10%.

7.0 Summary of Opinions from Bankers and Experts

Regarding Competition, concentration and stability in the banking sector there are multidimensional theoretical and econometrical approaches round the globe but the researchers felt that it might be important to view the perception of the banking sector experts and senior management executives on these issues. With such idea the team discussed with a small sample of industry experts, senior bank executives including some CEOs of banks and few academicians in this area. The key issues discussed in the interview are current competitive environment, functional areas of competition, healthy & un-healthy competition, and evolution of the competition since liberation, nature of concentration of overall asset-liability, depository sources concentration, sectoral and geographical concentration of bank loans, overall stability feature of the banking sector, etc. However, no experts think that there is significant instability in the banking sector. At least, they are not ready to describe it as 'Unstable'. The opinions are versatile and summarized below:

- Banking during 30/40 years back could not recognize any competition as such which we experience now a days. Regarding the status of competition some experts bluntly proposed to keep the 6 state owned banks out of the player list despite holding substantial share of sectoral asset-liability. The target based approach in those banks is not alike the others in the game- they opined.

- Government owned banks still now do not feel the competition as such, rather the matter remains virtually between the private banks, even foreign banks are also seems to be out of the ground for getting some strategically upper hand over the others.

- Real competition was started after emergence of third generation private banks- that is from late nineties- few opined. Basically the line is between this century and that century.

- The competition is virtually between aggressive versus progressive. Few of them opined that commercial banks are offering Term Loan but with the tenure of plus minus five years which is neither at global standard of term loan nor it goes in favor of balancing maturity mismatch in the banks. This also negates the customer friendly competition.

- Few unfair practice out of the rules and regulation sometimes call upon unhealthy competition which is confused between aggressive and progressive banking.

- Not all Banks should chase after all kind of deposit or credit market or to be a big player in the competition. In fact, they should not be meant for all purposes rather each bank should have specified focus of catering customer. They should focus on specialization and branding on the niche market they choose. It can be in terms of 'product development' and 'transformation of bank' but unfortunately no sign of such game is seen in the market.

- Apparent competition is viewed fundamentally in hunting industrial client, clients having both funded and non-funded avenues for business, trade finance, inter-bank treasury (both local and FX), use of technology and its efficient management, Islamic versus Conventional, compliant versus non-compliant, etc.

- Experts opine that the gross area of competition is in credit, deposit, profit, digitization in terms of internal operation and payment, capital, compliance, ethics and governance.

- Concentration within the sector just happens as an outcome of market dynamics -few opined, but there must have some policy direction that too thick concentration does not hamper the market equilibrium. In that case incentives like tax holiday/waiver, relaxation in regulatory compulsions, etc. may be considered for the new entrants or suffering ones.

- Some experts believe that a kind of concentration may be healthy for the sector as other potential banks may strive to achieve higher concentration and compete thereto. Although threat of unhealthy completion may increase in those cases. Regulators may

give second thought how to develop a level playing field for all the players of the market- neither fascinated nor pampered or ignored competitors are acceptable.

- Sectoral and Geographical concentrations of bank finance can hardly be tackled by the banking sector alone- almost all opined. Intensive policy formation for balanced economic growth distributed amongst regions as well as for leading industrial, commercial and service sector must be taken up by the highest authorities of the state.

- Few raised a very interesting question that do we know the whole funding is concentrated on how many of the bank branches amongst the total of about eleven thousand? Those are the most profitable, vulnerable but not controlled as it is required- opined many. An interesting dimension for ICC in banks.

- Geographical concentration may further diffused through change of counting procedure of business/project location instead of financing branch location (in this digital banking age branch location is only a convenience for the banker and customer, that should not considered as the location of fund deployment). Much more policy intervention from the highest decision-making authorities of the country is required to get the desired picture.

- Some of the experts refuse to go with the Government bank - Private bank concept with the argument that bank categorization should not follow the ownership pattern rather should focus on its functional pattern. But obstacle to this is all the banks have become 'all purpose' bank. Even few financial institutes for special purpose have been converted to all-purpose commercial bank for no reason.

- Concentration and client satisfaction has an inverse relation so dense concentration should always be restricted not to pamper the smaller bank but also to defuse the market exploitation. The policy makers can consider examining the Anti - Trust Regulation prevailing in some countries.

- If there had been product concentration then the competition scenario would have shifted to specialty-based advantage and exploitation. Hence, customer satisfaction could reach even higher. But profit hunger has become the driving force and cause of concentration in the sector. A new bank at its preliminary years must be with credit concentration but after few years should make effort for dispersion with a healthy Risk Management approach.

- A Compliant Culture may help the open market economy, demand-supply conviction, asset-liability mismatch, better credit quality. Regulatory dictation for SME, Agro, Industry, Sector Corporate etc. to be bank specific- drawn and driven

based on overall balance sheet size, performance level, various ratings etc. – not in general; some of the experts opined.

- Sometimes too many branches are chasing to serve too small number of customers. As a result quality, due diligence are being compromised and NPL is rising as well. The focus of strategic marketing is missing in the banking sector. In addition to that, product market mix focusing on a particular niche is also absent here. Banks need to segment their customers in a right manner so that they do not need to look after customers from other banks. Deciding on what to do, how to do and to whom want to serve is most important.

- Competition is supposed to promote innovation but that is missing in the banking sector of Bangladesh. Banks should design innovative mechanisms for their operations and product development.

- The negative impact of competition starts from credit risk that sometimes leads to high deposit rate and poor due diligence. Risk management division of every bank should work for the stability of their own bank so that the whole sector becomes playable for all.

- There is a role of the management body to provide right directions to the employees for the stability of the banking sector. Moral and ethical standard & corporate governance of the banking sector need to be uphold to exert best out of competition and concentration.

- Development of a strong internal control system can solve the problem if ethics and morality fails in some cases. But, the core reason is governance. Governance need to be established not for the banking but for the whole country as well. It is important how individual bank perceives competition that mostly depends on its corporate governance, the role of BoD and its operational strategy.

- Stability of the financial sector has a linkage with the capital market as banks have subsidiary and exposure itself in the market. If the capital market does not run properly there is high chance that it may impact in the banking sector.

8.0 Recommendations

The comments from the industry experts, review on historical backgrounds, results obtained from data analysis etc. lead us to pick a number of recommendations; all of which are quite interesting and laudable. Practitioners in the sector have a good scope to place attention on these for readjusting their policies, strategies and practices as the case may be.

One, in the banking sector, every bank has become All-Purpose Banks and all are trying to make business in all areas. As a result, the market share is divided among all the players and no one can enjoy the benefits of niche market operation. Bank owners and management can think of segmenting their market effectively and targeting them through innovative products.

Two, the competition apparently seems to be aggressive in some banks though the desired one should be progressive. So, the senior management and board of the banking sector should device policies and strategies for making the competition progressive. In this regard, the central bank along with other stakeholders can strengthen the regulatory requirements and may formulate policy, if needed.

Three, a zone of competition is present in terms of technology adoption to the core banking operation due to the change of the market forces. Pioneers are always ahead of competition than the laggards. Still, there remain ample scopes of integrating all banking activities under the digitization efforts to foster smooth operation and facilitate customer transaction.

Four, the Indices derived in the study clearly indicate that the banking sector of Bangladesh is moderately competitive and concentrated. But there are some kinds of concentration in different functional areas amongst different group of Banks. Majority of the market players are not competing enough in all the areas. It may invite instability in the long run. The banks should examine with care where they can compete more.

Five, globally, in many developed and developing countries, no single statutory authority or body is explicitly tasked with the responsibility for ensuring financial stability. For instance, they have already formed Financial Stability Council, Inter-Agency Forum etc. comprising key regulators with joint responsibility. In some cases, the roles and responsibilities of each of regulators in promoting financial stability has also been clarified in laws enacted. Now it is high time to form Financial Stability Council in Bangladesh in any of the form to ensure long run financial stability of the country.

Six, the regulators and policy makers might consider to introduce following tools used at the quest of banking sector stability in different countries. The tools are: Financial risk dashboard, Systemic risk survey, Annual industry-wide stress test, Early warning systems, Credit conditions, Market expectations surveys, Probability -of- default model for large corporate borrowers, Evolution of real estate prices, Indebtedness and currency mismatches in the corporate sector etc.

9.0 Concluding Remarks

For a healthy growth and meaningful presence in the economy banking sector stability is considered with much importance in all economies. Bangladesh should also focus on the stability issues with priority to make a smooth landing at the Middle-income status. The financial sector of Bangladesh as has been revealed not to be 'Unstable' as such, but is undergoing with some threats and tendency for unmanaged – competition. So, there is no space to be complacent and all the stake holders must put due attention. Particularly unmanageable growth of NPL- especially in the large loan quantum, very poor Governance of Board and Senior Management, occurrence of financial scam almost in regular intervals clearly indicate some kind of instability in the sector. Care must be taken that no undue concentration arise in any of the functional areas of banks neither competition take any unhealthy shape and feature. The banks may take the scope to innovate newer banking products, particularly to defuse the dependency on fixed deposits and urban finance. It may also be considered how the IT facilities available in all the banks can be used at its best for more meaningful competition.

References

Ahmed, Md. Mostak (2012), "Market Structure and Performance of Bangladesh Banking Industry: A Panel Data Analysis", *Bangladesh Development Studies,* Vol. XXXV, No. 3.

Allen, Franklin, and Douglas Gate. (2004), "Competition and Financial Stability", *Journal of Money, Credit and Banking*, Vol. 36, No. 3, pp.433-480.

Al-Muharrami, S., K. Matthews and Y. Khabari (2006), "Market structure and competitive conditions in the Arab GCC Banking System", *Journal of Banking and Finance*, Vol. 30, No. 12, pp. 3487-3501.

Bain, J. S. (1951), "Relation of Profit Rate to Industry Concentration", *Quarterly Journal of Economics, Vol. 65, pp. 293–324.*

Bank for International Settlements (2018), "Structural changes in banking after the crisis", CGFS Papers No. 60, Report prepared by a Working Group established by the Committee on the Global Financial System.

Beck, T., O. De Jonghe, and G. Schepens (2013), 'Bank competition and stability: Cross-country heterogeneity', *Journal of Financial Intermediation*, Vol. 22, pp. 218-244.

Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine (2006), "Bank concentration, competition, and crises: First results", *Journal of Banking & Finance*, Vol. 30, No.5, pp.1581-1603.

Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine (2008), "Bank Competition and Financial Stability: Friends or Foes?", Policy Research Working Paper No. 4656, World Bank.

Berger, A. N., L. F. Klapper and R. Turk-Ariss (2009), "Bank competition and financial stability", *Journal of Financial Services,* Vol. 21, pp. 849-870.

Berger, A., L. Klapper, and R. Turk-Ariss (2008), "Bank competition and financial stability", World Bank Policy Research Working Paper No. 4696.

Berger, Allen N. and Timothy H. Hannan (1989), "The Price-Concentration Relationship in Banking", *The Review of Economics and Statistics*, Vol. 712, pp. 291-99.

Bhatti, G. A. and H. Hussain (2010), "Evidence on Structure Conduct Performance

Blaise Gadanecz and Kaushik Jayaram (….), "Measures of financial stability – a review", IFC Bulletin No 31, Monetary and Economic Department, Bank for International Settlements.

Boot, A.W.A., and A.V. Thakor (2000), "Can relationship banking survive competition?" *Journal of Finance*, Vol. 55, pp. 679-713.

Boyd, J., G. De Nicoló and B.D. Smith (2004), "Crises in Competitive versus Monopolistic Banking Systems", *Journal of Money, Credit and Banking*, Vol. 36, No. 3, pp. 487-506.

Boyd, John H. and Gianni De Nicoló. (2005), "The Theory of Bank Risk Taking and Competition Revisited." *The Journal of Finance*, Vol. 60, pp. 1329-1343.

Boyd, John H., Gianni De Nicolò, and Abu M. Jalal (2006), "Risk-Taking and Competition Revisited: New Theory and New Evidence Prepared", International Monetary Fund, WP/06/297.

Caminal, Ramon, and Carmen Matutes. (2002), "Market power and banking failures." *International Journal of Industrial Organization*, Vol. 20, pp. 1341-1361.

Carletti, E. and P. Hartmann (2002), "Competition and financial stability: What's special about banking?", ECB Working Paper No. 146.

Chortareas G. E., J.G. Garza-Garcia and C. Girardone (2011), Banking Sector

Claessens, S. (2009), "Competition in the financial sector: overview of competition policies", IMF Working Paper, 09/45.

De Haan, Jakob, and Tigran Poghosyan (2012b), "Size, market concentration, and bank earnings volatility in the US", *Journal of Banking and Finance*, Vol. 36, pp. 3008-3016.

De Nicolò, Gianni, and Elena Loukoianova (2007), "Bank Ownership, Market Structure and Risk" International Monetary Fund WP/07/215..

De Nicolo, Gianni, Mary G. Zephirin, Philip F. Bartholomew, and Jahanara Zaman (2004), "Bank Consolidation, Internationalization, and Conglomeration; Trends and Implications for Financial Risk", *Financial Market, Institutions and Instruments*, Vol. 13, No. 4, pp. 173-217.

Dell'Ariccia, Giovanni, DenizIgan, and Luc Laeven. (2008), "Credit Booms and Lending Standards: Evidence from the Subprime Mortgage Market", IMF Working Paper, WP/08/106.

Demsetz, H. (1973), "Industry Structure, Market Rivalry, and Public Policy", *Journal of*

Diamond, D.W. and P.H. Dybvig (1983), "Bank Runs, Deposit Insurance and Liquidity", *Journal of Political Economy*, Vol. 91, pp. 401-419.

European Central Bank (2007), "Progress towards a framework for financial stability assessment", speech by José-Manuel González-Páramo, Member of the Executive Board of the ECB, OECD World Forum on "Statistics, Knowledge and Policy", Istanbul, 28 June.

Evanoff, D. D. and D. I. Fortier (1988), "Reevaluation of the Structure–conduct Performance Paradigm in Banking", *Journal of Financial Services Research*, Vol. 1, No. 3, pp. 277-294.

Evrensel, Ayşe Y. (2008), "Banking crisis and financial structure: A survival time analysis", *International Review of Economics & Finance*, Vol.17, No. 4, pp. 589-602.

Finland", Bank of Finland Studies, E1.

Fu, Xiaoqing, Yongjia Lin, and Philip Molyneux (2014), "Bank competition and financial stability in Asia Pacific", *Journal of Banking & Finance*, Vol. 38, pp. 64–77.

Heggestad, A. A. and J. J. Mingo (1977), "The Competitive Condition of US Banking

Hypothesis in Pakistani Commercial Banks", *International Journal of Business and Management, Vol.* 5, No. 9.

Industry: A Robust Estimation", SSRN eLibrary.

Jiménez, Gabriel, Jose A. Lopez, and Jesús Saurina (2007), "How does competition impact bank risk taking?", Banco de España Working Papers No. 1005.

Jiménez, Gabriel, Jose A. Lopez, and Jesús Saurina (2013). "How does competition affect bank risk-taking?", *Journal of Financial Stability*, Vol. 9, No. 2, pp. 185-195.

Kasman, Adnan, and Oscar Carvallo (2014), "Financial Stability, Competition and Efficiency in Latin American and Caribbean Banking", *Journal of Applied Economics*, Vo. 17, No. 2, pp.301-324.

Katib, M. N. (2004), "Market Structure and Performance in the Malaysian Banking

Keeley, Michael C. (1990), "Deposit Insurance, Risk, and Market Power in Banking", *The American Economic Review*, Vol. 80, No. 5, pp. 1183-1200.

Law and Economics, Vol. 16, pp. 1–9.

Kotler, Philip, Kevin Lane Keller, Abraham Koshy and Mithileshwar Jha (2009), *Marketing Management – A South Asian Perspective,* 13th edition, Dorling Kindersley (India) Pvt. Ltd.

Leon, Florian (2014), "Measuring Competition in Banking: A Critical Review of Methods". <halshs-01015794v2>

Liu, H., P. Molyneux and Linh. H. Nguyen (2012), Competition and risk in South East Asian commercial banking, Applied Economics, Vol. 44, pp. 3627–3644.

Liu, H., P. Molyneux, and J.Wilson (2013), "Competition and stability in European banking: A regional analysis", *Manchester School*, Vol. 81, No. 2, pp. 176-201.

Lloyd-Williams, D. M., P. Molyneux and J. Thornton (1994), "Market Structure and

Marcus, A. J. (1984), "Deregulation and bank financial policy", *Journal of Banking and Finance*, Vol. 8, No. 4, pp. 557-565.

Markets and the Impact of Structural Reform", *Journal of Finance*, Vol. 32, pp. 649–661.

Matutes, Carmen, and Xavier Vives (2000), "Imperfect Competition, Risk Taking, and Regulation in Banking", *European Economic Review*, Vol. 44, N0. 1, pp. 1-34.

Mishkin, F. H. (1999), "Financial Consolidation: Dangers and Opportunities", *Journal of Banking and Finance*, Vol. 23, pp. 675-691.

OECD, (2018), "Market Concentration Issues paper by the Secretariat", Directorate for Financial and Enterprise Affairs Competition Committee, DAF/COMP/WD (2018)46l (2011). "Bank Competition and Financial Stability of Economics", Vol. 65, pp. 293–324.

Parida, Tapas Kumar and Debashis Padhi (…). 'Does Bank Competition Affect Financial Stability in Banking Sector: Some Empirical Evidence from India'.

Pawlowska, Malgorzata (2016), "Does the Size and Market Structure of the Banking Sector have an Effect on the Financial Stability of the European Union?", *The Journal of Economic Asymmetrices.*

Pawlowska, Malgorzata (2016), "Does the Size and Market Structure of the Banking Sector have an Effect on the Financial Stability of the European Union?", *The Journal of Economic Asymmetrices*.

Peltzman, S. (1977), "The Gains and Losses from Industrial Concentration", *Journal of Law and Economics*, Vol. 20, No. 2, pp. 229–263.

Performance in Latin America: Market Power versus Efficiency", *Review of Development Economics*, Wiley Blackwell, Vol. 15, No. 2, pp. 307-325.

Performance in Spanish Banking", *Journal of Banking and Finance*, Vol. 18, No. 3, pp. 433-443.

Prasad, A. and S. Ghosh (2005), "Competition in Indian Banking", IMF Working Papers 05/141.

Rhoades, S. (1982), "Welfare Loss, Redistribution Effects, and Restriction of Output due to Monopoly", *Journal of Monetary Economics*, Vol. 9, No. 3, pp. 375–387.

Samad, A. (2008), "Market Structure, Conduct and Performance: Evidence from the Bangladesh Banking Industry", *Journal of Asian Economics*, Vol. 19, No. 2, pp. 181-193.

Schaeck, Klaus, Martin Cihak, and Simon Wolfe (2009), "Are Competitive Banking Systems More Stable?", *Journal of Money, Credit and Banking,* Vol. 41, No. 4, pp. 711-734.

Schinasi, Garry J. (2004), "Defining Financial Stability", IMF Working Paper, International Capital Markets Department, WP/04/187.

Seelanatha, L. (2010), "Market Structure, Efficiency and Performance of Banking Industry in Sri Lanka", *Banks and Bank Systems*, Vol. 5, No. 1.

Sharma, M. K. and H.P. Bal (2010), "Bank Market Concentration: A Case Study of India", *International Review of Business Research Papers*, Vol. 6, pp. 95-107.

Shughart II, William F. (2008), "Industrial Concentration". In David R. Henderson (ed.). Concise Encyclopedia of Economics (2nd ed.). Indianapolis: Library of Economics and Liberty. ISBN 978-0865976658. OCLC 237794267. Accessed on 06. 08. 2019 from http://www.econlib.org/library/Enc/IndustrialConcentration.html

Smirlock, M. (1985), "Evidence on the Non-Relationship between Concentration and Profitability in Banking", *Journal of Money, Credit and Banking*, Vol. 17, No. 1, pp. 69-83.

Spellman, L. J. (1981), "Commercial Banks and Profits of Savings and Loan Markets", *Journal of Bank Research*, Vol. 12, pp. 32–36.

Staikouras, C. and A. Koutsomanoli-Fillipaki (2006), "Competition and Concentration in the New European Banking Landscape", *European Financial Management*, Vol. 12, No. 3, pp. 443–482.

The World Bank (2013), "Global Financial Development Report: Rethinking Role of the State in Finance".

Turk-Ariss, R. (2010), "On the implications of market power in banking: Evidence from developing countries", *Journal of Banking and Finance*, 34(4), 765-775.

Uddin, S. M. Sohrab and Anupam Das Gupta (2012), "Concentration and Competition in the Non- Banking Sector: Evidence from Bangladesh". *Global Journal of Management and Business Research*, Vol. 12 Issue 8, Version 1.0.

Uhde, A. and U. Heimeshoff (2009), "Consolidation in Banking and Financial Stability in Europe: Empirical Evidence", *Journal of Banking and Finance*, Vol. 33, pp. 1299-1311.

Uhde, André, and Ulrich Heimeshoff (2009), "Consolidation in banking and financial stability in Europe: further evidence", *Journal of Banking and Finance, Vol. 33, pp.1299–1311.*

Vesala, J. (1995), "Testing for Competition in Banking: Behavioral Evidence from

Vives, X. (2010), "Competition and stability in banking", IESE Working Paper No. 852.

Weiß, Gregor N.F., Sascha Neumann, and Denefa Bostandzic (2014), "Systemic Risk and Bank Consolidation: International Evidence", *Journal of Banking & Finance*, Vol. 40, pp. 165-181.

https://en.wikipedia.org/wiki/Banking_in_Bangladesh

Davis, Kevin (…), "Banking Concentration, Financial Stability and Public Policy".

Mayo, John W. (2006), "Defining "Competition" for the 21st Century Telecommunications Industry".

Appendix I: List of the Banks Included for Empirical Analysis

SOCBs	PCBs	PCBs
Sonali Bank Ltd	AB Bank Ltd	Islami Bank Bank Ltd
Janata Bank Ltd	Alarafa Islami Bank Ltd	Janmuna Bank Ltd
Agrani Bank Ltd	Bangladesh Commerce Bank Ltd	Meghna Bank Ltd
Ruplai Bank Ltd	Bank Asia Ltd	Mercantile Bank Ltd
Basic Bank Ltd	Brac Bank Ltd	Midland Bank Ltd
BDBL	Dhaka Bank Ltd	Modhutomi Bank Ltd
Bangladesh Krishi Bank Ltd	Dutch Bangla Bank Ltd	MTBL
FCBs	Eastern Bank Ltd	National Bank Ltd
Bank Alfalah	EXIM Bank Ltd	NCC Bank Ltd
Citi Bank N.A	First Security Islami Bank Ltd	NRB Bank Ltd
Commercial Bank of Cylon	ICB Islamic Bank Ltd	NRBC Bank Ltd
Habib Bank Ltd	IFIC Bank Ltd	NRBG Bank Ltd
HSBC Ltd	ONE Bank Ltd	Premier Bank Ltd
Standard Chartered Bank Ltd	Prime Bank Ltd	Pubali Bank Ltd
Woori Bank Ltd	Shahjalal Islami Bank Ltd	Social Islami Bank Ltd
	SBAC Bank Ltd	Southeast Bank Ltd
	Standard Bank Ltd	The City Bank Ltd
	Trust Bank Ltd	Union Bank Ltd
	United Commercial Bank Ltd	

Appendix II: Parameters of Financial Stability Report	
Broad Parameter	**Sub-Areas of Stability Reports**
Global macro-financial environment and domestic macroeconomic development	Global Financial Situation, Prices and Inflation, Credit-to-GDP Gap, Balance of Payments, Foreign Aid and External Debt Repayment, Remittance and Overseas Employment
Banking sector's performance and risks	Asset & Liability Structure, Nonperforming Loans, Provisions, Written-off Loans and Advances, Profitability, Liquidity, Risk Profile of the Banking Sector, Credit Risk, Liquidity Risk, Market Risk
Financial institutions' performance	Sources of Funds, Liability-Asset ratio
Insurance sector in Bangladesh, Microfinance Institutions (MFIs) in Bangladesh	Penetration and Density ratio, Premium Growth and Assets Size, Concentration in Insurance Industry, Outreach of Microfinance Sector, Sources of Funds and Its Composition,

Money and capital market, foreign exchange market	Repo with Bangladesh Bank, Bond Market, Market Capitalization Decomposition
Financial infrastructure	Electronic Banking Operation, NPSB, BACPS, Exchange Rate Movement, Intervention and Sterilization in FX Market by BB

Appendix III: Bank Specific Ranking in Some Selected Functional Areas

Parameters	Top 10 Banks	Top 7 Banks	Top 4 Banks
Total Asset	SBL, IBBL, JBL, ABL, AAIBL, RBL, BKB, NBL, Prime, UCBL, PBL, SCB, ABBL, RAKUB, UBL, SEBL, EXIM, FSIBL =18	SBL, ABL, JBL, IBBL, AAIBL, BKB, RBL, NBL, PRIME, UCBL, PBL, SCB, ABBL, NBL =14	SBL, ABL, JBL, IBBL, AAIBL, BKB= 6
Demand Deposit	SBL, ABL, IBBL, JBL, SCB, PBL, RBL, DBBL, UBL, NBL, UBL, CITI, HSBC, PREMIER, PRIME, BRAC, UCBL, EBL, IFIC, CITY, AMEX, ANZ=22	SBL, ABL, IBBL, SCB, JBL, PBL, RBL, DBBL, UBL, NBL, BRAC, ABBL, HSBC =13	SBL, ABL, IBBL, JBL, SCB, PBL, RBL = 7
Term Deposit	SBL, ABL, JBL, IBBL, RBL, FSIBL, PRIME, BKB, PBL, UBL, BDBL, NBL, SEBL, AAIBL, ABBL, EXIM, IFIC, UCBL, SCB, CITY=20	SBL, ABL, IBBL, JBL, RBL, UBL, PBL, BKB, PRIME, FSIBL, SEBL, NBL, BDBL, EXIM, ABBL, AAIBL = 16	SBL, IBBL, JBL, ABL, RBL, = 5
Total Deposit	SBL, ABL, JBL, IBBL, RBL, PBL, FSIBL, PRIME, UCBL, SCB, BKB, UBL, EXIM, BDBL, NBL, AAIBL, ABBL, SEBL, IFIC, =18	SBL, ABL, JBL, IBBL, RBL, PBL, PRIME, PRIME, FSIBL, UBL, SCB, UCBL, BKB, EXIM, BDBL, NBL 16	SBL, IBBL, JBL, ABL, RBL = 5
Agri Credit	BKB, SBL, RAKUB, JBL, ABL, RBL, PBL, IBBL, SCB, BRAC, ABBL, EBL, BASIC, Prime, BDBL, Premier, UBL, IFIC, BSRS, NCC, SJIBL, ANZ=21	BKB, SBL, RAKUB, JBL, ABL, SCB, RBL, ABBL, IBBL, EBL, PBL, BASIC, PRIME, BRAC, BDBL =15	BKB, SBL, RAKUB, JBL, ABL =5
Industrial Credit	SBL, JBL, IBBL, AAIBL, HSBC, ABL, RBL, BSB, ABBL, DBL, NBL, SCB,	SBL, JBL, IBBL, AAIBL, HSBC, ABL, RBL, BSB, ABBL,	SBL, JBL, IBBL, AAIBL, HSBC,

	BKB, BSRS, Prime, MCBL, IFIC, City, AL-Baraka, EBL, SEBL, DBBL, TBL, UBL, UCBL, EXIM, BASIC=27	DBL, NBL, SCB, BKB, BSRS, PRIME, MCBL, IFIC, CITY =18	ABL, RBL, BSB, ABBL, DBL =10
Business Credit	ABL, SBL, IBBL, PBL, JBL, RBL, EXIM, FSIBL, UBL, CITY, SEBL, NBL, AAIBL, NCC, UCBL, SCB, UNION, ABBL, DBL, HSBC, BA, BRAC, MCBL=23	ABL, SBL, IBBL, PBL, JBL, RBL, EXIM, FSIBL, UBL, CITY, SEBL, NBL, AAIBL, NCC, UCBL, SCB, UNION = 17	ABL, SBL, IBBL, PBL, JBL, RBL, EXIM, FSIBL= 8
Total Advance	SBL, IBBL, JBL, ABL, BKB, RBL, PRIME, EXIM, ABBL, FSIBL, NBL, RAKUB, BSB, UCBL, UBL, SCB, IFIC, SEBL, AAIBL=20	SBL, IBBL, JBL, ABL, BKB, RBL, PRIME, EXIM, ABBL, FSIBL, NBL, RAKUB, BSB, UCBL,PBL, UBL, SCB =17	SBL, IBBL, JBL, ABL, BKB =5
Foreign Trade	JBL, SBL, ABL, IBBL, SCB, HSBC, BRAC, RBL, SEBL, UCBL, NBL, ABBL, IFIC, EXIM, DBBL, MCBL, PRIME, UBL, SCB GRINDLAYS, ANZ, INDO=20	JBL, ABL, SBL, IBBL, SCB, HSBC, BRAC, RBL, SEBL, UCBL, NBL, ABBL, UBL, IFIC, EXIM, DBBL, MCBL, SCB GRINDLAYS, ANZ=19	JBL, ABL, SBL, IBBL, SCB, HSBC, BRAC, RBL, SEBL, UCBL=10
All Parameter	SBL, IBBL, JBL, ABL, AAIBL, RBL, BKB, NBL, UCBL, PBL, SCB, ABBL, RAKUB, UBL, SEBL, EXIM, DBBL, CITI, HSBC, PREMIER, PRIME, BRAC, EBL, IFIC, AMEX, FSIBL, BDBL, BASIC, Premier, BSRS, NCC, SJIBL, BSB, DBL, MCBL, AL-Baraka, TBL, CITY, UNION, BA, SCB GRINDLAYS, ANZ, INDO = 43	SBL, ABL, JBL, IBBL, AAIBL, BKB, RBL, NBL, PRIME, UCBL, PBL, SCB, DBBL, UBL, BRAC, ABBL, HSBC, FSIBL, SEBL, BDBL, EXIM, RAKUB, EBL, BASIC, BSB, DBL, BSRS, MCBL, IFIC, CITY, NCC, UNION, SCB GRINDLAYS, ANZ = 34	SBL, ABL, JBL, IBBL, AAIBL, BKB, SCB, PBL, RBL, RAKUB, HSBC, BSB, ABBL, DBL, EXIM, FSIBL, BRAC, SEBL, UCBL = 19

Appendix IV: Bank Specific Ranking in the area of Non-Performing Loans (NPLs) for the period of 2016-2018

Parameter	CR10	CR7	CR4
NPL	NBP, PBL, JBL, SBL, BASIC, ABL, RBL, BKB, IBBL, Padma, NBL, UCBL = 12	JBL, SBL, BASIC, ABL, RBL, BKB, IBBL =7	BKB, JBL, SBL, BASIC, ABL =5
NPLR	RBL, ABL, NBP, ICB, Padma, BASIC, BDBL, JBL, SBL, BCBL, RAKUB, BKB = 12	BCB, RAKUB, BKB, NBP, ICB, Padma, BASIC, BDBL, JBL, SBL =10	Padma, NBP, ICB, BASIC, BDBL =5
ADR	NCC, Premier, IBBL, SIBL, MCBL, BASIC, City, RAKUB, Padma, SJIBL, Prime, BRAC, EBL, ABBL, EXIM= 15	MCBL, NCC, EBL, SIBL, BASIC, City, RAKUB, Padma, SJIBL, Prime, BRAC = 11	BRAC, EBL, SJIBL, BASIC, City, RAKUB, Padma =7