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Large-scale IFRS Implementation and Bank Performance: An Emerging Economy Perspective

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Abstract

International Financial Reporting Standards (IFRS) are largely contributing to accounting quality improvement around the world. Since its first mandate in European countries, over 100 countries are now complying with the IFRS in their financial reporting practices. To date, plenty of research initiatives have been undertaken to examine the diverse impacts of IFRS from different perspectives. However, there remains a paucity in examining the changes in firm performance resulting from IFRS adoption, especially in the banking sector. Therefore, this study aims to evaluate the impact of IFRS adoption on financial performances of commercial banks. Compiling panel data of 13 commercial banks listed in Dhaka Stock Exchange, an Ordinary Least Square (OLS) estimate has been administered. The empirical result of the study shows a strong relationship between the large-scale IFRS implementation and commercial banks' financial performance. The findings of the study contribute to the IFRS literature by exposing the relationship between large scale IFRS implementation and bank performance from an emerging economy perspective. The study also recommends required country-specific strategic considerations in adopting and implementing IFRSs.

Keywords: IFRS, Bank Performance, Ordinary Least Square, Panel Data, Profitability, Financial Reporting

Large-scale IFRS Implementation and Bank Performance: An Emerging Economy Perspective

1. Introduction

It has been 16 years since the International Financial Reporting Standards (IFRS) were first mandated for the listed companies in the European Union (EU). Since its first adoption in 2005 in the EU, IFRS has experienced a phenomenon of rapid adoption around the world. Currently, more than one hundred countries are reporting under IFRS or maintaining close compliance with the IFRSs (Mameche & Masood, 2021; De George et al., 2016). Bangladesh is one of the early adopters of IFRS & now the companies listed in the stock exchanges are reporting in compliance with the IFRS. The basic reason behind the global adoption of IFRS is that it develops accounting qualities which result in a greater acceptability of the firms' financial reports among the global investors. Harmonization among global reporting practices has become possible because of the shelter under the umbrella of IFRS. Most of the prior studies on IFRS suggest that firms and countries adopting IFRS are benefited from the lower cost of capital, improved transparency in accounting information, better investment environment across the globe, improved comparability of financial reports, and the enhanced availability of foreign analysts (Mameche & Masood, 2021; Eiler et al., 2021; De George et al., 2016). The International Accounting Standard Board (IASB) articulates that the main objective of IFRS is: "… to develop, in the public interest, a single set of high quality, understandable, enforceable and globally accepted financial reporting standards based on clearly articulated principles. These standards should require high quality, transparent and comparable information in financial statements and other financial reporting to help investors, other participants in the various capital markets of the world and other users of financial information make economic decisions." Many of the previous studies believe that IFRS reporting improves financial transparency, stimulates international capital flows, improves cross-country comparability, and thus reduces the cost of capital to the firms in adopting countries (Siriopoulos et al., 2021; Eiler et al., 2021; Mameche & Masood, 2021; Levitt, 1998; cited in De George et al., 2016).

Nevertheless, there were always controversies from different perspectives regarding the suitability of adopting IFRS in countries around the world. For example, Barth (2007) argues that the adoption of a common set of international accounting standards may develop the expectation of low information processing cost. The adopting countries may also expect that the auditors would become more familiar with and expert on a common body of international accounting standards. On the other hand, Ball et al. (2003) argue that the managers' and the auditors' incentives are influenced oppositely by the international accounting standards due to the poor preparer incentives, and prevailing political and economic factors. Though studies on this note documented that adoption of IFRS has improved reporting quality in countries (Eiler et al., 2021; Bartov et al., 2005; Barth et al., 2008; Lang & Stice-Lawrence, 2015; Cascino & Gassen, 2015), the literature does not emphasize examining the impact of reporting differences resulting from the IFRS adoption and implementation on the profitability of the adopting firms.

To fill this gap in IFRS research, this study, therefore, aims to examine the relationship between the large-scale IFRS implementation and the profitability of banks from a transitioning economy perspective.

The banking sector plays a crucial role in the economic progress in both developed and developing countries (Dietrich & Wanzenried, 2014). Scholars argue that a profitable, efficient, and enduring banking sector is a prerequisite for sound and sustainable economic development (Hossain, 2021; Robin et al., 2018; Myoung-Ho, 2002, cited in Barako & Tower, 2007). However, the economic systems of the developing countries are different from those of developed countries. By nature, the economic system of the developing countries is mainly bank-based (Gafoor et al., 2018). For example, in Bangladesh, the banking sector alone holds 68% of total financial market capitalization (DSE, 2019) and 18.97% of total market capitalization (DSE, 2019) which is the highest holding by a single sector among all other sectors listed in the stock exchange of Bangladesh. Banks in Bangladesh mainly perform as financial intermediaries by developing funds and financing in both short, mid, and long-term projects. Following the immense contribution of the banking sector in economic development, financial performance attributes have got the bulk of researchers' attention. However, most of the bank performance studies have focused on the determinants of bank profitability (Dietrich & Wanzenried, 2014; Robin et al., 2018; Le & Ngo, 2020). To the best of our knowledge, the extant literature does not posit any significant empirical evidence on investigating the impact of large-scale implementation of IFRS on financial performance of the commercial banks. Therefore, on the basis of the above debate, this study aims to investigate the impact of IFRS adoption and its implementation on a wider scale on the profitability of the listed private commercial banks in Bangladesh.

To attain the objective of the study, the current research uses a balanced panel data set of leading private commercial banks listed in the Dhaka Stock Exchange covering both the pre- and post-adoption period. Unlike previous empirical studies, this study employs IFRS adoption dummy variables as the explanatory variable along with bank-specific and macroeconomic factors as control variables. The current research contributes to the extant literature by providing empirical evidence on the impact of large-scale IFRS implementation on the profitability of commercial banks in a transitioning country like Bangladesh.

2. Literature Review

2.1 IFRS history

It has been almost 50 years of IFRS history. In 1971, the International Accounting Standards Committee (IASC) issued the first set of international accounting standards (IAS). However, the IASC was subsequently restructured and the International Accounting Standards Board (IASB) was formed in 2001. Since then, more than 100 countries are now reporting under the IFRSs as issued by the IASB.

The first significant mandate of IFRSs was made in the European Union (EU) in 2005. Companies listed in the main EU stock exchanges were required to prepare their financial statements in compliance with the IFRS as endorsed by the European Commission (EC) since January 1, 2005. Following this momentous commendation in the EU, other jurisdictions like Australia and Hong Kong adopted IFRS nearly at the same period and were followed by other countries as their convenient suit.

2.2 IFRS in Bangladesh

The globalization of business has led the world to develop and implement a common set of accounting standards to ensure synchronization among the financial reports around the world. The massive increase in cross-country trade and investment has strengthened the demand for a clearer and more comparable reporting practice that would help global investors and other stakeholders have a better understanding of accountancy worldwide. The international agencies and development partners, for example, the United Nations (UN), European Union (EU), World Bank (WB), and Asian Development Bank (ADB), also prescribed the borrowers and recipients of different foreign aid and other technical support to employ the international accounting standards. Not unlikely to many other countries, the economy of Bangladesh goes under the immense pressure of global phenomena which warrants the Accountancy Profession to execute standardization of accountancy practices through the implementation of IAS/IFRS. Therefore, to comply with the global demand, Bangladesh has adopted IFRS first in July 2006 (Hossain et al., 2015) which was to be effective from January 1, 2007. However, the introduction, adoption, and implementation process of IFRSs and IASs in Bangladesh can be divided into two regime. First one is ICAB regime and the second one is the FRC regime.

2.2.1 The ICAB regime

In Bangladesh, complying with IFRS standards is mandatory for listed companies (IFRS Foundation, 2020). Earlier, the jurisdictional authority to set, adopt, and issue accounting and reporting standards was under the Institute of Chartered Accountants of Bangladesh (ICAB). The Rule 12(2) of Bangladesh Securities and Exchange (BSE) Rules, 1987 adopted by the Ministry of Finance states that, “The financial statements of an issuer of a listed security shall be prepared in accordance with the requirements laid down in the Schedule and the International Accounting Standards as adopted by the Institute of Chartered Accountants of Bangladesh. Explanation-in this sub-rule, International Accounting Standard refers to the accounting standards issued by the International Accounting Standards Committee [predecessor of the IASB Board].” Therefore, the Rule 12(2) of BSE Rules, 1987 provides the Institute of Chartered Accountants of Bangladesh (ICAB) the jurisdictional authority to adopt, modify, set, and issue the accounting standards to be followed in the preparation of financial statements in Bangladesh.

It is important to mention that, before the declaration of circular no. Ref: 1/1/ICAB-2017 on December 14, 2017, the ICAB had adopted the International Accounting Standard (IAS) as Bangladesh Accounting Standard (BAS) and the International Financial Reporting Standard (IFRS) as Bangladesh Financial Reporting Standard (BFRS). However, the above-mentioned circular declares that the ICAB would adopt the IFRS and publish as IFRS instead of BFRS which would be effective for annual periods beginning on or after January 1, 2018 (ICAB, 2017). Further, it is also worth mentioning that the ICAB does not hold the responsibility to ensure the enforcement of the standards as adopted and issued by the body. The enforcing responsibility goes to the Bangladesh Securities and Exchange Commission of Bangladesh (BSEC). More clearly, the legal and regulatory framework for financial reporting and audit of corporate entities in Bangladesh is governed by the Companies Act 1994 and The Securities and Exchange Rules 1987. For the banking companies in Bangladesh, the guidelines of the Companies Act 1994 will be replaced by the Bank Companies Act 1991 since the banks are formed and registered under the Bank Companies Act 1991 in Bangladesh. On the other hand, the code of conduct and the professional responsibilities of the Chartered Accountants in Bangladesh are governed by the Bangladesh Chartered Accountants Bye-laws 1973. Moreover, the enforceability status for compliance with the reporting standards, adopted by the ICAB, comes from these sources- being legally compulsory (force of Law) or professionally obligatory (Bye-laws requirement).

2.2.2 The FRC regime

However, this jurisdictional authority has been shifted to the Financial Reporting Council (FRC) since the government of Bangladesh has enacted the Financial Reporting Act (FRA) 2015 and established the Financial Reporting Council in April, 2016 which started its official journey on July 2017. The major objective of the FRC is to regulate the financial reporting activities followed by the public interest entities. The council is also responsible to regulate and monitor institutional auditing activities in Bangladesh. According to the section 40 (1) (a) of Financial Reporting Act 2015, "The Council, with a view to rendering professional accounting services for public interest entities, shall set and issue (a) financial reporting standards in conformity with the International Accounting Standards issued by the International Accounting Standard Board" (IFRS Foundation, 2020). Therefore, based on the FRA 2015, the FRC has awarded the notification on adoption of standards (Notification no. 146/FRC/ADM:/Notification/2020/67; Date: November 2, 2020) which mandates the list of adopted standards and their date of effects.

2.3 Theoretical underpinning

Though Perera & Baydoun (2007) believe that accounting literature is rarely based on theoretical grounding, many of the IFRS studies (Othman & Kossentini, 2015; Hallberg & Persson, 2011; Sanyaolu et al., 2017) are grounded on theories. Among many other theories employed in accounting research, the agency theory (Jensen & Meckling, 1976), the legitimacy theory (Dowling & Pfeffer, 1975), the institutional theory (Dillard et al., 2004), stakeholder theory (Freeman, 1984) are dominant.

The legitimacy theory, developed by Dowling & Pfeffer (1975), proposes the concept of organizational legitimacy. The theory terms organizational legitimacy as "… a condition or status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy." Legitimacy theory is based on the notion that a 'social contract' exists between the firm and the society in which the firm operates (Deegan 2002; Patten, 1991) which leads the firms to report on activities that are perceived to be desired by the community or society.

On the other hand, the agency theory was proposed by Jensen & Meckling (1976) to explain the relationship between the principal (the owner or shareholder) and the agent (the manger). Agency theory deals with the problems arising from the separation between ownership and control leading towards difference in owner and management interests (Jensen & Meckling, 1976). Therefore, ensuring the principal's interest by reducing the risk of surprises becomes only possible if the existing information asymmetry between firm and investors or owners is resolved. An effective mechanism is required to remove the information asymmetry between the firm and investor which would result in a secured and trustworthy relationship between the principal and the agent. Thus, to establish a convergent accounting system, the IFRS has been developed which reduces information asymmetry between reports as well as the firm and the investor, enhances comparability and reliability of the annual reports (Ali, 2005; Whittington, 2005).

However, empirical evidence show that different studies have employed different theories to address different issues. This current study is based on the principles of agency theory as proposed by Jensen & Meckling (1976) to investigate the impact of IFRS adoption on firm performance.

2.4 Empirical evidence

The massive adoption of IFRS around 2005 has got bulk of researchers' attention in examining the IFRS adoption impact from different perspectives (Siriopoulos et al., 2021; Nurunnabi, 2021; Agyei-Boapeah et al., 2020; Golubeva, 2020; Oppong & Aga, 2019; Harakeh et al., 2019; De George et al., 2016; Barth et al., 2008). The main focus of the early

IFRS studies was on investigating the effects of IFRS adoption on reporting quality from both voluntary and mandatory adoption phenomena which concluded with mixed evidence (Bartov et al., 2005; Hung & Subramanyam, 2007; Barth et al., 2008; Ahmed et al., 2013).

Barth et al. (2008) examined the pre-, and post-adoption reporting quality using 327 sample firms from 21 countries. They concluded that post-adoption reporting was more value relevant with low earnings management and more timely recognition of losses. On the other hand, Hung & Subramanyam (2007) examined the impact of voluntary adoption of International Accounting Standards on 80 German firms' reported financial statement numbers covering a period of 1998-2002 and reported that there was no improvement in value relevance or in timeliness of accounting information. However, Ahmed et al. (2013) found a negative impact on mandatorily adopted firms' accounting quality. They examined the impact of mandatory adoption of IFRS on sample firms' income smoothing, earnings aggressiveness, and earnings management. Examining the reporting practices of firms from 20 countries who adopted IFRS mandatorily, they conclude that there was a fall in accounting quality after the adoption of IFRS.

To date, the IFRS studies got multiple dimensions over time. For example, Bedford et al. (2021) investigated the effects of IFRS 10 acceptance on the consolidated financial statements of listed companies in Australian Stock Exchange. Their key empirical findings reported that adoption of IFRS 10 has relationship with firms consolidating fewer subsidiaries which is related with non-majority ownership as well. Focusing on a different context, based on a data set of 2448 firm year from the German non-financial firm settings, Abdullah & Tursoy (2019) found a positive moderating effect of IFRS on firm performance while it lowers the relationship strength between the capital structure and financial performance of firms. Blanchette (2011) also reported a positive relationship between IFRS and profitability in Canada. On the other hand, Daske et al. (2008) found a decrease in the firm value using panel data from 26 countries. Agyei-Boapeah et al. (2020) also examined the impact of IFRS adoption on firm value of seven African countries. They applied pooled ordinary least square (OLS) estimation to examine the data set of 534 African firms covering the period of 2000 to 2015 and found a positive impact of IFRS on the firm value. Lantto & Sahlström (2009) have examined IFRS effects on the key financial ratios from Finnish settings. Covering a sample of 91 firms from all industries listed on the Helsinki Stock Exchange, they reported that the adoption of IFRS changes the magnitude of the key accounting ratios. More particularly, their findings show that IFRS adoption has increased the profitability ratios and decreased the market-based financial ratios. In addition to these, De George et al. (2013) examined a data set of 907 listed Australian firms and reported that IFRS adoption has substantially increased the audit cost for the adopting firms. Interestingly, Golubeva (2020) examined the impact of IFRS adoption on the foreign direct investment (FDI) in 73 countries. The existing literature also shows that there are studies on the relationship between IFRS adoption and economic growth (Oppong & Aga, 2019).

However, the extant literature posits that evidence on the impact of IFRS adoption and financial performance of financial sector, more clearly the performance of commercial banks is still missing. Therefore, aforementioned arguments provide a great scope to fill this gap and allow us to examine the impact of IFRS adoption on the financial performance of the commercial banks. Table 1 presents a brief outline of related IFRS studies.

Table 1 IFRS study summary

Author(s)	Objective	Context	Findings
Abad et al. (2018)	To investigate the effects of IFRS adoption on information asymmetry.	Spain	Empirical evidence show that IFRS has significant impact on information asymmetry reduction.
Abdullah & Tursoy (2019)	To examine the moderating effects of IFRS on the association between the capital structure and firm performance.	Germany	They found positive impact of IFRS adoption on firm performance.
Barth et al. (2012)	To investigate the impact of IFRS on comparability.	Comparison between USA and 27 non-USA countries	IFRS adoption enhances reporting comparability.
Blanchette et al. (2011)	The main purpose of the study was to investigate the impact of IFRS on financial ratios.	Canada	The result of the study revealed that IFRS adoption enhances firm ROA and ROE.
Chen et al. (2013)	To examine the effects of IFRS on investment efficiency.	17 European Countries	Firm’s investment efficiency increases.
Iatridis (2010)	To test the implication of IFRS adoption on reporting quality and value relevance.	UK	IFRS enhances reporting quality and value relevance.
Lantto & Sahlström (2009)	The study aims to investigate the effects of IFRS on the financial ratios.	Finland	IFRS changes the key financial ratios of firms.
Lopez et al. (2020)	Aims to analyze the effects of mandatory IFRS adoption on the accounting conservatism.	Latin America	Their empirical evidence show that there is a strong positive impact of IFRS adoption on earnings conservatism.
Nurunnabi (2018)	To assess the perceived IFRS adoption cost and benefits in Saudi Arabia.	Saudi Arabia	Benefits of IFRS adoption is higher than the cost associated with.
Tanko (2012)	Major objective of the study was to investigate the impact of IFRS compliance on firm performance.	Nigeria	IFRS compliance improves reporting quality and profitability.

3. Research Methodology

3.1 Sample and data

To attain the objective of the study, we have collected data from the published annual reports of 13 major commercial banks listed in the Dhaka Stock Exchange (DSE). According to the DSE (2020), there are 30 commercial banks listed in the DSE among which seven are islami shariah based commercial banks and the remaining 23 are conventional commercial banks. It is important to mention that among these 23 conventional commercial banks, there is only one state-owned commercial bank listed in the stock exchange. Moreover, the ownership structure, governance, and mission statement of the government commercial banks significantly differ from that of the private commercial banks. Therefore, we did not consider the aforementioned eight commercial banks as our sample. Thus, the study considers the private commercial banks listed in the stock exchange. However, following the market capitalization method (Belal et al., 2010), we have selected 13 private commercial banks listed in the DSE as our sample firms considering the year of enlistment and availability of data.

The study, thus, compiled a balanced panel data of 13 private commercial banks covering the period of 2007 to 2018 which results in 156 firm-year observations. We consider this period to observe the pre- and post-adoption performance of the selected banks. It is important to mention that the firm-year observation size of this study confirms the threshold of ten participants for one predictor variables (Anas et al., 2015). Furthermore, data related to the macroeconomic indicator has been collected from the Asian Development Bank repository (ADB, 2019) and from the directory of the Bangladesh Bureau of Statistics (BBS, 2021).

Since the study compiles data over the period of 2007 to 2018, it is a cross sectional data by nature. Again, it is also a time series data because of its time range. Thus, current study deals with pooled data too. Therefore, the Pooled Ordinary Least Square (POLS) estimation has been carried out to analyze the data as this technique is used in other similar studies (Siddik et al., 2016; Golubeva, 2020).

3.2 Variables and their definition

3.2.1 Dependent variables

The purpose of this study is to examine the impact of IFRS adoption on the financial performance of commercial banks in Bangladesh. Therefore, the dependent variable of this study is bank performance. We use three widely used proxy variables, namely, return on assets (ROA), return on equity (ROE), and net interest margin (NIM), to measure the bank performance (Robin et al., 2018; Le & Ngo, 2020). ROA is one of the popularly used (Garcia-Meca et al., 2015; Peni & Vähämaa, 2012; Siddik et al., 2016; Anderson & Reeb, 2003) performance measurement tools that postulates how effectively the bank management is utilizing the available assets of the banks in generating profits. Besides the ROA, return on equity (ROE) is also a prominent measure of firm performance that has widely been applied in prior studies (Robin et al., 2018; Siddik et al., 2016). The bank literature suggests that ROE reflects how effectively the equity capital is being used by the bank management to maximize the bank earnings (Robin et al., 2018). The bank literature also proposes that a change in ROE can bring change in the ROA too (Robin et al., 2018; Demirgüç-Kunt & Huizinga, 1999). Thus, we employ both the ROA and ROE to measure the performance of banks.

This study employs a third measure of performance, namely the net interest margin (NIM) which has also been employed in the prior bank performance studies (Robin et al., 2018; Hossain, 2021; Le & Ngo, 2020). A change in NIM reflects the possible change in the net interest income of the banks which is also related with the asset quality and total value of assets (Robin et al., 2018).

3.2.2 Independent variables

Since the main objective of this study is to examine the impact of IFRS adoption on bank performance, therefore, IFRS adoption (IFRS) is the independent or explanatory variable. Following the previous IFRS studies in similar field, we employed a dummy variable for IFRS where it takes the value of 1 (one) if the bank adopted IFRS in the year t or 0 (zero) otherwise (Agyei-Boapeah et al., 2020; Ugurlu & Jindřichovská, 2019).

3.2.3 Control variables

To get an identical result of IFRS impact on bank performance, this study considers bank level and macroeconomic level control variables that might also have impact on bank profitability. Many of the prior studies consider the capital ratio as an influential determinant of bank profitability (Dietrich & Wanzenried, 2014; Robin et al., 2018; Iannotta et al., 2007). The equity to assets ratio (Capital ratio) postulates the capital strength of a firm which results in a less need for external funding and thus, reduce the cost of capital followed by a positive impact on the bank profitability (Dietrich & Wanzenried, 2014).

The extant bank performance literature also recommends that there might have a significant impact of credit risk (CR) on bank profitability (Le & Ngo, 2020; Siddik et al., 2016). The credit risk is measured by non-performing loan to total loan ratio that expresses the degree of loan non-recovery risk which may lower the profitability of the banks (Le & Ngo, 2020; Athanasoglou et al., 2008; Miller & Noulas, 1997). On the other hand, increased and efficient investment of available assets of the banks represents the asset quality (AQ) of the banks which is measured with the total loan to total asset ratio. The more the assets are employed in loan, the more the interest income, thus the more the profitability chances (Robin et al., 2018; Gafoor et al., 2018). However, the expected sign of the variable AQ might vary with the level of non-performing loans.

Despite the bank structure related variables, there are board-structure related variables that might affect the banks' profitability. Empirical evidence on bank profitability suggests that there might have significant impact of corporate board size and the board independence on bank profitability (Robin et al., 2018; Gafoor et al., 2018; Garcia-Meca et al., 2015; Curak et al., 2012). Therefore, this study considers the board size and board independence as board-structure related control variables that may affect the bank profitability. In addition to these, the study also considers the growth rate of gross domestic product (GDP) as a macroeconomic related control variable which has also been widely examined in the prior studies (Hossain, 2021; Robin et al., 2018; Siddik et al., 2016).However, the definition and expected sign related to the variables are expressed in Table 2.

Table 2 Definition of variables

Variable	Descriptions	Expected implication	Empirical support
Return on assets (ROA)	Net income before tax ÷ total assets	+	Hossain, 2021; Gercia-Meca et al., 2015
Return on equity (ROE)	Net income before tax ÷ equity	+	Hossain, 2021; Shungu et al., 2014; Barako & Tower, 2007
Net interest margin (NIM)	Net interest income ÷ total assets	+	Hossain, 2021; Robin et al., 2018
IFRS	Dummy variable takes one if the bank adopt IFRS in any particular and zero otherwise	+	Oppong & Aga, 2019
Capital ratio (CAP)	Equity ÷ total assets	+	Dietrich & Wanzenried, 2014; Robin et al., 2018
Credit risk (CR)	Nonperforming loans ÷ total loans	-	Hossain, 2021; Siddik et al., 2016
Asset Quality (AQ)	Total loans ÷ total assets	+	Robin et al., 2018; Gafoor et al., 2018
Economic growth (GDPR)	GDP growth rate	+	Hossain, 2021; Le & Ngo, 2020

3.2.4 Econometric model

The regression model is explained below. The following econometric model estimates the relationship between IFRS adoption and Bank performance$_{it}$.

$$BP_{it} = \alpha_0 + \theta_t MACRO_t + \beta_t X_{it} + \lambda_{it} IFRS_{it} + \varepsilon_{it}.$$

Where BP_{it} is the measure of bank performance (ROA, ROE, and NIM) for bank i in year t. $IFRS_{it}$ is the dummy variable matrix which equals 1 if the bank i adopts IFRS in year t otherwise zero. The bank specific control variables are represented by X_{it} for the bank i in period t. furthermore, the control variable matrix related to the macroeconomics is denoted by $MACRO_t$ in the equation which is measured by the growth rate of GDP of Bangladesh in year t. ε_{it} is a disturbance error term which posits that ε_{it} is independently and identically distributed as N(0, σ2) and α_0 is a bank fixed effect term. Since the main explanatory variable of this study is IFRS adoption, the current study mainly focuses on the co-efficient of the variables $IFRS_{it}$ while other variables are considered as control variables.

4. Empirical results and discussion

4.1 Descriptive statistics

A summary of the descriptive statistics of variables used in the study is presented in Table 3. The current study measures the bank performance with three proxy variables, viz., ROA, ROE, and NIM. Table 3 shows a mean ROA of 2.29% with a minimum value of -0.05%, a maximum value of 6.65%, and a standard deviation of 0.0108. On the other hand, Table 3 also presents an insight on the variability in ROE. Among 156 observations, ROE varies between -0.69% and 62.46% with a mean value of 27.13% and standard deviation of 0.1158. In addition to these, the study also reports a summary of the third performance measure, viz., the NIM. Table 3 shows the mean NIM is 0.022 with minimum NIM value of 0.0051 and the maximum NIM value of 0.0479. Therefore, it is observed that, the banks in Bangladesh have reported significant difference in their returns over the period and one of the main reasons could be the change in the reporting standards which substantially changes the accounting numbers (Gastón et al., 2010).

Table 3 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	156	.0229258	.010804	-.0005021	.0664872
ROE	156	.271276	.1157643	-.0069357	.6246122
NIM	156	.0219496	.0076952	.0051311	.0479252
AQ	156	.6791468	.087489	.0390718	.8076748
CAP	156	.0848705	.0179808	.0524026	.1472642
CR	156	.0487744	.0514652	.0119923	.5687845
GDP	156	.06475	.0076854	.05	.079

ROA = Return on assets, ROE = Return on equity, NIM = Net interest margin, CAP = Capital ratio, CR = Credit risk, AQ = Assets quality, GDP = GDP growth rate
Source: Authors' calculation using STATA

The study considers asset quality, capital ratio, credit risk, and GDP growth rate as control variable that might have influences on the firm performance. The asset quality (AQ) of the firms is measured by the ratio of total loan to total assets to assess how effectively the assets are being used to generate profit. The higher ratio of total loan to total assets shows a higher level of earning possibility provided that the non-performing loan ratio is lower. Table 3 represents mean AQ ratio 67.92% which projects that 67.92% of the available assets of the sample banks are being employed in a productive way. Capital ratio (CAP) reflects loss absorbing capacity of banks by means of requiring less external funding which results in higher profitability (Kosmidou, 2008). Table 3 projects a mean CAP of 8.49% with minimum and maximum CAP of 5.25% and 14.73% respectively which represents a sound equity capital position of the sample banks. Table 3 also presents credit risk situation of the banks with a mean, minimum, and maximum value of 4.89%, 1.2%, and 56.88% respectively which represents very poor lending quality that result in weak loan recovery by the commercial banks in Bangladesh. The descriptive statistics also presents the national economic growth phenomena with a mean GDP growth rate of 6.48% that varies between 5% and 7.9% over the sample period which projects a positive growth in the national economy.

4.2 Multicollinearity test

The study did not find multicollinearity problem among the variables as the relationship between two variables is less than 0.90 (Hossain, 2021). The study also tested the multicollinearity among the variables with variance inflation factor (VIF) which projects that the VIF is less than 10 for all the variables which is far below to the accepted threshold (Marquardt, 1980; Kennedy, 1985; Lin, 2006; Hossain, 2021). Therefore, the study passes the multicollinearity test. The variance inflation factor (VIF) and the correlation matrix are presented in Table 4 and Table 5 respectively.

Table 4 Variance inflation factors

Variable	VIF	1/VIF
AQ	1.50	0.665259
CR	1.46	0.685374
GDP	1.35	0.741985
IFRS	1.15	0.871386
CAP	1.12	0.896062
Mean VIF	1.31	

Source: Authors' calculation using STATA

Table 5 Correlation Matrix

	IFRS	AQ	CAP	CR	GDP
IFRS	**1.0000**				
AQ	-0.1681	**1.0000**			
CAP	0.1587	-0.1015	**1.0000**		
CR	0.1118	-0.4682	0.0197	**1.0000**	
GDP	0.2028	0.1877	-0.2365	0.2089	**1.0000**

Source: Authors' calculation using STATA

4.3 OLS result and discussion

The study carried out a pooled ordinary least square estimate to examine the effects of large-scale IFRS implementation on the profitability of listed commercial banks in Bangladesh. The OLS estimate result is presented in Table 6 which shows that there is a significant negative impact of IFRS adoption on commercial banks' financial performance in respect to all the three proxies, viz., ROA, ROE, and NIM. Therefore, the study empirically proves that mandatory adoption of international financial reporting standards (IFRS) negatively affects firms' profitability which concurs with some prior studies (Abdullahi et al., 2017; Adzor & Patricial, 2014; Aseoluwa & Jelil, 2017). Empirical findings of the current study project similar outcome in respect to other developing country settings. For example, Uzoma et al. (2016) reported that banks in Nigeria performed better in the pre-IFRS adoption era than that of post adoption period. Though the association between IFRS adoption and key financial ratios of listed firms were not significant, Adzor & Patricial (2014) documented a negative relationship between IFRS adoption and firm performance. This might be the result of significant change in the accounting practices which occurred due to the implementation of International Financial Reporting Standards (IFRS). More clearly, there are additional costs associated with the preparation and presentation of accounting information in accordance with the reporting standards. For example, previous studies reported the increase in audit cost after the adoption and implementation of IFRSs (De George et al., 2013; Kim et al., 2012). Based on the findings of the current and prior IFRS studies, it could also be portrayed that IFRS adoption effects are different in different country settings. For example, Blanchette (2011) reported positive association between IFRS adoption and firm profitability in Canada. Lantto & Sahlström (2009) also documented an increase in the financial ratios of Finnish companies in the post IFRS adoption period. Therefore, it is logical to portray that, firms in developed countries may harvest more benefits from the IFRS adoption than that of developing countries since the governance and implementation of rules of laws are sounder in developed countries.

Table 6 Empirical Results

Variables	Dependent variables								
	ROA			ROE			NIM		
	Coef.	T	P > t	Coef.	T	P > t	Coef.	T	P > t
IFRS	-0.0086	-5.06	0.000***	-0.1156	-5.88	0.000***	-0.0038	-2.35	0.020**
AQ	0.0044	0.50	0.621	0.0396	0.39	0.697	-0.0041	-0.50	0.619
CAP	0.2493	6.76	0.000***	-0.4062	-0.95	0.342	0.1075	3.09	0.002***
CR	-0.0289	-1.96	0.052*	-0.3545	-2.08	0.039**	-0.0202	-1.45	0.149
GDP	-0.4632	-4.88	0.000***	-5.3945	-4.92	0.000***	-0.0248	-0.28	0.783
_cons	0.0372	4.52	0.000***	0.7388	7.77	0.000***	0.0213	2.74	0.007***
R-squared		0.4929			0.4110			0.1108	
Adj R-squared		0.4760			0.3914			0.0812	
F-Statistic	29.16 (p-value = 0.0000)			20.94 (p-value = 0.0000)			3.74 (p-value = 0.0032)		

Note: ***, **, and * denote statistical significance level at 1%, 5%, and 10% respectively.
Source: Authors' calculation using STATA

Among the control variables, capital ratio (CAP) shows a significant positive association with the bank profitability in terms of ROA and NIM. This result postulates that banks with sound capital ratio are less dependent on external financing which results in lower cost of capital, and thus enhances the profitability of the respective banks. On the other hand, the empirical result also states that the credit risk (CR) is negatively associated with the banks' profitability in terms of ROA and ROE which supports the study postulate, i.e., banks with high level of non-performing loan are less profitable. In addition, the result of the study shows a significant negative relationship between the economic growth and firm profitability in terms of ROA and ROE.

The OLS estimate results reveal a negative relationship between the IFRS adoption and bank performance at 1% and 5% significance level. Table 6 shows that the empirical model for ROA can explain 49.29% of the relationship between the IFRS adoption and its impact on banks' ROA. The research model for ROE also can substantially explain the relationship between IFRS adoption and firm ROE. More clearly, the model can explain 41.10% of the relationship between IFRS adoption and ROE whereas 11.08% of the association between IFRS adoption and firm NIM could be explained by the research model. Therefore, there might have some other factors that affect the commercial banks' financial performance.

In summary, the result of the study explores that the main explanatory variable of the study (i.e. IFRS) is negatively related with firms' profitability in terms of ROA, ROE, and NIM whereas the control variables have difference in effects, for example, CAP has significant positive impact and, CR and GDP growth rate has significant negative impact on the firm performance.

5. Research Implications and Conclusion

The study aims to examine the effects of International Financial Reporting Standards (IFRS) adoption and large-scale implementation on the profitability of listed private commercial banks in Bangladesh. For the purpose of this study, we have compiled a balanced panel data from 13 listed private commercial banks in Bangladesh over the period of 2007 to 2018 and administered a pooled ordinary least square (OLS) estimate. The empirical result of the study reveals that there is a significant association between IFRS adoption and commercial banks' financial performance. The current study used three proxy variables as the measure of financial performance (e.g. ROA, ROE, and NIM) where the result of the OLS estimate shows that IFRS adoption adversely affect the commercial banks' financial performance. In addition, the study presents an extensive literature review providing a logical grounding to the current study. The study also possesses through in-depth review of related theories employed in accounting research based on which the conceptual framework of this study is developed.

Adoption and implementation of international financial reporting standards (IFRS) is mandatory for the financial and other listed companies in Bangladesh. Therefore, it is important to comply with the IFRSs as adopted and enacted by the Financial Reporting Council (FRC) of Bangladesh, and other guidelines provided by the Ministry of Finance, the Central Bank, the Bangladesh Securities and Exchange Commission (BSEC), the rules and regulations of the Companies Act 1994 and the Banking Companies Act 1991. Thus, monitoring the material implementation of IFRSs, rules and regulations, related Acts, and guidelines provided by the central bank and other regulatory bodies is essential to overcome the losses arisen from the poor governance and banking operations.

In this regard, our study contributes to academia, corporations, and national economy in many ways. For example, the empirical results of this study indicate that the adoption of IFRSs brings out the changes in the key financial performance indicators and thus, the current study contributes to the existing literature by providing a comprehensive insight on the impact of large-scale IFRS implementation on the financial performance of the listed private commercial banks in Bangladesh. Besides, the current study demonstrates an intensive literature review focusing on the theoretical underpinning and empirical evidence which would help develop potential researchers' grounding for further IFRS studies.

On the other hand, the current study also provides an inclusive understanding on the adoption and implementation phenomena of international financial reporting standards from an emerging economy perspective. The authors have focused on the developing country perspective since proper implementation of new set of rules and regulations is always a big challenge in developing countries. With this concentration, the study reveals that, there are delays in adopting and implementing the reporting standards in the preparation and presentation of accounting information by the firms though the adoption and implementation of international financial reporting standards is mandatory since its mandate by the respective authorities. Thus, the study shows a path to the policymakers by providing the insight on the significance of strict monitoring of IFRS implementation by the public interest firms of the country. In other word, the study states that the government, the Financial Reporting Council, the Bangladesh Securities and Exchange Commission, the Central Bank, and other regulatory bodies should provide emphasis on monitoring the implementation of financial reporting standards which would, in return, ensure the sound financial performance of the public interest companies in Bangladesh.

Further, the current study also provides a direction towards the understanding on economic significance of IFRS adoption by delineating the aspects and effects of financial reporting harmonization since a more comparable, reliable, and relevant accounting information attracts more investment from home and abroad which ultimately results in a robust economic growth. Additionally, the empirical findings of the current study reveal significant differences between the findings from developed and developing country settings. Therefore, this study recommends the standards setters, policymakers, and accounting professionals of emerging economies, such as Bangladesh, to consider the existing cultural, political, economic, and environmental differences while setting, adopting, approving, practicing, and/or implementing financial reporting standards.

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