QUANTITATIVE RESEARCH

Impact of Data Verification System on Financial Statements Readability: Evidence from Islamic and Conventional Financial Institutions in Bangladesh

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Abstract

Purpose: The main objective of this study is to examine the impact of Document Verification System (DVS), a verification software by ICAB, on readability of financial statements prepared by Bangladeshi banks and insurance companies listed in Dhaka Stock Exchange. This study also explores the potential moderating role of Islamic Sharīʿah- compliant reporting by full- fledged Islamic banks and insurance companies.

Design/Methodology/Approach: The sample includes all 10 Islamic banks and 8 Islamic insurance companies, along with an equivalent number of conventional banks and conventional insurance companies listed on Dhaka Stock exchange in January 2024. Therefore, a total of 36 companies constitute our sample. As DVS had been implemented in 2020, financial statements for 2018, 2019 (pre-DVS period) and 2021, 2022 (post DVS period) have been collected to enable comparative analysis. Pooled OLS with Fixed Effects Model and Random effects Model have been used as estimation techniques.

Findings: Results of the study show that there is significant negative relationship between DVS and financial statements readability, indicating that introduction of DVS led to an improvement in financial statements readability, as measured by a lower Bog Index readability score. However, the study also found that Islamic reporting adopted by Islamic banks and insurance

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companies does not moderate the effect of DVS on financial statements readability.

Significance: This research is the first conducted examination of DVS and its impact financial statements readability. Its outcomes are expected to pave the way for regulators to reap the most benefits of DVS and protect stakeholders' interests.

KAUJIE Classification: L1, L33

JEL Classification: M41, G21, G22

INTRODUCTION

In today's corporate world, communicating financial information of an entity is considered very important for the purpose of engaging with stakeholders. Financial statements are prepared to perform this task by supplying information about financial position and performance of an entity and in the process of reducing the information asymmetry between corporate executives and external parties. Therefore, financial statements are essentially a medium of communication for a business entity. However, this communication will take place successfully only when the stakeholders are able to process, understand, interpret and use the data prepared and presented in the financial statements by corporate executives. It is at this vital point that the "readability" concept becomes significant.

In simpler terms, readability refers to the ease with which a reader is able to understand written content. Ebaid (2025) stated "Readability is the reader's success in reading the texts written in corporate annual report, which is reflected in reader's success in understanding this report and assimilating information relevant to the company's evaluation through financial disclosure." And as readability techniques require written matter to be in sentence format, so in most cases, efforts are made to measure readability of notes to the financial statements (Smith & Smith, 1971), a fundamental component of financial statements and necessary for assigning meanings to many financial messages.

The readability concept includes many aspects such as situational context, linguistic capability of the preparers, analytical and interpretive skills, state of mind and other expertise of both the parties. All of these factors help produce a written content and affect the ability of the readers to walk through the descriptions, explanations and other technical

and financial information included in the notes to the financial statements. These notes help explain numerical data, justify accounting policies and clarify the reporting entity's business practices. However, this crucial area has also been subject to manipulation and misrepresentation as corporate fraudsters look for victims and implement their financial deception plans.

The parties responsible for preparing financial statements choose how to write a financial message and based on that, they select the wording, level of accuracy, simplicity and directness in their notes to the financial statements. And there might arise certain times when they apply this discretion for achieving evil objectives. They may try to intentionally obscure the information provided or choose difficult terms especially if they are attempting to cover their bad earnings performance or achieve some other ulterior motives. They would twist the words and use vague or complex sentences in the notes to justify their activities and to make sense of questionable figures included in the income statement and balance sheet. During the period leading up to their collapses, corporate giant Enron resorted to using very difficult terminology or technical jargon in their financial statements so as to deceive both the industry experts and general public (Gonsalves, 2003).

Signaling theory highlights the role of corporate financial disclosures as signals through which corporations attempt to communicate their quality to external stakeholders (Spence, 1973). These signals would be effective only when they are conveyed with accuracy and clarity. Financial statements readability is such quality that might signal transparency, verifiability and an absence of managerial deception. Consequently, information asymmetry is reduced, and confidence is enhanced among shareholders. On the contrary, obscure disclosures reduce the strength of the signals, thereby raising suspicions among regulators and investors.

Now, in Bangladesh context, the annual reports of public limited companies are severely lacking in readability quality as measured by Flesch Reading Ease, where the readability level turned out to be "difficult" or "very difficult" in most of the cases (Islam, 2016). Such poor readability quality is actually concerning. Often companies tamper with numerical figures and textual contents and create multiple versions of financial statements and furnish them to external parties like lending institutions, NBR, Bangladesh Bank, DSE to achieve

their ill motives. Such activities result in the generation of complex and less readable financial disclosures. It happens because untrue information mostly requires to be presented in a denser, more complicated and less straightforward way. And lack of quality audit, low audit fees, auditors' failure to expose inconsistency in financial statements created opportunities for these companies to get engaged in malpractices to mislead the central bank, to evade taxes, to deceive local and foreign investors, to get bank loans by presenting artificially inflated profit figures and so on.

To respond to these challenges and pursue transparency in financial reporting, the Document Verification System (DVS) was implemented by the Institute of Chartered Accountants of Bangladesh on December 1, 2020, to ensure that company financial statements carry the sign of rigorous inspection (The Financial Express, 2022). It's a preventive measure against submission of falsified and multiple financial statements to different stakeholders. Its fundamental purpose lies in presentation of a single set of transparent financial statements to all regulatory bodies and concerned parties. A unique Document Verification Code (DVC) will provide entrance to key financial data of the entity kept on the DVS server entered by the auditors. These key financial data include turnover, profits, assets, liabilities of the entity under audit, which are considered to be important metrics for assessing the financial condition of an entity. An important aspect is that this DVC must be printed on the audit report and financial statements endorsed by the company auditor. So, in a particular year, only one set of financial statements would be produced which would come under rigorous audit and a unique 18-digit DVC would be generated for that set of financial statements in that specific year (The Financial Express, 2022). Therefore, by verifying the financial data, regulatory agencies and other external parties would be able to ensure that the financial statements they rely on contain authentic and fair information.

This Document Verification System is poised to elevate the overall quality of company financial statements. With stringent multi-party verification of financial statements and reduced chances for financial misconduct, companies are now expected to provide financial information with more accuracy and directness. In this way, DVS is indirectly contributing to financial statements readability by promoting an environment of reliability

and transparency. Looking through the lens of signaling theory, it might also be stated that DVS reinforces the signaling value of corporate financial statements. It represents a regulatory intervention that helps to bolster the signaling channel between corporate executives and stakeholders, building trust in the corporate reporting environment.

Due to the nature of their operations and transactions being fundamentally complex, banking and insurance companies generally produce financial statements of more difficult and less readable nature. Besides, Islamic Sharīʿah-compliant banks and insurance companies might introduce some additional complications in this regard by producing financial statements containing Islamic concepts and Arabic terminologies. Unique Islamic products like Murābaḥah, Bayʿal-muʾajjal, Mushārakah are governed by Sharīʿah principles, and require deeper knowledge and communicative skills in order to be presented in a clear and understandable manner in the notes to the accounts.

Our financial sector has faced numerous instances of unethical practices over the years. There's high chance that the perpetrators might have provided misleading explanations in the notes to justify falsified financial figures. All of these factors make it necessary to carefully investigate the readability and understandability of the financial statements of these entities. In Bangladesh, the urgency of upgrading readability of financial statements is not yet felt by relevant parties although existing body of research underscored the significance of financial statements' readability and their implications for the users (Islam, 2016) and Islam (2016) documented the sole readability related study in Bangladesh context. Therefore, there exists a significant research gap in this field considering the specific readability challenges and growing adoption of DVS. To the best of our knowledge, no research investigating the relationship between Document Verification System (DVS) and readability of financial statements has been conducted.

Therefore, this study intends to explore the potential effect that DVS adoption might have on improving the readability scores (measured by Bog Index) of financial statements of banking and insurance companies listed on Dhaka Stock Exchange. It extends existing literature on regulatory initiatives and corporate financial disclosure quality by providing first empirical evidence on DVS and FS readability in Bangladesh. Bog Index is an advanced measure of readability which addresses the limitation of traditional measures like

Fog Index and captures plain English attributes within business texts (Burke et al., 2025). We run multiple linear regression with robust standard errors to investigate the relationships in our hypotheses, where Pooled Ordinary Least Squares (Pooled OLS) with Fixed Effects Model (FEM) and Random Effects Model (REM) are used as estimation techniques, considering the panel nature of our dataset. This study also uses Islamic reporting by Islamic Sharīʿah-compliant banks and insurance companies as a moderating variable. The nature of Islamic financial reporting is different from the conventional ones. Therefore, DVS might have a different effect on financial statements readability of Islamic companies than those of their conventional counterparts.

Our results reveal significant negative relationship between DVS and financial statements readability, highlighting that the implementation of DVS is showing effectiveness in improving financial statements readability, as measured by a lower bog index score. It's also discovered that Islamic Sharīʿah based reporting does not moderate the effect of DVS on readability of financial statements, as indicated by an insignificant moderation effect. The results from moderation effect highlights the efficacy of DVS in ensuring consistent transmission of desired improvement in audit quality, readability and transparency across conventional and Islamic financial institutions This study contributes to the existing literature by proving effectiveness of regulatory initiative called DVS, a bold step by ICAB, in promoting transparency and understandability of company financial statements in Bangladesh. Regulators might use these observations to bring discipline into the field of financial reporting, auditing and corporate governance. Furthermore, by using its insights, banks and insurance companies could explore ways to make their financial statements more readable for experts and general public alike.

The rest of the paper is designed as follow: the second section focuses on reviewing the existing literature on financial statements readability and Document Verification System (DVS), within which the formulation of hypotheses would also be shown. The third section presents the research design and methodology of this study in sufficient details. Moving forward, section four covers the analytical part and discussion of the study results. Section five discusses research implications and its limitations. Finally, section six presents the conclusion of this study.

LITERATURE REVIEW

Financial Statements Readability

For long, communication has been considered as a role of financial reporting. Littleton and Zimmerman (1962) stated that the analytical tool we term as accounting has always had at its core a communicational objective. It can be stated that communication would take place in financial statements only if the meanings meant by the source of information are allotted to the FS messages by the destination (Smith and Smith, 1971). Basically, there's a way through which one can objectively measure whether or not desired meanings are assigned to specific financial statements messages and this objective measure is termed as "readability" (Smith and Smith, 1971). Spence (1973) discussed the role of corporate disclosure in reducing information asymmetry through the lens of Signaling theory. Firms send signals of their quality through financial reporting practices and the credibility of these signals depends on their verifiability (Morris, 1987). In this regard, financial statements readability plays a crucial role as an indicator of managerial intent and transparency.

Readability refers to "the ease of understanding or comprehension due to the style of writing" (Klare, 1963). McLaughlin (1969) defined readability as "the degree to which a given class of people finds certain reading matter compelling and comprehensible," and Davison and Kantor (1982) stated that the "background knowledge assumed in the reader" is more important than "trying to make a text fit a level of readability defined by a formula." "It is not clear, considering the targeted audience of financial statements, whether the short sentences produced by Hemingway would be more effective than the long sentences by Faulkner" (Loughran & Mcdonald, 2014).

Researchers have been increasingly focusing on the readability of annual reports of the companies within which financial statements are also contained. Since readability measurement formulas necessitate that printed matters should be in sentence format (Klare, 1963), in most cases, attempts are made to measure the readability of notes to the financial statements which are an intrinsic component of financial statements and are crucial for assigning meanings to financial figures. Smith and Smith (1971) tested readability of notes to the financial statements of the first 50 corporations on Fortune's list of 500 largest

industrial corporations for the year 1969 revealing 29% of notes with reading ease level of college graduate and 57% of grades XIII through XV (college).

Courtis (1995) identified that readability exceeds proper understanding of 90% adult population and over five-year period, this quality is reduced. By using Fog index and a simple word count in order to assess readability level, Li (2008) found that 10-Ks with text and documents of poor readability quality along with longer length have poor earnings disclosure. Often researchers tried to explore the relationship between company performance and readability of their financial statements and annual reports. Researchers detected positive relationship between poor readability of the financial statements and bad performance of the companies (Subramanian, Insley & Blackwell, 1993; Smith & Taffler, 1992). Obfuscation or poor readability is the way through which management often attempts to cover bad news either consciously or unconsciously (Adelberg, 1979). Researchers examined Enron's communications during their immediately preceding three years before collapse and discovered that as the company's performance and financial position began to plummet; their financial statements and speeches by top executives became more loaded with cryptic and vague words and sentences (Gonsalves, 2003). Thus, quite rightly the issue of readability has turned out to be one of the major areas of interests for researchers in recent times.

In advanced economies such as the US, authorities (Securities and Exchange Commission, SEC) require companies to utilize 'Plain English' in their annual reports and in all disclosure notes so as to make their financial reports more understandable to their shareholders and creditors (Firtel, 1999). Li (2008) argues that lower earnings persistence can emerge from less readable financial reports due to coverage of unpleasant news in them by managers. Miller (2010) finds that increase in the size of annual reports is more likely to trim down trading activities, consequently investors will go for less readable annual reports by calling for greater number of analysts following. Lawrence (2013) observed that financial reports of very complex nature consume more time for extracting useful and relevant information and hence investors are reluctant to invest when they are faced with such complicated reports.

A number of researchers studied the impact of complex information disclosure, and report lower overall trading (Miller, 2010), larger return volatility (Loughran & McDonald, 2014), higher stock price crash risks (Kim et al., 2016). Aymen et al., (2018) show that better readability lessens information asymmetry and agency costs between investors and companies, which subsequently attracts more financial analysts, thereby confirming the assumption of adverse selection.

Thus, it can be argued that readability of financial reports and their notes are crucial as they greatly affect users' understanding of the financial information furnished by the company and subsequently their investment decisions. And also there's chance that executives may deliberately provide vague and less readable disclosure to misguide the stakeholders. Managers try to hide bad news in notes to the accounts so that they become hard to extract and are not reflected in stock price (Bloomfield, 2002) and as a result auditors may face high client business risk. Abernathy et al., (2019) demonstrate that readability of notes to the financial statements is related to the chances of financial misstatements and ensuing accounting related lawsuit. And in this context, an advanced measure of readability, the Bog Index, might be applied. It effectively addresses the limitation of traditional measures like Fog Index and captures plain English attributes within business texts, with lower Bog values associated with successful fundraising (Burke et al., 2025). In addition, (Bonsall et al., 2017) showed that more readable documents (lower bog values) were identified to be associated with enhanced market responses and improved analyst forecast accuracy with Bog index capturing a greater improvement in readability compared to its conventional counterparts.

Consequently, the issue of readability of financial statements and corporate annual reports has become a pressing concern for regulatory agencies in developed countries like USA and UK. (Islam, 2016) conducted a study where he attempted to analyze the readability of corporate annual reports of private commercial Banks (PCBs) in Bangladesh. His study reveals that corporate annual reports of Bangladesh are suffering from poor readability and the texts contained therein are difficult or very difficult to read. And this is the sole readability focused study conducted in the context of Bangladesh.

Document Verification System (DVS)

The Document Verification System (DVS), a game changer in the field of corporate compliance in financial reporting, is a piece of software that ensures that one audited financial statements exist for one company and allows relevant regulatory authority to enter into its server through using a unique code (Hossain and Muntasir, 2022). The Institute of Chartered Accountants of Bangladesh (ICAB), in a joint collaboration with National Board of Revenue (NBR), launched DVS on December 1, 2020 in an effort to crack down on unruly firms and prevent them from furnishing fabricated or multiple audited financial statements to relevant regulatory agencies including NBR (Zaman, 2022). DVS is actually an upgradation of previously existing DIAR and holds great importance to rein on malpractice in financial reporting and auditing (Bangladesh Post, 2020).

By using this digital system, ICAB members are required to furnish five crucial financial data of the company, which they are auditing. These data include the company's turnover, profits, total assets and liability for a specified period. After inserting the data, the ICAB members will then generate a unique 18 digit Document Verification Code (DVC) and this DVC is now required to be printed on the signed audited financial statements and audit report of the company. Thus, a DVC is a numerical unique code which is auto generated by the DVS upon entering some necessary legal information and audited financial figures of a company. And one of the most significant side to this is that nobody can produce another set of audited financial statements for gaining undue advantage by using this DVC after audit of company for a specific period. Therefore, this DVC is now deemed an entrance key of the company for that specific fiscal period in a bid to authenticate between audited information and DVS information and in order to ensure the originality of the financial statements (The Financial Express, 2022).

Previously auditors would just put their signatures on their audit reports and financial statements without proper verification and completely ignored the need for a stringent audit. Ever, there were instances when fake audit reports were submitted along with financial statements. Many a times, the auditors did not even charge minimum audit fees and indeed audit fee in Bangladesh is much less than that in comparable developing countries, implying sheer shortfall in audit quality. As per ICAB, their registered chartered accountants signed around 16000 financial statements in a particular year whilst around

46000 financial statements were furnished to the RJSC. Such huge gap definitely hints toward malpractice in financial reporting and auditing and with DVS functioning, such fraudulent practice is about to come to an end (Dhaka Tribune, 2021). It aims to restrain non-compliant auditors, fraud credit seekers, tax evaders so that a sound and transparent auditing and financial reporting practice comes to surface in the corporate world (The Financial Express, 2022).

As situation stands, without the Document Verification Code (DVC), audit reports and financial statements signed by auditors would not get accepted by regulators and other stakeholders. Ensuring this verifiability is assumed to increase accuracy and clarity of company financial statements. Because, after all true and fair information would always be presented in a transparent and straightforward manner. In this context, a positive improvement in readability and understandability of financial statements may well be expected which would ultimately help the investors to make better investment decisions. So, the basic concept here is that implementation of Document Verification System (DVS) could potentially enhance financial statements readability as an authentic signal of transparency, thereby facilitating better comprehension by investors and other stakeholders. Based on this fact, we can develop our first hypothesis:

H1: *The implementation of DVS has significant effect on readability score of financial statements.*

Implications for Islamic Banking and Insurance Companies

Conventional firms are always concerned with profit maximization and they may be engaged in activities deemed to be Sharīʿah non-compliant. Thus, it's of utmost importance for the investors and other stakeholders of Islamic banks as well as insurance companies to know that the profits of their investee companies are derived in a Sharīʿah compliant way (Bibi et al., 2022). To sum up their operations and performance with an Islamic perspective is concentrated on the socio-scientific concept in business decision making and considering the teaching of Islam (Choudhury & Hoque, 2004). Hence, they need to make clear information disclosure compared to their conventional counterpart (Jabbar, 2010).

Islam and Sultana (2018) discovered some problems being faced by Islamic insurance companies including a lack of centralized regulation and expertise in Sharīʿah aspects. Such lack of expertise might create obstruction in the provision of relevant Sharīʿah compliant financial information, which may end up negatively affecting the readability of their financial statements.

It is noticed that insufficient or complex information might lead to corporate failure and fraudulent financial reporting, as there is a chance that managers might intentionally misrepresent information (Hassanein & Hussainey, 2015). Clear and concise information disclosure helps to reduce the information gap between management and external stakeholders (Hahn & Lülfs, 2014). Sharīʿah based firms are benefitted more when they make sustainability disclosures, implying an incentive for greater transparency in these entities (Khattak, Ali & Burki, 2020), and stronger governance in Sharīʿah-compliant financial firms reveal more risk disclosures for stakeholders (Alajmi & Al-Shammari, 2024). However, this information disclosure is insufficient unless it is readable so that the users of financial statements can understand. Thus, it cannot be stated that good components of financial statements alone would provide assurance regarding the quality of written communication (Bibi et al., 2023). However, it's the firm's duty to prepare and convey their information in such a way that users can understand them and here comes the sheer significance of readability (Loughran & Mcdonald, 2014). By using Bog index, Bibi et al., (2023) computed readability score of Pakistani full-fledged, and window Islamic banks and their analysis showed less readability of all financial documents, but full-fledged Islamic banks and window Islamic banks have not displayed much difference in their readability score.

For banking and insurance companies of Bangladesh, clear and understandable financial statements could positively influence investor relations and public trust. As our financial literacy rate may not be high, the sheer significance of providing financial information in an accessible and clear manner is even more obvious. And in case of Islamic banks and insurance companies, these financial reports are bound to contain Sharīʿah principles, rules and other related information (Bibi et al, 2023). Failure to discern their meanings might impede the readers in making informed decisions. On the other hand, ethical

communication inherent in Sharīʿah principles are presumed to lead to more transparent financial disclosure. Based on these premises, our idea is that the nature of the company being Islamic Sharīʿah- compliant may moderate the effectiveness of DVS on improving financial statements readability. The following hypothesis is formed to investigate the potential moderating role of Islamic reporting in the context of this research:

H2: *Islamic Sharīʿah- compliant reporting moderates the effect of DVS on readability score of financial statements.*

RESEARCH METHOD

3.1 Sample

For the purpose of this study, the population includes all the Islamic Sharīʿah- compliant and conventional banks and insurance companies listed on Dhaka Stock exchange (DSE) in January 2024. The aim was to establish a representative sample and hence such number of conventional companies were selected that would match those of the Islamic ones. A match-pairing technique has been used where all 10 full-fledged Islamic banks and 8 Islamic insurance companies were included in our sample, alongside an equal number of conventional banks and insurance companies. Therefore, a total of 36 companies construct the sample, of which 18 belongs to Islamic Sharīʿah- compliant category and remaining 18 to conventional category. Another important factor is that this matching process covers similarity in size too, in order to ensure the reliability of comparative analyses. Conventional banks were selected by matching their deposit amount with those of their Islamic counterparts. On the other hand, conventional insurance companies were selected by matching the premium amounts with those of the Islamic ones. In this way, we have been trying to make sure that the companies within the sample are similar based on their financial and operational scope. Therefore, the sample selection method employed in this study could be termed as selective sampling.

The time frame for this study covers two years before the implementation of DVS in 2020 and two years after its implementation. Thus, the time frame under this investigation covers a total of four years- 2018, 2019, 2021 and 2022. Unfortunately, the data for the latest year which is 2023 could not be included as the annual reports for this year were not yet

available during the time of this investigation. Thus, the total dataset was supposed to cover 144 company years (36*4). However, it must be mentioned that it was not possible for us to get access to four company years of data. Trust Islamic Life Insurance was not yet a public limited company during the years 2018 and 2019 and so the annual reports for those two years were not available on their websites. And annual reports of Progressive Life Insurance were not available for 2021 and 2022. It resulted in our final dataset including a total of 140 company years. Therefore, panel data is used for the purpose of this study as it covers multiple observations for both individual companies and years. The data required is gathered from secondary sources, specifically publicly available annual reports uploaded on the websites of the respective companies in the sample. Below is a list of all the companies included in the sample:

Table 1: List of companies included in the sample

Full- fledged Islamic Companies	Conventional Companies
Banking Industry	**Banking Industry**
Al Arafa Islami Bank	Dutch Bangla Bank
EXIM Bank	Pubali Bank
First Security Islami Bank	National Bank
Global Islami Bank	Uttara Bank
ICB Islamic Bank	Midland Bank
Islami Bank Bangladesh	Rupali Bank
Social Islami Bank	AB Bank
Shahjalal Islami Bank	Dhaka Bank
Standard Bank	Jamuna Bank
Union Bank	Mutual Trust Bank
Insurance Industry	**Insurance Industry**

Fareast Islami Life Insurance	National Life Insurance
Islami Insurance	Asia Insurance
Mercantile Islami Insurance	Agrani Insurance
Northern Islami Insurance	Bangladesh National Insurance Company
Padma Islami Life Insurance	Progressive Life Insurance
Prime Islami Life Insurance	Meghna Life Insurance
Takaful Islami Insurance	Continental Insurance
Trust Islami Life Insurance	Chartered Life Insurance

Independent Variable

For the purpose of this study, the independent variable is constructed based on the introduction of Document Verification System (DVS), a kind of software introduced back in 2020 by ICAB. A dummy variable is used, where the years before the introduction of DVS (2018 and 2019) are assigned '0', as at that time DVS didn't exist. And, the years after the introduction of DVS (2021 and 2022) are assigned '1', indicating the existence of the system.

Moderation effect

For the purpose of this study, a moderation effect is created between the company being an Islamic Sharīʿah- compliant entity and the Document Verification System. In order to implement this moderation effect, at first a dummy variable is created. Full-fledged Islamic companies are assigned '1'. On the other hand, conventional companies are assigned '0'. By following this method, we created the moderating variable called Islamic Reporting (IR) for the purpose of this analysis. After that, this moderating variable is multiplied by the independent variable, DVS, which has already been created. And with this, the moderation effect (DVS * IR) is created.

This moderation effect has been included into the regression model to evaluate whether the implementation of DVS has a different impact on financial statements readability of

Islamic companies compared to conventional ones. The aim is to check, in which direction moderation effect moves and its statistical significance.

Control Variables

In this study, five control variables have been used: company profitability (measured by Return on Assets), size of the companies, corporate governance elements- institutional shareholding percentage, foreign shareholding percentage and an industry dummy (called bank dummy).

Dependent Variable

Readability score of financial statements, as measured by Bog Index, is the dependent variable in this study. For measuring readability, first we need to extract texts from financial statements which should be in sentence form. Hence, notes to the financial statements, an important financial statements component, is selected. Notes play significant role in explaining financial information presented, justifying a company's financial performance and position and in clarifying the reasons behind relevant accounting principles used.

This study aims for a comparative analysis of conventional and Islamic companies, hence specific areas from notes to the financial statements have been selected which include different and unique features for the two categories of companies. These areas mostly involve revenue recognition, investment, financing, deposits, profits sharing, claims etc. After that, from each set of financial statements, a 500 word English text has been extracted as Bangladeshi companies prepare financial statements in English language. The length of the extracted text is large enough in order to properly evaluate the readability of financial information. Next, editor software StyleWriter's Bog Index has been computed to measure the ease of readability of these financial statements.

An Insight into Bog Index

Bog Index is a readability measure that is considered an improvement on the standard readability formulas according to recent researches. It was developed to measure "plain English" readability and is a sophisticated tool that can evaluate the ease with which a reader can process texts. While traditional formulas suffer from weaknesses like relying

merely on sentence length and syllable count while not capturing structural complexity, the Bog Index adds improvement. It incorporates graded wordlist to measure word difficulty, while accounting for passive verbs, acronyms, abbreviations, wordiness and style issues. It has a 'Pep' factor which is designed to consider attributes that increase readability quality (stylewriter-usa.com). Consequently, Bog index is shown to outperform traditional readability formulas in respect of business and financial disclosures (Bonsall et al., 2017). An improved view of a text's readability can be derived by using this advanced Index and the Index score can range between 0-20 (excellent), 21-40 (good), 41-70 (average), 71-100 (poor), 101-130 (bad), 131-1000 (dreadful) and 1000+ (gobbledygook). That means the lower the Bog score, the better the readability quality. And as the focus of this study is on modern financial reporting, including older readability metrics would add little incremental insights.

Table 2: Variables Formulation

Variables	Acronym	Measurement
Dependent Variable: Readability score	RS	Sentence Bog + Word Bog - Pep
Independent Variable: Document Verification System	DVS	The years before the implementation of DVS are assigned '0'; the years after its implementation are assigned '1'
Moderating Variable: Islamic Reporting	IR	Full-fledged Islamic Sharīʿah compliant company coded '1', otherwise '0'.
Moderation effect: Islamic reporting moderates the effect of DVS on readability score of financial statements	DVS*IR	Islamic Reporting (IR) is multiplied by the DVS variable.
Control Variables		

Profitability	ROA	Net profit after tax divided by the assets of the company
Institutional shareholding	INSTITUTIONAL	Percentage of institutional shareholders in the company
Foreign shareholding	FOREIGN	Percentage of foreign shareholders in the company
Industry dummy	BANKDUMMY	Bank companies assigned "1", otherwise "0"
Size of firm	FIRMSIZE	Natural logarithms of firm assets

Data Analysis Techniques

In the initial stage, descriptive statistics (total observation, mean, standard deviations and minimum, maximum) are used to investigate the scope of dependent variable and predictor variables, to help gain a deeper understanding of the patterns and variances of the variables under investigation. To determine the strength of the relationship between variables, Pearson correlation coefficient is used. We ran multiple linear regression with robust standard errors to investigate the relationships in our hypotheses, where Pooled Ordinary Least Squares (Pooled OLS) with Fixed Effects Model (FEM) and Random Effects Model (REM) are used as estimation techniques, considering the panel nature of our dataset. Hausman test is employed to determine whether FEM or REM is preferred for the purpose of this study. In addition, we ran regression with cluster standard errors to ensure that our regression results are robust to within-group correlation. In this study, statistical software Stata has been used for performing statistical analyses and Microsoft Excel has been used for handling necessary data visualization.

3.7 Model Development

In order to investigate the relationships among variables of interests, at this stage we develop the necessary models. The first model is designed to test the relationship between the implementation of DVS and financial statements readability quality. The model is specified below:

Model 1: $RS_{it} = \beta_0 + \beta_1 DVS_{it} + \beta_2 ROA_{it} + \beta_3 INSTITUTIONAL_{it} + \beta_4 FOREIGN_{it} + \beta_5 BANKDUMMY + \beta_6 FIRMSIZE + \varepsilon_{it}$

In the next model, the moderation effect is included to further expand the model. The purpose of this second model is to check whether the relationship between DVS and financial statements readability is moderated by Islamic Sharīʿah- compliant reporting. The second model is specified below:

Model 2: $RS_{it} = \beta_0 + \beta_1 DVS_{it} + \beta_2 IR_{it} + \beta_3 DVS*IR_{it} + \beta_4 ROA_{it} + \beta_5 INSTITUTIONAL_{it} + \beta_6 FOREIGN_{it} + \beta_7 BANKDUMMY + \beta_8 FIRMSIZE + \varepsilon_{it}$

These models are based on the premise that initiatives like Document Verification System can help to improve the readability and understandability of financial statements. And the nature of the company might influence the relationship between this initiative and readability. By testing these relationships, this study intends to contribute to the literature on DVS and readability of financial statements.

DISCUSSION

Descriptive Statistics

In this segment, a quantitative summary of the data used for the purpose of this study is provided. From the table, it can be noticed that the mean value of readability score is 98.63, which means that, on an average, readability quality of financial statements falls within the "poor" category as measured by bog index. The maximum score went as high as 141 which is in "dreadful" category and the minimum score is 80, which indicates "poor" readability, and this is their highest quality of readability. It sheds light on persistent poor financial statements readability quality of Bangladeshi banks and insurance companies which are included in sub-standard domain as per Bog Index. There is some variability in readability scores as standard deviation is 9.061, but it is not concerning. A mean value of 0.5 and standard deviation of 0.502 for DVS indicates that half of the observations were before and another half was after the implementation of Document Verification System (DVS). Finally, the mean and SD value of 0.5 and 0.502 for IR mean that half of the observations belonged to full- fledged Islamic company category.

Table 3: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
RS	140	80	141	98.63	9.061
DVS	140	0	1	.50	0.502
ROA	140	-0.1267	0.5427	0.0287	0.0666
INSTITUTIONAL	140	0	0.4721	0.1766	0.1287
FOREIGN	140	0	0.5298	0.0205	0.0885
BANKDUMMY	140	0	1	0.5714	0.4966
FIRMSIZE	140	19.2557	28.2397	24.0492	3.8696
IR	140	0	1	0.50	0.502
DVSXIR	140	0	1	0.2571	0.4386

Correlation Matrix

In this study, the Pearson's correlation matrix is used for primary identification of potential relationship between Document Verification System and readability score and the control variables. From the table, we can observe that between RS and DVS, there exists a significant negative relationship as measured by the coefficient of -0.1804. It means that after the implementation of DVS, the readability quality of financial statements improved slightly, as indicated by a lower bog index. The lower the bog index score, the better the readability quality. An insignificant negative association is observed between RS and ROA. Moreover, both the institutional and foreign share ownerships have negative but statistically insignificant relationships with readability scores of these companies. The matrix reveals that industry (bank) dummy has significant positive relationship (0.1722)

with readability scores of the companies in our sample. Finally, firm size is revealed to have significant positive relationship (0.1856) with readability quality of the institutions. With this, we can get an understanding of the relationship between DVS and readability scores, while accounting for the impacts of control variables.

Table 4: Pearson's Correlation Matrix

Variables	RS	DVS	ROA	INST	FOREIGN	BANKD	FIRMSIZE
RS	1						
DVS	-0.1804*	1					
ROA	-0.1273	-0.0873	1				
INSTITUTIONAL	-0.0299	0.0454	-0.1110	1			
FOREIGN	-0.1016	-0.0021	-0.1769*	0.0820	1		
BANKDUMMY	0.1722*	0.0000	-0.4438*	0.0026	0.1850*	1	
FIRMSIZE	0.1856*	0.0198	-0.3118*	0.0512	-0.0104	0.6828*	1

*Correlation is significant at the 0.05 level (2-tailed).

Testing Multicollinearity

The collinearity tolerance value must be above 0.1 and Variance Inflation Factor (VIF) should be 10 or less in the model where there's no problem of multicollinearity. All the variables in both of our models have collinearity tolerance value above 0.1 and VIFs are also within their acceptable range. Hence, it can be concluded that there is no multicollinearity problem in our regression model.

Table 5: Test of Multicollinearity

Models	Collinearity Tolerance	VIF
Model 1		
DVS	0.9887	1.01
ROA	0.7760	1.29
INSTITUTIONAL	0.9724	1.03
FOREIGN	0.9123	1.10
BANKDUMMY	0.4474	2.24

FIRMSIZE	0.5102	1.96

Model 2

DVS	0.9886	1.01
IR	0.8979	1.11
DVSXIR	0.9858	1.01
ROA	0.7469	1.34
INSTITUTIONAL	0.9392	1.06
FOREIGN	0.8980	1.11
BANKDUMMY	0.4472	2.24
FIRMSIZE	0.5024	1.99

Regression Results

Table 6: Model-1

	Pooled OLS	Random Effects Model	Fixed Effects Model
DVS	-3.437*	-3.549*	-3.675*
	(0.025)	(0.022)	(0.028)
ROA	-13.90	-18.09*	-23.80*
	(0.177)	(0.029)	(0.031)
INSTITUTIONAL	-1.915	-1.742	-0.767
	(0.745)	(0.808)	(0.926)
FOREIGN	-13.51*	-13.56***	37.06*
	(0.029)	(0.000)	(0.032)
BANKDUMMY	1.496	2.025	.

	(0.505)	(0.452)	.
FIRMSIZE	0.238	0.0942	-0.0045
	(0.235)	(0.154)	(0.855)
CONS	94.79***	98.08***	100.6***
	(0.000)	(0.000)	(0.000)
N	140	140	140
R^2	0.095	0.083	0.090

p-values in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To investigate the relationships in our hypotheses, we used Pooled Ordinary Least Squares (OLS) estimation technique with Fixed Effects Model (FEM) and Random Effects Model (REM). All models are estimated with robust standard errors which ensure that the reported significance levels remain valid even in the presence of heteroscedasticity. The above table represents the results from the three models, as indicated by regression coefficients and associated p values. The p value from Hausman test exceeds 0.05 threshold, which indicates that random effects model is preferred for our analysis. For independent variable DVS, the coefficient is -3.537 in random effects model and the result is statistically significant (p value 0.022). It means that the implementation of DVS is related to a decline in readability score (Bog Index), suggesting an improvement in the readability quality of financial statements. Although, the coefficient represents modest decline in readability score, but it's encouraging considering we're still in the very initial stages of DVS adoption. It would take time to arrive at substantial improvement in readability driven by DVS efforts. The discovered improvement in readability quality signals greater transparency in company financial statements and is assumed to reduce the chances for misrepresentation in financial statements, bring in more active retail investors, subsequently raising overall trading volume in the stock market. The pooled OLS and fixed effects model also present significant negative relationships between DVS and RS.

In this study, one potential concern related to the onset of COVID-19 pandemic in the post-2020 period. The uncertainty stemming from the pandemic was supposed to increase

disclosure complexity and reduce clarity. However, the persistence in the improvement of readability quality even in COVID-19 context is attributable to broader implementation of DVS and the signal it is transmitting to the stakeholders regarding rigorous audit and heightened transparency. Therefore, our analysis supports the hypothesis that the introduction of DVS has significant effect on readability scores of the banks and insurance companies in our sample.

Table 7: Model-2

	Pooled OLS	Random Effects Model	Fixed Effects Model
DVS	-3.418*	-3.550*	-3.675*
	(0.026)	(0.023)	(0.029)
IR	-2.287	-2.302	.
	(0.147)	(0.276)	.
DVSXIR	-0.725	-0.671	-0.166
	(0.817)	(0.831)	(0.961)
ROA	-16.98	-19.48*	-23.60*
	(0.121)	(0.017)	(0.024)
INSTITUTIONAL	-0.355	-0.548	-0.625
	(0.952)	(0.941)	(0.949)
FOREIGN	-11.98	-11.73**	36.01
	(0.064)	(0.009)	(0.171)
BANKDUMMY	1.512	1.982	.
	(0.495)	(0.447)	.
FIRMSIZE	0.188	0.0720	-0.0045

	(0.360)	(0.244)	(0.864)
CONS	94.04***	96.66***	98.79***
	(0.000)	(0.000)	(0.000)
N	140	140	140
R^2	0.109	0.085	0.090

p-values in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The second model investigates the potential moderation effect of Islamic reporting on financial statements readability. That is the nature of the company being Islamic Sharīʿah-compliant might moderate the effect of DVS on readability score. In this second mode, the Hausman test again prefers the random effects model. Now, firstly DVS continues to have a significant effect on readability scores of the companies. Next, we consider moderation effect. It has a negative coefficient of -0.687 in random effects model, implying that the improvement in readability scores of Islamic companies due to DVS implementation was slightly better than that of the conventional ones. However, the effect is statistically insignificant. The result implies that DVS enhances financial statements readability quality in a uniform manner and is not reliant on the nature of the reporting being conventional or Sharīʿah-compliant. Its gains are widespread and not restricted to any particular sector. The transformation brought in by DVS even benefits Sharīʿah based Islamic institutions that constantly face the challenges of complex disclosures and industry-specific jargons in their financial statements. Rigorous verification would shape the way these Islamic information is presented, thereby paving the way toward greater clarity. The other two models also present insignificant moderation effect, indicating that the signal of transparency induced through DVS overshadow the variations observed between traditional and Islamic financial reporting. Hence, it can be stated that Islamic reporting does not moderate the effect of DVS on financial statements readability of banking and insurance companies.

Regression Results with Cluster Standard Errors

In our panel data, we have multiple observations from the same entity over time. So, there exists possibilities that the errors are correlated within cluster. To address this issue, we

obtained standard errors by clustering at company level. These standard errors are robust to within-group correlation and in this way we can obtain reliable estimates of variables. The first model reveals significant negative association between DVS and readability scores whereas the moderation effect remains insignificant in the second model. Thus, we can confirm that our regression results are robust to within-group correlation.

Table 8: Model-1

	Pooled OLS	Random Effects Model	Fixed Effects Model
DVS	-3.437[*]	-3.549[*]	-3.675[*]
	(0.029)	(0.022)	(0.028)
ROA	-13.90	-18.09[*]	-23.80[*]
	(0.193)	(0.029)	(0.031)
INSTITUTIONAL	-1.915	-1.742	-0.767
	(0.823)	(0.808)	(0.926)
FOREIGN	-13.51[***]	-13.56[***]	37.06[*]
	(0.000)	(0.000)	(0.032)
BANKDUMMY	1.496	2.025	.
	(0.644)	(0.452)	.
FIRMSIZE	0.238	0.0942	-0.0045
	(0.167)	(0.154)	(0.855)
CONS	93.07[***]	96.31[***]	98.79[***]
	(0.000)	(0.000)	(0.000)
N	140	140	140
R^2	0.095	0.083	0.090

p-values in parentheses, [*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

Table 9: Model-2

	Pooled OLS	Random Effects Model	Fixed Effects Model
DVS	-3.418*	-3.550*	-3.675*
	(0.031)	(0.023)	(0.029)
IR	-2.287	-2.302	.
	(0.297)	(0.276)	.
DVSXIR	-0.725	-0.671	-0.166
	(0.819)	(0.831)	(0.961)
ROA	-16.98	-19.48*	-23.60*
	(0.123)	(0.017)	(0.024)
INSTITUTIONAL	-0.355	-0.548	-0.625
	(0.966)	(0.941)	(0.949)
FOREIGN	-11.98**	-11.73**	36.01
	(0.002)	(0.009)	(0.171)
BANKDUMMY	1.512	1.982	.
	(0.632)	(0.447)	.
FIRMSIZE	0.188	0.0720	-0.0045
	(0.247)	(0.244)	(0.864)
CONS	94.04***	96.66***	98.79***
	(0.000)	(0.000)	(0.000)
N	140	140	140
R^2	0.109	0.085	0.090

p-values in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

CONCLUSION

The primary objective of this research was to analyze the effect of Document Verification System (DVS) on financial statements readability of DSE listed banking and insurance companies, while also considering Islamic reporting by Sharīʿah-compliant companies as a potential moderating variable. An upgraded readability measure, the Bog Index, was used in this study to evaluate the readability quality of financial statements between pre- DVS and post- DVS period. This research is important as its aim was to evaluate the effectiveness of DVS in promoting authenticity, transparency and understandability in financial reporting.

Communicating financial information is considered very important for building relationship with stakeholders in modern corporate world. This communication aspect makes financial statements readability a significant factor. Without understanding the financial messages, investors and other stakeholders won't be able to make informed decisions. And there might arise times when companies may produce multiple financial statements and obfuscate their textual contents to mislead these external parties. This practice has persisted in Bangladesh for so long where the business entities produced different versions of financial statements to achieve illicit motives like misleading investors, evading taxes, avoiding central bank scrutiny, taking out loans on false grounds etc. The entities would justify the falsified financial figures by producing misleading narratives in the notes, making them difficult and consequently negatively affecting clarity, understandability and readability of their financial statements. Auditors' incompetence and absence of a rigorous audit acted to facilitate this misconduct and in many instances exacerbated the problem. In this respect, the implementation of Document Verification System (DVS) by ICAB is assumed to play significant role by ensuring a single set of audited and transparent financial statements for all concerned parties.

The inherently complex financial statements of banking and insurance companies was an important point of consideration in this study. Results from the first model show that the adoption of DVS has a statistically significant negative association with financial statements readability scores. It implies that DVS is encouraging more transparent disclosure of financial information and in the process improving financial statements

readability. The onslaught of COVID-19 in post-DVS period was supposed to affect disclosure practice and subsequently reduce readability arising from additional risk disclosures (Albitar et al., 2021). However, this concern contrasted with our findings and the observed effect might be attributed to adoption of DVS rather than broader pandemic-related shifts in financial reporting.

In the second model of this study, a moderation effect between Islamic Sharīʿah- compliant reporting and DVS implementation was included. Here the premise was that Islamic reporting might moderate the impact of DVS on readability scores of financial statements. The regression results revealed a small negative coefficient for the moderation effect, implying that the improvement in readability scores for Islamic banks and insurance companies were slightly better than those of their conventional counterparts. However, the result is statistically insignificant meaning that the effect of DVS on financial statements readability does not differ between full-fledged Islamic and conventional financial institutions. In other words, institutional differences in reporting style or terminology do not significantly change the effect of DVS on readability quality as it exerts broadly uniform influence through which even Islamic financial reporting, often criticized for its inherent complexity, might be benefitted.

With rigorous verification in place and reduced chances for malpractices, companies are now bound to present financial information with more accuracy and transparency, which in turn would improve the readability of their financial statements from previous level, as has been shown through this research. Signaling theory further clarifies why improvement in readability following DVS implementation is not a matter of change in descriptive contents only. It represents a broader regulatory intervention that strengthens the signaling value of financial statements. A more rigorous audit process is expected to elevate the quality and authenticity of financial information presented. This changing scenario has far-reaching effect with more active participation from retail and institutional investors and improved confidence in the country's capital market. Enhanced vigilance from regulators is going to complement corporate governance mechanism, while reinforcing integrity in financial reporting of Bangladeshi financial institutions, which have long been plagued by widespread irregularities. In addition, this study emphasizes the need for continuous

regulatory oversight and training programs to assist the effectiveness of DVS. Its insights are important for regulators and policymakers to harness the benefits of DVS and protect stakeholders' interests.

Research Implications

The results from this research have several implications in respect of policymaking and academic research. This study puts emphasis on the skills and expertise of the preparers to improve financial statements readability. Educational programs like workshops, trainings might be arranged for the parties responsible for financial reporting so that they could work toward elevating their financial statements from lower to upper level in readability index in order to benefit the relevant stakeholders, especially retail investors. Necessary training modules might be designed for the auditors to ensure that improvement in clarity of financial statements are embedded in professional judgement. This initiative would add to ICAB's quality control guidelines and strengthen its credibility.

A monitoring body could be established including stakeholders from concerned regulatory agencies like ICAB, NBR, BSEC, BB, RJSC etc. which would receive feedback from market and update the Document Verification System according to market needs. In addition, a mechanism could be established which would enable ICAB to flag companies with persistently substandard financial disclosures in order to protect investors from vague reporting. Such an effort would enhance ICAB's monitoring role in driving authenticity of financial information.

Future research might study the prospects of using modern technology like blockchain in order to produce and store unalterable records of financial statements. Using these advanced technologies would provide more verifiability and transparency, in addition to DVS efforts. Financial statements with improved readability quality and more understandability could enable shareholders to make better resource allocation decisions, especially for those retail investors who struggle with complex disclosures. Such an environment would act to stimulate capital market confidence in the long run. On the other hand, implementation of DVS would strengthen the oversight capabilities of concerned regulatory authorities. All of these factors would encourage more active participation by those charged with corporate governance. Policymakers might be able to use these insights

to update corporate governance guidelines to protect shareholders' interests and encourage transparent communication.

Research Limitations and Future Research Directions

This research has certain limitations which would be discussed in this segment to justify the research findings. The dataset for this study covers two years prior to DVS implementation (2018 and 2019) and two years after (2021 and 2022). The year 2023 had to be excluded due to the unavailability of annual reports at the time of this investigation. If data from 2017 and 2023 had been included, then it would have been possible for us to further expand the analysis and offer a more improved perspective. Thus, there is a need for further studies as more data becomes available over the years. Future studies might also attempt to check the persistence of readability trend beyond pandemic period by including a COVID dummy to control for pandemic effects. In addition, Bog Index relying on surface level textual features poses another challenge as it may not fully capture semantic uniformity, tone or sector-specific jargon. Future research might employ advanced Natural Language Processing (NLP) to investigate textual difficulty, precise patterns of obfuscation and readability quality to offer richer insights into how corporate narratives impact investor perceptions.

In this study, conventional entities were selected based on deposits and premiums so that their numbers match those of their Islamic counterparts in order to enable a proper comparison. Therefore, additional conventional entities that could have been included in this sample had to be excluded. The focus of this research covers DSE listed banking and insurance companies. But the point is that financial statements readability performance could vary from industry to industry. In addition, country-specific characteristics might modify corporate responses to regulatory initiatives. Companies in different countries might follow different requirements while building financial narratives. Therefore, we need to exercise proper caution when considering the results from this study beyond this research context. Future research might also employ cross-country studies and show how investors' responses to regulatory intervention vary from country to country. The study had to be conducted within these certain boundaries. It is now expected that future studies would address these limitations and offer improved insights into this field of research.

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