

Original Research

Factors Determining Financial Reporting Quality: An Empirical Study on the Publicly Listed Food and Allied Companies of Bangladesh

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Abstract

In an aim to assess financial reporting quality and its determining factors, this empirical research examined a randomly selected sample from food and allied sector of the Dhaka Stock Exchange (DSE), Bangladesh. As a rapidly growing industry of Bangladesh, the food and allied sector of DSE grabs a significant portion of market capitalization and attentions from security analysts. To make valuable decisions in relevant domains, the financial reporting quality of this sector matters for policymakers, investors and regulators and for corporate managers also. However, the financial reporting quality (FRQ) has been measured using the popular model developed by Dechow, Sloan and Sweeney, also known as Modified Jones Model (1995). A documentary analysis of the available audited financial statements and annual reports of randomly selected sample companies for six consecutive years (2015 to 2020) has been used as the primary data sources. Popular statistical tools like correlation studies, regression analyses etc. have been applied to find the statistical significance of the explanatory variables of this research. Fourteen factors have been examined for their effects on the quality of financial reports using a classical linear regression model. This research finds firm size, firm age, foreign ownership and leverage positively significantly determine financial reporting quality while the growth and board independence negatively significantly influential. The findings recommend managers to emphasize their attention on the significant factors to improve their financial reporting quality. Security analysts shall evaluate firms' value based on the factors found significant in determining the quality of financial reports.

Keywords: Financial Reporting Quality (FRQ), Modified Jones Model (1995), Firm-specific characteristics, Performance Indicators, Corporate Governance Mechanisms, Discretionary Accruals.

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Introduction

Background of the Research

With the escalation of global cases of financial scandals and corporate failures, the assessment of quality of disclosed financial and nonfinancial information has become a growing concern. Reliability, truthfulness, and fairness of the information provided by accounting and information systems have been questioned by those cases of scandals and failures in the corporate world (Agrawal & Chadha, 2005). Studies have shown, creative accounting techniques and “window dressing” activities by management and preparers of financial reports hamper the quality of financial reports and weaken investors’ confidence in those corporate reports (Shehu & Abubakar, Ownership structure and opportunistic accounting: A case of listed food and beverages firms in Nigeria., 2012). Because these earnings management techniques are the central aspect of the quality of reported financial information and imply misrepresentation of earnings and assets in financial disclosures, independent measurement of financial reporting quality is a trending researched issue in contemporary accounting (Qiong & Jianjun, 2011).

Both financial reports and nonfinancial disclosures substantiate managers with crucial support in making effective and efficient decisions (Echobu, Okika, & Mailafia, 2017) and for taking appropriate actions and policies. Financial reports and accounting information make up the business language that communicates information regarding a firm's position and performance i.e. economic reality. So, to enable current and potential investors to assess firms’ value and to make decisions regarding investing, divesting, or holding their investment based on reported financial information (Khan & Rahman, 2017), measuring financial reporting quality is of great significance to the shareholders, creditors and security analysts. Lastly, to facilitate regulators in monitoring, controlling i.e., regulating firms’ financial reporting practices, measurement of financial reporting qualities and identification of its determining factors provide insightful recommendations.

As the practice of financial reporting is central to economic and business activities (Asegdew, 2016) the quality of disclosed financial information can be impaired by the firms even though the existence of high-quality accounting standards is evident (Susanto, 2015). Often high-quality standards and corporate governance codes may not improve the quality of accounting information sufficiently, for the reason that it is affected, shaped, and, sometimes, negotiated by many factors and actors like firm size, firm age, firms’ indebtedness and profitability, market competition, board composition and performance, auditors and audit quality, regulations and systems of the capital market authorities (Rahman & Hasan, 2019). For these factors and actors, growing attention on what defines and determines financial reporting quality is evident. Recent researches have been conducted to define the characteristics of the quality of accounting information and to understand its determinants (Rahman & Hasan, 2019).

Accordingly, a good number of researchers have conducted empirical studies on what defines and determines the quality of financial information reported by management and preparers of accounting information, although the conclusions have established conflicting and ambiguous results. An empirical investigation by Echobu, Okika, and Mailafia (2017) has shown a positive significance of firm age, leverage, and liquidity in

determining financial reporting quality as measured applying the Modified Jones Model (1995). Asegdew (2016) have tested six factors and found the statistical significance of firm profitability, type of auditors, and share dispersion influencing the quality of financial reports. The effect of corporate governance mechanisms on financial reporting quality has been examined by Khan et al. (2020) and reported with positive interconnection thereon. A study on the cement sector of Bangladesh has been conducted to observe relations between financial information quality and firm-specific characteristics applying Beneish M-score as a proxy of earnings quality (Rahman & Hasan, 2019).

However, integration and consistency gaps are evident in prior studies where many researched on firm-specific characteristics, some examined key performance indicators of firms and other studied relationship with corporate governance mechanisms. The outcomes of those researches have documented ambiguous results and conflicting findings, thereby highlighting the “inconclusiveness of the subject matter” (Echobu, Okika, & Mailafia, 2017). Moreover, few studies have been conducted on the financial reporting quality of the food and allied sector of Bangladesh. This prospective sector of DSE has 20 companies, about 357 billion market capitalizations and an approximate total of 5850 million company securities as of June 2021. Hence, as the investors of this sector primarily base their investment decisions on the financial reports, independent research on what determines the quality of these reports is of most significance. (Kibiya, Ahmad, & Amran, 2016).

Purpose of the Research

In an aim to fulfill the gaps in the prior researches, this study attempts to investigate comprehensively the factors determining the financial reporting quality. Randomly selecting 10 (ten) publicly listed companies to form a sample from the food and allied sector of Dhaka Stock Exchanges (DSE), annual reports of the sample companies have been analyzed for six consecutive years, from the period of 2015 to 2020. To contribute to existing literature, this research offers a robust model including fourteen (14) operational variables which have been tested to identify and interpret the factors determining financial reporting quality. In this study, discretionary accruals form the total accruals of the Modified Jones model, developed by Dechow, Sloan, and Sweeney (1995), is the proxy and operational definition of financial reporting quality. The fourteen variables are classified into three categories: firm-specific characteristics, performance and position indicating variables and corporate governance proxies.

Though a good number of explanatory variables have been investigated in this research for their relationships with financial reporting quality, several variables are not incorporated into the analyses due to the lack of availability of required data and relevance with the subject matter. With an emerging economy and for weak-form capital market inefficiency, many other factors and actors may influence the quality of financial reports of the companies listed under the food and allied sector of DSE. In addition, the majority of the studies on the quality of financial reports are concentrated in developed countries that are characterized by many institutional similarities and advanced regulatory frameworks. Bangladesh as a developing country should be investigated for the factors determining financial reporting quality.

This empirical study summarizes prior research findings and theoretical backings following the introduction. In the next part, hypotheses have been developed following the summarized review of prior empirical researches and theoretical framework. Next, methodology and data analysis tools, the most important part of this paper, are outlined sufficiently. Before concluding this research with recommendations and pinpointed policy implications, the results of the data analysis techniques have been presented in detail.

Limitations of the Research

Like all other empirical studies, this one is not without certain limitations. First of all, this investigation is based on the annual reports and audited financial statements which encompass some degree of subjectivity. And, this study focused on the information presented in the annual reports only while other disclosures in company websites and brochures were not investigated. Future researchers should apply a mixed-research approach that incorporates qualitative methods like interviews, focus group discussions, etc. to explain the quantitative tools and techniques and that considers all information channels properly (Mahboub, 2017).

Next, this study conducted its research on the food and allied sector of DSE while there are more than 28 sectors in the primary capital market of Bangladesh. Selecting companies randomly from all the sectors might be a solution to this limitation from which an overview can be drawn on the financial reporting quality and its determinants of the corporate sector of Bangladesh. Accordingly, the sample size of this study is not enough to conclude generally for all the food and allied firms listed in DSE on this crucial issue. Future studies shall include more companies in the sample to achieve the external validity of the subject matter. Finally, this study examined fourteen variables as determinants of FRQ; there may exist more determinants having significant association with the FRQ. Future research shall incorporate more variables in conjunction with the factors studied in this report.

Review of Prior Empirical Researches

As a global concern, financial reporting quality is intensely scrutinized and deeply researched by today's researchers and academicians in accounting dominion. Literally, no single agreed-upon statement can define financial reporting quality as it takes a broad range of variables – qualitative characteristics, models, proxies, and elements of financial reports – to expound its features. A set of qualitative characteristics can comprise to define financial reporting quality primarily. Faithful representation, relevance, reliability, timeliness, and understandability are the major qualitative characteristics defined by the International Accounting and Standards Board (IASB) while several other researchers defined quality of financial information as the precision of firms' expected cash flows, unqualified audit opinion, transparent reporting practices and principles. However, this research defines the quality of financial reporting as the true and fair disclosures of a company's real economic circumstances, i.e. financial position and performance, while the disclosures are free of errors and biases, understandable and timely available.

Financial reports and accounting information, as the business language i.e. means of communication, transfer or report information regarding firm's real economic position and performance to interested users. But, recent cases of corporate failures and financial scandals from the period of 19th and the 20th century have questioned the quality of accounting reports (Agrawal & Chadha, 2005) criticizing management's tendency towards *window dressing* activities and *income smoothing* practices i.e. earnings manipulation (Pattaraporn, 2016). Consequently, greater emphasis is placed on reflecting the true and fair view of companies' financial position and performance (Echobu, Okika, & Mailafia, 2017). Reports and disclosures containing financial and nonfinancial information provide crucial support to managerial decision-making which requires good quality information to be reported. Financial reports, though they include nonfinancial information also, assist managers in making effective and efficient decisions and taking appropriate actions and policies (Echobu, Okika, & Mailafia, 2017). Moreover, according to Fung (2014), good financial reporting quality allows board of directors to assess the effectiveness of executives and managers to take timely correctional actions, when necessary, and to prevent deterioration in the financial condition of their firms (Mahboub, 2017).

Current and potential investors assess a firm's value and make decisions regarding investing, divesting or holding their investment based on reported financial and nonfinancial information (Khan & Rahman, 2017). For low-quality reports impair investors' confidence, to restore investors' confidence on financial reports (Shehu & Abubakar, Ownership structure and opportunistic accounting: A case of listed food and beverages firms in Nigeria., 2012), financial disclosures and nonfinancial information should be relevant, reliable and timely. Thus, quality financial reports with reliability, relevance, timeliness, faithful representation and other qualitative characteristics assist investors in making appropriate decisions to protect their investments (Obaidat, 2007). Generally, regulators and oversight bodies monitor, control, and i.e. regulate firms' financial reporting practices and principles; thus, measurement of financial reporting qualities and identification of its determining factors may also have crucial importance for their functions of regulation.

A good number of researchers investigated the factors determining financial reporting quality. Though prior empirical researches have concluded with conflicting findings on the relationship between financial reporting quality and its determinants, these findings insightfully paved the way to guide future studies. As there is no universally accepted formula to measure financial reporting quality (Almaqtari, Al-Homaidi, & Ahmad, 2018), prior empirical studies adopted varied methodologies, models, and proxies to measure the quality of reported financial information. The Jones (1991) Model, Modified Jones Model (1995), Dechow and Dichev (2002) Model, McNichols (2002) Model, etc. are all the popular models and proxies to measure financial reporting quality. Besides, some studies used Accrual Quality or Accrual-Based Models, Beneish M-Score Model to assess the degree of *earnings manipulation*, the key concept of financial reporting quality. So, a wide range of proxies is available to measure the 'quality of firms' financial reporting practices.

Echobu, Okika, and Mailafia (2017) investigated the determinants of financial reporting quality taking five explanatory variables for the determinants of the dependent

variable (Financial Reporting Quality). Firm age, leverage, and liquidity have shown a positive significance in determining financial reporting quality. The study on large manufacturing companies of Addis Ababa has found statistical significance of firm profitability, type of auditors, and share dispersion in determining financial reporting quality (Asegdew, 2016).

Using Beneish M-score Model as the proxy of financial information quality, Rahman and Hasan (2019) examined financial reporting quality and its determinants on the listed companies under cement sectors in the Dhaka Stock Exchange (DSE) of Bangladesh. The outcome of the empirical study suggested profitability and external financing (leverage) as the two major factors in determining the quality of financial information (Rahman & Hasan, 2019). To inspect the existence of earnings manipulation within listed companies in the food and allied sector of DSE (Bangladesh), Khan and Rahman (2017) conducted a study using the popular Beneish M-Score Model considering 70 firm years' observations. Though a probabilistic and inconclusive method, results of the Beneish Model have shown that the majority (almost 85%) of companies have a significantly higher M-score indicating a high probability of earnings manipulation. Furthermore, the study reports the trend of "continuous earnings manipulation" by a majority portion of the companies under the food and allied industry (Khan & Rahman, 2017).

Lastly, a recent research conducted by Khan et. al (2020) on the textile sector firms listed on the Pakistan Stock Exchange to discover the degree of association between financial reporting quality and corporate governance mechanisms. Collecting data from 2009 to 2016 and using four proxies as corporate governance indicators - audit committee independence, board independence, institutional shareholders' ownership and chief executive officer (CEO) duality - Khan, Rehman, Zeeshan, and Afridi (2020) investigated their significance in determining financial reporting quality. The quality of financial reports has been measured using the formula derived by McNichols (2002). That study empirically found that financial reporting quality and corporate governance mechanisms are positively related and interconnected (Khan, Rehman, Zeeshan, & Afridi, 2020). The conclusion has been drawn with a recommendation that firms should design an adequate corporate governance structure, that monitors, controls and, thus, improves the quality of financial reports, in compliance with applicable corporate governance codes.

Theoretical Framework and Hypothesis Development

Theoretical Framework

In light of the previous section of literature reviews, five major theories can be framed to examine, understand and identify the association of the determining factors of financial reporting quality. So, this research adopts the following five theories as the theoretical foundation of the subject matter and conceptual framework for the achievement of the objectives of the research. The summary of this section has been presented in Figure 1 (page 8) to develop a conceptual frame of this research.

Agency Theory and Opportunistic Theory

Primarily, as managers (agents) are habitually motivated by their personal interests and behave opportunistically to maximize personal gains, the shareholders (principals) often enter into *managerial contracts* or *price protection contracts* to guide managers' opportunistic behavior towards organizations long-run goals. These managerial contracts tie bonuses and incentive schemes with firms' earnings or performance-related schemes. As the traditional economic theory suggests, managers tend to behave opportunistically in order to manipulate the key financial ratios and figures to meet or beat those earnings targets and other performance thresholds. Several studies found that managers' opportunistic behavior is eventually reflected in the companies reported earnings and other financial information (Leuz, Nanda, & Wysocki, 2003).

Leilina (2015) stresses the fact that managers often exercise the discretion they have on accruals, to manipulate earnings and assets, creating information asymmetry and reducing the faithfulness and reliability of reported financial information. Prior researches that inspect the determinants of financial reporting quality and other disclosure issues mostly based their concepts on agency theory (Hassan & Bello, 2013; Asegdew, 2016). In summary, agency theory explains managers' opportunistic behavior in reporting financial information which eventually leads to low-quality disclosures; unreliable and irrelevant.

Transaction Cost Theory

Transaction costs are the costs of running the economic systems of a company and in making any economic trade when participating in a market (Williamson, 1979). Transaction cost theory is an issue related to, or may be a problem of, weak corporate governance and agency theory (Rafiee & Sarabdeen, 2012). Agency theory, as mentioned above, focuses on the opportunistic view of management (agent) while transaction cost theory focuses on the costs associated with individual internal and external transaction. In other words, this theory is based on the assumption that costs will arise when principals (owners) get managers (agents) to conduct principals' business and, more specifically, transactions effectively and efficiently that protect the interest of the principals.

A company with poor compliance with corporate governance codes and weak systems of internal control, the costs of running businesses and making transactions will be higher. So, there is a need for transaction costs associated with designing strong internal control systems and a good corporate governance structure (Rahman & Hasan, 2019). However, Doyle, Ge, & McVa, (2007) have shown the relationship existing between weak internal control and lower earnings quality which ultimately reflect in financial reporting quality. Accordingly, transaction costs theory suggests that reported financial information can be manipulated when companies lack strong internal control systems and costs of running a business is essentially high.

Legitimacy Theory

Legitimacy Theory, or simply Organizational Legitimacy, is a relative concept which relates to the social contexts in which organizations operate and can be defined as a

continuous tendency of organizations to ensure that they are perceived as operating within the bounds and norms of their respective societies (Lindblom, 1993). That is, the actions of an entity are desirable, proper, or appropriate within some socially constructed systems of norms, values, beliefs, and definitions. As these societal value systems are considered to be changed over time, organizational legitimacy is a concept that requires continuous response of the entities operating within social value systems.

Corporate reporting behavior can be explained by the concepts of organizational legitimacy (Dâmaso & Lourenço, 2011). More specifically, legitimacy theory explains why management emphasizes societal and environment-related disclosures in their reports to shareholders. Because societal value systems determine what value systems organizations should have, societal factors and their issues of interest are potential determinants of organizations' financial and nonfinancial reporting practices (Asegdew, 2016). Alternatively, through the legitimization strategies, companies can be benefitted by disclosing information that upkeep organizations' socially responsible position. In essence, legitimacy theory anticipates that companies' reporting practices can be negotiated, shaped, and modified as per social expectations and cultural boundaries to communicate their adherence to societal expectations and other value systems.

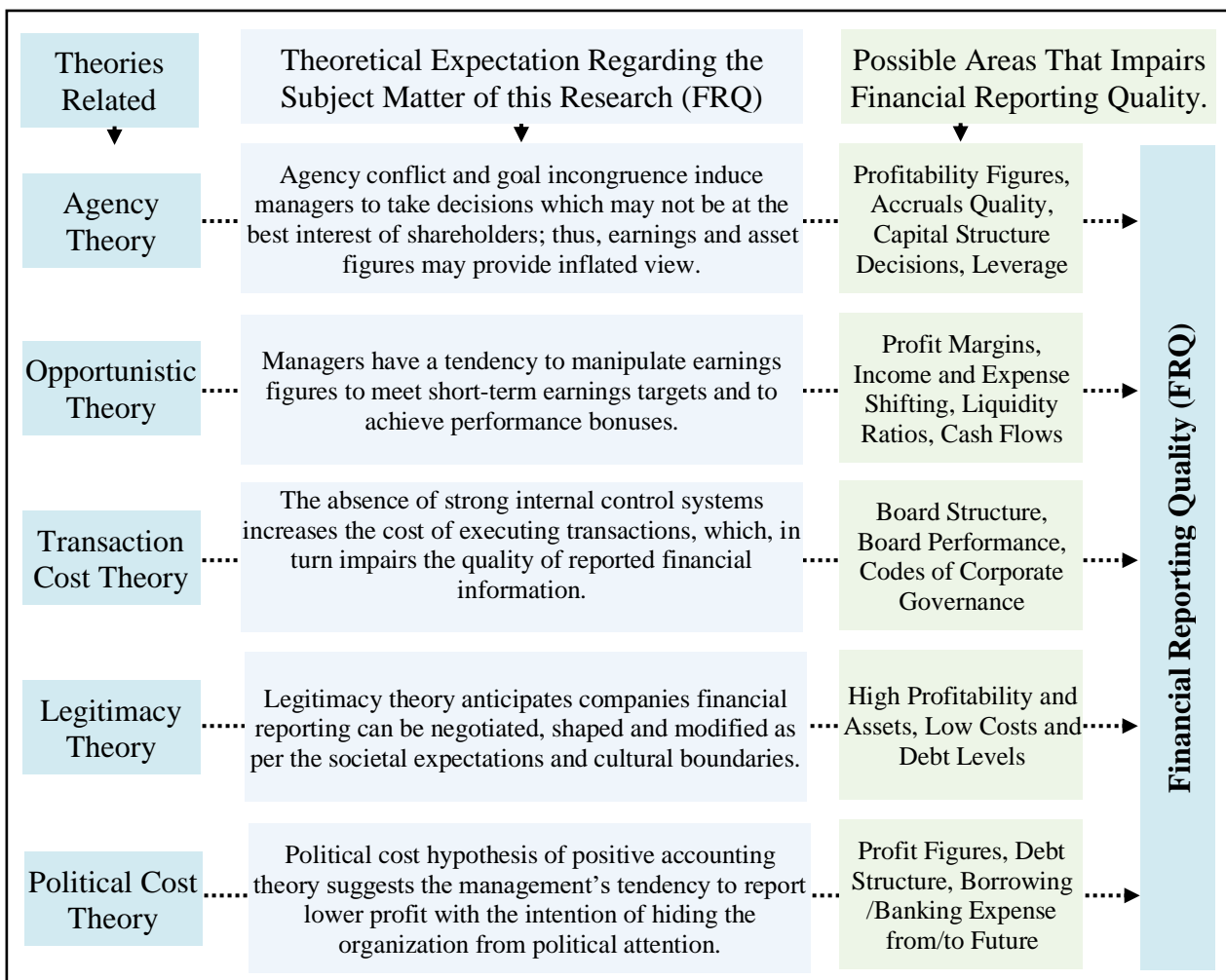


Figure 1. Theoretical Framework of This Research

Political Cost Theory

The political cost theory, an underlying concept of positive accounting theory, hypothesizes that managers or preparers of accounting information tend to show their profits lower or to report high expenses. By using different creative accounting techniques, the firm attempts to avoid the attention of media, governmental authorities, politicians, and security analysts also. The key assumption of this theory is that the eyes of the governmental authorities, media, politicians, and security analysts on the high earning firms (Deegan, 2014) will imply higher regulations and monitoring on that companies.

Consequently, financial reporting quality may be significantly influenced when organizations attempt to hide their earnings figures by any means. The figures and numbers presented in reports may not truly and fairly represent what the real economic position and performance of the organization are. Therefore, political cost theory supposes the motives of managers that induce them to intentionally manipulate, whether inflate or deflate, the financial reports to hide their company from political attention.

All the related theories discussed above have shown in Figure 1 above. Along with the theoretical expectation regarding the subject matter of this study (Financial reporting quality), variables and ways where manipulation is highly likely have also been shown in that figure. Ultimately, all these variables load on the reporting practices of a company and, either intentionally or unintentionally, lead managers to manipulate accounting figures and numbers.

Development of Hypothesis

Measuring financial reporting quality and identifying its determinants requires development of hypotheses to examine the statistical significances and the directions of the relationships of those determining factors. As per the definition of the oxford language, the hypotheses are the "supposition or proposed explanation made based on limited evidence as a starting point for further investigation." In this study, we have considered and assumed fourteen (14) explanatory variables as the defining or determining factors of financial reporting quality. The formulated hypotheses for this research have been presented below with a summary of the previous findings on each hypothesis developed.

Firm-Specific Attributes

Firm Size (FSIZE)

The studies of Swastika (2013) and Llukani (2013) have found significant relationship between firm size and financial reporting quality, measured using earnings quality i.e. earnings management. Because, firms with larger size are more responsible and stakeholder-oriented, the management tend to disclose more information with good quality. But the extent of manipulation in earnings and other earnings figures differs from small-size firms to large-size firms (Llukani, 2013). In this study, the first hypothesis

developed to find the exact association of firm size in determining financial reporting quality is given below.

H_1 : Financial reporting quality (FRQ) has no significant association with firm size (FSIZE).

Firm Age (FAGE)

Researchers use different methods to compute the age of a firm while some researchers take firm age as a profitability indicator. However the firm age is measured, several researchers found the statistical insignificance of firm age in determining financial reporting quality (Chalaki, Dider, & Riahinezhad, 2012; Huang, Ena, & Lee, 2012) considering firm age as a control variable. On the other hand, the findings of the study by Kibiya, et al. (2016) demonstrated a significant relationship between firm age and financial reporting quality. These researchers concluded that with the advancement of firm age, the systems of internal control and corporate governance environment develop to a decent structure of the firm that ultimately results in a good quality of financial reporting (Chalaki, Dider, & Riahinezhad, 2012; Huang, Ena, & Lee, 2012). At this point, to avoid conflicting findings, the following hypothesis has been developed to extract the exact relationship between FAGE and FRQ.

H_2 : Financial reporting quality (FRQ) has no significant association with firm age (FAGE).

Ownership Dispersion (OWNDISP)

Conflict of interest, as supposed by agency theory (Jensen & Meckling, 1976), are more apparent in the firms where ownership is dispersed among several groups like sponsors, foreigners, governments, general shareholders and other investors. The significance of ownership dispersion has been investigated by few researchers to identify its association with financial reporting quality (FRQ) (Mahboub, 2017). As previous studies suggest, high ownership dispersion and decentralized control lead to disclose a high quality of financial information (Ben Ali, Gettler-Summa, & Trabelsi, 2007). While some researchers found inverse association of FRQ with ownership dispersion (Ben Ali, Gettler-Summa, & Trabelsi, 2007; Htay, Said, & Salman, 2013), a number of researchers have shown a positive association between ownership dispersion and FRQ (Haniffa & Cooke, 2002; Soheilyfar, Tamimi, Ahmadi, & Takhtaei, 2014). Based on these ambiguous findings, this research proposes the third hypothesis as follows.

H_3 : Financial reporting quality (FRQ) has no significant association with ownership dispersion (OWNDISP).

Foreign Ownership (FOWN)

Related to the previous hypothesis, when foreign investors have a significant holding of a firm's ownership, the financial reporting quality may be affected positively or negatively. As suggested by the active-monitoring hypothesis, foreign investors and security analysts are more careful in their investments decisions; thus, quality of financial

reports may be received major attention in assessing the current value and predict the future stock price. Although there is a dearth of researches that examined the impact of foreign shareholding in determination of financial reporting quality, Gill-de-Albornoz, and Rusanescu (2018) investigates the effects of this variable in determining the financial reporting quality of firms listed in the Korean Stock Exchange (KSE). This research finds the positive association of foreign ownership in determining the quality of disclosed financial information. This study considers the fourth hypothesis assuming no statistical insignificance between FRQ and foreign ownership.

H₄: Financial reporting quality (FRQ) has no significant association with foreign ownership (FOWN).

Indicators of Firms' Financial Position and Performance

External Financing or Leverage (LEV)

The agency theory and conflict of interest concept provide theoretical support to the hypothesized relationship between financial reporting quality (FRQ) and external financing or leverage. Firms that use external financing have type two agency problem between shareholders and creditors. According to the agency theory, firms with high debt component i.e. highly levered have a motive to provide high-quality corporate reports to stakeholders and creditors (Jensen & Meckling, 1976) and disclose more financial information (Fathi, 2013; Botosan & Plumlee, 2002)). Sharma (2014) hypothesized that external financing create pressures on management and enhances corporate governance structure of the firm. Contrarily, Michăilescu's (2010) study suggested that firms have an inducement to manipulate financial numbers to avail loans on-demand and predicted a negative association with reporting quality.

Accordingly, several researches found positive statistical association between FRQ and external financing, for example, see Amr (2016), Karami and Akhgar (2014). Conversely, assuming management's tendency to "disclose private information to creditors", Zarzeski (1996) and Ahmed (2012) proved a negative association between leverage and corporate reporting. Lastly, some regression results of Fathi (2013) and Olowokure et al. (2016) have shown no significant relationship between these two variables. However, for the purpose of this research and the sample of the particular population, this research developed the fifth hypothesis followingly.

H₅: Financial reporting quality (FRQ) has no significant association with External Financing (LEV).

Accrual Quality (ACRQ)

Financial reporting quality is determined by accrual quality and, thus, shows a parallel relationship with accrual quality (Rahman & Hasan, 2019; Chen, 2016). To measure the quality of financial reports, or, more specifically the reported earnings, studies have shown low accrual quality consequences in low-quality disclosures (Doyle, Ge, & McVay, 2007). In this empirical study, the following statement has been hypothesized to find whether accrual quality significantly impacts FRQ.

H₆: Financial reporting quality (FRQ) has no significant association with accrual quality (ACRQ).

Liquidity (LIQ)

Liquidity is the ability of a firm to meet its current obligations and requirements as they come due (Saleem & Rehman, 2011). For investors and creditors, liquidity is one of the crucial measures of financial strength and a key indicator of short-term solvency (Shehu & Farouk M.A., Firm attributes and earnings quality of listed oil and gas companies in Nigeria., 2014). Asegdew (2016) reported that firms have a motive to communicate their good financial position to avail a higher liquidity position, several empirical researches have suggested that firms with decent liquidity figures or ratios disclose high quality financial and accounting information (Alsaeed, 2006), implying a positive significant relationship between FRQ and Liquidity. While some researchers found a negative significant association (Shehu & Ahmad, 2013), some reported insignificant relationships in their study. Nonetheless, this research assumes no significant association between FRQ and liquidity and hypothesizes accordingly.

H₇: Financial reporting quality (FRQ) has no significant association with liquidity (LIQ).

Profitability (ROA)

As one of the vital determinants of financial reporting quality, profitability has a strong relation with financial reporting quality (FRQ) as supported by prior empirical studies and economics theories. As mentioned earlier, Rahman and Hasan (2019) have emphasized on that profitability is “much volatile and prone to be manipulated” by management and needs more inspection while assessing FRQ. Besides, a profitable company reports more financial information to enhance its reputation communicating better performance and to support proper evaluation of its equity by investors (Alsaeed, 2006). Although many companies with “volatile revenue and income from operation” are found to be involved in manipulation of financial reports (Rahman & Hasan, 2019; Ahmed & Azim, 2015), empirical researches by Patton and Zelenka (1997) found a significant positive association between FRQ and profitability while some reported statistical insignificance of profitability in determining FRQ (Alsaeed, 2006). However, from these above conflicting discussions, this study hypothesizes no relationship between these variables.

H₈: Financial reporting quality (FRQ) has no significant association with profitability (ROA).

Growth (in Assets) (GRTH)

Once more, there is a dearth of empirical researches that examined the relationship of growth with financial reporting quality. Several researchers in accounting have, however, examined growth as an external indicator of financial reporting quality, rather than a determining factor (Soyemi & Olawale, 2019), upon which investors can assess the current value and predict the future stock price. Growth may have loaded manipulated

earnings and asset figures which may not reflect firm's underlying performance and position. Contrarily, a growing company may enhance its internal control systems and governance structures that will lead to better financial reporting practices. So, to identify the relationship, whether statistically significant or not, the ninth hypothesis has been developed followingly.

H₉: Financial reporting quality (FRQ) has no significant association with growth (GRTH).

Corporate Governance Proxies

Board Size (BSIZE)

As per the section (1(1)) of the Corporate Governance Code 2018 of Bangladesh, the total number of members of a company's Board of Directors must have both executive and non-executive directors to be controlled by a Chairman, and the membership should be greater than 5 (five) and less than 20 (twenty) persons. As the agency theory suggests, managers are prone to manipulate financial information, the board of directors plays a crucial role in monitoring and controlling the quality of financial reports (Siam, Laili, & Khairi, 2014) through formulating audit committee. Empirical researches found significant impact of board size on quality of financial reporting, e.g. findings consistent with Kankanamge (2015), Obigbemi et al. (2016), reported a positive significant association between board size and FRQ. Statistical insignificance of the relationship between FRQ and board size has been explained by Nugroho and Eko (2011). This research, however, develops the tenth hypothesis that follows.

H₁₀: Financial reporting quality (FRQ) has no significant association with board size (BSIZE).

Board Independence (BIND)

As per the section (1(2)(a)) of Corporate Governance Code 2018 of Bangladesh, "at least one-fifth (1/5) of the total number of directors in the company's Board shall be independent directors; any fraction shall be considered to the next integer or whole number for calculating number of independent director(s)." Independent members of the board can be influential in monitoring managers reporting practices and can raise questions if any discrepancy is found. Likewise, the findings of Van Dyke et al. (2009) projected positive and huge impact of board independence on FRQ. Also, Khan, Rehman, Zeeshan, and Afridi (2020), in an aim to find the association between financial reporting quality and corporate governance, have demonstrated the positive statistical significance of board independence in determining financial reporting quality. As limited researches have been conducted on this relationship, to identify the degree and direction of association, this research developed the eleventh hypothesis as follows.

H₁₁: Financial reporting quality (FRQ) has no significant association with board independence (BIND).

Board Diligence (BDILG)

Studies have shown maintaining a decent attendance record in board meetings and frequent involvement in board activities aid the board of directors in fulfilling its obligations and responsibilities at the best interests of the stakeholders (Cai, Garner, & Walkling, 2009). Thus, as cited by Botti et al. (2014), a good attendance percentage at board meetings plays a crucial role in monitoring management behavior and ensuring adequate information dissemination (Chou, Chung, & Yin, 2013). Interestingly, while Sarkar et al. (2008) demonstrated a positive statistical significance of the relationship between board diligence and financial reporting quality, some have reported with no association of these variables (Almaqtari, Al-Homaidi, & Ahmad, 2018). However, based on these conflicting arguments, this research proposes the twelfth hypothesis that follows.

H₁₂: Financial reporting quality (FRQ) has no significant association with board diligence (BDILG).

Audit Committee Independence (ACIND)

The Audit Committee is seen as a vital and prominent player in corporate governance of an organization (Mahboub, 2017) i.e. “boosts public confidence in the trustworthiness and the neutrality of financial reporting, through improving the reporting practices of published information” (Tanko & Siyanbola, 2019; Bédard & Gendron, 2010). Thus, an effective and neutral audit committee is a crucial corporate governance mechanism to improve financial reporting quality by its regular functions of reviewing financial statements and approving appropriate accounting policies (Tanko & Siyanbola, 2019). Accordingly, Madi et al. (2014) and Kibiya et al. (2016) have demonstrated the statistical significance of the association between audit committee independence and financial reporting quality. For this study, the thirteenth hypothesis to be tested regarding the relationship between audit committee independence and FRQ is formulated below.

H₁₃: Financial reporting quality (FRQ) has no significant association with audit committee independence (ACIND).

Quality of Auditing (QUAD)

Like the audit committee independence, external auditing is a key function that plays a crucial role in effective monitoring of managers' integrity, truthfulness and fairness in the financial reports (Jensen & Meckling, 1976; Watts & Zimmerman, 1983). Concepts related to agency theory and signaling theory suggests quality of external auditors and independent external auditing play crucial roles in the control of the managements' opportunistic behavior and their window dressing activities (Atik, 2009). Like the audit committee independence, a good quality external auditing, by its regular functions of reviewing and judging financial statements with established criteria i.e. reporting standards, can significantly influence the amount and quality of information disclosed. Nevertheless, prior empirical researches on the degree and direction of associations between the quality of external audit firms and the quality of disclosed financial information found conflicting results. While some found a positive statistical relationship

(Ahmed & Nicholls, 2004; Wallace, Nasser, & Mora, 1994), Malone et al. (1993) and Ali et al. (2004) have shown no association or statistical insignificance between the quality of auditing and FRQ. Here, the last hypothesis is developed based on the above conflicting findings.

H₁₄: Financial reporting quality (FRQ) has no significant association with quality of auditing (QAUD).

Methodology of this Research

Methods and Design of the Research

This study adopted a quantitative research design where quantitative properties, like numbers, figures, quantities and their relationships etc., of the fact or phenomena at hand have been investigated systematically and scientifically. As mentioned earlier, this study purposes to assess the quality of financial reporting and to identify its determining factors for the listed companies under food and allied sector in Dhaka Stock Exchange (DSE). Moreover, by an ex-post factor design strategy, where investigators have no control over the variables and no manipulation is required, this explanatory study attempts to find the determining factors of financial reporting quality.

In this research, only secondary data have been collected from the annual reports for the purpose of the empirical analysis on financial reporting quality and its determinants. Audited financial statements and yearly annual reports are the secondary data sources in this case. Six years' data have been collected for the period from 2015 to 2020. The availability of audited financial statements and annual reports is the criteria for the inclusion in the analysis of the study.

Sample Design

Obviously, researchers are unable to study the entire population; hence, this research picks a representative sample from the population to study and infer about the subject matter of the population. The companies listed under food and allied sector of DSE are the population of this study. A representative sample, as a portion of the population of twenty (20) companies, has been taken therefrom according to the simple formula of Yamane (1967). The sample size for the study should be 19.05 as calculated in **Formula (1)** where *n* is sample size, *N* is the size of the population and *e* is the level of precision.

$$\text{Sample Size, } n = \frac{N}{1+N(e^2)} = \frac{20}{1+20(0.05^2)} = 19.05 \quad (1)$$

But, in case of a population with small elements, the adjusted sample size can be calculated by the following **Formula (2)** using the same notations of above formula.

$$\text{Adjusted Sample Size, } n = \frac{n}{1+(n/N)} = \frac{19.05}{1+(19.05/20)} = 9.76 \approx 10 \quad (2)$$

Therefore, out of the 20 companies under the food and allied sector in Dhaka Stock Exchange (DSE), 10 companies have been selected randomly as a sample size giving equal chance for each company to be included in the sample presented in **Table 1**.

Table 1. Randomly Selected Companies from Food and Allied Sector of DSE

Company Name	Trading Code	Paid-up Capital (In Million BDT)
Agricultural Marketing Company Ltd. (Pran)	AMCL(PRAN)	80.00
Apex Foods Limited	APEXFOODS	57.02
British American Tobacco Bangladesh Company Limited	BATBC	5400.00
Fine Foods Limited	FINEFOODS	139.74
Fu Wang Food Limited	FUWANGFOOD	1108.39
Gemini Sea Food Limited	GEMINISEA	46.96
Golden Harvest Agro Industries Limited	GHAIL	2158.00
Olympic Industries Limited	OLYMPIC	1999.39
Rangpur Dairy & Food Products Limited	RDFOOD	737.61
Unilever Consumer Care Limited	UNILEVERCL	120.46

Data Sources and Collection Techniques

The population of the report is all listed companies under food and allied companies in DSE of Bangladesh. To achieve the objective of the study, a panel data set of a sample of 10 listed food and allied companies, among the 20 listed in DSE, for six consecutive years' annual data (2015-2020) have been taken into account. As panel (or longitudinal) data are both cross-sectional and time-series, the sample of 10 companies that have financial statements available for the years from 2015 to 2020 have been incorporated in this report.

Essentially, the report is based on secondary data sources. The quantitative data on each company have been collected from yearly annual reports and audited financial statements, i.e. statement of financial position (or balance sheet), statement of financial performance (or income statement), and statement of cash flows of selected listed food and allied companies over 2015 to 2020. In addition to the financial statements, some specific information have been collected from other sources like directors' report to shareholders, company overview and notes to the financial statements. In the following Table 2, the required data for analyses and their sources have been summarized.

Table 2. Summary of Data Sources

Proxies and Variables	Acronym	Required Data / Information	Location in the Annual Reports
Financial Reporting Quality	FRQ	Cash Current Assets Current Liabilities Net Receivables Sort-term Debt Total Assets Property, Plant and Equipment	Statement of Financial Position (or Balance Sheet)

Table 2 (Continued). Summary of Data Sources

Proxies and Variables	Acronym	Required Data / Information	Location in the Annual Reports
		Profit from Operations	Statement of Financial Performance (or Income Statement)
		Depreciation and Amortization	Notes to the Financial Statements
Firm Size	FSIZE	Total Assets	Statement of Financial Position
Firm Age	FAGE	Year of Listing	Company Profile / Official Websites of DSE
Ownership Dispersion	OWNDISP	Percentage of Shareholding	Official Websites of DSE
Foreign Ownership	FOWN	Percentage of Foreign Shareholding	Official Websites of DSE
External Financing or Leverage	LEV	Total Debt / Liabilities Total Assets	Statement of Financial Position
Accrual Quality	ACRQ	Profit from Operations	Statement of Financial Performance
		Operating Cash Flows	Statement of Cash Flows
Liquidity	LIQ	Total Current Assets Total Current Liabilities	Statement of Financial Position
Profitability	ROA	Total Assets	Statement of Financial Position
		Net Income	Statement of Financial Performance
Growth (Assets)	GRTH	Total Assets	Statement of Financial Position
Board Size	BSIZE	Numbers of members in Board of Directors	Company Profile / Directors' Report to Shareholders

Proxies and Variables	Acronym	Required Data / Information	Location in the Annual Reports
Board Independence	BIND	Number of Directors Number of Independent Directors	Company Profile / Directors' Report to Shareholders
Board Diligence	BDILG	Meeting Attendance by Board Members	Directors' Report to Shareholders
Audit Committee Independence	ACIND	Number of Members in Audit Committee Number of Non- Executive Members in Audit Committee	Company Profile / Directors' Report to Shareholders
Quality of Auditing	QUAD	External Auditors	Company Profile / Audit Report

Measurement of the Variables

Dependent Variable (Financial Reporting Quality)

From literature review sections, it is evident that there is no universally accepted formula to measure financial reporting quality (Almaqtari, Al-Homaidi, & Ahmad, 2018). Prior empirical studies adopted varied methodologies, models and proxies to measure quality of reported financial information. Jones (1991) Model, Modified Jones Model (1995), Dechow and Dichev (2002) Model, McNichols (2002) Model etc. are all the popular models and proxies to measure financial reporting quality.

This research uses two-steps approach to achieve its first objective outlined in introductory sections. In first step, this research attempts to assess the financial reporting quality (FRQ) taking residuals derived from the modified Jones Model, the model advanced by Dechow, Sloan & Sweeny in 1995. This model focuses the discretionary portion of total accruals which is taken as values for financial reporting quality. The following **Formula 3** is used in measuring total accruals which is the summation of discretionary accruals and non-discretionary accruals.

$$TACC_t = \Delta CA_t - \Delta CASH_t - \Delta CL_t + \Delta DCL_t - DEP_t \quad (3)$$

Here in Formula 3,

- $TACC_t$ = Total accruals in year t ,
- ΔCA_t = Change in current assets in year t ,
- $\Delta CASH_t$ = Change in cash and cash equivalents in year t ,
- ΔCL_t = Change in current liabilities in year t ,
- ΔDCL_t = Change in short-term debt included in current liabilities in year t ,
- DEP_t = Depreciation and amortization expense in year t .

The discretionary accruals can be interchangeably used with abnormal accruals as discretionary accruals incorporate management's estimation and judgmental areas where abnormality of amount and quality is highly likely. The general understanding of accruals

is that if the non-discretionary component of total accruals is extracted with an appropriate model, the abnormal or discretionary component represents the quality of reported earnings i.e. financial reports. The higher the abnormal or discretionary component in total accruals, the lower the quality of reported earnings i.e. financial reporting quality. To separate the discretionary portion from the total accruals as per the model modified by Dechow et al. (1995), this research estimated Formula 4 and Formula 5 using a sophisticated statistical package 'STATA 16'. Importantly, total accruals (Formula 4) is composed of non-discretionary accruals (Formula 5) and an error or residual term that represents discretionary portion of total accruals.

$$\frac{TACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t \quad (4)$$

$$\frac{NDACC_t}{A_{t-1}} = \hat{\alpha}_1 \frac{1}{A_{t-1}} + \hat{\alpha}_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \hat{\alpha}_3 \frac{PPE_t}{A_{t-1}} \quad (5)$$

Here in **Formula 4** and **Formula 5**,

- TACC_t = Total accruals in year *t*,
- NDACC_t = Non-discretionary accruals in year *t*,
- A_{t-1} = Lagged Assets; total assets in year *t* - 1,
- ΔREV_t = Revenues in year *t* less revenues in year *t* - 1
- ΔREC_t = Net receivables in year *t* less net receivables in year *t* - 1
- PPE_t = Gross property plant and equipment in year *t*,
- $\hat{\alpha}_1, \hat{\alpha}_2$ and $\hat{\alpha}_3$ = Estimated Parameters

Finally, to split discretionary accruals from total accruals (**Formula 4**), the residuals from the **Formula 6** have been used as a proxy of financial reporting quality. Here, the model developed by Dechow et al. (1995) uses the following formula (**Formula 6**) to separate the discretionary portion from the total accruals once the regression output of estimating Formula 5 is completed.

$$DACC_t = TACC_t - NDACC_t \quad (6)$$

Here in Formula 6,

- DACC_t = Discretionary accruals in year *t*,
- TACC_t = Total accruals in year *t*,
- NDACC_t = Non-discretionary accruals in year *t*.

In summary, this research calculated total accruals of a company and modeled total accruals as a function of discretionary and non-discretionary accruals using the formulae developed by Dechow, Sloan, and Sweeney (1995). Next, the estimated the non-discretionary portion of total accruals have been reduced from total accruals to get abnormal or discretionary accruals. These discretionary accruals define the subject matter of this research, i.e. financial reporting quality, representing high figure of discretionary accruals as low earnings and reporting quality.

Measurement of Independent Variables

Firm Size (FSIZE)

Following prior researches of Palmrose (1986) and Simon and Taylor (2002) firm size (FSIZE) is measured taking the natural logarithms of total assets, which is a line item, consisting of all current assets and non-current assets.

Firm Age (FAGE)

Prior researchers and empirical studies adopted different measures to compute firm age. Olowokure, Tanko and Nyor (2016) measured firm age taking the difference between the year of incorporation and the year of reporting. The year of listing on the stock exchanges can also be logical measure of firm age (Ojeka, Mukoro, & Kanu, 2015; Haniffa & Cooke, 2002). For the purpose of the study, firm age has been measured subtracting the year of listing from the year of observation, as the investors takes firms' financial reports into account when a firm enlists through stock exchanges.

Firm Ownership Dispersion (OWNDISP)

Firm ownership dispersion is the percentage of shareholding by directors or sponsors, general shareholders, foreign investors and other investors. These information is easily available in company profiles of DSE websites. As this study considers foreign ownership (FOWN) as an individual explanatory variable, for this study, firms' ownership dispersion is measured taking the ratio of public shareholding percentage to percentage of directors' shareholding.

Foreign Ownership (FOWN)

Foreign ownership (FOWN) is another firm-specific characteristics that is demonstrated to influence significantly the quality of financial reports (Gill-de-Albornoz & Rusanescu, 2018). Simply, the personage of shareholding by foreign investors is the method to measure this explanatory variable of this study.

External Financing or Leverage (LEV)

Prior researches have taken diversified measures as the measure of external financing (LEV). Leverage, for example, can be the ratio of total debt or liabilities to the total assets (Echobu, Okika, & Mailafia, 2017), the ratio of total non-current liabilities to the total assets (Asegdew, 2016), the ratio of total long-term debts to the total assets (Rahman & Hasan, 2019) and so on. For this study, the ratio of total debt or liabilities to the total assets have been taken as a proxy measure for external financing.

Accrual Quality (ACRQ)

Studies have shown low accrual quality (ACRQ) results in low quality disclosures quality (Doyle, Ge, & McVay, 2007). In this study, accrual quality is measured taking the ratio of operating cash flow to operating profit, as introduced by Chen (2016).

Liquidity (LIQ)

Liquidity (LIQ), one of the measures of financial strength and a key indicator short-term solvency for both investors and creditors, is the ability of a firm to meet its current obligations as they come due (Saleem & Rehman, 2011). Prior empirical studies have taken several measures of liquidity, e.g. current ratio, acid-test or quick ratio, cash ratio, that serve the purpose of their studies. However, the current ratio, ratio of current assets to current liabilities, has been taken as a measure of liquidity in this research.

Profitability (ROA)

As there is no identical measure or proxy of profitability, some researcher taken profitability from the key performance ratios like Return on Assets (ROA), Return on Equity (ROE), Profit Margin etc., growth in assets, growth in sales and, even, firm size have also been taken as profitability measures by several empirical studies. In this research, ROA, the ratio of net income to total assets, has been used as a proxy for firm profitability.

Growth (in Assets) (GRTH)

Growth (GRTH) is a measure that indicates the increase in firms' worth from its business. Some studies taken the ratio of market value of equity to book value of equity as a measure of growth (Soyemi & Olawale, 2019). In this study, the percentage increase in total assets from a year to its preceding year has been used as a measure of growth following the research of Asegdew (2016).

Board Size (BSIZE)

In simple way, board size (BSIZE) is quantified by the total number of members in the board of directors as measured in prior studies (Mahboub, 2017; Fathi, 2013).

Board Independence (BIND)

In line with the previous empirical studies, board independence (BIND) is measured taking the ratio of the number of independent directors to total number of directors in the board of directors (Mahboub, 2017; Navarro & Urquiza, 2015).

Board Diligence (BDILG)

The ratio of total number of meetings attended by all members of board of directors to total number of meetings held during the observation year has been used in several researches as a good measure of board diligence (BDILG) (Almaqtari, Al-Homaidi, & Ahmad, 2018). Following those studies, the same ratio has been used as a proxy of board diligence.

Audit Committee Independence (ACIND)

As mentioned in hypothesis development section, the proportion of non-executive directors in the audit committee is a measure of audit committee independence (ACIND).

Almaqtari, Al-Homaidi and Ahmad (2018) also used this ratio as a proxy of audit committee independence.

Quality of Auditing (QUAD)

Prior studies adopted researchers' judgmental approaches in measuring quality of auditing. Most of the studies assigned values for Big Four audit firms, Ernst & Young, KPMG, Deloitte and PwC, who dominate the global auditing regulation (Asegdew, 2016). However, in this empirical study, firms affiliated with those big four audit firms and ACNABIN have given the value of 1 and other firms are assigned no value.

Table 3. Summary of Measurement Techniques of the Variables

Variables	Measurement Techniques	References
Dependent Variable		
FRQ	Discretionary Accruals of Modified Jones Model (1995)	(Dechow, Sloan, & Sweeney, 1995)
Explanatory Variables		
FSIZE	The natural logarithm of firms' total assets.	(Almaqtari, Al-Homaidi, & Ahmad, 2018)
FAGE	Difference between the observation year and the firms' listing year.	(Echobu, Okika, & Mailafia, 2017)
OWNDISP	Ratio of percentage of general shareholding to percentage of sponsors' shareholding.	(Mahboub, 2017)
FOWN	Percentage of foreign investors' shareholdings	(Mahboub, 2017)
LEV	The ratio of total debt to total assets	(Echobu et al., 2017)
ACRQ	The ratio of operating cash flow to operating profit	(Rahman & Hasan, 2019)
LIQ	The ratio of current assets to current liabilities	(Echobu et al., 2017)
ROA	The ratio of net income to total assets	(Asegdew, 2016)
GRTH	Percentage increase in total assets in year t from year $t-1$	(Soyemia & Olawale, 2019)
BSIZE	Number of members in board of directors	(Mahboub, 2017)
BIND	The ratio of number of independent directors to the number of board members.	(Khan, Rehman, Zeeshan, & Afridi, 2020)
BDILG	The ratio of average number of meetings attended by all members of board of directors to total meetings held in year	(Almaqtari, Al-Homaidi, & Ahmad, 2018)
ACIND	The ratio of number of non-executive members in audit committee to the total number of audit committee members	(Echobu, Okika, & Mailafia, 2017)
QUAD	Assigned 1 for Big Four audit firms and ACNABIN and 0 (zero) for other audit firms	(Asegdew, 2016)

Specification of the Model

Model Specification

The regression model for panel data differs from a regular time-series or cross-sectional regression model. The regression equation for panel data includes the double subscript attached to each dependent and explanatory variable. However, based on the model specified by prior researches (Khan & Rahman, 2017; Rahman & Hasan, 2019; Asegdew, 2016), the model for this research is specified below (**Equation 1**) with some modification to enhance the robustness of the developed model.

$$\begin{aligned}
 FRQ_{it} = & \beta_0 + \beta_1 FSIZE_{it} + \beta_2 FAGE_{it} + \beta_3 OWNDISP_{it} + \beta_4 FOWN_{it} + \beta_5 LEV_{it} \\
 & + \beta_6 ACRQ_{it} + \beta_7 LIQ_{it} + \beta_8 ROA_{it} + \beta_9 GRTH_{it} + \beta_{10} BSIZE_{it} \\
 & + \beta_{11} BIND_{it} + \beta_{12} BDILG_{it} + \beta_{13} ACIND_{it} + \beta_{14} QUAD_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{1}$$

Here in Equation (1),

- FRQ_{it} = Financial reporting quality i.e. discretionary accruals for firm *i* at time *t*
- FSIZE_{it} = Firm size for firm *i* at time *t*
- FAGE_{it} = Firm age for firm *i* at time *t*
- OWNDISP_{it} = Ownership dispersion for firm *i* at time *t*
- FOWN_{it} = Foreign ownership for firm *i* at time *t*
- LEV_{it} = External financing or leverage for firm *i* at time *t*
- ACRQ_{it} = Accrual quality for firm *i* at time *t*
- LIQ_{it} = Liquidity for firm *i* at time *t*
- ROA_{it} = Profitability for firm *i* at time *t*
- GRTH_{it} = Growth in assets for firm *i* at time *t*
- BSIZE_{it} = Board size for firm *i* at time *t*
- BIND_{it} = Board independence for firm *i* at time *t*
- BDILG_{it} = Board diligence for firm *i* at time *t*
- ACIND_{it} = Audit committee independence for firm *i* at time *t*
- QUAD_{it} = Quality of auditing for firm *i* at time *t*
- β₀ = Regression constant
- β₁ – β₁₄ = Regression coefficients
- ε_{it} = Error term where *i* is cross sectional and *t* time identifier

Through statistical package ‘STATA 16’, the command ‘reg’ has been used to identify the statistical relationship between financial reporting quality, measured from Modified Jones Model (1995), and its determining factors. Generally, regression analyses through the statistical package ‘STATA 16’ result in signs consistent with theoretical predictions formulated in prior studies. The regression model employed for this report is also in line with what was used in previous researches on capital structure determinants, with some modifications for the robust analyses of this research.

Data Analysis Tools

Correlation Analyses

To measure the degree and direction of linear relationship between two variables (Brooks, 2008) and to inspect the possible degree of multi-collinearity among the explanatory variables, correlation matrix of the variables is a useful tool. The correlations among the explanatory variables are shown in Table 5 (on page 28). The ‘*corr*’ command of ‘STATA 16’ has been used to determine the degree (strength) & direction (sign) of the relationship among the fourteen explanatory variables and the dependent one. The values of the correlation coefficients always lie between +1 and -1.

Testing CLRM Assumptions

Generally, a diagnostic test for classical linear regression model (CLRM) is made to make sure that the CLRM assumptions are not violated (Asegdew, 2016) and the model developed is neutral and conclusive. In this research, four principle CLRM assumptions have been tested namely Test of Heteroscedasticity, Test of Multi-Collinearity, Test of Autocorrelation and Test of Normality; the results of which are presented and interpreted in the next section.

Test of Heteroscedasticity

Because of the principal assumption of the constant variance of random disturbances across the observations of a classical linear regression model, homoscedasticity is an important issue for a panel (or longitudinal) data set. Heteroscedasticity, the opposite of homoscedasticity, is a systematic pattern in the errors where the variances of the error term differ across observations (explanatory variables). According to Gujarati, Porter, and Gunasekar (2012), when the panel data set faces the problem of heteroscedasticity or the errors of the dataset don’t have a constant variance, then the t-test and F-test provide inaccurate result.

The Breusch–Pagan test, developed by Trevor Breusch and Adrian Pagan in 1979 can be a test of (pure) heteroscedasticity. This research used the built-in ‘*estat hettest*’ command in statistical package ‘STATA 16’ to test the heteroscedasticity problem in the panel data set.

Test of Multi-Collinearity

The second important assumption of the classical linear regression model is multicollinearity which refers to the situation when there is either a perfect or approximately perfect linear association among the explanatory variables (Gujarati, Porter, & Gunasekar, 2012). To test the multicollinearity problem in this study, both the correlation matrix developed in the following section and the variance inflation factor (VIF) method have been used.

Test of Multi-Collinearity (Using Correlation Matrix): The correlation matrix developed in following section can be used to inspect the possible degree of multi-

collinearity among the explanatory variables. The correlations among the explanatory variables are shown in Table 5 (on page 28). Based on that table, the test of multicollinearity can be performed and the results of those test are presented in the next sections.

Test of Multi-Collinearity (Using Variance Inflation Factor or VIF Method): Variance Inflation Factor or VIF method is used to test for the existence of multi-collinearity among the explanatory variables of the study. This research assumes the existence of multicollinearity when Tolerance ($1/VIF$) is below 0.1 and VIF is greater than 10. If the VIF of any explanatory variable exceeds the value of 10, then the variable is said to be highly collinear with any other explanatory variables. However, a test of multicollinearity run has been conducted in this study by using the '*vif*' command in 'STATA 16'.

Test of Autocorrelation

The third principal assumption of the Classical Linear Regression Model is that the covariances and correlations between different disturbances are all zero. This implies the disturbances are independently distributed, which is called serial independence. If this assumption is no longer valid, then the disturbances are not pairwise independent, but pairwise autocorrelated or serially correlated.

The *Durbin–Watson d statistic*, proposed by two legendary statisticians Durbin and Watson in 1950, is one of the most renowned test for detecting serial correlation that. This statistic is defined as the ratio of the sum of squared differences in successive residuals to the residual sum of squares (Durbin & Watson, 1950). In this study, the command '*estat dwatson*' of the statistical package 'STATA 16' has been used to test autocorrelation.

Test of Normality

The last classical linear regression model assumption is normal distribution of the residuals of the fitted linear regression model. In statistical terms, normality tests are conducted to examine whether the residuals of a panel data set are well-structured by a normal distribution or the panel data set to be normally distributed with mean and standard deviation values are near to 0 and 1 respectively (Gujarati, Porter, & Gunasekar, 2012). In case of absence of normality of distribution of error terms, the residuals must not be applied for Z tests or in any other tests derived from the normal distribution, such as t tests, F tests and chi-squared tests. Again, if the residuals are not normally distributed, then the dependent variable or at least one explanatory variable may have wrong functional form.

To test the normality assumption graphically and formally, several commands of 'STATA 16' have been applied in this research. First, to test graphically, the normality of the disturbances have been tested fitting a normal curve on the histogram of error terms. The command '*hist er, norm*' has been used in that case. Next, *Shapiro-Wilk W test* for normal data, developed by Samuel Sanford Shapiro and Martin Wilk in 1965, has been conducted on the disturbances using '*swilk*' command of STATA 16. All the results are presented and interpreted in the next chapter.

Results and Presentations

Descriptive Summery Statistics

This empirical study investigates the factors determining financial reporting quality in the food and allied companies listed in DSE. A sample of 10 companies has been examined over the period from 2015 to 2020. The descriptive summary statistics of the data collected and, if any, calculated on the dependent variable (Financial Reporting Quality) and explanatory (or operational) variables are presented in Table 4. This table includes mean, standard deviation, minimum and maximum for each variable of the sample companies. These figures are derived using the 'sum' command of 'STATA 16'.

Table 4. Descriptive Summery Statistics

Operational Variables	Acronym	Obs.	Mean	Standard Deviation	Minimum	Maximum
Financial Reporting Quality	FRQ	50	0.00000	.1537362	-.3743822	.6308493
Firm Size	FSIZE	50	19.85911	2.253904	14.97042	23.19158
Firm Age	FAGE	50	25	12.98351	2	44
Ownership Dispersion	OWNDISP	50	8.996425	21.07175	0	93.33962
Foreign Ownership	FOWN	50	.19081	.3208283	0	.9051
External Financing	LEV	50	.4501467	.2578719	.0325051	1.081041
Accrual Quality	ACRQ	50	1.517441	12.54419	-32.62158	81.54194
Liquidity	LIQ	50	2.858966	3.32755	.8843363	16.70011
Profitability	ROA	50	.0690828	.0799846	-.1567325	.2289808
Growth (Assets)	GRTH	50	.1189732	.6416375	-.899241	4.175655
Board Size	BSIZE	50	6.433333	2.031989	4	12
Board Independence	BIND	50	.2980519	.139122	.1666667	.6
Board Diligence	BDILG	50	.8534962	.131354	.5348837	1
Audit Committee Independence	ACIND	50	.4486667	.1629462	.25	1
Quality of Auditing	QUAD	50	.3	.4621248	0	1

Discussion on Descriptive Summery Statistics

As presented in Table 4, the results obtained from the panel data set includes means, standard deviations, minimums and maximums for 50 observations of each variable of this study. The only dependent variable of this study, financial reporting quality (FRQ) as measured by discretionary accruals of Modified Jones Model, shows an approximated mean value of zero (0) with a standard deviation of 15.37%. A minimum of -37.44% and a maximum of 63.08% is evident in the data set of discretionary accruals.

The first firm-specific explanatory variable firm size (FSIZE), as measured in logarithmic form, demonstrates a mean value of 19.859 and a low standard deviation of

2.254. Firm age (FAGE) has a mean value of 25 which implies the average year of operations of the sample companies is 25 with a deviation from the mean value of 13 years. The lowest (minimum) age of a firm in this sample is 3 while another firm in the sample is conducting business for maximum 44 years. Averagely, 9% ownership is dispersed (OWNDISP) among the general shareholders in this sector while maximum 93.34% shares are owned by general public of a company in the sample. A minimum of almost 0% shareholding indicates there are some companies whose shares are owned by shareholders other than general investors. The last firm-specific characteristic, foreign ownership (FOWN), shows an average of 0.191 implying the low foreign investments in this sector.

There are five performance indicating variables that are examined in this study. External financing or leverage, a common indicator of firms' solvency, displays a high percentage (45.015%) of debts in their capital structure. Though there are firms with a 3.25% debts in its funding of assets, a maximum 1.081% is also evident in the sample companies' data. Accrual quality indicates percentage of operating income realized through operating cash flows. A good average (1.517%) is evident in this case whereas 12.54% dispersion around the mean value is found in the data set. But, the minimum and maximum values of the values of accrual quality demonstrate a wide range of values between -32.621% and 81.542%. Liquidity (LIQ) has a mean value of 2.859 which implies a good amount of current assets to meet the obligations of current liabilities. The minimum value of this variable is 0.884 while the maximum is 16.70. Profitability as measured by ROA explains that the food and allied sector has an average return of 6.91% with a dispersion from the mean lies within 8%. The sample companies in this sector have a maximum of 22.90% ROA while a negative return of 15.67% is also apparent. Finally, growth (GRTH) in total assets have a mean value of 11.90% implying a good prospect of the sector. With a high standard deviation (64.16%) from the mean value, this variable ranges from minimum -89.92% to maximum 417.57%.

The corporate governance proxies are variables related to adequate compliance of applicable corporate governance codes. Board size (BSIZE) and board independence (BIND) shows the averages of 6.433 and 0.298 respectively which implies companies in this sector complies with the related sections of Corporate Governance Code 2018. These mandatory requirements of boards consisting of 5 members with one-fifth independent directors have not been maintained by all sample companies as evident from minimums of these proxies, 4 and 1.667 respectively. Board diligence (BDILG) as measured in terms of meeting attendance, have a decent average of 85.35% while the dispersion around the average is 13.14%. The minimum of this variable is 53.43% while the maximum value indicates 100% attendance of meeting by all board members. A good mean value of audit committee independence (ACIND) indicates a moderate level of average of 44.87% with a minimum of 25% and a maximum of 100%. Last but not the least, quality of external and independent auditing is measured by a judgmental basis where 1 is assigned for big four audit firms and ACNABIN. A low average (0.3) indicates most of the firms' in the sample received 0 value for choosing audit firms other than those five reputed firms.

Results of Correlation Analysis

In this section of the study, the degree and direction of linear association between the dependent and the explanatory variables are presented in matrix form and interpreted in simple terms. As noted in Brooks (2008), values of the correlation coefficient are always range between +1 and -1, a correlation coefficient of +1 indicates a perfectly positive relationship among the variables under study. On the other hand, correlation coefficient of -1 directs a perfectly negative association between the variables whereas a zero correlation coefficient implies no linear relationship among the variables under the study (Asegdew, 2016).

The following Table 5 displays an initial picture of the correlation coefficients for the variables, dependent and explanatory, considered in the study on financial reporting quality and its determinants. In the table of correlation matrix, it is evident that none of the variables individually dominates the discretionary accruals i.e. the financial reporting quality, although foreign ownership (-0.50), profitability (-0.42), board size (-0.38) and board diligence (0.39) are moderately correlated with the dependent variable.

Table 5. Correlation Matrix

	FRQ	FSIZE	FAGE	OWNDISP	FOWN	LEV	ACRQ	ROA	LIQ	GRTH	BSIZE	BIND	BDILG	ACIND	QUAD
FRQ	1.00														
FSIZE	0.05	1.00													
FAGE	-0.17	0.34	1.00												
OWNDISP	0.12	-0.26	-0.29	1.00											
FOWN	-0.50	0.25	0.28	-0.20	1.00										
LEV	0.19	0.05	0.54	-0.55	-0.10	1.00									
ACRQ	-0.14	-0.06	0.06	-0.05	-0.02	0.19	1.00								
LIQ	-0.03	-0.34	-0.36	0.75	-0.14	-0.68	-0.07	1.00							
ROA	-0.42	-0.01	0.32	-0.21	0.74	-0.18	-0.25	-0.14	1.00						
GRTH	-0.22	0.09	-0.10	-0.05	0.01	0.03	-0.04	-0.06	0.06	1.00					
BSIZE	-0.38	-0.26	0.14	-0.26	0.25	-0.03	-0.03	-0.25	0.54	0.18	1.00				
BIND	-0.15	-0.27	-0.34	0.56	0.02	-0.63	-0.07	0.77	0.01	-0.06	-0.19	1.00			
BDILG	0.39	-0.27	0.11	0.03	0.68	-0.39	0.07	-0.10	0.60	-0.07	-0.43	-0.17	1.00		
ACIND	-0.06	-0.33	-0.23	0.19	-0.20	-0.35	-0.06	0.20	0.06	0.20	0.59	0.19	-0.29	1.00	
QUAD	-0.07	-0.39	0.22	-0.24	-0.03	0.09	0.00	-0.24	0.32	-0.12	0.55	-0.22	0.08	0.31	1.00

Some strong correlations, but not perfect and highly positive correlation, are apparent from the correlation matrix. LIQ and OWNDISP have a strong positive correlation like the correlation between FOWN and ROA. Board independence (BIND) is positively correlated strongly with OWNDISP (0.66) and ROA (0.77) while moderately negatively correlated with LEV (-0.73) is evident.

In addition, some moderate level of correlation are found between LEV and FAGE (0.54), LEV and OWNDISP (-0.55), LIQ and LEV (-0.68) etc. as shown in Table 5. These correlations implies with the increase of firms' age and of debt components in firms'

capital structure, firms' liquidity position and ownership dispersion decreases. Moreover, foreign ownership increases and liquidity position enhances when board diligence improves as supported by the correlations of these variables.

Results of Testing of CLRM Assumptions

Test of Heteroscedasticity

The Breusch–Pagan test is one of the most widely used model which was developed by Trevor Breusch and Adrian Pagan in 1979 to test for heteroscedasticity in a classical linear regression model. In this study, the built-in '*estat hettest*' command in statistical package 'STATA 16' has been used to test the heteroscedasticity problem in the panel data set.

```
. estat hettest  
  
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
Ho: Constant variance  
Variables: fitted values of FRQ  
  
chi2(1)      =      1.07  
Prob > chi2  =  0.03011
```

Figure 2. Result of Testing of Heteroscedasticity by *STATA 16*

In this research, the null hypothesis tested is the errors of the panel data set have constant variance against the alternative hypothesis that is the errors of the dataset don't have constant variances. Results have shown (Figure 2), at 5% level of significance, the chi2 value (1.07) is statistically significant (0.030). Thus, this study rejects the null hypothesis. So, it can be concluded that there is a heteroscedasticity problem i.e. variances among the disturbances are not constant.

Test of Multi-Collinearity

Test of Multi-Collinearity (Using Correlation Matrix)

A highly significant (but not perfect) correlation between two or more explanatory variables is called multicollinearity. The more the explanatory variables are linearly dependent the larger the variances become which implies that the coefficient estimates become increasingly unstable (Gujarati, Porter, & Gunasekar, 2012). In other words, multicollinearity principle requires actually imperfect multicollinearity, and the relationship between two explanatory variables lies between -1 to +1, but is not equal to zero.

From the correlation matrix presented in Table 5 (on the previous page), it can be resolved that there exist no multi-collinearity among the explanatory variables of the study. According to Kennedy (2008), when the correlation coefficient among the variables are perfect or highly correlated i.e. greater than 0.80, there exists multicollinearity problem in the explanatory variables. Because, the correlation

coefficients in the table of correlation matrix shows that the highest correlation coefficient is 0.77, the panel data set is free from multicollinearity problem i.e. maintains the principle of no multicollinearity.

Test of Multi-Collinearity (Using Variance Inflation Factor or VIF Method)

The following Table 6 (on the next page) shows the tolerance and VIF for the fitted regression model of this research. Again, the multi-collinearity test using Variance Inflation Factor (VIF) method confirms that there exist no multi-collinearity among the explanatory variables in this study.

Table 6. Variance Inflation Factor (VIF)

Variables	VIF	Tolerance (1/VIF)	Variables	VIF	Tolerance (1/VIF)
FSIZE	4.26	0.290634	ROA	1.81	0.551542
FAGE	2.13	0.470326	GRTH	1.40	0.715103
OWNDISP	2.81	0.356298	BSIZE	6.61	0.151378
FOWN	3.51	0.285154	BIND	3.46	0.288939
LEV	2.18	0.459607	BDILG	3.62	0.276463
ACRQ	1.05	0.953401	ACIND	3.69	0.393254
LIQ	7.33	0.117296	QUAD	1.95	0.511791

As discussed above, when any value of VIF is greater than 10 and any value of tolerance is less than 0.1, there exists some degree of multi-collinearity. In the variables of this study, no tolerance is less than 0.1 and only one variable (LIQ) is closer to the lower limit of VIF. However, as the correlation method of testing multicollinearity affirms that no multi-collinearity exists, the same decision is evident here.

Test of Autocorrelation

Durbin-Watson d statistic, proposed by Durbin and Watson (1950), was used to test first order serial correlation in the disturbance assuming all the regressors are strictly exogenous (Hossain & Hossain, 2015). The Durbin-Watson test statistic verifies the null hypothesis that the residuals from an ordinary CLRM are not autocorrelated.

```
. estat dwatson
Durbin-Watson d-statistic( 15, 50) = 2.057145
```

Figure 3. Result of Testing of Autocorrelation by STATA 16

Using the statistical package ‘STATA 16’ as mentioned in the previous section, the results of autocorrelation test have been shown in above Figure 3. It is found that the value of d (2.057145) is close to 2 in the fitted regression model. Thus, not rejecting the null hypothesis, it can be concluded that there is no autocorrelation between the error terms of the fitted regression model.

Test of Normality

The normality assumption of the error terms is tested graphically and formally. First, the normality of the disturbances have been tested fitting a normal curve on the histogram of error terms using the command *hist er, norm*. Next, *Shapiro-Wilk W* test for normal data has been conducted on the disturbances using *swilk* command of ‘STATA 16’.

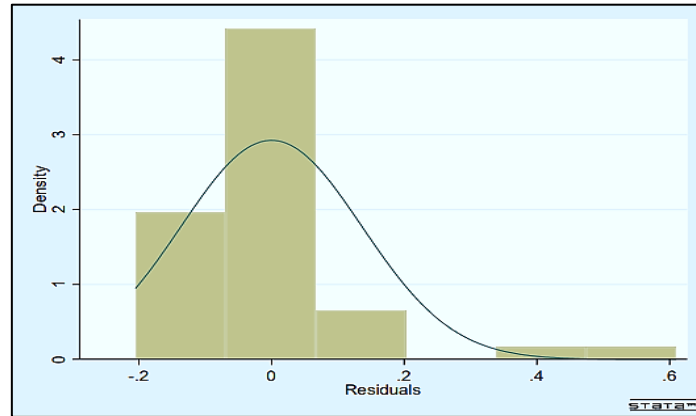


Figure 4: Test of Normality of the Disturbances

From the Figure 4 above, it is evident that the error terms are normally distributed and fulfills the last assumption of classical linear regression model. Though the *Shapiro-Wilk W* test for normal data has opposite result indicating rejection of null hypothesis that error terms are normally distributed, this study takes the result of graphical normality test of disturbances or residuals.

Discussions on the Empirical Results of Regression Analysis

Source	SS	df	MS	Number of obs = 45		
Model	.061067047	14	.004361932	F(14, 30)	=	6.14
Residual	.021302448	30	.000710082	Prob > F	=	0.0000
Total	.082369495	44	.001872034	R-squared	=	0.7414
				Adj R-squared	=	0.6207
				Root MSE	=	.02665

NDACC	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FirmSize	.0171249	.0051718	3.31	0.002	.0065628	.027687
FirmAge	.0012365	.0004767	2.59	0.015	.000263	.00221
OwnershipDispersion	.0002151	.0003206	0.67	0.507	-.0004397	.0008698
ForeignOwnership	-.050375	.0279791	-1.80	0.082	-.1075159	.006766
ExternalFinancing	.0238266	.013315	1.79	0.084	-.0033664	.0510195
AccrualQuality	-.0001811	.0003108	-0.58	0.565	-.0008159	.0004537
Liquidity	.0042636	.003375	1.26	0.216	-.002629	.0111561
Profitability	-.0066073	.0109188	-0.61	0.550	-.0289066	.0156919
Growth	-.0145944	.0070559	-2.07	0.047	-.0290045	-.0001843
BoardSize	-.0006239	.0058806	-0.11	0.916	-.0126337	.0113859
BoardIndependence	-.1101687	.0521598	-2.11	0.043	-.2166933	-.0036441
BoardDiligence	.0647292	.0577203	1.12	0.271	-.0531512	.1826097
AuditCommitteeIndependence	.0686666	.0455486	1.51	0.142	-.024356	.1616892
AuditQuality	-.0086379	.0129205	-0.67	0.509	-.035025	.0177493
_cons	-.3923102	.1809631	-2.17	0.038	-.7618862	-.0227342

Figure 5. Regression Results from STATA 16

The developed classical linear regression model in Section 3.5.1 of the previous chapter, results the following outcomes (Figure 5) when the regression model is ran through the 'STATA 16'. The results have shown, almost 74% of the total variation in the dependent variable (FRQ) is explained by the fourteen independent variables altogether.

From the Figure 5 above, it is evident that financial reporting quality is positively significantly associated with firm age, firm size, foreign ownership and external financing or leverage. On the other hand, board independence and growth are found to be negatively statistically significant in determining financial reporting quality. Among the other statistically insignificant variables, ownership dispersion, foreign ownership, board diligence, liquidity and audit committee independence are positively associated with the quality of financial reports while profitability and accrual quality insignificantly negatively impact the quality of financial reports.

From the regression outputs from STATA 16, the classical linear regression model can be represented in the following form presented in **Equation 2**. Based on the equation presented in *Specification of Model* section (Equation 1) and on the above Figure 5 the relationships between our subject matter, Financial Reporting Quality, and its determining factors are discussed in brief.

$$\begin{aligned}
 \text{FRQ}_{it} = & \beta_0 + 0.0171\text{FSIZE}_{it} + 0.0012\text{FAGE}_{it} + 0.0002\text{OWNDISP}_{it} \\
 & - 0.0504\text{FOWN}_{it} + 0.0238\text{LEV}_{it} - 0.0002\text{ACRQ}_{it} + 0.0043\text{LIQ}_{it} \\
 & - 0.0066\text{ROA}_{it} - 0.0146\text{GRTH}_{it} - 0.0006\text{BSIZE}_{it} - 0.1102\text{BIND}_{it} \\
 & + 0.0647\text{BDILG}_{it} + 0.0687\text{ACIND}_{it} - 0.0086\text{QUAD}_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{2}$$

Financial Reporting Quality (FRQ) and Firm Size (FSIZE)

The first variable in this study, firm size (FSIZE) as measured taking natural logarithm of firms' total assets, has been found to be statistically significant in determining financial reporting quality (FRQ) at 1% significant level. As FSIZE increases by 100%, discretionary accruals will be increased by 101.7% lessening the quality of financial reports. In other words, FRQ is negatively influenced by FSIZE. With these results, the developed hypothesis regarding FRQ and FSIZE will be rejected as the study shows statistical significance of FSIZE with negative impact on FRQ. These findings are consistent with the prior researches of Asegdew (2016) and Surroca et al., (2010).

Financial Reporting Quality (FRQ) and Firm Age (FAGE)

Firm age (FAGE) is measured taking the difference of the firms' listing years and the years of observations. A positive association of FAGE with financial reporting quality is apparent from regression outputs. Also, this factor is statistically significant at 5% significant level which, in turn, rejects the null hypothesis we developed earlier. These results implies with the 100% increase of firm age, the amount of discretionary accruals will be increased by 100.121%. So, the quality of financial reports will be influenced negatively with the increase of firm age. Importantly, firm age and firm size are positively correlated and so is their regression output. However, this rejection of null hypothesis implies there exist significant positive association of discretionary accruals i.e. significant

negative association between FRQ and FSIZE and partially reaffirms the findings of Echobu et al. (2017).

Financial Reporting Quality (FRQ) and Ownership Dispersion (OWNDISP)

Financial reporting quality (FRQ) is positively but not significantly associated with ownership dispersion; thus, this study does not reject the null hypothesis that assumed no relationship between FRQ and OWNDISP. As the positive relationship of these two variables implies, financial reporting quality does not sufficiently improve while more ownership is distributed among general investors. Though inconsistent with the findings of Asegdew (2016) in the sense of significance, the positive relationship and statistical insignificance is evidenced by prior studies of Fathi (2013), Haji and Ghazali (2013) and Al-Asiry (2017). In summary, the financial reporting quality of the listed companies under food and allied sector of DSE is not sufficiently influenced by ownership dispersion.

Financial Reporting Quality (FRQ) and Foreign Ownership (FOWN)

The percentage of shareholding by foreign investors are the proxy for the fourth variable, foreign ownership (FOWN), of this study. A positive and statistically significant relationship (at 10% significant level) between FRQ and FOWN is evident from the regression output presented in Figure 5 (page 33). The regression coefficient of FOWN indicates, if the foreign ownership of a firm increases by 100%, the quality of financial reports of the listed companies under food and allied sector of DSE will be improved by 105.04% by reducing the discretionary portion in the total accruals. This finding implies that foreign shareholders are more vigilant and careful on the financial reporting quality; which, in turn, induces management to provide quality financial reports, appoint professionally reputed audit firms to audit their reports etc. These attempts lessen the likelihood of manipulation and i.e. improve FRQ.

Financial Reporting Quality (FRQ) and External Financing (LEV)

External financing or leverage, measured by the ratio of firms' debt to firms' total assets, is considered as an indicator of financial position and capital structure. In this research, leverage (LEV) is found to be positively statistically significant at 10% significant level and, thus, a factor that negatively influences financial reporting quality of the listed companies under food and allied sector of DSE. Importantly, when a firm has increased its debt without sufficient growth in assets and earnings, a high possibility of manipulation in financial figures exists, primarily through managing discretionary accruals. Consequently, the regression coefficient of 0.0238 implies if the leverage of a firm extends by 100%, the discretionary accruals increases by 102.38% impairing the quality of financial reports. This finding reaffirms the study of Echobu, Okika, and Mailafia (2017).

Financial Reporting Quality (FRQ) and Accrual Quality (ACRQ)

Financial reporting quality is negatively related with accrual quality, though the relation may not be statistically significant as shown in regression results in Figure 5

(page 33). Surprisingly, this variable shows the lowest influence on financial reporting quality of the listed companies under food and allied sector of DSE. Accrual quality is measured in terms of operating cash flow and operating profits and implies percentage of operating profit realized in operating cash flow i.e. cash. Consistently with the study of Rahman and Hasan (2019), this study finds that accrual quality have no statistical significance in determining the quality of financial reports.

Financial Reporting Quality (FRQ) and Liquidity (LIQ)

Unlike findings of the empirical study of Echobu et al. (2017) and Shehu and Farouk (2014), the interaction between liquidity (measured using current ratio) and financial reporting quality shows a positive but statistically insignificant relationship. The regression coefficient of this proxy of firms' liquidity expresses a low influence of liquidity in determining financial reporting quality of the listed food and allied companies of DSE. Thus, this study will not reject the hypothesis developed earlier on the subject of no relationship between firms' liquidity and FRQ. However, this conclusion of positive but insignificant relationship is consistent with the study of (Asegdew, 2016).

Financial Reporting Quality (FRQ) and Profitability (ROA)

The regression result in Figure 5 above shows that firms' profitability, quantified by the ratio of net income to total assets, is negatively associated with financial reporting quality. Though, this study on the listed companies under food and allied sector of DSE found statistical insignificance of profitability in determining FRQ, the negative relationship is consistent with the finding of prior literatures of Rahman & Hasan (2019) and Ahmed and Azim (2015). The result of negative association implies the managements have a tendency to manipulate accounting figures in the financial reports when the firm is profitable or making profits. As the theoretical framework of the study proposes, in attempts to hide profits from political eyes and to inflate profit figures in order to meet bonus criteria, accounting information may provide an altered scenario of what the real financial position and performance is. However, the statistical insignificance of association between ROA and FRQ of this study diminishes the suppositions made from negative association which, in turn, does not reject the eighth hypothesis of this study.

Financial Reporting Quality (FRQ) and Growth (GRTH)

At 5% significant level, growth is found to be statistically significant in determining financial reporting quality. In this study on the listed companies under food and allied sector of DSE, growth is measured in terms of changes in total assets and negatively associated with financial reporting quality. The negative and statistical significance imply that with the growth of firms' operations, scope of business, sales i.e. total assets, management may have more discretionary component in their total accruals. Consequently, the higher the discretionary accruals, the more tendency for the management to manipulate accounting information in the financial reports. Thus, consistent with the study of Soyemia and Olawale (2019), firms' growth negatively and significantly influences financial reporting quality i.e. rejects the null hypothesis that posits no association between GRTH and FRQ.

Financial Reporting Quality (FRQ) and Board Size (BSIZE)

Board size, a measure of number of members in firms' board of directors, is found to be negatively associated with financial reporting quality, although the influence of board size on FRQ is statistically insignificant for this study. Like the empirical findings of Byard et al. (2006) and Ostadhashemi et al. (2017), a negative relation between board size and FRQ verified that the lesser the board size, the better the communication and coordination of activities among the board members. Ultimately, as cited by Mahboub (2017), better communication and coordination may control the accounting systems effectively so that financial information maintain high quality to any decisions to base on. Again, this study justifies the prior finding of insignificant relationship of BSIZE and FRQ e.g. Soheilyfar et al. (2014) and Navarro and Urquiza (2015). Accordingly, based on these findings, this study does not reject the hypothesis that BSIZE has no significant association with FRQ as proposed earlier in this report.

Financial Reporting Quality (FRQ) and Board Independence (BIND)

Board independence, a corporate governance proxy, is measured in this study taking the ratio of independent directors to total board members. In this study on the listed companies under food and allied sector of DSE, BIND is found to be most significantly associated with FRQ at 5% significant level, rejecting the null hypothesis developed earlier in this regard. As the regression coefficient suggests, if board independence is increased by 100%, discretionary component in total accruals is decreased by 111.02%; which, ultimately, enhances the quality of earnings and other financial figures.

Most of the prior literatures have also shown that the degree of board independence improves the quality of financial reports, for example, see (Khan, Rehman, Zeeshan, & Afridi, 2020). By discharging regular monitoring functions and ensuring regulatory compliance of applicable business laws and accounting standards, independent directors play crucial role in quality reporting by management. Thus, board independence is negatively significantly related with discretionary accruals and inversely related with the key subject matter of the study, financial reporting quality.

Financial Reporting Quality (FRQ) and Board Diligence (BDILG)

Financial reporting quality is not significantly associated with board diligence in this study. The ratio of average number of meeting attended by board members to total number of meeting arranged in a year is the proxy measurement of board diligence. In line with the prior studies of Almaqtari, Al-Homaidi and Ahmad (2018), this study also finds the positive and insignificant association between FRQ and BDILG; hence, does not rejects the null hypothesis that developed earlier.

Financial Reporting Quality (FRQ) and Audit Committee Independence (ACIND)

The number of non-executive directors in the statutory audit committee and their ratio is the measure of the variable audit committee independence (ACIND). In this study on the listed companies under food and allied sector of DSE, audit committee independence

does not significantly influence financial reporting quality, although regression coefficient in Figure 5 shows a positive relation with discretionary accruals, the proxy of FRQ. As audit committee is appeared to be more effective in controlling and reducing opportunistic behavior of management, the level of independence determines quality of financial reports. Thus, the higher the audit committee independence the more the prospect of quality disclosures.

Financial Reporting Quality (FRQ) and Quality of Auditing (QUAD)

As discretionary accruals are the proxy measure of financial reporting quality, quality of auditing is negatively associated with discretionary accruals, therefore, positively associated with financial reporting quality. In this study on the listed companies under food and allied sector of DSE, quality of auditing is found to be statistically insignificant in determining financial reporting quality; thus, does not rejects the null hypothesis that proposes no relationship between QUAD and FRQ. The possible interpretation of this findings is that the quality of financial reports improves with the appointment of globally reputed big four audit firms, but the number of companies that appointed those firms is not sufficient to cause QUAD as significant determinant of financial reporting quality.

The summary of findings of this empirical research has been presented in Table 7 below. In Table 7, hypothesis developed and tested for their significance in determining financial reporting quality have also been displayed with their consistency, or contradiction, with prior researches.

Table 7. Summary of the Empirical Outcomes of this Research

Developed Hypothesis	Empirical Findings	Hypothesis Test	Consistency with Prior Studies
FRQ has no significant association with FSIZE.	Negative and Significant	Rejected	(Asegdew, 2016)
FRQ has no significant association with FAGE.	Negative and Significant	Rejected	(Echobu, Okika, & Mailafia, 2017)
FRQ has no significant association with OWNDISP.	Positive and Insignificant	Not Rejected	(Al-Asiry, 2017)
FRQ has no significant association with FOWN.	Positive and Significant	Rejected	(Gill-de-Albornoz & Rusanescu, 2018)
FRQ has no significant association with LEV.	Negative and Significant	Rejected	(Echobu, Okika, & Mailafia, 2017)
FRQ has no significant association with ACRQ.	Negative and Insignificant	Not Rejected	(Rahman & Hasan, 2019)
FRQ has no significant association with LIQ.	Positive and Insignificant	Not Rejected	(Asegdew, 2016)
FRQ has no significant association with ROA.	Negative and Insignificant	Not Rejected	(Ahmed & Azim, 2015)
FRQ has no significant association with GRTH.	Negative and Significant	Rejected	(Soyemia & Olawale, 2019)
FRQ has no significant association with BSIZE.	Negative and Insignificant	Not Rejected	(Navarro & Urquiza, 2015)

Table 7 (Continued). Summary of the Empirical Outcomes of this Research

Developed Hypothesis	Empirical Findings	Hypothesis Test	Consistency with Prior Studies
FRQ has no significant association with BIND.	Positive and Significant	Rejected	(Chakroun & Hussainey, 2014)
FRQ has no significant association with BDILG.	Positive and Insignificant	Not Rejected	(Almaqtari, Al-Homaidi, & Ahmad, 2018)
FRQ has no significant association with ACIND.	Positive and Insignificant	Not Rejected	(Al-Ajmi, 2009)
FRQ has no significant association with QUAD.	Negative and Insignificant	Not Rejected	(Asegdew, 2016)

Conclusion and Recommendations

Concluding Remarks

With the rise of global cases of financial scandals and corporate failures, investigation on quality of disclosed financial and nonfinancial information have become a growing concern. Scandals and failures in the corporate world questioned reliability and fairness of the information provided by accounting systems (Agrawal & Chadha, 2005). Creative accounting techniques and window dressing activities by management and preparers of financial reports hamper the quality of financial reports and weaken investors' confidence on the corporate reports (Shehu & Abubakar, Ownership structure and opportunistic accounting: A case of listed food and beverages firms in Nigeria., 2012).

Prior empirical studies and theoretical justifications on the subject matter have been reviewed and summarized before conducting empirical analyses of the study on food and allied sector in DSE. A good number of researchers have conducted studies on what determine the quality of financial reports provided by management and preparers of accounting information and concluded with conflicting and ambiguous results. An investigation by Echobu, Okika, and Mailafia (2017) have empirically shown a positive significance of firm age, leverage and liquidity in determining financial reporting quality while Asegdew (2016) have found statistical significance of firm profitability, type of auditors and share dispersion in determining quality of financial reports. The impact of corporate governance mechanisms on financial reporting quality has been examined by Khan et al. (2020) and reported with positive interconnection thereon. However, five theories have been used to justify the subject matter of the study. Related with agency theory, opportunistic theory and transaction costs theory emphasizes the importance of strong internal control systems to reduce managements' profit-maximizing opportunistic behavior and, thus, to enhance the quality of reported financial information. While the legitimacy theory explains why organizations may adopt certain reporting practices to communicate their adherence to societies' expectations and other value systems, political cost hypothesis of positive accounting theory suggests the management's tendency to report lower profit with the intention of hiding the organization from political attention.

In an aim to investigate comprehensively the factors determining the financial reporting quality, this study selected 10 (ten) listed companies randomly to form a sample

from food and allied sector in Dhaka Stock Exchanges (DSE), Bangladesh. From the period 2015 to 2020, annual reports are the main sources of data required to conduct this study. From the most available data in the annual reports for consecutive six years, this study empirically analyzed fourteen (14) operational variables to identify and understand factors determining financial reporting quality. Discretionary accruals form the total accruals of Modified Jones model, developed by Dechow, Sloan, and Sweeney (1995), is the proxy of the only dependent variable (financial reporting quality) of this study. The variables are classified in three categories while firm age, firm size, ownership dispersion and foreign ownership have been classified under firm-specific characteristics. External financing, accrual quality, profitability, liquidity and growth are classified under performance and position indicating variables and corporate governance proxies include board size, board independence, board diligence, audit committee independence and quality of auditing.

To achieve the intended objective of the study, a panel data set of 50 firm-years' observation have been examined through the statistical package *STATA 16*. The assumptions of classical linear regression model have been tested accordingly so that the study substantially draws a true and fair picture on the subject matter and contribute prior findings and theories with appropriate findings. The collected data have found to be free from multi-collinearity problem while homoscedasticity and normality of the disturbances of the specified regression model is evident. A descriptive summery statistics and correlation matrix have also been attached before employing the regression analyses on specified model for the study.

Among the fourteen variables examined for their influence in financial reporting quality, this study finds six variables to significantly impact quality of disclosed financial information. Among the explanatory variables in the fitted model, board independence, a variable under corporate governance mechanisms, is found to be most influential and of great significance in determining quality of financial reports. Besides, firm size, firm age, and external financing are the factors that significantly and negatively influences financial reporting quality of the listed companies under food and allied sector of DSE. Along with board independence, growth and foreign ownership are the variables that the study finds to be positively and significantly influences the quality of financial reports. Among the eight variables found statistically insignificant, ownership dispersion, liquidity, board diligence and audit committee independence are positively associated with financial reporting quality while quality of auditing, board size, profitability and accrual quality are inversely associated factors in determining the quality of disclosed financial information. All of these findings, whether statistically significant or not, are of crucial importance for management of those companies who strive to enhance their financial reporting quality and for policy makers and regulators who are responsible to implement appropriate policies en route for protecting stakeholders' interest.

Recommendations and Policy Implications

Several recommendations and policy implications for regulators, corporate leaders, financial analysts, investors, and academicians are the key outputs of this study on the listed companies under food and allied sector of DSE. The variables found statistically significant in this empirical research shall be interpreted carefully so that managers can

decide where to focus on to improve quality of financial reports. Following points are extracted from the verified relationship between significant determining factors and financial reporting quality.

Managers from growing or thriving companies shall careful in reporting assets and earnings, as these growth and enlarged size may not be the outcome of good financial performance. Rather, this study shows, with the increase of size and age and with the growth of assets and profitability ratios, managements have tendency to manipulate earnings figure through managing the accruals which must not reflect firms' real underlying performance and position. So, managers should *go beyond the numbers* presented by accounting systems to understand the grounds of increased size and growth in assets.

Members in Board of Directors (BODs) should be more responsible and diligent in carrying out their functions as agents of the shareholders. They should continually check respective companies' shareholding position, audit committee size, board diligence and independence, as these corporate governance mechanisms ensure proper functioning of auditing, assurance and regulatory compliance roles. Again, the BODs can conduct a quality analysis based on the key variables where manipulation is highly likely, e.g. profitability ratios, accrual quality, accounts receivables and inventories in current assets etc.

Regulators and Policy Makers are primarily responsible to gain, maintain and restore investors' and any other stakeholders' confidence on disclosed financial information by company management. As managers are typically involved in window dressing activities in line with the agency conflict, regulators and oversight bodies shall perform the prominent role in maintaining relevance, faithfulness and reliability of the financial reporting quality. In this research, the most significant factors that determine financial reporting quality is identified and assessed with the help of proper statistical and scientific way. So, regulators and policy makers should investigate on unhealthy practices of creative accounting techniques, e.g. window dressing activities, earnings management, to manipulating accounting information. Besides, monitoring and supervising rules shall be reviewed by the regulatory bodies to ensure adequate compliance of corporate governance codes and to mandate external auditing of disclosure requirements as per applicable accounting standards by quality audit firms.

Investors and Security Analysts should incorporate the findings of the study in their decision regarding investing, holding or divesting their investment opportunities. The key determinants of financial reporting quality shall be of great importance in their evaluation on the value of food and allied companies listed in DSE. Besides, this study contributes to prior researches on financial reporting quality and analyzed as much variable possible to give robustness of the subject matter. Investors and shareholder should take the factors positively related with financial reporting quality while assessing company's value. Specially, the liquidity, profitability and ownership dispersion etc. shall be analyzed when making any investing decision.

For Researchers and Academicians, this study recommends that future researchers shall include large-scale data in sample design, more factors or predictors to find all the

determinants influential in determining quality of financial reports. Other sectors of the same capital market shall be examined and other potentially significant variables e.g. audit fees, audit committee meetings etc. shall be considered in those investigations. Also, it is to mention that models and proxies in measuring financial reporting quality need to be developed to incorporate other key issues reflecting quality of financial reporting except those already included e.g. discretionary accruals and management of earnings.

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