

## The interplay of financial report complexity: Assessing its influence on debt financing and share price



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### ABSTRACT

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Recent studies indicate that financial reports have become increasingly lengthy and complex. This complexity may pose challenges for individual investors, who might struggle to interpret these intricate annual reports effectively. However, banks have a distinct advantage, as they can access private information about borrowing companies. In Bangladesh's rapidly expanding corporate sector, where firms frequently seek financing through equity and debt, understanding the impact of financial statement complexity is crucial. This study aims to explore how the intricate nature of financial reports influences both bank loan dependency and share prices. The analysis focuses on fifty companies listed on the Dhaka Stock Exchange (DSE) over the period from 2013 to 2023. Data on financial statements and debt financing were collected from annual reports, with complexity assessed based on two parameters: the length and readability of the financial statements. The results suggest a correlation where increased complexity in financial statements is associated with a greater reliance on bank loans. However, the complexity of financial statements appears to have no significant impact on investors' behavior, as reflected in the return estimates. This study contributes to the existing literature by providing evidence of the financial report complexity of Bangladeshi listed companies and its impact on bank loan dependency and share prices.

**Contribution/ Originality:** This study expands financial readability research by examining the link between report complexity and bank debt reliance, an area with limited prior exploration. Using the Bog Index, it provides a more refined readability assessment. Focusing on Bangladesh, it extends insights beyond developed markets, offering a broader perspective on report complexity.

## 1. INTRODUCTION

Recently, financial statements have become increasingly complex due to various factors that have transformed financial reporting (Lesmy, Muchnik, & Mugerma, 2024). One of the primary drivers of this complexity is the evolution of accounting standards (Chychyla, Leone, & Minutti-Meza, 2019; Dyer, Lang, & Stice-Lawrence, 2017). Regulatory bodies such as the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) continuously update and refine these standards to enhance the accuracy and relevance of financial information. As a result, companies must comply with more rigorous reporting requirements, compelling them to provide detailed disclosures about their financial activities. Additionally, companies are now required to disclose more information about their risks (Rajab & Handley-Schachler, 2009) and the potential impact of economic uncertainties on their financial well-being. This procedure includes providing detailed assessments of risks such as

market volatility, regulatory changes, and geopolitical events. As companies expand their operations globally, they encounter a diverse array of accounting standards, tax laws, and regulatory requirements across different jurisdictions, adding layers of complexity to their financial statements. Moreover, stakeholders – including investors, regulators, and the public—demand greater transparency and access to comprehensive information. Investors seek insights into a company's financial health, operational performance, and strategic direction, which necessitates more extensive reporting on key metrics and indicators. This increased demand has led to a shift toward more detailed financial disclosures.

However, the growing length and readability of financial disclosures may not always enhance investor understanding. Prior studies indicate that while regulatory efforts aim to improve transparency, financial reports continue to be difficult to interpret due to their length and technical nature (Richards & Van Staden, 2015). Readability indices, commonly used in academic research, also present limitations, as they fail to capture the strategic obfuscation tactics used by firms to mask poor performance. Additionally, many studies focus primarily on developed markets, limiting the applicability of findings to emerging economies. These gaps highlight the need for further investigation into the actual impact of report complexity, particularly in contexts where financial literacy is lower.

In Bangladesh, the capital markets are relatively young and evolving, and financial literacy is generally low. This combination makes it challenging for many stakeholders to comprehend overly complex financial statements. Analyzing the complexity of these reports can help determine their accessibility to the average reader, which is crucial for facilitating informed financial decisions. Additionally, since banks possess distinct capabilities in gathering and analyzing information, prior studies suggest that banks may serve as an alternative financing source for firms struggling with complex reporting requirements (Rajan, 1992; Sharpe, 1990). However, existing research primarily focuses on borrowing costs rather than on the broader implications of financial complexity on firms' financing decisions.

In this study, we examined the two attributes of annual report complexity: length and readability. Length was measured as the number of words in the company's annual report, and readability was measured using the Bog index. Our findings reveal that larger companies tend to produce more complex financial reports, likely due to their extensive operations and more intricate financial structures. Furthermore, we observe a significant link between report complexity and higher dependency on bank debt, suggesting that complex reports may induce companies to access credit from financial institutions. However, neither report readability nor length appears to have a direct impact on abnormal returns. This data indicates that investors may not place substantial weight on the complexity or clarity of reports when making investment decisions, focusing instead on other factors such as firm performance or market conditions.

Our research contributes to existing literature in several ways. First, we extend prior studies by examining the relationship between financial report complexity and firms' reliance on bank debt, an area that has received limited attention. Second, by employing the Bog Index as a readability metric, we provide a more nuanced understanding of financial report complexity. Third, our findings reveal that while financial report complexity influences financing decisions, it does not significantly impact abnormal returns, suggesting that investors may prioritize other financial indicators over textual clarity. Finally, by focusing on Bangladesh, a developing market with distinct regulatory and financial environments, we provide insights that enhance the generalizability of financial readability research beyond developed economies.

The structure of the paper is as follows. Section 2 examines the influence of financial report complexity on debt financing and share price, drawing on recent research. Hypotheses are also presented in this section. In Section 3, we outline the characteristics of the data and detail the empirical model used in the analysis. Section 4 presents all the empirical results and their interpretations. Lastly, Section 5 provides the study's conclusion.

## 2. LITERATURE REVIEW

The SEC believes that everyone deserves fair treatment and access to essential information about investments and the individuals selling them. Companies that offer securities to the public are required to report truthfully about their business, the securities they are offering, and any associated investment risks (SEC, 2023). The Securities and Exchange Commission (SEC) has consistently worked to enhance the readability of public companies' financial documents. The SEC's "A Plain English Handbook: How to Create Clear SEC Disclosure Documents" is designed to help companies draft their financial documents in a way that is easily understandable to the average investor. The handbook emphasizes the use of simple, straightforward language, active voice, and logical organization. It encourages the elimination of legal jargon and complex sentence structures, aiming to improve transparency and investor comprehension. The ultimate goal is to ensure that all investors, regardless of their financial literacy, can make informed decisions based on clear and accessible information (SEC, 1998).

In line with the SEC's emphasis on transparency, investors now have greater access to more extensive data from longer public filings. Between 2004 and 2010, total disclosure increased by about 16 percent, while footnote disclosure expanded by 28 percent. This evidence indicates that footnote disclosure grew more rapidly than overall disclosure, with notable increases in areas such as pension and post-retirement benefits, fair value, financial derivatives, and hedging (KPMG, 2011). However, this trend may not necessarily benefit investors if extracting valuable information from larger and more complex reports becomes more costly. The increased volume and diversity of accounting information intensify the cognitive effort required by investors to process financial reports. As a result, when task complexity increases, decision-making ability tends to decline (Bonner, 1994). People's cognitive capacity is inherently limited, with the ability to keep only about four things in their minds at once (Bushee, Gow, & Taylor, 2018). The costs of extracting useful information from public data can prevent markets from fully reflecting the significance of that data (Bloomfield, 2002). It is widely acknowledged that as information processing costs rise, the precision of investors' forecasts of future cash flow tends to decline (Grossman & Stiglitz, 1980). Consequently, investors rely more on analyst services for firms with complex financial statements. While analyst reports for these firms provide valuable insights, earnings forecasts often exhibit greater variation among analysts. Analysts' earnings are less accurate and are associated with higher levels of uncertainty (Lehavy, Li, & Merkley, 2011).

The relationship between regulatory requirements and readability is complex. For example, Richards and Van Staden (2015) examined the impact of readability on International Financial Reporting Standards (IFRS). They conducted their study on New Zealand Exchange (NZX) 50-listed companies, collecting data both before and after IFRS was implemented in New Zealand. They conclude that the adoption of IFRS degraded the readability of annual reports. Reports become significantly longer and more complex, with an increased use of tables. However, the study's reliance on the Flesch–Kincaid readability indicator limits the robustness of the results because it does not fully capture the nuances of technical language. Additionally, the narrow geographic focus on New Zealand undermines the broader applicability of the findings.

Regulators and policymakers have increasingly recognized the growing complexity of financial reporting (SEC, 2008). This complexity arises from the expanding scope of business operations, advancements in technology, and evolving financial instruments, all of which contribute to the intricate nature of financial disclosures. According to Baudot, Demek, and Huang (2018), firms define complexity across three primary dimensions: multiplicity, diversity, and interrelatedness. The multiplicity dimension highlights the features of accounting standards that influence the number of accounting elements and options available. Diversity refers to how consistently accounting elements are treated across different standards. Lastly, interrelatedness reflects the degree to which accounting elements are used for different purposes or functions. Apart from the influence of regulatory requirements on readability, board independence also plays a significant role in shaping the clarity of annual reports. Rahman and Kabir (2024) explored whether greater board independence improves readability, given its fundamental role in facilitating effective communication with stakeholders. Drawing on 11,938 firm-year observations from 1997 to 2016, they find a negative

correlation between higher board independence and annual report readability. The study also examined cross-sectional variations, showing that although managerial ability and regulatory measures such as the SEC's Plain English Rule of 1998 enhance readability, board independence continues to negatively affect readability. Moreover, factors like directors' tenure and Chief Executive Officer (CEO) duality weaken this relationship, whereas a longer CEO tenure strengthens it. Even though the study used industry and year fixed effects, there may still be other firm-specific factors that remain unobserved or unmeasured but may influence both board independence and annual report readability. Corporate communication policies, which may dictate reporting styles independent of board composition, may also affect readability. Leadership style plays a role; a dominant or highly involved CEO can shape disclosure complexity regardless of board structure.

According to [Li \(2008\)](#), firms with poor performance often produce annual reports that are more difficult to read. In contrast, companies with more readable reports tend to show more consistent profits over the next one to four years. Changes in report readability have an impact on profit persistence similar to that of accruals, implying that managers may strategically adjust readability to obscure negative information from investors. Similarly, [Asay, Libby, and Rennekamp \(2018\)](#) find that bad news disclosures are less readable than good news due to managers' self-enhancement motives, focusing on future projections and explanations rather than intentionally obscuring poor performance. Following this, [Lo, Ramos, and Rogo \(2017\)](#) find a general positive relationship between financial performance and readability; however, this pattern changes when firms meet or slightly exceed prior earnings benchmarks. The impact becomes more pronounced among groups of firms in this earnings range, which are more likely to have manipulated earnings using accruals. This finding implies that increased report complexity is often associated with efforts to conceal financial performance. The evidence contradicts the assumption that good performance is naturally easier to communicate than poor performance and instead supports the idea that intentional obfuscation contributes to reduced report readability. This aligns with the notion that dishonesty is more cognitively demanding than truthfulness, as earnings management creates conflicting thoughts and ethical stress for managers, which can impact report readability.

Another aspect to consider is that when a firm has a complex financial statement, it can become intricate and challenging to interpret. This complexity can significantly influence the company's share price. The relationship between annual report readability and the cost of equity capital has been explored extensively in prior studies. [Rjiba, Saadi, Boubaker, and Ding \(2021\)](#) examined the impact using U.S. public firm data. They find that complex reports hinder investors' ability to handle and understand them. Moreover, the adverse effect of complex annual reports on equity financing costs intensifies when the disclosure tone is more negative or ambiguous. Other things like competition in the stock market, how much of the company is owned by institutions, and the level of analyst coverage also influence this relationship, showing that clear communication is important for companies in various market situations.

A group of scholars, [Abernathy, Guo, Kubick, and Masli \(2019\)](#) investigated the impact of financial statement readability on the likelihood of financial misstatements, analyzing a sample of 45,922 firm-year observations. They measured footnote readability based on length, common words, and financial terminology. Their results suggest that companies with low footnote readability are more likely to have financial misstatements. Additionally, they explored the impact of readability on litigation risks, finding some evidence that low footnote readability is associated with higher litigation risks. Management may intentionally be less transparent when a company is underperforming, obscuring negative information through less clear reports. By increasing the effort required to understand bad news, managers hope to delay or mitigate its impact on the stock price ([Bloomfield, 2002](#)). The incomplete revelation hypothesis, which posits that market prices may not fully reflect difficult-to-analyze information, aligns with these findings. This intentional lack of transparency may contribute to both financial misstatements and increased litigation risks. Nevertheless, [Abernathy et al. \(2019\)](#) have several limitations in their study. Measuring readability remains challenging, as standard indices may not fully capture the complexity of financial disclosures. Their readability

metrics focus on text length, common words, and financial terminology but do not account for industry-specific jargon or the cognitive effort required by investors and auditors to process disclosures. Additionally, the generalizability of findings is constrained, as the study is limited to U.S. public firms between 2001 and 2014, making it unclear whether these effects hold in different regulatory environments.

According to You and Zhang (2009), investors are more likely to underreact to firms with complex 10-K reports, whereas firms with simpler 10-K filings experience little market underreaction. Overall trading decreases when company reports are complicated and hard to understand, primarily because smaller investors trade less frequently (Miller, 2010). Moreover, firms with poor readability in their financial disclosures tend to trade at substantial discounts relative to their underlying fundamentals (Hwang & Kim, 2017). Obscuring financial reports also raises the likelihood of a stock price crash, further exacerbating the financial risks for these firms (Kong, Shi, & Zhang, 2021; Yin, Chevapatrakul, & Yao, 2022). The evidence suggests that simplifying 10-K information can help investors better incorporate it into prices. This is supported by Lawrence (2013), who finds that investors generally prefer to invest in companies that are transparent about their finances, favoring clear and easy-to-understand financial reports. This preference is particularly strong among individual investors compared to large investment firms. Overconfident investors, however, tend to place less importance on detailed financial information.

Existing research on financial report readability faces several limitations, particularly in its measurement and impact on investor behavior. A major issue is the reliance on readability metrics such as the Flesch-Kincaid and Fog Index. A key limitation of these indices is their simplistic reliance on sentence length and syllable count to assess readability. This approach assumes that longer sentences and multi-syllabic words inherently make a text more difficult to understand, failing to account for financial jargon that is commonly used and well understood by professionals. Additionally, these traditional indices do not detect strategic obfuscation, where managers may deliberately use passive voice, hidden verbs, redundant phrasing, or excessive legal and technical jargon to obscure poor performance. They also lack context awareness, treating all difficult words equally without considering the narrative flow, structure, or intended meaning of financial disclosures. Additionally, many studies have focused on developed countries, such as the U.S. or New Zealand, limiting the generalizability of findings across developing countries. Moreover, the impact of complexity on investor behavior is debatable. Investors already have access to other information sources, such as financial analyst reports. If these alternative sources complement or substitute for annual reports, then their readability may not be as important. Some critics argue that disclosures should primarily cater to sophisticated investors due to the complexity of financial information. Finally, if investors are knowledgeable and can understand intricate reports, the stock price may not be affected by the complexity of the language or format (Firtel, 1998). Accordingly, we formulate the following hypothesis.

*H<sub>1</sub>: Higher complexity in financial reports significantly affects abnormal returns.*

If firms have complex financial statements, they may find it harder to manage finances. It can even limit the access to trade credit, especially for firms with minimal global presence and those with less influence in their respective product markets (Li, Yang, Xue, & Liu, 2024). However, while financial complexity is often viewed as a constraint, it may also serve as a signal of firm sophistication, potentially attracting investors with the capacity to assess such intricacies. This raises the question of whether the inability to access trade credit stems primarily from financial complexity itself or from the limitations of lenders in interpreting such information.

In crowdfunding, lenders are more competitive in their bids, more willing to provide funding, and more likely to offer reduced interest rates to online borrowers who present well-written, positive content with minimal indications of dishonesty (Gao, Lin, & Sias, 2023). But this perspective assumes that lenders rely heavily on textual cues rather than objective financial metrics, potentially underestimating the role of due diligence. It also raises concerns about whether platforms might inadvertently favor persuasive but potentially misleading narratives over substantive financial health.



One option they can consider is securing debt financing. Banks hold a significant advantage in forming relationships with firms due to their ability to gain deeper insights during the lending process. Research and evidence suggest that banks are particularly skilled at gathering and interpreting information because they have access to private details about the companies they lend to (Rajan, 1992; Sharpe, 1990). Banks function as specialized agents in the acquisition and dissemination of information, playing a crucial role in identifying and managing risk among potential borrowers. Acting like a Bayesian statistician, a bank continuously refines its subjective estimates of default rates, thereby enhancing its ability to identify risky loan applicants (Amano, 1999). Banks diligently assess potential borrowers and maintain rigorous oversight. They accumulate in-depth, specialized knowledge about their clients. This informational advantage enables banks to negotiate tailored debt structures and implement effective monitoring systems, overcoming challenges faced by other lenders. One of the primary tools banks use in this process is collateral, which serves as a screening device to differentiate between high-risk and low-risk firms (Mattesini, 1990). Additionally, banks screen borrowers to categorize them according to their risk profiles and monitor their actions, ensuring that they align with the terms of their loans. These activities are central to the bank's role in maintaining the stability and profitability of its lending operations (Stiglitz & Weiss, 1988). While this oversight reduces default risk, it may also impose restrictive constraints on borrowing firms.

As a result, when a firm's financial statements become more complex, bank financing can be more appealing than other external financing options, assuming other factors remain constant. This strategy, however, often comes at a cost to companies. While banks may excel at handling complex information, they also incur costs associated with processing it, which can influence the terms and conditions of loan agreements (Nini, Smith, & Sufi, 2012). Companies may have to relinquish certain decision rights and often face the looming threat of loan acceleration (Chava & Roberts, 2008). Ertugrul, Lei, Qiu, and Wan (2017) delved deeper into the interplay between the cost of debt and annual report readability. Low readability in annual reports heightens the information risk perceived by creditors, resulting in increased external financing costs. Beyond readability, managers tend to conceal information due to the unclear tone of these reports, leading to less favorable loan conditions. In particular, using more uncertain and weak language in business reports is connected to higher loan costs and a greater chance of needing collateral. For innovative firms, readable financial disclosure can ease lender monitoring. Such an outcome can potentially result in reduced borrowing costs (Hoffmann & Kleimeier, 2021). Furthermore, firms with more readable CSR reports benefit from lower bank loan costs, indicating that banks view them as having a lower default risk (Yu & Garg, 2022).

These studies provide valuable insights into the relationship between financial disclosure readability and borrowing costs but have several limitations. A primary limitation is that these studies focus on borrowing costs and loan contract terms rather than explicitly examining whether firms with complex financial reports become more reliant on bank debt. For example, Hoffmann and Kleimeier (2021) show that readability lowers borrowing costs for innovative firms but do not assess whether complexity drives firms toward bank debt over bonds or equity. Similarly, Ertugrul et al. (2017) find that lower readability increases loan spreads and stricter contractual terms, while Yu and Garg (2022) link better CSR report readability to lower bank loan costs. This limitation is crucial because borrowing costs alone do not necessarily imply dependency, as firms may still choose non-bank financing. Nonetheless, bank financing can be attractive to complex firms as long as the costs associated with other financing mechanisms are higher.

*H<sub>2</sub>: Higher complexity in financial reports significantly affects bank debt dependency.*

### 3. METHODOLOGY

To conduct this study, we selected fifty listed companies from the Dhaka Stock Exchange, covering the period from 2013 to 2023. This period was selected due to significant financial reporting reforms introduced before 2013. Regulations such as the Private Placement of Debt Securities Rules, 2012, and the Bank Company (Amendment) Act 2023 mandated stricter financial reporting, transparency, and governance. These reforms led to increased financial

report complexity, impacting debt financing and share prices. Furthermore, the Financial Reporting Act (FRA) 2015 institutionalized these reforms by establishing the Financial Reporting Council (FRC). By selecting the 2013 to 2023 period, this study captures the long-term impact of financial report complexity on debt financing and share prices.

The selected companies represent six different industries, chosen to explore how industry-specific factors influence financial statement complexity, debt financing, and share prices. Regarding debt financing, our rationale is that the level of dependency on debt may vary across industries, with financial statement complexity potentially affecting this dependency. Concerning share prices, in industries with simpler financial reporting, investors may find it easier to evaluate a company's performance, resulting in different pricing dynamics compared to industries with more complex reports.

For this research, we collected company-specific information, including bank debt, total debt, total assets, sales, EBIT, and the number of outstanding shares from the respective annual reports. We obtained the share price and volume data for all listed companies from the website AmarStock.com. Thereafter, we aimed to explore the determinants of annual report complexity. First, we considered the size of the company, which we measured using the logarithm of market capitalization. A larger company typically has a more complex organizational structure, resulting in more detailed reporting and complex financial statements. Additionally, total assets and EBIT were considered and were log-transformed to ensure comparability across firms. Firms with substantial assets often engage in various operational activities, necessitating comprehensive disclosures to reflect their financial health accurately. Similarly, firms with higher EBIT are often associated with diverse revenue streams, operations, and complex product lines. The industry in which a firm also operates significantly impacts report complexity. Different industries have distinct regulatory requirements, financial practices, and reporting standards, which can contribute to the overall intricacy of annual reports. For instance, firms in highly regulated sectors, such as pharmaceuticals, may face stricter reporting obligations than those in less-regulated industries, leading to greater complexity in their financial disclosures.

$$Readability_t^i = \alpha_i + \beta_1 size_t^i + \beta_2 total\ assets_t^i + \beta_3 EBIT_t^i + \delta_1 industry_i + \varepsilon_t^i \quad (1)$$

Here, we assessed the annual report readability ( $Readability_t^i$ ) through Bog index, as presented by [Bonsall IV, Leone, Miller, and Rennekamp \(2017\)](#). Many readability studies use the [Gunning \(1952\)](#) Fog Index as a readability measure for financial reports. This index captures two general attributes of plain English – average sentence length and the percentage of words containing three or more syllables. However, [Loughran and McDonald \(2014\)](#) criticized the Fog Index's complex word component, arguing that it oversimplifies word complexity by labeling any word with three or more syllables as complex, including easily understood terms like "Company." To overcome the shortcomings of the Fog Index, we use the Bog Index. This index is based on the plain English writing standards and aligns closely with most of the SEC's guidelines for transparent communication with investors. The Bog Index evaluates specific features emphasized in the SEC Plain English Handbook, such as average sentence length, passive sentences, abstract words, overused words, misused words, and jargon. This index is developed through the StyleWriter software. Unlike the Fog Index, which considers any word with three or more syllables complex, the Bog Index assesses word complexity based on familiarity, drawing from a proprietary list of over 200,000 words. This approach provides a better way to measure readability by focusing on actual word complexity, not just syllable counts, which fixes a major issue with the Fog Index.

We measured the size of the company ( $size_t^i$ ) as the logarithm of market capitalization. Total assets ( $total\ assets_t^i$ ) represent the company's entire asset base at time t, while EBIT ( $EBIT_t^i$ ) denotes earnings before interest and taxes, providing an indicator of the company's operating profitability. To ensure comparability across firms, both total assets and EBIT are log-transformed. We introduced a set of industry dummy variables ( $industry_i$ ) to account for the six different industries represented in the data. Each dummy variable took a value of 1 if the company belongs to the respective industry and 0 otherwise. By including these industry dummies, we controlled sector-specific effects, allowing a more accurate assessment of the impact of other variables on our outcome.  $\varepsilon_t^i$

captured the movements that are not explained by the equation. This model helps identify what affects annual report readability, allowing us to control these factors in future models.

Following the first analysis, we wanted to assess whether firms with less readable and lengthy annual reports had a larger proportion of bank loans. We modeled the bank debt dependency as a function of readability, length, and control variables: company size, log of sales, log of total assets, and industry dummies.

$$\text{Bank Debt Dependency}_t^i = \alpha_i + \beta_1 \text{Readability}_t^i + \beta_2 \text{Length}_t^i + \beta_3 \text{Controls}_t^i + \varepsilon_t^i \quad (2)$$

We measured the *Bank Debt Dependency*<sub>t</sub><sup>i</sup> by dividing its total bank debt by its total assets. Dividing by total assets provides a consistent basis for comparison across companies and industries, regardless of their total debt levels. If bank debt were scaled only by total debt, companies with low total debt could show a skewed proportion, potentially distorting comparisons and misrepresenting the role of bank debt in their capital structure. Annual report length (*Length*<sub>t</sub><sup>i</sup>) was measured by taking the natural logarithm of the total word count in a company's report.

In addition to analyzing bank debt dependency, we examined the impact of readability on share prices. Here, we used abnormal returns instead of the share price. This is because abnormal returns focus on the portion of stock returns that deviate from what is expected based on market performance and other benchmarks, allowing us to isolate the effect of annual report readability and length on investor reactions more effectively. Our econometric model for abnormal return includes readability and length as key variables, along with control variables such as company size, log of sales, log of total assets, and industry dummies to ensure robustness.

$$\text{Abnormal Return}_t^i = \alpha_i + \beta_1 \text{Readability}_t^i + \beta_2 \text{Length}_t^i + \beta_3 \text{Controls}_t^i + \varepsilon_t^i \quad (3)$$

The abnormal return (*Abnormal Return*<sub>t</sub><sup>i</sup>) was calculated using the Capital Asset Pricing Model (CAPM). According to CAPM, the expected return on a stock is determined by its sensitivity to market risk, represented by beta, and the risk-free rate.

We derived an abnormal return by subtracting the calculated expected return from CAPM from the observed actual return for each company over the year. This method focused on the part of the return that is different from what CAPM predicts, helping us examine if readability affects these differences in return beyond what market risk factors account for.

We employed a random effects (RE) panel regression model using Stata to estimate the relationships in [Equations 1, 2, and 3](#). The choice of the RE model was based on two factors. First, it allowed us to account for firm-specific heterogeneity while retaining time-invariant characteristics such as industry classification. Second, the Hausman test confirmed that the RE model is appropriate.

## 4. DATA ANALYSIS

### 4.1. Descriptive Statistics

[Table 1](#) states the summary statistics of our key variables. The statistics reveal significant variability and skewness across the variables, especially in Bank debt and Market capitalization, where values show strong right skewness and high kurtosis. For example, the average bank debt is Bangladeshi Taka (BDT) 7.785 billion, ranging up to BDT 406.2 billion, with a standard deviation of BDT 30 billion. This variability, combined with a skewness of 8.839 and kurtosis of 96.45, indicates that while most companies have relatively low bank debt, a few companies hold substantially higher levels.

The Bank Debt Percentage, which represents bank debt scaled by total assets, also has a moderate right skew (2.989), meaning some firms have very high proportions of bank debt to assets, though the average is 30%. Similarly, The Market capitalization has the highest skewness (10.701) and kurtosis (130.598), suggesting that a few companies dominate in market capitalization, while others are much smaller. Therefore, we applied a log transformation to market capitalization to reduce skewness and normalize the distribution.



**Table 1.** Descriptive statistics.

Particulars	Bank debt	Bank debt percentage	Total word	Bog index	Market capitalization
Mean	7790000000	0.3	47523.574	76.56048	77700000000
Min.	0	0	754	46	112000000
Max.	406000000000	2.649	495162	125	675000000000
Std. dev.	30000000000	0.321	48775.705	12.52087	491000000000
Skewness	8.839	2.989	4.252	0.931113	10.701
Kurtosis	96.45	18.785	29.619	4.058332	130.598
N	496	496	495	496	494

On the other hand, Bog Index, which measures readability, is nearly symmetric (skewness = 0.93) with a kurtosis of 4.058, showing a relatively heavier tail. Total words — the word count in reports — show a strong right skew (4.252) and high kurtosis (29.619), indicating that, while most reports are within a standard range, a few are exceptionally long. Overall, these descriptive statistics highlight the diversity in financial parameters and readability among companies.

#### 4.2. Determinants of Annual Report Complexity

The analysis examined factors influencing the Bog Index (Table 2), a measure of annual report readability, and reveals that company size, as indicated by Log of Total Assets, is a key determinant of readability. This result suggests that larger companies often have diverse revenue streams, and complex capital structures, requiring detailed disclosures and compliance with stricter regulatory standards. Furthermore, their size led to higher scrutiny from stakeholders and sophisticated financial arrangements, making their financial reports inherently more intricate, which directly reduces readability. The coefficient for the Log of Market Capitalization (-0.629) shows a negative relationship with the Bog Index score. However, this relationship is statistically insignificant. Log of EBIT (Earnings Before Interest and Taxes) and the industry dummies do not significantly impact readability.

**Table 2.** Impact of company-specific factors on readability.

Bog index	Coef.	Std. err.	p-value	[95% conf interval]		Sig.
Log of MC	-0.629	0.937	0.502	-2.466	1.207	
Log of total asset	2.321	0.975	0.017	0.409	4.232	**
Log of EBIT	-0.884	0.659	0.18	-2.176	0.408	
Industry						
Engineering	-3.288	5.246	0.531	-13.569	6.994	
Food	-4.832	5.332	0.365	-15.282	5.619	
Fuel and power	-3.748	5.214	0.472	-13.968	6.472	
Pharmaceuticals & chemicals	-6.293	5.201	0.226	-16.487	3.901	
Textile	-8.177	5.51	0.138	-18.977	2.623	
Constant	60.558	19.203	0.002	22.921	98.195	***

Note: \*\*\* p<.01 and \*\* p<.05.

#### 4.3. Impact of Annual Report Readability and Length on Bank Debt Dependency and Abnormal Return

Table 3 illustrates the impact of annual report readability and length on Bank Debt Percentage, which measures bank debt scaled by total assets. The results indicate that the Bog Index—a measure of readability—has a positive coefficient of 0.002, suggesting that less readable reports are associated with higher bank debt dependency, and this relationship is statistically significant at the 1% level.

**Table 3.** Impact of annual report readability and length on bank debt dependency.

Bank debt %	Coef.	Std. err.	p-value	[95% Conf interval]		Sig
Bog index	0.002	0.001	0	0.001	0.004	***
Log of total word	0.045	0.014	0.001	0.018	0.073	***
Control variables						
Log of sales	-0.026	0.015	0.08	-0.056	0.003	*
Log of total asset	0.062	0.019	0.001	0.025	0.1	***
Log of MC	-0.061	0.014	0	-0.089	-0.034	***
Industry						
Engineering	-0.028	0.117	0.808	-0.257	0.2	
Food	0.052	0.118	0.661	-0.18	0.283	
Fuel and power	-0.074	0.117	0.531	-0.304	0.156	
Pharmaceuticals & chemicals	-0.052	0.116	0.656	-0.28	0.176	
Textile	-0.008	0.122	0.947	-0.246	0.23	
Constant	0.222	0.339	0.513	-0.443	0.886	

Note: \*\*\* p<.01, \*\* p<.05, \* p<.1.

Additionally, the Log of Total word variable, length of annual report, suggests a statistically significant effect. We can attribute this result to banks' superior ability to analyze and interpret complex financial disclosures compared to other lenders. Additionally, less readable reports may create higher information asymmetry, making it more challenging for companies to attract other sources of financing. Consequently, these companies turn to banks, which mitigate risks through close monitoring, collateral requirements, and established relationships, allowing firms to secure financing despite less transparent reporting.

Conversely, control variable sales show a significant relationship with bank debt, indicating that firms with higher sales directly influence their reliance on bank debt. The coefficient for total assets is positive and statistically significant at the 1% level, implying that larger companies tend to have a higher proportion of bank debt in their capital structure. In contrast, the Log of MC (log of market capitalization) shows a significant negative relationship with bank debt dependency, indicating that firms with higher market values are less reliant on bank debt.

**Table 4.** Impact of annual report readability and length on abnormal return.

Abnormal return	Coef.	Std. err.	p-value	[95% conf interval]		Sig.
Bog index	0	0.001	0.91	-0.003	0.003	
Log of total word	-0.02	0.028	0.472	-0.075	0.035	
Control variables						
Log of sales	-0.018	0.023	0.437	-0.062	0.027	
Log of total asset	-0.041	0.023	0.074	-0.086	0.004	*
Log of MC	0.049	0.019	0.011	0.011	0.086	**
Industry						
Engineering	-0.029	0.067	0.663	-0.16	0.102	
Food	0.048	0.07	0.49	-0.088	0.185	
Fuel and power	-0.048	0.07	0.494	-0.186	0.09	
Pharmaceuticals & chemicals	0.079	0.067	0.24	-0.053	0.21	
Textile	-0.049	0.073	0.503	-0.191	0.094	
Constant	0.442	0.34	0.193	-0.224	1.108	

Note: \*\* p<.05 and \* p<.1.

Subsequently, we further examined the impact of readability and report length on abnormal returns (Equation 03 and Table 4). Unlike the findings for bank debt dependency, there is no statistically significant relationship between abnormal returns and readability. Similarly, report length does not significantly impact abnormal returns. Among the control variables, market capitalization exhibits a positive association, meaning firms with higher market value tend to experience higher abnormal returns, possibly due to strong growth expectations and firm performance. However, total asset shows a significant negative association with abnormal returns, suggesting that large companies may reduce abnormal returns, though the effect size is minimal. This could be attributed to the greater availability of

information about large companies, which reduces information asymmetry, which diminishes the likelihood of drastic price fluctuations. As a result, large firms are less likely to experience significant deviations from expected returns.

## 5. CONCLUSION

The objective of our study is to investigate the impact of readability and length on bank debt dependency and share price, which is measured by abnormal return. Our findings show that company size, measured by total assets, significantly influences the readability of annual reports. Specifically, larger firms tend to produce reports with lower readability, as indicated by the positive relationship between Total Assets with the Bog Index. This evidence suggests that complexity in reporting increases as firms grow in size. When examining the relationship between annual report readability, length, and bank debt dependency, we find that less readable and lengthy reports are associated with higher bank debt dependency. The Bog Index and log of total word positively correlate with bank debt dependency, with statistical significance at the 1% level, indicating that firms with more complex and lengthy reports rely more on bank debt. This finding is consistent with Li et al. (2024), who highlight how financial complexity limits access to trade credit, leaving firms with fewer alternative financing options. Furthermore, our results align with Rajan (1992), who explains that banks are uniquely positioned to process complex financial disclosures, making them the preferred lenders for firms with intricate reports. However, when analyzing the impact on abnormal returns, neither readability nor report length showed a statistically significant effect. This suggests that investors may not react directly to the complexity or length of annual reports in terms of abnormal returns. Several studies support this notion. Leavy et al. (2011); Firtel (1998); and Bushee et al. (2018) suggest that investors rely more on analysts and key metrics, rather than the complexity of financial reports.

These findings contribute to the literature on financial reporting and capital structure by providing insights on the role of financial report complexity in shaping financing behavior. Additionally, our findings suggest that investors do not respond directly to annual report readability or length, reinforcing the idea that they depend on analysts and key financial metrics. These insights have practical implications for firms seeking to optimize their capital structure, as enhancing transparency in financial reporting may reduce reliance on bank debt and improve financing alternatives.

By linking financial report characteristics with financing decisions, our study enhances the understanding of how reporting practices influence financial outcomes. From a policy perspective, regulators and policymakers should consider implementing guidelines to improve the readability of financial reporting. Standardizing requirements and encouraging firms to simplify financial reports can enhance transparency and facilitate better decision-making by investors and lenders. Furthermore, regulatory bodies may introduce incentives for firms that produce more readable reports, such as reduced compliance costs or improved access to alternative financing.

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