



**FORMULATION OF WEIGHTED DISCLOSURE INDICES AND ITS APPLICATION IN
EVALUATING ACCOUNTING DISCLOSURE AND FINANCIAL PERFORMANCE OF LISTED
FIRMS**

BY

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ABSTRACT

This research studied listed firms in South Africa and Ghana. The purpose was to formulate two novel weighted disclosure indices for evaluating accounting disclosure in financial statements, and apply them in a multivariate regression analysis together with agency costs and economic value-added metric, to study listed firms on the Johannesburg Stock Exchange (JSE) and the Ghana Stock Exchange (GSE). This concept was motivated by the dearth of weighted disclosure indices in literature for measuring accounting disclosures. Two weighted disclosure indices have been developed and have been proposed to be used by researchers and practitioners, to evaluate the level of clarity or vagueness in financial statements disclosure and listed firms' compliance level to International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS). These newly-formulated methods were then applied to investigate the level of clarity or vagueness and compliance level of listed firms on the JSE and the GSE. Applying the scale scoring and dummy scoring techniques, and portfolio weight method, this study formulated these two novel weighted disclosure methods - WDI_{scales} and WDI_{dummy} - which can be used to evaluate both the clarity or vagueness and a firm's accounting disclosure compliance level, using information disclosed in their audited financial reports, on their websites and on regulator's website. Applying the agency theory, the study delved further and applied two agency cost variables, namely, expense ratio (agency cost1) and asset turnover (agency cost2), examined their relationship with the novel weighted disclosure indices, liquidity, and employed economic value added (EVA) as proxy for financial performance. The findings indicate a very strong positive significant correlation of 97% (GSE-54.1%) between WDI_{scale} and WDI_{dummy} . It also found a very strong positive significant 92% correlation between WDI_{scale} and UDI as well as 92% (GSE-72%) correlation between WDI_{scale} and PUDI. Further analysis found a positive significant 94% (GSE-81%) correlation between WDI_{dummy} and UDI as well as positive significant 94% (GSE-81%) correlation between WDI_{dummy} and PUDI. These confirms their consistency with the existing indices. The analysis found that firms that increased their disclosure clarity also increased their compliance levels. Findings derived from the descriptive statistics indicate that the mean weighted disclosure index scale score (WDI_{scale}) was found to be 26% with 52% maximum score for JSE-listed firms and 34% mean for GSE-listed firms with 57% maximum score. The implication is that disclosure clarity is about 52% whereas vagueness constitutes 48% for JSE firms. This implies that information asymmetry account for about 48%. This means certainty represent 52%, but the 48% information asymmetry represent uncertainty to investors. For GSE-listed firms, the 57% clarity represent certainty in decision making for investors whereas the remaining 43% represent uncertainty and therefore information asymmetry. Conclusions drawn from these findings is that the JSE-48% and the GSE-43% vagueness indicate

a reduced understandability of the financial statements. Comparative analysis of the mean weighted disclosure index dummy score (WDI_{dummy}) found that JSE-listed firms scored 40% mean with 75% maximum score whereas GSE-listed firms scored 47% average with 70% maximum. The implication is that although GSE-firms recorded marginally higher average scale score, total compliance to reporting standards was higher (75%) among JSE-listed firms than GSE-listed firms (70%). Compliance level is therefore high in both contexts but clarity is not as high as compliance level. Consistent with prior studies, application of these disclosure indices found that disclosure clarity is low among listed firms. Again, it was found that liquid firms disclosed with higher levels of clarity and low levels of vagueness and firms audited by any of the global big four global accounting firms disclosed with higher clarity and their compliance level in terms of WDI_{dummy} , PUDI and UDI were also higher. Firms with lower agency cost (higher asset turnover) tend to increase their level of financial disclosure. Consistent with agency theory, an increase in agency costs diminished liquidity, but lower agency costs increased liquidity. Consistent with the free cash flow theory, this study found that an increase in liquidity induced an increase in agency costs. Further and contrary to prior studies, the analysis found that agency cost¹ does not reduce disclosure clarity nor disclosure compliance level, but liquid firms disclosed with higher levels of clarity and low levels of vagueness in conformance with the signaling theory. An increase in expense ratio (increase in agency cost¹) leads to a decrease in asset turnover (an increase in agency cost²) and an increase in agency cost¹ leads to an increase in financial distress. An increase in agency cost¹ leads to a decrease in economic value added to investors' wealth. An increase in agency costs led to a decrease in market value added to firm value. But agency costs do not automatically impede financial performance. Firms audited by the global big four accounting firms tend to have lower agency costs. EVA was found to increase liquidity, increase return on capital employed and reduce the possibility of financial distress. An increase in liquidity was found to lead to an increase in economic value added. An increase in disclosure compliance was found to lead to an increase in EVA. Finally, although an increase in disclosure clarity was found to not increase EVA, an increase in compliance to IFRS and IAS was found to cause an increase in EVA.

KEY WORDS: Agency Theory; Agency Cost; Positive Accounting Theory; Accounting disclosure; EVA; Financial Performance; IFRS; IAS; Liquidity; Weighted Disclosure Indices.

DECLARATION

I, **Alex Kwame Abasi**, hereby declare that this research titled - **Formulation of Weighted Disclosure Indices and its Application in Evaluating Accounting Disclosure and Financial Performance of Listed Firms** - for Doctor of Philosophy in Accounting submitted to the Accountancy Department at the University of Venda, Limpopo, has not been submitted previously for any degree at this or another university. It is original in design and in execution, and all reference materials contained therein have been duly acknowledged.

Student

Date: August 2024

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LIST OF ABBREVIATIONS

ACCA	Association of Chartered Certified Accountants
BLUE	Best Linear Unbiased Estimator
BIG4	Biggest Four Global Accounting Firms
CAPM	Capital Asset Pricing Model
CLRM	Classical Linear Regression Model
EVA	Economic Value Added
EPS	Earnings Per Share
EBIT	Earnings Before Interest and Taxes
EMH	Efficient Market Hypothesis
GSE	Ghana Stock Exchange
GLS	Generalized Least Squares
GHS	Ghana Cedis
IFRS	International Financial Reporting Standards
IAS	International Accounting Standards
JSE	Johannesburg Stock Exchange
K_e	Cost of Equity
K_d	Cost of Debt
MVA	Market Value Added
NPV	Net Present Value
NOPTA	Net Operating Profit After Tax
OCF	Operating Cash Flow
OLS	Ordinary Least Squares
PAT	Positive Accounting Theory

PUDI	Partially Unweighted Disclosure Index
ROA	Return on Assets
ROE	Return on Equity
ROCE	Return on Capital Employed
SDS	Standard Disclosure Score
SWM	Shareholder Wealth Maximized
TCI	Total Capital Invested
UDI	Unweighted Disclosure Index
VBA	Value Based Management
WACC	Weighted Average Cost of Capital
WDI	Weighted Disclosure Index
WS	Weighted Score
ZAR	South African Rand

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CHAPTER ONE

1.0. INTRODUCTION

Corporate managers` decisions can generally be categorised into - investment decisions, financing decisions and operating decisions. Managers usually finance their investments projects by using a combination of borrowings (debt financing), retaining earnings in the form of reinvesting profit, and issuing additional shares to shareholders to raise the needed funds (equity finance) (Brealey, Myers & Allen, 2017, p.1; Quiry, Dallochio, Le Fur & Salvi, 2005, p.317). The suppliers of these funds require managers to maximize the value of their investments (Berk & DeMarzo, 2013, p.10; Damodaran, 2015, p.3; Ross, Westerfield, Jaffe & Jordan, 2016, p.13), and to make extensive transparent financial disclosures in their financial reports. Firms that provide higher level of financial disclosure tend to have lower cost of finance (Muttakin, Mihret, Lemma & Khan, 2020; Tawiah & Boolaky, 2019), and lower cost of finance increases profit and subsequently, maximise firm value. Due to globalization, many multinational companies obtain debt financing and equity financing from the capital markets and accurate disclosure of relevant financial information on these funds is critical for the functioning of an efficient capital market (Kolsi, 2017, p.249). This is extremely necessary because financial disclosure provides economic consequences by reducing cost of equity, enhances stock market liquidity, reduces estimation risk, reduces information asymmetry and lowers bid-ask spread (Wardhani, 2019, pp.373-374). The positive accounting theory (PAT) focuses on the interrelationship among managers, shareholders and debtholders, and how accounting benefits them, hence, postulates that accounting choices by managers have an effect on the wealth of shareholders and debtholders.

From investors` point of view, investments in debt and equity need efficient financial markets with reliable and comparable accounting information to lessen uncertainties (Alnaas & Rashid, 2019, p.385). Investors, therefore, require periodic financial reports to assist them in making informed decisions regarding their investments, whether to hold or to sell. One key function of financial reporting is to constrain managers to act in the best interest of shareholders (Watts & Zimmerman, 1978, p.113). Consequently, firms` financial reporting should not just be about technical compliance to the International Accounting Standards (IAS) and the International Financial Reporting Standards (IFRS), but these also, should be effectively communicated and should be informative (KPMG, 2019, p.3). The above view is consistent with Warren Buffet`s letter to the shareholders of Berkshire Hathaway on February 21, 2003, which cautioned investors to beware of firms displaying weak accounting practices because unintelligent footnotes usually indicate untrustworthy management.

He argued that if the footnote of a financial statement or the other managerial explanations cannot be understood, it is usually because management may not want investors to understand it and be informed exactly as to what is going on (Drake & Fabozzi, 2010, p.65). The implication of the foregoing argument is that financial statements should provide information useful to both investors and creditors in making informed investments, and other business decisions. Essentially, comprehensive information means that investors and creditors can use these statements to predict, compare, and evaluate the amount, timing, and uncertainty of future cash flows (Drake & Fabozzi, 2010, p.65). Paragraph 2.2 of the Conceptual Framework of the IFRSs explains that financial reports provide information about a firm's economic resources, any claims against the firm and the effects of transactions and conditions that change those resources and claims. Lev (2018, p.465), however, contends that there is a wide-spread and growing dissatisfaction with the relevance and usefulness of information in financial reports, particularly, among investors. This dissatisfaction is due to the paucity of the information disclosed, hence, this study aims to investigate the clarity and extent to which accounting disclosures by listed firms satisfy investors needs/requirements.

1.1. BACKGROUND

The primary objective of corporate finance is to maximize firms' value. Value creation for investors, both shareholders and debtholders, hence, is generally the topmost priority of almost all board of directors who represent the interest of shareholders in regulating management (Gupta & Sikarwar, 2016 and Wahba, 2014). Shareholders, generally, are unable to control what the managers do, except indirectly through the board of directors, as elected representatives of the shareholders, therefore, directors are obligated to ensure that managers work to create value for shareholder and debtholders (Brealey, Myers & Allen, 2017, p.12; Damodaran, 2015, p.15) by managing the firm in a way that is consistent with the value-oriented theory.

Lev (2018, p.465), however, contends that reported earnings of most firms no longer reflect the firm's performance. This means there is a growing information gap between managers and investors. Information gap creates information asymmetry and information asymmetry mislead investors to make suboptimal investment decisions. For instance, in August 2017, two Ghanaian banks (UT Bank and Capital Bank) which were previously thought to be performing well were shockingly liquidated by the Central Bank of Ghana (BoG) due to liquidity problems; they were taken over by Ghana Commercial Bank (GCB Bank). This was followed by another shock in 2018 when seven other banks - Sovereign Bank, Beige Bank, Premium Bank, Royal Bank, Heritage Bank, Construction Bank and UniBank - had their licenses revoked by the BoG, and placed under a newly-

created bank called the Consolidated Bank of Ghana (CBG) for failing to meet the capital adequacy ratio (CAR).

According to BoG, upon several agreements with the banks to increase their capital requirements, managers of the banks failed; consequently, to protect customers, the licenses of these banks were revoked. Insolvency was the spark for the collapse of these various banks and poor corporate governance was cited by BoG, and other financial analysts as the main causes of the collapse of the nine banks. Regarding corporate governance, it became apparent that the board and senior management were either inactive or engaged in activities that augmented their personal benefits rather than to the growth of shareholders' wealth (a case of agency problem and moral hazard). It emerged that the Board of Directors of these banks had failed to oversee the banks' accounting and corporate reporting systems as well as the external auditing system due to lack of experience (boards' incompetence).

These bank failures and liquidations were the results of lack of corporate governance disclosure (culture of opaqueness), especially, risks disclosures and the choice of financial performance methods - using EPS, ROA and ROE instead of EVA. The researcher then became apprehensive and curious about the extent of accounting disclosures among firms and managements' choice of performance metrics in Ghana.

In South Africa, there were similar cases of inadequate disclosure of accounting information leading to corporate scandals. The Business Insider South Africa, reported on January 11, 2020, incidences of some of the biggest South African business scandals over the past decade and listed the following:

- (i) It stated that on December, 2017, Deloitte (an auditing firm) discovered accounting irregularities in the books of Steinhoff. Apparently, the management had manipulated their books and forged documents to boost the firm's market value. Steinhoff had overstated its income to boost some of its underperforming companies. The then CEO (Markus Jooste) had granted himself an undeclared bonus and a loan from Steinhoff and its executives had received 'golden visas' in a property transaction related to the company. When this was discovered, Steinhoff share price dropped by 98%; this created a debt burden of €8.8 billion (R150 billion) to shareholders of Steinhoff.
- (ii) Tongaat Hulett, South Africa's largest sugar producer admitted that certain past practices and reports did not reflect the firm's business performance, accurately. The firm was found to have overstated its equity in the 2018 financial results by between R3.5 billion to R4.5 billion.
- (iii) Issues with the Gupta family came up regarding a database of leaked emails in 2017. It was reported that the Gupta family owned over 12 companies in South Africa, spanning across various sectors, including Oakbay Investments, Sahara Computers and the mining group

Tageta Exploration and Resources, which were used to do contracts based on several unethical and questionable corporate governance mandates (Business Insider SA, 2020).

- (iv) In 2019 Sasol share price fell by a third of its value when investors reacted to the delays and cost overruns at Sasol's Lake Charles Chemicals Project (LCCP) in the United States (U.S). Investigation revealed that managers did not provide accurate cost and scheduled estimation to executives. Accurate estimation showed that the project was supposed to cost between R12.6 billion to R12.9 billion which is almost double the original budgeted amount. Previously worth more than R410 billion in 2014, Sasol's market capitalization is currently only around R152 billion.

These examples are evidence of how opaque many firms operate and show how serious information disclosure deficiency has been and still persists in many corporate settings. This study on accounting disclosure and financial performance is, therefore, very critically needed at this time by policy-makers to shape their decisions concerning accounting disclosures, operationalization of the agency theory, the signalling theory, information asymmetry and financial management.

1.1.2. Agency Problem, Agency Costs and Value Maximisation

These cases of corporate failures and financial losses are agency costs and they happened as a results of agency problems. Agency problem, which is a result of moral hazard (hidden action), occurs when agents take opportunistic actions, such as overconsuming perquisites (fringe benefit), investing in non-positive net present value (NPV) projects because of empire-building motives, and shirking attitude which involve not working hard enough, if at all (Shapiro,2005, p.264; Jensen, 1986, p.323); these losses are agency costs to the shareholders/investors. The agency problem also includes managerial opportunism which is described by Watts and Zimmerman (1990, p.136) as wealth transfers to managers; such behaviours reduce the value of the firm, because they are agency cost (Bricker & Chandar, 1998, p.488). Brealey, Myers and Allen (2017, p.12) explained that agency costs are incurred when managers do not work to maximize firm value and shareholders incur costs to monitor the managers and constrain their actions. To constrain managers and thereby mitigate the agency costs, one mechanism is to ensure transparency by demanding extensive financial information disclosure. Pertinent questions at this point are - *How can we measure agency costs? How can we know that some managers are prudent whilst others cause losses to their principals?* There are alternative measures for capturing it, however, generally the two methods which captures agency costs better are the expense ratio and asset turnover. This present study, therefore, measures agency costs by using expense ratio and asset turnover.

1.1.3. Corporate Governance and Firm-Value Maximization

Essentially, the agency problem is a corporate governance issue and firms with good corporate governance practice are generally believed to be more likely to voluntarily disclose both financial and non-financial information which would minimize information asymmetry, enhance prudent investment decisions and facilitate securities trading. Corporate governance is a broad term comprising numerous variables which ensure return to investors (Assenga, Aly & Husseiny, 2018). It is concerned with controls and procedures that the principals put in place to ensure that managers act in the best interest of all stakeholders, such as shareholders and debtholders, thereby, reducing the likelihood that management, acting in their self-interest, take actions that diverge from maximizing the value of the firm (Kanagaretnam, 2011).

The crucial nature of good corporate governance has attracted considerable attention from researchers, investors, and policymakers, primarily due to corporate scandals and failures worldwide (Sharma, 2013; Tshipa, 2017 and Zhang, 2016). Subsequent to the Enron scandal in 2001, WorldCom scandal in 2002 as well as the 2008 and 2009 global financial crises, the necessity for good corporate governance has become extremely relevant to policymakers and academia. With lessons learnt from these scandals and crises, it is now accepted that sound corporate governance practices enhance investors' confidence and certainty in investment decisions. In other words, investors' certainty is enhanced when they have reliable information to make optimal economic decisions.

Rahman and Hamdan (2017, p.87) suggested that the foundation of good corporate governance is transparent disclosure, therefore, the critical variables in corporate governance which enhance investor certainty is transparency in corporate disclosure. This can be achieved by the publication of financial data (quantitative data) and non-financial data (qualitative data) emanating from operations of the firm; this in turn facilitates the making of financial decisions by stakeholders regarding a firm's performance. Modugu (2017) contends that corporate reporting which is a very vital variable of good corporate governance, should focus on the publication of any type of information in the annual reports, which should be essential, pertinent and material to stakeholders in making their decisions and verdicts about firms, however, achieving this has become a challenge due to the existence of the agency problem.

To eliminate or reduce information asymmetry, which is an offshoot of agency problem, detailed information disclosure should be demanded. Traditionally, annual reports have been the sole source of information by firms regarding financial and non-financial disclosures (Rashid, 2016, p. 612), however, due to technological advancement, this present study expects information disclosure to go

beyond what is displayed in the hard-copy audited traditional annual reports and should include website financial disclosure. This study therefore extended the search for items disclosed by firms to include those disclosed on firms' websites (webreport) and those disclosed on their regulators website, such as those disclosed on the website of Johannesburg Stock Exchange (JSE) and Ghana Stock Exchange (GSE).

1.1.4. Mitigating the Agency Problem

In today's rapidly changing business settings, to withstand competition and remain in business, the ultimate objective should be creation of value for shareholders. As a result, managers are obligated to adopt value-oriented methods to be able to measure any change in value. Hitherto, managers of many companies were focused on the main economic objective, which they considered to be the maximization of profits (Berzakova, Bartosova & Kicova, 2015). The traditional approaches to measuring management performance have been profit; EPS, ROA, ROE and ROCE, which have been argued to have significant disadvantage of correlating poorly with shareholder value (Weaver, 2019). Contemporary measures being used in this study therefore are EVA and MVA. According to Deegan and Samkin (2009), the agency theory is based on the fundamental proposition of finance that all individual actions are driven by self-interest and that individuals will act in an opportunistic manner to increase their personal wealth if that opportunity is available.

The theoretical justification for using agency theory and economic value-added metric, therefore, is based on the belief that to operationalize the agency theory, from an accounting perspective, it should directly lead to value creation as postulated by Berle and Means (1932), Jensen and Meckling (1976) and Fama & Jensen (1983). Operationalization of the agency theory requires that the agents work to increase shareholders' wealth and disclose all information concerning the firm's operations to shareholders and all other stakeholders. The two value-based performance metrics, economic value added and market value added (EVA and MVA) being applied will contribute to the theory of value-oriented management, also known as Value Based Management (VBM) by advancing knowledge on value-oriented financial performance management and reporting in accounting and finance. VBM is actually a management philosophy which contends that managers must focus on the creation, management, and measurement of corporate value. Three principles of VBM are - creating value for investors, managing for value and measuring value. The Economic Value Added (EVA) metric has outstanding capabilities of realising these for managers and investors by inhibiting managerial opportunism and mitigating agency costs.

In a study of South African firms, Hall (2017, p.442) found that value-based performance measures, such as EVA, is capable of explaining shareholder value creation better than the conventional accounting-based performance indicators such as ROA, NOPAT, ROE, and EPS. EVA is theoretically grounded such that to create value for investors, the returns on investments must be greater than the cost of capital, which eventually enhances firms' value, as there is a clear correlation between cost of capital and firm performance. In order for managers' decisions to add value, the present value of the benefits resulting from their decisions must be greater than the associated costs. These costs, however, must comprise the weighted average cost of capital (WACC), which is, the average rate of return demanded by investors in the firm's debt and equity (Brealey, Myers & Allen, 2017, p.221; Drake & Fabozzi, 2010, p.99); nevertheless, when accounting for the cost of capital, the general practice has been that, managers usually account for cost of debt only. This is due to the fact that lenders have first claim on the firm's cash flow because they are promised definite cash payments for interest and principal repayment, whereas the shareholders, regarded as residual claimants, receive whatever cash which is left over, if any, after the creditors have been paid (Brealey et al., 2017, p.355). This practice is legally acceptable, although, financially it puts equity investors at a disadvantage; and EVA can, therefore, be used to address this challenge.

The persistence of the agency problem in firm management has always been regarded as one of the major issues in finance and accounting (Guermat, Misirlioglu & Al-Omush, 2019, p.496). In agency contractual relationships, managers (agents) have the liberty to decide the best possible mix of debt and equity capital (capital structure) that will enhance a firm's value. They do this knowing that both types of capital are critical factors in decision-making, regarding the capital structure of the firm (Nahar, Azim & Jubb, 2016, p.477). A strategic approach to determining the optimal capital structure is to minimize costs of capital and maximise efficiency and to do this means to increase asset turnover and maximise firm value by using the optimal mix of debt and equity (Damodaran, 2015, p.9).

1.1.5. Value Creation and Financial Performance Indicators

The philosophy behind the value-based management theory is that the main task of management is to provide increasing value to investors and align compensation schemes in accordance with the level of objectives fulfilment (Berzakova, Bartosova, & Kicova, 2015, p.318). To establish whether that value has been created, means that a metric that captures both costs of capital should be preferred. Creating value has become a very important issue in the field of accounting and finance, such that quite a number of indicators have been developed to measure it. In practice, businesses are at liberty to choose performance indicators, hence, most managers choose the conventional indicators such as return on assets (ROA), earnings per share (EPS), return on equity (ROE), return on capital employed (ROCE), earnings before interest and taxes (EBIT), and others (Quiry et al., 2005, p.345). Other better performance indicators, but rarely used are, economic value added (EVA) and market value added (MVA).

Enhancing corporate reporting is crucial, however, it is not an end in itself, but has to translate into financial performance because financial performance determines the continuous survival of a firm. In fact, accurately estimating financial performance using contemporary value-oriented metrics is now more essential than ever because of the persistence of the agency problem. Yet this is lacking in extant literature because most authors measure performance grossly using the EPS, ROA, and ROE (Zhang & Aboud, 2019, p.597) which do not reflect the weighted average cost of capital, with results being mostly inconclusive and statistically insignificant (Sahoo & Pramanik, 2016; Kumar, 2011 and Dewet 2005). Also, all these measures correlate poorly with how much shareholders' wealth has been maximized by management (Agrawal, Mohanty & Totala, 2019; Owusu-Antwi, Mensah, Crabbe & Antwi, 2015; Bahri, St-Pierre & Sakka, 2011, p.604; Ronpho, 2009, p.1). This poor correlation is not because they are accounting ratios, rather, it is because of the methodology used in estimating them. Drake and Fabozzi (2015, p.172) explained that a firm's cost of capital is equivalent to its long-term sources of funds - debt, preferred stock, and common stock - yet EPS, ROA and ROE cannot capture the equity side of the costs. Consequently, the omission of this cost of capital from conventional earnings' measurement is a major deficiency in estimating intrinsic value (Forker & Powell, 2008, p.492).

A better alternative financial performance method that can be applied to evaluate a firm's performance as a whole and to evaluate specific department's / managers' performances for the use of capital, therefore, is this novel value-based financial performance metric - Economic Value Added (EVA) - which supersedes the conventional methods of measuring performance such as EPS, ROA and ROE (Drake & Fabozzi, 2015, p.120; Quiry et al., 2005, p.347). In finance and accounting

literature, contemporary outstanding value-oriented management theory is this EVA theory. Being an improved modern accounting metric, the EVA concept holds that profit is created only when revenue exceeds the costs of doing business and the cost of capital, therefore, the costs of finance of a firm, should be the weighted average cost of capital (Stern, Stewart & Co. 1990 & 1991; Philips, 2007, pp.7).

Developed from an existing concept of residual income with some adjustment, EVA measures the incremental value a firm generates to investors, and shows the amount of additional earnings that a firm is generating for its investors, in excess of its cost of capital, therefore, the cost of capital must be the weighted average cost of capital (WACC). Not only does EVA alleviate the agency problem (Zhang & Aboud, 2019, p.596), but using it as a performance measure ensures that managers make disciplined decisions around the use of capital. Brealey, Myers and Allen (2017, p.314) postulate that if shareholders decide to tie managers' remuneration to their firms' profitability, then it is better to use EVA than the conventional performance metrics which does not incorporate the cost of the equity capital employed. The need, therefore, for value-oriented financial performance metrics which are robust enough and can accurately measure efficiency has generated a range of studies in the field of accounting and finance with mixed results/findings (Agrawal, Mohanty & Totala, 2019; ACCA & Weaver, 2019; Tripathi, Kashiramka & Jain, 2019; Zhang & Aboud, 2019; Jansen, 2018; Hall, 2017; Berzakova, Bartosova, & Kicova, 2015; Owusu-Antwi, Mensah, Crabbe & Antwi, 2015; Abid, Khan, Rafiq, & Ahmad, 2014; DeWet, 2012; Kumar & Sharma, 2011; Erasmus, 2008; Rompho, 2009).

The concept of value creation and the engagement of firm managers is well-grounded in theory, including; the *Agency Theory* (Brealey, Myers and Allen, 2017; An, Davey & Eggleton, 2011; Deegan & Samkin, 2009; Rogerson, 1997; Eisenhardt, 1989; Jensen, 1986; Fama & Jensen, 1983; and Jensen & Meckling, 1976; Berle & Means 1932;), the *Positive Accounting Theory* (Coetsee, 2010; Bricker & Chandar, 1998; Jensen, 1983; Watts & Zimmerman, 1990, 1978, & 1983; Wheeler, 1970), the *Economic Value Added Theory* (Agrawal, Mohanty & Totala, 2019; Sahoo & Pramanik, 2016; Kumar, 2011; Shil & Dhaka, 2009; Forker & Powell, 2008; Garvey & Milbourn, 2000; Stern, Stewart & Co. 1991 & 1990; Bacidore, Boquist, Milbourn & Thakor, 1997; Chen & Dodd, 2001 & 1997), the *Stakeholder Theory* (Philips, 2003; Mitchell, Friedman & Miles, 2002; Agle & Wood, 1997; Donaldson & Preston, 1995; Freeman, 1983; Mitroff, 1983), the *Signalling Theory* (Spence, 1973), and *Information Asymmetry Theory* (Stiglitz, 1979; Spence, 1973; Akerlof, 1970).

The above studies have established that there is a linear relationship between value creation and the operationalisation of the agency theory by corporate managers. The value of a firm is a function of expected net cash flows, riskiness and the interest rate, hence, the way cost of capital is treated

in financial performance estimation has a great influence on the result of such estimation (Jensen, 1983, p.321); using the conventional performance measures therefore will most likely produce spurious results.

Emerging from the 2008/2009 global financial crisis and the lessons learned from it, there is an increasing demand by investors and regulators for transparent and comprehensive financial statements. From investors and regulators' point of view, transparency and comparability in financial reporting reduce information asymmetry and estimated risks, whereas from managers' point of view, transparency and comparability reduce the cost of capital (Bepari & Mollik, 2015, p.212). Risk simply means uncertainties surrounding an investment, while reduction of information asymmetry refers to reduction of uncertainties, which then leads to reduction of risks. Financial statements, which are usually provided in the annual reports, provide information that is used by shareholders and debtholders to assess the performance of a firm and to make decisions regarding lending and share trading (Gowthorpe & Amat, 2005, p.55), therefore, as firms disclose more information in their annual reports, information asymmetry and uncertainties are reduced. Shareholders, generally, do prefer managers who can generate positive returns for their investment and will render account to shareholders, debtholders and other stakeholders in the form of extensive information disclosure in their annual reports. An annual report is a medium for rendering accountability, although the Association of Chartered Certified Accountants (ACCA, 2017) has lamented that the state of corporate financial reporting has become a source of increasing concern and debate in recent years. This is due mainly to the fact that annual reports are becoming bulkier and taking up more resources from preparers, yet their usefulness to the users of these reports is diminishing.

1.2. PROBLEM STATEMENT

Fama and Jensen (1983, p.331) argued that because listed firms are structured such that there is separation of ownership from management, it basically means there is separation of residual risk arising from decision functions. This separation creates a relationship that was earlier espoused by Berle and Means (1932) as the principal-agent relationship. The principal-agent relationship or the agency relation, being a contract between the owners and managers, therefore, the principals delegate some decision-making authority to the managers to run the firm as a cash-generating entity, so as to enhance shareholders' wealth (Jensen & Meckling, 1976, p.5). Being rational beings, the agents, however, usually pursue their personal interests, just as the principals because both parties are utility maximisers. Due to this divergence of interest, a problem arises when the managers prioritise their personal interest over that of the principals, thereby, creating an agency problem

(Bricker and Sandar, 1998, p.488). The agency problem is prevalent in modern corporate settings because of adverse selection and moral dilemma which adversely affect shareholders` wealth.

In their publication titled *Accountancy Futures; Re-assessing the value of corporate reporting*, ACCA (2012) contended in the foreword as follows; *The state of corporate reporting has become a source of increasing comment and debate in recent years. As annual reports have got ever longer, and taken up increasing resource on the part of preparers, so satisfaction levels of the users of those reports has diminished. The advent of the global financial crisis has shone an unforgiving light on the purpose and effectiveness of companies` reports. Is there still a place for the traditional annual report?* This is corroborated by Lev (2018) who found that *there is a wide-spread and growing dissatisfaction with the relevance and usefulness of financial report information, particularly among investors and corporate executives. The dissatisfaction is corroborated by extensive research which consistently documents a growing gap between capital market indicators and financial information, more so for reported earnings. The reported earnings of most firms no longer reflect enterprise performance.*

The growing awareness of the agency problem by investors makes many of them active investors, hence, issues of accounting disclosure, financial performance, liquidity, profit and value creation of the firm generate spikes of intense interest amongst them. The question that arises is - *To what extent has research focused on issues regarding agency costs and its measurement, value-based management of firms by managers, accounting issues of disclosure clarity, the level of financial disclosures and its estimation, the nexus between corporate disclosure and financial performance, and the estimation of value-creation, using EVA?* A detailed search reveals that very little has been done in these areas, therefore, this study seeks to address the above pertinent unaddressed issues. The objective in this study, hence, is to fill these methods and model gaps, and contribute to the body of knowledge on agency costs, accounting disclosure indices and value-based management measure of financial performance.

1.2.1. Financial Statement Disclosures, Unweighted, Partially Unweighted and Weighted Disclosure Indices.

Accounting involves accountability which in turn requires transparency. Financial markets reward transparency and so firms that are regarded by investors to be highly transparent and provide detailed and timely accounting disclosures are usually perceived to have a lower default risk, and therefore, benefit through lower cost of borrowing (Sengupta, 1998, pp.472-473).

As required by regulators, firms usually release financial statements regularly to communicate financial information to the investment community (Berk & DeMarzo, 2013, p.21). Extensive disclosure requires providing information beyond what is in the usual four financial statements. It means, in addition to providing comprehensive numbers for accounting items such as assets, revenues, expenses, as well as equity, narratives and additional numerical disclosures should be provided in notes accompanying these financial statements as well as financial disclosure on the firms' website; these determines the clarity or vagueness of the disclosure. An analysis of financial statements is, therefore, not complete without this additional information. Financial disclosure regulations often require that all listed firms provide both financial and qualitative information, on a timely basis, to its actual and potential investors; this should be information that would be expected to affect the value of a firm's security (Drake & Fabozzi, 2010, p.22, p.67). In IAS 1, the requirement is that when preparing financial statements, management should desist from reducing the understandability of its financial statements by obscuring material information with immaterial information; they should also avoid aggregating material items that have different natures or functions. The logical question arising from this point is - *How can accounting researchers measure whether management have reduced the understandability of its financial statement or whether management has obscured material information with immaterial information?* There is the need, therefore, to formulate a method that can uncover this problem. This study, hence, formulates a weighted disclosure index that will be able to measure and capture the level of clarity or vagueness of a firm's financial disclosure.

According to the IFRS Foundation, information is considered material if omitting it, misstating it or obscuring it could, reasonably, be expected to influence decisions that investors make based on those financial statements. Information is also considered to be obscured if it is communicated in a way that would have a similar effect for primary users of financial statements, similar to omitting or misstating that information; for example, a complain of obscurity can also be levelled against information regarding a material item, transaction or other events if, although disclosed in the financial statements, the language used is vague or unclear. It could also be that information

regarding a material item, transaction or other event is scattered throughout the financial statements. In addition, understanding of financial statements can be reduced as a result of material information being hidden by immaterial information, to the extent that an investor is unable to determine what information is material. The question requiring an answer here is - *How can one measure vague or unclear information disclosed in a financial statement?*

The primary users of financial reports are the investors and they depend on this information to make investment decisions, hence - *What is the effect on their investments if they rely on this vague information?* It is therefore imperative to fill this method gap by formulating strategies to measure partially-disclosed accounting information in financial statements that can help better inform investors in their decision-making. This study will, therefore, formulate and propose a Weighted Disclosure Index using scale scoring (WDI_{scale}) to address this challenge faced by investors.

The issue of financial reporting and corporate disclosure have received considerable attention in academia and practice (Alnaas & Rashid, 2019; Chantachaimongkol & Chen, 2018; Isukul & Chezea, 2017; Appiah, Awunyo-Vitor, Mireku & Ahiagbah, 2016; Dayanandan, et al. 2016; Gyamerah & Agyei, 2016; Nahar, Azim & Jubb, 2016; Bepari & Mollik, 2015; Hienu & Lan, 2015; Braam & Borghans, 2014; Juhmani, 2013; Miihkinen, 2008; S&P, 2002; Patel et al., 2002). Apart from, researchers like Appiah et al., (2016), Kolsi (2017), Miihkinen (2008), S&P (2002) and Patel et al., (2002), the rest have mainly focused on measuring the extent of firm disclosure using the unweighted disclosure index (UDI) by Cooke, (1989). This measurement, (UDI), although, widely used, has been identified to be deficient in producing accurate result because it scores an item in an accounting standard as either - disclosed or not disclosed. It also assumes that all items in an accounting standard have equal weight and will either be disclosed or not (Al-Shiab, 2003; Tsalavoutas, Evans & Smith, 2010); the disclosure score, thereafter, is obtained by a simple division.

Consequently, other authors developed the partially unweighted disclosure index (PUDI) to remedy this deficiency (Al-Shiab, 2003; Tsalavoutas, Evans & Smith, 2010 and Alves, 2011). PUDI measures the extent of compliance by each firm by adding the degree of compliance for each standard and then dividing this sum by the number of standards applicable. Tsalavoutas et al., (2010) proved that the two methods, (UDI and PUDI) produced different results and suggested that the two methods be used simultaneously. In a subsequent study, Tsalavoutas and Dionysiou (2014) used UDI and PUDI to examine IFRS mandatory disclosures in Greece and found that consistent with the results of Tsalavoutas et al., (2010) the average between the two compliance methods differs significantly. Following the findings of Al-Shiab (2003) and Tsalavoutas et al., (2010), Kolsi (2017) also used PUDI to study voluntary disclosure in UAE. From the results of these studies, it can be seen that PUDI which applies partial weighting, is more robust than UDI, because after using dummy

variables to do the scoring, the method goes a step further to partially weight them by using the number of standards applicable. UDI and PUDI, however, use dummy scoring method which cannot capture partial disclosure because binary scoring can only capture whether an item has been disclosed or not. This objective requires detailed scoring, but UDI and PUDI cannot accurately capture such information because to do this, the process goes beyond whether an item has been disclosed or not, therefore, the binary score of 1 or 0 will not give the accurate results.

All these regulations in IAS 1, IAS 7, IFRS 7, and IFRS 9 require detailed and painstaking scoring techniques to be able to capture the micro details, hence, using UDI will fail to capture the micro nuances of these required disclosure items, as they might only be partially disclosed. For instance, Rahman and Hamdan (2017, p.98) stated that “a score of 1 indicates that a company disclosed all the relevant items as required by the standards, while a score of 0 means that a company did not disclose any of the relevant items”. Braam and Borghans (2014, p.143), in studying voluntary disclosure of companies listed on the New York Stock Exchange (NYSE), maintain that an item is scored 1, if it was disclosed and 0 if it was not disclosed. Several other studies employed this technique (see Chapter Two), with the reason that it avoids subjectivity in scoring.

Financial disclosures can be more complex, beyond whether they are disclosed or not disclosed, therefore, the question that emanates from this binary scoring technique is - *What if a firm does not fully disclose an item in a standard, but partially discloses the item? Is it scored 1 or 0?* This extreme scoring technique of 1 or 0 has high susceptibility to missing some key micro nuances. There should, therefore, be a way to capture these micro nuances within standards. As a result, in developing a suitable alternative approach to mitigate this deficiency, this present study seeks to fill this method gap by empirically formulating a new weighted method. This new weighted method is completely different from the partially unweighted disclosure index (PUDI) used by prior authors (e.g., Appiah et al., 2016; Kolsi, 2017; S&P, 2002; and Patel et al., 2002).

The newly-formulated weighted disclosure index for estimating disclosure is then posited as Weighted Disclosure Index (WDI_{scale}). This is not a dichotomous / binary approach, rather, it is a scoring scale approach and a weighted method for each standard similar to the calculation of a portfolio return. Being a scoring scale, WDI_{scale} is more robust than UDI and PUDI, in the sense that if an item in an accounting standard is partially disclosed, UDI and PUDI will score it as 1 because something has been disclosed, but a score of 1 represents 100% disclosure; however, using the WDI_{scale} scoring scale, the disclosure will be scored either as 0.25, 0.5, or 0.75 because the item might not have been fully disclosed. The statistics required here go beyond whether an item has been disclosed or not; the complex side of it is, the clarity and extent to which it has been disclosed, yet these micro details cannot be captured by UDI. Contrary to prior studies, the WDI_{scale} approach

makes the scoring less subjective and minimizes variations in scoring because the method gives range; in other words, it uses a scoring scale. After using the scoring scale, the next stage is that each accounting standard is given a weight generated from the number of items required to be disclosed. Detailed calculations on this point are shown in the methodology section of this research thesis.

Using this new method, the present study estimates the extent of disclosure in the annual reports and on each firms' website, as well as on those of JSE and GSE using disclosure checklists for the international financial reporting standards (IFRSs) and international accounting standards (IASs) adopted from Deloitte (2020). This measurement method is crucial because on the presentation of financial statements, the IAS 1 and IAS 7 require preparers to present fairly, the financial position, financial performance and cash flows of the entities reported upon. Fair presentation requires faithful representation of the effects of transactions, other events and conditions, in accordance with the definitions and recognition criteria for assets, liabilities, income and expenses set out in the conceptual framework for financial reporting (KPMG, 2019, p.5). It is essential, thus, to establish the precise extent to which listed firms in South Africa and Ghana comply with these standards and disclose financial data in their annual reports and on their websites in accordance with IAS 1, IAS 7, IFRS 7 and IFRS 9. The present study is critical at this time because Alnaas and Rashid (2019, p.387) posited that with the increase in global investing, the demand by foreign investors for publicly-available information has increased and in response to this demand, firms should increase their disclosure levels.

In addition, the international financial reporting standards (IFRS 7, IFRS 9 and IFRS 15) specifies how and when an IFRS reporter should recognize revenue, as well as requiring such entities to provide users of financial statements with more informative, and relevant disclosures. The disclosure objective stated in IFRS 15 is for an entity to disclose sufficient information (both qualitative and quantitative) to enable users of financial statements to understand the nature, amount, timing and uncertainty of revenue and cash flows, arising from contracts with customers (Deloitte, 2019). Tawiah and Boolaky (2020, p.48) posited that in spite of the general use of IFRS in Africa for a considerable time, there is little research on IFRS-compliance in Africa, and that there is lack of evidence and limited studies in Africa on IFRS and financial performance, therefore, this present study contributes to filling this gap.

1.3 PURPOSE STATEMENT

The purpose of this study is segregated into weighted disclosure indices, website disclosure, agency costs, economic value added, market value added and liquidity. The first purpose is to fill a method gap by formulating two indices for measuring weighted disclosure index and propose a scoring scale method for measuring accounting disclosure clarity and compliance level. The first index, weighted disclosure index (WDI_{scale}) is being posited to be used to measure clarity or vagueness of financial disclosure in financial statements, whereas the second weighted disclosure index, WDI_{dummy} is being posited to be used to measure disclosure compliance level. The purpose is to enable investors and policymakers segregate the level of clarity of financial statements from the level of disclosure compliance. Further, the study aims to fill these method gaps by formulating and developing these novel weighted disclosure indices similar to calculating a portfolio return. The ability to capture the level of disclosure clarity enable investors to make accurate judgement and optimal economic decisions with minimal uncertainty thereby minimizing their exposure to risks. This study goes further and applies these newly formulated weighted disclosure indices to listed firms on the Johannesburg Stock Exchange (JSE) and the Ghana Stock Exchange (GSE). Comparative analysis of findings from JSE and GSE is then done to establish the variance or otherwise from both exchanges.

The second purpose focuses on financial disclosure on firms' website. Since information technology is now integral part of business operations, financial disclosure has evolved and now include website disclosure. Disclosing financial information on a firm's website ensures global reach and enhances transparency thereby reducing information asymmetry. Website disclosure captured as webreport has been used as a data collection tool and to measure financial statement wide reach accessibility. The third purpose is on agency costs where the nexus between agency costs and disclosure indices as well as with financial performance is studied. The purpose is to establish their relationship with each other and especially, how agency costs affect financial performance and liquidity.

The fourth purpose is on EVA, MVA and liquidity. These are used as financial performance measures. Their relationship with disclosure indices and agency costs is necessary to establish how financial disclosure affect financial performance and how agency costs affect financial performance. The overall purpose is to measure financial disclosure clarity and disclosure levels, and thereby, produce empirical evidence for researchers, policy-makers and practitioners to understand the variance in findings, and the robustness of the novel weighted-disclosure indices. All these will substantially contribute to literature and enlighten practitioners and policy-makers.

1.4. Research Questions

This section breaks down the research problem into research questions to be answered in this study. These research questions are derived from the research objectives.

- ❖ How should weighted disclosure indices be formulated to estimate financial disclosure clarity?
- ❖ How should the newly formulated weighted disclosure indices be applied in evaluating financial disclosure clarity and level of compliance to IFRS and IAS by JSE and GSE-listed firms?
- ❖ What is the nexus between accounting disclosure indices, agency costs and financial performance of JSE and GSE-listed firms?
- ❖ How should agency costs be segregated and calculated for further analysis?
- ❖ How should empirical models be formulated to estimate the relationship among disclosure indices, financial performance and agency costs?
- ❖ What is the effect of agency costs on financial performance among listed firms on JSE and GSE?
- ❖ What is the comparative variability of findings from JSE and GSE?

1.4.1. Research Objectives

This section states how the research problem will be solved. The general objective is a focus on the relationship between weighted disclosure indices, agency costs and financial performance.

- ❖ To formulate two novel accounting weighted disclosure indices
- ❖ To apply the newly-formulated weighted disclosure indices in evaluating financial disclosure clarity and level of compliance to IFRS and IAS by JSE and GSE-listed firms.
- ❖ To analyse the relationship between the newly formulated disclosure indices, agency costs and financial performance of JSE and GSE-listed firms.
- ❖ To segregate agency costs and calculate them for further analysis
- ❖ To formulate empirical models to estimate the relationship among disclosure indices, financial performance and agency costs.
- ❖ To measure the effect of agency costs on financial performance among listed firms on JSE and GSE.
- ❖ To evaluate country-specific (South Africa and Ghana) comparative analysis

1.5. IMPORTANCE AND BENEFITS OF THE STUDY

Investment decisions require accurate information. Accounting information is communicated to investors through financial statements. The clarity of financial statements therefore influences information asymmetry and hence affect investors` judgement. This study is therefore posited as a panacea to information asymmetry. By introducing these disclosure indices, investors can now calculate information disclosure clarity and extent of disclosure compliance and make accurate economic decisions optimally. The two types of agency costs analysed in this study will also help policy-makers to have additional information on the effects of agency costs on disclosure indices, financial performance and liquidity. The use EVA compels managers to account for cost of equity as well as cost of debt to enable investors and policy-makers to know whether there is value addition to their investments or value was dissipated. The relationship among the disclosure indices, agency costs, financial performance and liquidity provides findings that are relevant to stakeholders in their decision making. The measure of website disclosure is a relevant information with the benefits of informing investing about the extent of financial information disclosed on their website via website disclosure for easy accessibility.

1.6. DELIMITATIONS AND ASSUMPTIONS

The scope of this study is limited to listed firms actively trading on the JSE in South Africa and the GSE in Ghana. Without being listed on the stock exchange, a firm`s cost of equity is almost impossible to calculate because of the need for stock prices, consequently, some firms in these two countries may be disclosing substantial accounting and corporate governance information on their annual reports but will not be captured in this study. The study also focused on two countries only in Africa, one in West Africa (Ghana) and the other in Southern Africa (South Africa) due to availability of data. Finally, the researcher studied four standards only, two from IAS and two from IFRS.

The assumptions behind this study are:

- all financial information are disclosed via financial statements in annual reports
- all listed firms fully comply with IFRS and the IAS requirements
- all listed firms have profit making motives
- higher agency costs is as a results of excessive expenses or lower asset turnover
- investors will access firms` website for financial information

1.7. SUMMARY AND LAYOUT OF THE THESIS

Investors want to make accurate and optimal financial decisions. They rely on financial statements to do their analysis but the present existing financial disclosure methods are unweighted and partially unweighted disclosure indices (UDI and PUDI). These two cannot capture disclosure clarity hence the need for new indices which are capable of capturing weighted disclosure clarity and weighted disclosure level. The research problems identified have basically been categorised into - method gaps and model gap. The method gaps relate, firstly, to the non-existence of measurement formulae for weighted disclosure indices; the second method gap relates to the usage of expense ratio and asset turnover to measure the level of agency costs, and the third gap relates to the rare usage of EVA as a financial performance measure. The model gap relates to lack of existing model having the key agency problem variables of – weighted disclosure clarity (WDI_{scale}), weighted disclosure level (WDI_{dummy}) - and the agency costs variables of - expense ratio (agency cost1) and asset turnover (agency cost2) - that explain their relationship with financial performance (EVA) and liquidity. This study provides solution to fill these method gaps by formulating two novel financial disclosure indices to be used to calculate weighted disclosure clarity (WDI_{scale}) and weighted disclosure level (WDI_{dummy}). The level of online financial information accessibility is measure using website disclosure (webreport). Agency costs is segregated into two, agency cost1 measured as expense ratio and agency cost2 measured asset turnover. Financial performance is measured using EVA which captures cost of debt as well as cost of equity and MVA, in addition to the conventional accounting measures (ROA, ROE, EPS and ROCE).

The thesis is divided into seven chapters and they are organized as follows; Chapter one presents the background, research problem and the research objectives of the study. Chapter two presents a review of theories, which covers - theoretical and empirical review of the agency theory, the agency problem, the agency costs, the positive accounting theory, the stewardship theory, the stakeholder theory, the signalling theory, information asymmetry, and corporate disclosure. Chapter three presents literature review of financial performance variables covering the economic value-added metric, market value added, return on asset, return on equity, earnings per share and return on capital employed as well as liquidity. Chapter four focuses on the detailed methodology with econometric models used for conducting the research. This chapter covers the research paradigm, research design, population, sample and sampling technique, data source and data collection procedure, methods formulation, detailed calculations, data analysis, model specification, econometric models, and variables estimation. Chapter five present data analysis and presentation of results covering descriptive statistics, correlation analysis and multivariate regression results for

the South African context. Chapter six present of results covering descriptive statistics, correlation analysis and multivariate regression results for the Ghanaian context. Chapter seven presents detailed findings, conclusions and recommendations for both South Africa and Ghana. The next chapter reviews theories and literature.

1.8 OPERATIONAL DEFINITIONS

Agency cost₁: represents agency cost measured using expense ratio.

Agency cost₂: represents agency costs measured using asset turnover.

WDI_{scale}: Weighted Disclosure Index stands for a newly-formulated financial disclosure index posited in this study that employs a scoring scale approach which in turn gives weight to each item, as well as each standard/category.

WDI_{dummy}: Weighted Disclosure Index stands for a newly-formulated financial disclosure index posited in this study that employs dummy scoring approach which in turn gives weight each standard/category.

Webreport: represent financial disclosure on firms` website.

EVA: Economic Value Added is a contemporary firm performance metric which represents additional value added to stockholders` wealth after accounting for cost of equity and cost of debt and measured at a firm`s level.

WACC: Weighted Average Cost of Capital stand for the combined cost of debt and equity that a firm uses to finance its operations.

MVA: Market Value Added represents additional value added to a firm`s stock price, measured at the stock market level.

PAT: Positive Accounting Theory studies how accounting is practiced as against normative accounting which prescribes how accounting should be practiced.

IFRS: International Financial Reporting Standards is a global accounting disclosure standard.

IAS: International Accounting Standards is a global accounting standard for practitioners.

EPS: Earnings Per Share represents traditional measure of a firm`s profit.

ROE: Return on Equity explains a firm`s stock performance at the stock-market level.

ROA: Return on Asset represents traditional measure of profit.

UDI: Unweighted-Disclosure Index represents the traditional measure of financial disclosure using a binary method and unweighted.

PUDI: Partially Unweighted-Disclosure Index demonstrates the measure of financial disclosure that employs a binary method but gives partial weight to each standard.

CHAPTER TWO

LITERATURE REVIEW ON CORPORATE REPORTING AND DISCLOSURE QUALITY

2.1 INTRODUCTION

As stated in Chapter One, the primary objective of a firm is shareholders' wealth maximization through efficient allocation of resources, however, the separation of this control function from ownership of the firm, although aimed at efficient management of the firm, has tended to create a myriad of unintended challenges that need to be carefully evaluated and mitigated. The previous Chapter explicitly stated the research problem that is being evaluated in this study and the objectives of the study. This Chapter continues the study by reviewing the theories underpinning the research problem and the objectives, and further synthesizes the empirical studies relating to the research problem while establishing the gap in literature.

The theoretical framework underpinning this study is grounded in the agency theory as propounded by authors such as Brealey, Myers & Allen, 2017; Deegan & Samkin, 2009; Rogerson, 1997; Eisenhardt, 1989; Jensen, 1986; Fama & Jensen, 1983; Jensen & Meckling, 1976; Berle & Means 1932). Other theories include the positive accounting theory (Kavrar 2020; Tawiah and Boolaky 2018; Watts and Zimmerman, 1990 & 1986), and the information asymmetry theory (Stiglitz, 1979; Spence, 1973; Akerlof, 1970).

Jensen (2018, p.1498) asserts that systematic literature reviews can be conducted for several reasons. First, to locate a gap in existing knowledge; second, to develop a theoretical structure for data analysis and third, to shape an intervention that intends to solve a specific practical problem as outlined in the introduction sections of the proposed study. Basically, the purpose of this systematic literature review is to summarize and analyze previous research and theories, identify areas of divergence and contested claims, and highlight the gaps that exist in the body of knowledge relating to the weighted financial disclosure.

As argued by Bacharach (1989, p.496-498), theories are scientific explanations of natural occurrence or human behaviours that are proven by consistent empirical studies. It is a statement of relations among concepts within a set of boundary assumptions and constraints. Generally, the primary goal of a theory is to answer the questions of *how*, *when*, and *why*. In other words, a theory may be viewed as a system of constructs and variables in which the constructs are related to each other by propositions and the variables are related to each other by hypotheses.

In the context of corporate finance, the success or failure of a firm is dependent on the application or otherwise of certain fundamental theories. The prime theories reviewed here are, first, the agency theory which moderates the relationship between the managers of a firm and investors, such as the shareholders and debtholders; the second theory is the normative and the positive accounting theories. The normative accounting theory prescribes how accounting should be practiced, in other words, it prescribes the norms of professional accounting practices, while the positive accounting theory describes how accounting is actually being practiced by firms. The third theory is the information asymmetry theory which explains the effects of information disclosure, or lack of it, on economic decisions of investors. The fourth theory is the stakeholder theory which advocates that priority should be given to other interested parties as well, beyond the shareholders and the fifth theory reviewed is the signaling theory which focuses on the patterns of information disclosure and their effects on firms' value.

2.2 Structure of Literature Review

This literature review is segregated into theoretical and empirical literature review. Theoretical review focuses mainly on the agency theory, the positive accounting theory, the information asymmetry theory, and the signaling theory, while, the empirical review, commonly called a 'systematic literature review' examines past empirical studies to answer particular research questions. This shows that in addition to the theories reviewed, the researcher will also acknowledge empirical literature relating to agency theory, international accounting standards (IAS), and international financial reporting standards (IFRS), paying particular attention to studies published in peer-reviewed journals and credible sources.

2.3 Theoretical Literature Review

This section reviews the theoretical literature under the following subheadings: agency theory, normative accounting theory, positive accounting theory, stewardship theory, stakeholder theory, information asymmetry theory and signaling theory.

2.3.1 THE AGENCY THEORY

Theoretically, it is the agency theory that moderates the relationship between the managers (agents) of a firm and the owners (shareholders) and debtholders (Brealey, Myers & Allen, 2017, p.302; Drake & Fabozzi, 2010, p.99; Jensen, 1986, p.323; Jensen & Meckling, 1976, p.7). The agency theory is basically a generic description of human behaviour (Rowe, 1982, p.364). It requires accountability, in other words, it requires managers or agents to behave in such a way that their actions will be in the best interest of their principals or align with the principals. Basically, the relationship is a contract in which one party (principals) proposes what is to be done in managing the firm and the other party (agents) accepts; the contract then specifies what the principals expect from the agents and the remuneration the agents will receive in return (Fama & Jensen, 1983, p.328; Parks and Conlon, 1995.p.822). The Agency theory is a philosophy that moderates the relationship between the principals/owners (shareholders) and the agents (managers). It has been studied by scholars in accounting, economics, finance, marketing, political science, law and sociology (Eisenhardt, 1989, p.57). Theoretically, managers are required to render an account of their stewardship to the shareholders to whom they are accountable and this has had a remarkable effect on accounting research - its regulation and practice. This concept is reinforced by the purpose of accounting, which is to promote accountability.

Agency theory is a scientific explanation of how managers should work in the best interest of the shareholders and render account to them. This can be accomplished in two stages; in the first stage, managers' work moderates the contract between shareholders and top management while the second stage it moderates the contract between top management and the rest of the employees. According to Bricker and Chandar (1998, p.490) the agency theory has had a remarkable effect on the capital asset pricing model (CAPM) and the efficient markets hypothesis (EMH) theory. CAPM measures cost of equity which is a critical requirement in the computation of EVA, while EMH relates to securities markets' efficiency through accounting information disclosure and how the process influences security prices.

The principal-agent model has generated some assumptions relating to the choice of accounting method and how informative accounting reports should be (Bricker & Chandar, 1998, p.489). Human nature is such that, making promises to perform are basically easy to make, however, putting such promises into practice and achieving results are seldom done. For such reason, most principals disregard promises when it comes to managing agency relationship and opt for transparency and evidence of performance.

The agency theory as was first propounded by Berle and Means (1932) and later by Jensen and Meckling (1976), largely focuses on the principal-agent relationship also known as the 'agency relationship' which exists because of the separation of ownership of the firm from management (Fama & Jensen, 1983; Jensen & Meckling, 1976). This relationship was defined by Jensen and Meckling (1976) as an agreement under which shareholders employ agents to perform some function or service on their behalf which requires delegating some decision-making authority to these agents. The principal is the one whose welfare is to be served and this welfare is affected by an agent who makes decisions on behalf of the principal. The principal's welfare ought to be served and the agent is under obligation to serve the principal faithfully (Campbell, 1995 as cited by Heath, 2009, p.505). The most common agency relationship is the one between the shareholders, regarded as the principal(s) and management, regarded as the agents of the firm.

Another way of looking at the principal-agency relationship is to view top management as the principals and their employees as their agents. The main concept in this theory is about one party engaging another to work on their behalf, and in practice top management usually employs the rest of the staff to work on its behalf. Basically, the agency theory is focused on the fundamental observation that naturally, all human decisions are motivated by self-interest and that humans will always act in an opportunistic manner to increase their wealth, if given the chance (Deegan and Samkin, 2009). This implies that there is a high propensity that managers, acting as agents, will work for their personal interest, motivated by self-interest to increase their personal wealth, if unchecked. If managers do this, then they create an agency problem (Bricker & Chandar, 1998, p.489; Watts & Zimmerman, 1979: p.276), therefore, the principals must institute some measures to avert this problem. This principle applies equally to the relationship between managers and their employees. The measures basically involve exerting a number of controls, such as monitoring, incentivizing and interest-alignment over the agents. Studies have shown that it can be extremely difficult for shareholders to exercise effective control over management, or more generally, for a firm to achieve the appropriate alignment of interests between managers and shareholders. For instance, many of Enron's employees were also shareholders, yet they could not exercise effective control to prevent the Enron scandal (Heath, 2009, p.497). An effective approach, therefore, is to monitor the managers using the strategy of demanding high compliance to both the International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS), as well as apply VBM. High compliance means higher disclosure of accounting information. In addition, investors ought to demand the application of EVA as a value-based management tool to achieve value for money invested. The conceptual framework of IFRS states that for investors to make proper assessments when investing, they need information about the economic resources of the firm, any claims against

the firm and changes in those resources and claims. Furthermore, and very important, investors need information on how efficiently and effectively the firm's management and the board of directors have discharged their duties in using the firm's economic resources (IFRS Conceptual Framework, para.1.4).

2.3.1.1 Agency Theory and Checks and Balances

The agency theory recognizes the reality that in listed firms, the owners are usually separate from the managers who make decisions, and that the two may have different interests. Due to these differences, the agency theory views firms as systems of complex written and unwritten contracts among individuals with incongruent interests (Tosi, Katz & Gomez-Mejia, 1997,p.584). The complexity emanates from the fact that top management have their contract with the board and the shareholders, whereas the employees have their contract with top management (the two-stage agency contract); for this reason, there should be some level of checks and balances.

Generally, there is consensus in the literature that the two most effective elements in the agency contract that will ensure effective checks and balances is - the board monitoring managers and incentive alignment (Stroh, Brett, Baumann, & Reilly, 1996, p.765; Tosi, Katz, & Gomez-Mejia, 1997, p.597). Board monitoring can be complex, because the process requires an effective board which ensures that audit committees work effectively, financial statements are prepared with high level of transparency and being very informative, as well as compliance to IFRS requirements on disclosure being strictly adhered to, hence, an effective board should ensure compliance to the tenets of the agency theory.

Another aspect is that the agency theory should be concerned with resolving problems that occur in agency relationships. Prominent among them is the agency problem which arises because the desires of the shareholders/debtholders and managers diverge and the desires of top management and their employees can also diverge (two-stage agency problem). Divergence of interest should not be a problem if the principal has access to what the agent is doing, although, it is usually difficult or expensive for the principal to verify what an agent is actually doing. The main problem here is that the principal cannot verify, independently, whether an agent has behaved appropriately or not (Eisenhardt, 1989, p.58).

To act appropriately, the behaviour of the agent must lead to minimization of costs and maximization of efficiency (Stroh, Brett, Baumann, & Reilly, 1996, p.752). To achieve this, it has been argued that firms should choose between fixed and variable pay, by determining how to monitor job performance which is influenced by the behaviour of agents. Task programmability is the ability to monitor an

agent's performance by influencing his/her behaviour. Stroh, Brett, Baumann, and Reilly (1996) posit that a programmable task is one whose requisite behaviours can be precisely defined. Relating this to agency theory, all things being equal, task programmability will be positively related to the use of behaviour-based compensation contracts (fixed salary) and negatively related to the use of outcome-based contracts (variable pay). This is because programmable tasks allow the principals to specify the behaviours that the agents need to perform. When work behaviours are inherently nonprogrammable, a firm will be forced to monitor behaviour by assessing outcome, for instance, using EPS or EVA. Since a principal is actually buying an agent's behaviour, it is most efficient to reward the agent for actual behaviours when these can be efficiently observed and evaluated.

The findings of Stroh, Brett, Baumann, and Reilly (1996) support the agency theory predictions that when a long-term relationship between agents and principals exists, there is greater reliance on behaviour-based compensation (fixed salary), perhaps because more information about an agent's behaviour is available, and such is predictable. This is in contrast with the tenets of EVA which support variable pay tied to outcome or value creation. Stroh, Brett, Baumann, and Reilly (1996) also found that high firm-performance is associated with the use of higher proportion of variable pay. This finding supports the EVA concept, suggesting that using a variable pay-compensation strategy pays off, in terms of a firm's performance. In addition, principals in good business environments tend to manage risks according to the agency theory's assumptions. In other words, principals prefer to link agents' remuneration to financial returns (EVA/MVA or EPS/ROA/ROE) when agents' behaviour cannot be accurately observed, although, all things being equal, agents prefer riskless compensation (Parks & Conlon, 1995).

2.3.1.2 The Two-Stage Agency Problem

The agency theory can be viewed in two-stages. In practice, the board employs top management to serve as agents to the shareholders (first stage); top management then also engage the rest of the employees who also serve as agents to top management (second stage). Prior studies have established that this employment contract is rife with problems of adverse selection processes or wrong choices due to undisclosed information, and moral hazards, inappropriate attitude as a result of hidden agendas; these factors compound the risk to investors. To satisfy shareholders and the agency theory, disclosure of information is a requirement in the agency contract (Nahar, Azim & Jubb, 2016, p.477). Accordingly, since the agency theory requires agents to work in the best interest of the principals, it becomes imperative that these agents report back to the shareholders all issues concerning the total operations of the firm, covering relevant accounting periods, such as annual

reports. Besides serving as checks and balances and a control mechanism, the purpose of the financial disclosure is also to generate financial information useful in decision-making by shareholders whose ultimate interest is in value creation (Bokpin, 2013; Rashid, 2015, p.181).

Proponents of the agency theory state that the theory is basically concerned with how to ensure that agents act in the best interests of the principals (Eisenhardt, 1989, p.58; Jensen & Meckling, 1976, p.5; Miller & Sardais, 2011, p.6). The assumptions of the agency theory are that agents are motivated by self-interest, they are rational, and they are risk-averse (Stroh, Brett, Baumann & Reilly, 1996, p.751; Tosi, Katz & Gomez-Mejia, 1997.p.584). When the agents work to maximize shareholders` wealth then the spirit of the theory has been operationalized, otherwise, they create an agency problem. In practice, however, it is not always the case that agents work for their personal gains, especially, top management. Indeed, prudent managers or agents work in the interest of their principals as well as align their interests with those of the principals.

The agency problem is usually pervasive in the second stage of the agency contract, which is between top management (principals) and their employees (agents). What top managers can do in this second stage agency problem is to align their compensation scheme with targets and comply with the IAS and IFRS and make extensive disclosure by providing information about the performance of the firm, their own performance and performance reports to outsiders which have been independently verified by auditors who perform the function of gatekeepers of the firm (Dayanandan, Donker, Ivanof & Karahan, 2016, p.299). Extensive disclosure is therefore, also in the interest of top managers as well.

The agency problem emanates from agency theory which is a scientific explanation of the conflict of interest between agents and principals. The two-stage nature of the theory is that a conflict of interest occurs between top management (agents) and shareholders (principals) in the first stage, and it also occurs between top management (principals) and their employees (agents) in the second stage. Technically, any manager who is not the sole owner of the firm is an agent acting on behalf of other owners, thus, in a situation where a manager of a firm is the sole owner of the residual claim on a firm, there would not be an agency problem. In other words, when a firm is closely held, there will be minimal or no agency problem, however, it becomes an issue when a firm goes public and control is separated from ownership. It is clear that agency problem occurs when a manager sells off part of the residual claims to outside investors (Jensen & Meckling 1976, pp.10-11). When this happens then there will be an interplay of interests which will lead to conflict of interests; managers then focus on their personal interests and, sometimes, not work hard enough.

The agency problem between top management and employees (the second stage) is driven by the employees` tendency to not work hard enough (shirk) when they have fixed monthly income and

possibly expropriate the firm's resources for their own consumption. This situation can also emanate from the fact that the employees' quest to devote significant effort to creative activities, such as searching for new profitable positive NPV projects' falls as they shirk, probably because they earn fixed income. Employers may in fact avoid profitable ventures simply because they require too much effort on their part to manage or to learn about required new technologies (Jensen & Meckling, 1976, p.12). To capture the agency problem, this study employs expense ratio and asset turnover as a measure; detailed computations on the process are shown in the methodology (Chapter Three).

Whenever agents work for their personal interest or deviate from the goal of maximization of shareholder wealth by, either placing their personal interest ahead of the goals of shareholders, or not working hard enough (shirking) to generate higher returns for their principals, they create an agency problem. This is a problem as a result of separation of ownership from control or separation of control from operations as is in the second stage agency relation.

There are three important features that contribute to the existence of the agency problem within public limited firms. The first feature is when there is a separation of ownership from control, whereby the owners of the firm (shareholders) do not manage it, but appoint agents (management) to run the company on their behalf. Secondly, when the objectives of management differ from those of the owners (shareholders); in that situation, managers are likely to seek to maximising their own wealth rather than the wealth of shareholders. The third feature is when there is the existence of information asymmetry between management and shareholders, hence, management, as a consequence of running the company on a day-to-day basis, has access to both management accounting data and financial reports, while shareholders only receive annual reports.

2.3.3 Dealing with the Agency Problem

Agency problem is a behaviour issue, therefore, there are two ways to deal with the phenomenon. One approach is shareholders monitoring the actions of management and compelling it to manage for value, create value and make extensive accounting disclosure. The second approach is that top managers who are the principals, in the second stage, should monitor employees' actions and compel the latter to also manage for value, create value and strictly comply with the IAS and IFRS. Generally, agency costs can be reduced by monitoring agent's efforts and actions and by intervening when an agent veers off course (Brealey, Myers & Allen, 2017, p.305).

Monitoring tools include the use of independently-audited financial statements, requiring the application of IFRSs and additional financial reporting requirements. A major problem with monitoring is 'free riders' where stakeholders who do not bear the monitoring costs benefit from the

positive externalities of monitoring. Monitoring can prevent the more obvious agency costs, such as blatant perks and can also confirm whether the agents are putting in sufficient time on the job; in other words, it prevents shirking. Monitoring, however, requires time and money, and although some kind of monitoring is worthwhile, there is a limit at which any extra cash (rand/cedi) spent on monitoring would return an extra rand/cedi of value, from reduced agency costs as, essentially, like all investments, monitoring encounters diminishing returns. Some agency costs cannot be prevented even with the most thorough monitoring; for instance, whether managers` invest in all positive NPV projects with no negative NPV projects and the issue of empire building (Brealey, Myers & Allen, 2017, p.305). Due to this weakness, the present study advocates that, besides adopting IFRS, firms should adopt variable pay structure, tied to a performance measures, such as EVA. A study by Tripathi, Kashiramka and Jain (2019, p.213) in India found that EVA is the most appropriate performance indicator capable of addressing the persistent agency problem and ensuring goal congruence between managers and their principals. The next sub-section discusses monitoring agents that can be used to minimize or mitigate the agency problem and consequently, maximize firm value.

2.3.4 Monitoring the agents

Brealey, Myers and Allen (2017, p.306) listed the following groups as the key monitoring agents: board of directors, auditors, shareholders and lenders. In listed firms, the task of monitoring is delegated to the board of directors, who are elected by shareholders to represent their interests. When managers are not working hard enough, boards frequently step in. The firm's board of directors are not the only stakeholders that scrutinize management's actions as several other stakeholders act as bee-watcher-watchers. They include independent auditors who must be engaged by the firm`s board of directors to audit the firm's financial statements; if the audit uncovers no problems, the auditors issue an opinion that the financial statements fairly represent the firm's financial condition and are consistent with IFRS. If problems are found, the auditors may issue a qualified opinion or will negotiate changes in assumptions or procedures. In addition, when a firm requires a bank loan, the bank tracks the firm's assets, earnings, and cash flow, hence, by monitoring to protect its loan, the bank generally monitors and protects shareholders' interests as well. Shareholders also keep a watchful eye on a firm's management and board of directors, therefore, if the former believe that the firm is underperforming and that the board is not holding managers to task, they can attempt to oust some directors and elect representatives onto the board to protect their interest.

Dealing with agency problem can also be done using performance-related pay; with this approach, managerial remuneration is linked to performance indicators, such as profit, EPS, ROCE, ROA and ROE. The problem with performance-related pay is that, if the traditional accounting measures are used, then they can be prone to their deficiencies stated earlier. It is, therefore, advocated in this study that to use performance-related pay managerial remuneration should rather be linked to EVA and MVA as performance indicators.

Dealing with agency problem by using the Wall Street Walk is usually because, small shareholders do not have time or money to initiate, sustain and win a proxy battle. Nonetheless, if they are disgruntled, shareholders can take the Wall Street Walk by selling their shares and reinvesting in other securities. The exercise of the Wall Street Walk usually sends unpleasant message to the players in the financial market and if substantial shareholders take the Walk, then the share price will fall, an indication that management is not doing something right. In response, the board will intervene and remove some managers or adjust management compensation.

Dealing with agency problem through using rival firms is mainly due to competition, for a firm's performance is regularly monitored by other firms. If a rival firm detects that a particular firm's assets are underutilized, then they will initiate a takeover and if they are successful, then management of the underutilized firm will be ousted; fear of this occurrence ensures that management is vigilant and runs the firm efficiently.

Engaging in 'executive share option scheme' is another approach to dealing with agency problem which may be due to problems associated with performance related pay; the share option schemes now represent the most frequently used incentive to encourage goal congruence among senior management. Share options allow managers to purchase a specified number of their firm's shares at a fixed price over a specified time period. The option only has value when the market price of the firm's shares exceed the price at which they can be bought by using the option. The aim of the share option schemes is that, by giving managers such an option and thereby, making them shareholders as well, they will be encouraged to maximise the firm's share price and hence, to maximise shareholders' wealth. In their study of principal-agent relationship, Tosi, Katz and Gomez-Mejia (1997) found that incentive alignment is even more effective mechanism than monitoring in ensuring that agents act in the interests of owners. It was, also established by Fama and Jensen, (1983, p.328) that the contract structures of firms can limit the risks undertaken by most agents by specifying either fixed payoffs or incentive payoffs that are tied to specific measures of performance.

2.3.5 AGENCY COSTS

To mitigate the agency problem, principals incur agency costs which arise from the separation of the management and the ownership of a firm, thus, the situation is particularly significant for large firms. Agency costs are those which arise from managers over-spending or consuming the firm's resources or not working hard enough. These costs also include those necessary to resolve the agency problem that may exist between managers and owners of the firm and may include the cost of - monitoring the firm's management processes and the board of directors' activities and providing financial information to shareholders and other investors (Drake & Fabozzi, 2015, p.166); bonding costs, and the residual loss from suboptimal decisions arising from agency contract (Jensen, 1983, p.331; Watts and Zimmerman, 1990, p.135). Monitoring costs are usually minimal but residual losses from suboptimal decisions is a major cost and should be a major concern to shareholders. Watts and Zimmerman (1979, p.275) argue that agency costs arise because managers' interests diverge from that of the interests of shareholders or bondholders (the principals). For instance, if managers are also shareholders, then they have incentives to convert assets of the firm into dividends, as a result leaving the bondholders with the "shell" of the company. Similarly, managers also have incentives to transfer wealth to themselves at the expense of both shareholders and bondholders via perquisites.

In their groundbreaking work - *The theory of the firm: managerial behaviour, agency costs and ownership structure* - Jensen and Meckling (1976) theorized that, bondholders normally demand and ensure that bond issuers include certain covenants in the indenture provisions, which are intended to limit management behaviours as these tend to affect the returns or value of the bond. Some of these covenants include - constraints on management's decisions on dividends, decisions on future debt issues, and matters relating to working-capital management. To comprehensively protect bondholders, these covenants need to be very detailed and cover most operating aspects of the firm including, limitations on the riskiness of projects undertaken. The costs involved in writing such covenants, the costs of enforcing them and the reduced profitability of the firm which might happen because of the covenants, sometimes, limit management's ability to take optimal actions on certain issues, as these amounts are likely to be substantial; all costs associated with such covenants are what constitute monitoring costs (Jensen & Meckling, 1976, p.46). Using an expense ratio, this present study computes the extent of agency cost for each firm under study. Detailed computation on this process is shown in the methodology.

The agency relationship, which is a contract between the residual claimants and the agents are normally written with the objective of reducing the agency costs; accounting is considered as playing

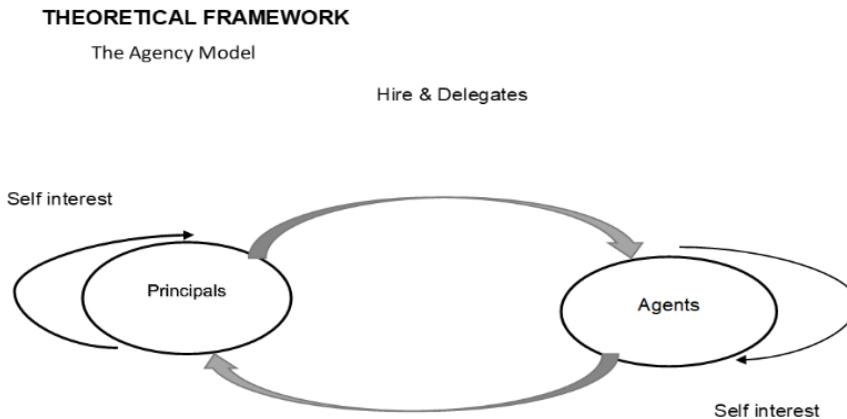
an important role as the process is an integral part of the contracts. For instance, lending arrangements between a firm and its creditors often contain several accounting-based covenants and accounting-based bonus plans are frequently a component of executive compensation plans. The conventional accounting measures are also commonly used in performance evaluation of a firm's cost and profit centres (Watts & Zimmerman, 1986, p.196). Additionally, accounting information is usually used in market valuation of firms, hence, detailed and consistent information-disclosure culture generates trust - an essential asset for firms.

In order to capture whether managers operationalize the tenets of the agency theory and gauge agency problem, agency cost is used to measure the levels. In this study, two methods are used. In the first method, agency cost is measured as expense ratio (AgencyCost1) which is a direct proxy for agency cost; the process measures how effectively a firm's management controls operating costs. It captures excessive expenses including perk consumption. A low expense ratio indicates that management is controlling the operating expenses and vice versa (Ang et al., 2000, p.82; Rashid, 2015, p.187; Florakis, 2008, p.47). The second measure (AgencyCost2) is asset turnover which is measured as the ratio of annual sales to total assets (Florakis, 2008, p.47). Florakis (2008, pp.45-46) argued that only very few studies directly tackle the measurement issue of agency costs with notable exceptions being Ang et al., (2000), Singh and Davidson (2003) and Fleming et al., (2005).

2.3.6 Theoretical Framework

Figure 2.1 provides a diagrammatic illustration of the generic theoretical framework for the agency theory.

Figure 2.1 Agency Theoretical Framework



Source: (Abdallah, 2009 as cited by Yusoff & Alhaji, 2012)

This theoretical framework shows that the principals hire the agent to perform some duty on their behalf with their objective being to achieve some self-interest by delegating some decision-making authorities to the agents to perform the duties. The agents being human, although, they will work towards achieving the objective of the principal, but also have their personal interests to satisfy and this might conflict with the interests of the principals, thus, eventually creating an agency problem. It is generally agreed that the most effective way to deal with this problem is to have competent board of directors who should be very knowledgeable in the field of operations of the firm and can supervise management.

The diagram describes the relationship between two parties - principals and agents - in which one party (the principal), engages another party (the agent), to perform some tasks on behalf of the principal (Jensen and Meckling, 1976; Moe, 1984; Ross, 1973). The framework assumes that once principals delegate authority to agents, they often have problems controlling them, because agents' goals often differ from the former's own and because agents often have better information about their capacity and activities than do principals. The key question of the principal-agent framework is - *How can agents be empowered to fulfil the needs of the principals, while at the same time constraining the agents from shirking on their responsibilities?* To address this question requires

application of the following related / supplementary theories: normative and positive accounting theories, stewardship theory and stakeholder theory.

2.4 NORMATIVE AND POSITIVE ACCOUNTING THEORIES

The two leading theories that guide accounting research are normative and positive accounting theories; while the normative theory focuses on the principles of accounting, the positive theory focuses on the practice of accounting (Coetsee, 2010, p.2). Positive accounting theory (PAT) was advanced by Watts and Zimmerman (1978, 1979 & 1990) to explain how accounting discipline is practiced. It explains how managers, in practice, select and apply accounting rules to achieve an objective. This objective could relate to - performance, revenue, returns, executive compensation and debt management. From the perspective of accounting researchers, positive accounting theory explains the actual behaviour of managers, whereas, normative accounting theory defines the optimal behaviour that ought to be practiced (Kavrar (2020, p.306)

The positive accounting theory portrays the fact that, just like the agency theory, all individuals' actions are influenced by self-interest and that individuals will most likely act in an opportunistic way to increase their own utility (Watts & Zimmerman, 1978, p.113). By extension, managers being rational, can select accounting principles that is inure to their self-benefit. The positive accounting theory is seen to be more realistic and pragmatic and makes choices centered on realities faced by firms. Normative accounting on the other hand, prescribes the accounting standards as guidelines for practitioners. In positive accounting practice, these standards are adjusted by managers based on a firm's criteria, however, it is now known that in their normal business dealings, firms usually practice both positive and normative accounting so as to achieve efficient financial plan. The normative accounting principle is used to maintain and improve accounting methods, while the PAT attempts to forecast which firms will adopt a specific accounting method based on their circumstance and explain which accounting practices will be used under a particular circumstance faced by a firm. A firm's financial statements and its annual reports are a reflection of its accounting policies which are reflections of managers' choice of accounting principles. The annual report can, therefore, reveal managers' actual practice of accounting in a firm.

Kavrar (2020, p.306) explains that accounting policy is a set of procedures consisting of various accounting alternatives used in the preparation of financial statements selected by a firm; while accounting policies are a reflection of a firm, financial statements are also a reflection of accounting policies. Applying different accounting policies, therefore, may lead to different reporting of the same financial events. This may cause the financial situation and the results of the operations of firms of the same nature to be very different from each other, thus, the figures in a firm's financial statements

are a function of its accounting policies. For instance, if managers believe that it is beneficial to decrease current earnings, probably for political cost purpose, they can influence that by choosing revenue-reducing accounting method and by delaying the recognition of certain current earnings. Kavrar (2020, p.309) continues that normative theories explain the real word cases, not as they are but as they should be; these theories are called normative because they are based on the norms for best practice; they have a principle-based and deductive structure and are prescriptive.

Tawiah and Boolaky (2018, p.578) explicate that the positive accounting theory predicts and explains practical firm behaviour based on external factors such as firm size, financing structure, firm reputation and capital needs. Normative accounting, however, focus on policy prescriptions for management or public policy, for instance, questions involving the appropriate treatment of inflation, exchange rates, inventories, leases, and so on (Jensen, 1983, p.320). In contrast, Watts and Zimmerman (1990) assert that firms behave differently because of their unique characteristics. The accounting figures they generate supply information for investment decisions in the security market and are used in bonus plans - an indication that accounting choices affect wealth (Watts and Zimmerman, 1990, p.132).

In corporate finance, accounting measures are commonly used in performance evaluation of a firm`s cost and profit centers. Watts and Zimmerman (1986, p.196) and Bricker and Chandar (1998, p.489) maintain that accounting is an essential part of a firm`s contracting process and agency cost, as a result, a firm`s value and managers` compensation vary with different contracts. Accounting procedures, whether positive or normative, therefore, have the potential to affect a firm`s value and manager`s compensation. Both positive accounting and normative accounting play a role in minimizing agency cost; for instance, debt contracts aimed at reducing dysfunctional behaviour use accounting figures and these are also used in manager's compensation contracts which minimize agency costs (Watts and Zimmerman, 1990, p.133).

On the other hand, Watts and Zimmerman (1990, p.136-138), opine that contracts that use accounting numbers are not effective in aligning managers` and the contracting parties` interest, if managers have complete discretion over the reported accounting numbers, hence, there should be restrictions on managers` discretion over accounting numbers, despite the fact that some discretions will remain. The authors termed these discretions “accepted set” and they vary across firms, but the restrictions are enforced by external auditors. Within the accepted set, managers have the discretion to choose any accounting method; for instance, within the accepted set of procedures used for bonus plan, managers can act opportunistically and select the method that maximizes their utility, even if that comes at the expense of shareholders. The discretion relating to accounting method choice relates to three variables - bonus plan, debt contracts and the political process. The bonus plan

hypothesis supposes that managers of firms with bonus plan are more likely to use accounting methods that increase current period reported income. Such selection will presumably increase the present value of bonuses if no adjustment is made to the chosen method by the compensation committee. The debt-to-equity hypothesis predicts that the higher a firm's debt/equity ratio, the more likely it is that managers will use accounting methods that increase income. Managers will exercise discretion by choosing income-increasing accounting methods which relax the debt constraints and reduce the costs of technical defaults, thus, the higher a firm's debt-to-equity ratio, the more likely managers will choose income-increasing methods. The political cost hypothesis predicts that large firms (rather small firms) are more likely to use accounting choices that reduce reported profits, thus, they tend to use income-decreasing accounting methods.

The IASs and the IFRSs used in this present study are normative accounting standards, therefore, they prescribe how accounting should be practiced. Positive accounting theory, however, makes us understand that in practice, managers apply these standards differently. Due to this reality, the present study employs the weighted-disclosure index to measure the extent to which the application of these normative standards is consistent with the positive accounting theory. PAT makes considerable contribution to accounting practices, hence, is the motivation behind firms' choice of alternative accounting methods. PAT tells us that when firms do not comply with the standards, they must be investigated as choice of an accounting method is not random.

2.5 STEWARDSHIP THEORY

Financial analysts, investors and stock market regulators have, over the years, recognized the role of accounting information in sound stewardship of firms. The stewardship role played by accounting information is consistent with the notion that this role is a basic part of a firm's structure and that accounting practices and organizational forms are related (Jensen, 1983, p.323). The hypothesis that accounting reports are demanded to monitor the relationship between managers and shareholders is termed the 'stewardship concept' and has been used by accounting researchers to explain the existence of accounting (Bricker & Chandar, 1998, p.489).

The main premise of stewardship theory is that top managers are good people and the best stewards of the firm, therefore, there is no need for oversight monitoring by outside independent directors. Proponents of stewardship theory contend that superior firm performance will be linked to the majority of inside directors because they will naturally work to maximize profit for shareholders (Rashid, 2015, p.184).

Accounting regulatory bodies believe in oversight monitoring; however, they are also of the view that firm performance is linked to management stewardship. IAS 1 (para.9) states that financial

statements show the results of managements' stewardship of the resources entrusted to them (IFRS Foundation, p.A943). Paragraph 1.22 of the Conceptual Framework (IFRSs) explains that information about how efficiently and effectively managers of a firms discharge their duties in using the firm's economic resources, helps users to assess management's stewardship of those resources. Such information is also useful for predicting how efficiently and effectively management will use the entity's economic resources in future periods, hence, it can be useful for assessing the entity's prospects for future net cash inflows.

2.6 STAKEHOLDER THEORY

The stakeholder theory was propounded by Ian Mitroff (1983) and Edward Freeman (1983). The theory states that too much priority is given to the shareholders of the firm, therefore, it advocates that the firm should rather be managed in the interest of all stakeholders. In South Africa, application of this theory was emphasized in the King IV report (2016, p.26) which states that adopting the stakeholder-inclusive approach means that the best interests of the firm are not, necessarily, always equated to the best interest of only shareholders. In other words, shareholders should not, necessarily, have a predetermined precedence over other stakeholders; this shows that, this is all-inclusive stakeholder-centric approach stands in contrast to a shareholder-centric approach.

The stakeholder theory pertains to the relationship of a firm with a variety of people in the business community who are affected, one way or the other, by the operations of the firm. It expands on the agency theory which focuses on wealth maximization for shareholders. The theory elaborates that from the stakeholders` perspective, firms should work to meet multiple goals of a wide range of stakeholders rather than just the shareholders. It succinctly shows the associations and the ripple-effect of a firm`s operations and its many stakeholders by establishing that a firm's stakeholders include parties such as - employees, customers, community members, competitors, vendors, contractors, debtholders and shareholders.

The King IV report (2016, pp.23-24) states that there is an interrelationship between a firm and its stakeholders, and the firm`s ability to create value for itself depends on its ability to create value for all stakeholders, both internal and external. Firms contribute to this broader society as creators of wealth, providers of goods, services, employment and developers of human capital.

The stakeholder theory is concerned with the expectation that a firm's management is expected to undertake activities that have positive effect on stakeholders, have positive externalities, and to disclose information on performed activities back to the stakeholders. It is this theory that has helped generate wide acceptance of the concept of corporate social responsibility (CSR) which enables all

members of the society to also benefit from the operations of the firm. The stakeholder theory relates to accountability which is defined by Mulgan (1997) as the responsibility of one party to another in a relationship where one party entrusts another with the performance of certain duties, hence, similar to the agency theory. From an accounting perspective, accountability refers to the responsibility of a firm to disclose information regarding its performance, financial position, financing and investing, and compliance, in order to assist users to make appropriate decisions (Australian Accounting Research Foundation, 1990). Freeman (1984) graphically summarized it by saying that if you can get all your stakeholders to swim or row in the same direction with you, then you have got a company with momentum and real power.

2.7 INFORMATION ASYMMETRY THEORY

The Conceptual Framework of IFRS (paragraph 2.4) states that if financial information is to be useful, it must be relevant and faithfully represent what it purports to represent. The usefulness of financial information is enhanced if it is comparable, verifiable, timely and understandable.

Researchers, practitioners, and regulators have analyzed and emphasized the role of financial disclosure in reducing information asymmetry between insiders (management) and outsiders (shareholders, creditors, and other stakeholders) (S&P, 2002, p.5). It is understandable that the employees of a firm who work on daily basis in a firm will have more knowledge and information of the firm than outside investors (shareholders and debtholders). This skewness in information knowledge is what constitute information asymmetry. Information asymmetry was espoused by three economists, namely, George Akerlof (1970), Michael Spence (1973) and Joseph Stiglitz (1979). It is an important element of the agency theory because the presence of it makes it difficult to achieve the objective of the agency theory.

Basically, information asymmetry arises when one party in a particular agency relationship has more information than the other party and can use it to their advantage over the other party. This is presumed to exist in almost every business setting where the managers have an information advantage over the shareholders and creditors, because the managers tend to be more directly involved in the daily operations of the firm. It is deemed to exacerbate the agency problem (Subramaniam, 2006) as it does not facilitate efficient stock trading and liquidity. To resolve the agency problem, firms must comply with the IFRS and disclose pertinent accounting information. This requires managers to prepare financial reports which provide information about the financial position of the firm, its economic resources and the claims against the reporting entity (IFRS Conceptual Framework, para.1.12).

Theoretically, firms can reduce their cost of capital by reducing information asymmetry levels, or by increasing accounting information disclosure. Transparency in accounting information disclosure is essential because it enable investors to properly evaluate firms, know their level of risk and be willing to accept lower rates for lower risk. This is absolutely necessary, especially, when managers have the discretion of how to use the assets of the firm and can even use it to pursue empire-building investments that yield them significant power to control the firm but which does not increase shareholder wealth. Investors' decisions usually involve choosing between alternatives; for instance, selling or holding an investment, or investing in one reporting entity or another, however, information asymmetry makes it difficult to make these choices. Consequently, information about a reporting entity is important and even more useful if it can be compared with similar information about other firms and with similar information about the same firm for another period or another date (IFRSs Conceptual Framework, para.2.24).

Huang, Boateng and Newman (2016, p.538) contend that when managers dominate in the ownership of a firm, the firm experiences higher information asymmetry which makes it more difficult for shareholders and bondholders to monitor managers' actions. In order to eliminate information asymmetry and become well informed, shareholders and debtholders must incur information costs, that is the cost of becoming informed (Watts & Zimmerman, 1990, p.135). In this case, information costs will include those of processing and publishing information through mediums, such as annual reports and website hosting.

Yet another study has interesting but different finding. In their study of agency and compensation, Roth and O'Donnel (1996, p.697) studied agency theory perspective of foreign subsidiary compensation strategy and found that the level of total incentive-based compensation paid by a subsidiary increase with the foreign subsidiary's cultural distance. The findings presented a reasonable support for the application of agency theory perspective to a link between compensation strategy of corporate headquarters of a firm and its foreign subsidiary. The authors claim that the extent of information asymmetry between corporate headquarters and a subsidiary, for instance, usually result in managerial discretion. The conclusion which was drawn from this study is that, due to information asymmetry, goal congruency in the agency relation is difficult.

2.7.1 Information Asymmetry Theory and IFRS

In the context of this study, information asymmetry refers to a situation of an agency contract relationship, where one party has more information than the other and can use it to their advantage such as in a principal-agent relationship, where the agents have information advantage. To mitigate this, the Conceptual Framework of IFRSs (Para.7.1) states that a reporting entity must communicate information about its assets, liabilities, equity, income and expenses by presenting and disclosing this information in its financial statements. It goes further to state in paragraph 7.2 that effective communication of information in financial statements makes that information more relevant and contributes to a faithful representation of an entity's assets, liabilities, equity, income and expenses. It also enhances the understandability and comparability of information in financial statements.

This requirement is consistent with the findings of Lambertides and Mazouz (2013, p.5) and Embong, Mohd-Saleh and Hassan (2012) relating to IFRS. The perspective of Lambertides and Mazouz (2013, p.5) is that firm's adoption of IFRS reduces information asymmetry and improves analysts' forecast accuracy. Analysts' forecast is crucial because investors depend on it when making investment decisions, therefore, adopting IFRS comprehensively informs the adopting firms. By extension, this suggests that IFRS adoption contributes positively to market stability. As was found by Lambertides and Mazouz (2013, p.5), higher information quality reduces the cost of capital by increasing the liquidity of the underlying stocks. Specifically, they found that, firms with higher levels of disclosure convert a larger proportion of private information into public information. This, in turn, reduces information asymmetries among the different groups of investors, thereby, increases liquidity and lowers the cost of capital.

Other studies such as Embong, Mohd-Saleh and Hassan (2012), Botosan (1997) Botosan and Plumlee (2002) regarding disclosure and cost of equity found that there was a significant negative correlation between disclosure and cost of equity. The reason for this, according to Embong, Mohd-Saleh and Hassan (2012) is that higher disclosure reduces information asymmetry which in turn leads to a reduction in transaction costs and also reduces estimation risks.

In the context of the above, Diamond and Verrecchia (1991) contend that larger firms benefit more from higher disclosure compared to smaller firms. One explanation given was that of economies of scale, which means larger firms incur less incremental costs in disclosing more private information, however, more disclosure from smaller firms rather exposes them to proprietorship cost and risk from the disclosure, making the total cost of disclosing higher compared to larger firms. As more disclosure of proprietary information introduces more risk in small firms, the investors' required return (IRR) may not reduce much (Embong, Mohd-Saleh & Hassan,2012). The Conceptual Framework of

IFRS (para.7.3) to some degree agrees with this finding and prescribes that just as cost constrains other financial reporting decisions, it also constrains decisions about presentation and disclosure. That means that when making decisions about presentation and disclosure, it is important to consider whether the benefits provided to users of financial statements by presenting or disclosing particular information are likely to justify the costs of providing and using that information (discretion). It is generally accepted that IFRS tend to reduce information asymmetry, however, the finding of a recent study by Wardhani (2019) gives a worrying outcome. The study revealed that since IFRS uses principle-based approach and more normative accounting professional guideline for auditors, it might increase information asymmetry. This in turn, becomes higher as a group of investors might interpret the information being disclosed differently from another group because they have a different perception in analyzing the information disclosed by the firm. This viewpoint and explanation of the result is contradictory to the objective of IFRS which seeks to harmonise global accounting information disclosure among corporate bodies, however, the final conclusion is that adoption of IFRS reduces information asymmetry and improves the analysts' forecast accuracy (Lambertides & Mazouz, 2013, p.5).

According to Pietersen, Stegmann, Schalkwyn, Wesson and Malan (2016), IFRSs are based on a conceptual framework for financial reporting, which addresses the concepts underlying the information presented for general purpose financial reporting. IFRSs set out identification, recognition, measurement, presentation and disclosure requirements for transactions and events that are important in general purpose financial statements of profits-oriented entities. These firms are usually the public accountability entities. An entity has public accountability if its debt or equity instruments are traded in a public market or it is in the process of issuing such instruments for trading in a public market.

Ghana adopted IFRS in 2007 (Appiah, Awunyo-Vitor, Mireku & Ahiagbah, 2016, p.135; Tawiah & Boolaky, 2020, p.47) and the EU adopted IFRS in 2005 (Lambertides & Mazouz, 2013, p.5). The purpose of the EU adopting IFRS reporting has been to enhance disclosure quality and a reduction in information asymmetry. Other studies find that, for firms in Western Europe, there is less engagement in income smoothing after the adoption of IFRS and that earnings management is significantly lower after the transition to IFRS. These results show that IFRS reduces earnings management in countries with well-developed financial disclosure requirements and increases earnings' quality. The implication is that adoption of IFRS improves the quality of financial reporting (Dayanandan, Donker, Ivanof and Karahan, 2016, p.307-311).

In support of the importance of adoption of IFRS, Tahat, Dunne, Fifield and Power (2016) investigated the impact of IFRS 7 on the significance of financial instruments' disclosure in Jordan.

They reported that the implementation of IFRS 7 is associated with company growth in Jordan. The study further noted that, the implementation of IFRS 7 has improved disclosure on the financial statements of listed Jordanian firms, implying that high disclosure enhances company growth. Ghani and Tarmez (2016) studied the effect of corporate disclosure guide on information disclosure among Malaysian-listed firms. Using annual reports as a source of data, they found that majority of listed firms provided a high level of information disclosure score and made continuous efforts to disclose more information following the introduction of corporate disclosure guide in 2012, however, these studies did not look at the nexus between corporate disclosure and financial performance.

2.7.1. Information Asymmetry and Financial Statement Disclosures

Accounting process is an important part of a firm's contracting process and agency costs vary with different contracts, hence, accounting procedures have the potential to affect firm value and performance (Bricker & Chandar, 1998, p.489). The agency problem can be exacerbated by managers' use of accounting discretions; for instance, preparers of financial statements are advised not to reduce the understandability of their financial statements by obscuring material information with immaterial information or by aggregating material information that is different by nature or function. KPMG (2019, p.3) further advised that individual disclosures that are not material to the financial statements do not have to be presented and that preparers need to consider the appropriate level of disclosure based on materiality for the reporting period. The discretionary powers make it a minimally easy to perpetuate information asymmetry, if management opts for it.

Accounting regulation authorities continually attempt to ensure that accounting information is produced on a consistent basis, in accordance with a set of rules that make it reliable for users, although, communications between firms and investors can still be distorted by activities of managers who may wish to alter the content of the messages being transmitted for several reasons (Gowthorpe & Amat, 2005, pp.55-56). To mitigate the adverse effects of inconsistent financial reporting, there is a need, therefore, for a high compliance with IFRS and the application of superior performance measure is extremely important.

Brealey, Myers and Allen (2017, p.302) maintain that shareholders are the ultimate principals and top managers are the stockholders' agents, but it is also true that middle managers and employees are in turn, agents of top management. This second layer of the agency relation is the two-stage agency relationship which leads to two-stage agency contract. The implicit existence of the second stage agency contract makes the relationship between the firm and its shareholders very complicated. It is therefore not surprising that moral hazard and information asymmetry are prevalent among firms. For instance, Ndofor, Wesley and Priem (2015) contend that opportunities for financial

reporting fraud arise because of information asymmetries. Again, Billet and Yu (2016) contend that because financial statements are key for investors, the transparency of accounting statement information likely corresponds to the degree of information asymmetry between insiders and outside investors. They explored the link between open-market share repurchases (OMRs) and asymmetric information based on financial reporting quality and found that opaque firms experienced positive abnormal returns of twice the magnitude of those of transparent firms. These significant differences remained after controlling for governance, earnings management, and firm characteristics. They then documented significantly positive long-run post announcement returns for opaque firms, but not for transparent firms. Their results suggest that asymmetric information plays an important role in the wealth effects around open-market share repurchases.

These lead to the following hypothesis;

H1: There is statistically significant positive relationship between higher information asymmetry (lower WDI) and higher agency costs.

2.8 SIGNALING THEORY

It is a common practice to see managers quickly disclose to the public any positive information about the firm emanating from their efforts; basically, what they try to do is to signal their success to the stakeholders. Signaling theory was espoused by Michael Spence in 1973. It is concerned with how to resolve problems arising from information asymmetry in any business environment. In other words, it suggests that, one way to reduce information asymmetry, is for managers who possess more information to send signals or disclose it to the other stakeholders.

This theory encourages full and high-level corporate disclosure, thereby, suggesting that firms with high quality performance indicators should signal this to the market. When this is done, comprehensible information would make investors and other stakeholders have positive mindset about the firm, reevaluate the value of the firm, and then make decisions that are favorable to the firm. Consequently, the positive mindset of the various stakeholders about the firm would make the firm obtain more funding at a lower rate, thereby, reduce the costs of soliciting for capital. There are various means by which companies tend to signal information about themselves, and prominent among them is corporate disclosure of accounting information.

2.9.1 Positive Results of Negative Disclosure

It is essential to understand that disclosure of negative financial information does not necessarily mean that it will have adverse effect on the firm's finance or share performance, rather, from the perspective of investors, including shareholders, disclosure of negative information on time does have a positive result on their investment. Such disclosure will prompt active investors to make decisive decisions on whether to still hold their shares or take the wall-street walk. Other investors such as lenders can also decide whether to trigger certain covenants for protection or exercise lien. All these pieces of information tend to help the investor to make the right decisions at the right time, therefore, signaling negative information can yield positive results.

Essentially, the signaling theory presupposes that manager will be transparent enough to disclose both positive and negative financial information to stakeholders in equal terms. The agency problem, however, makes us understand that managers often make decisions for their self-interest, therefore it is to be expected that to make them look good, positive information will be fully disclosed as a signal of hard work, whereas, negative information will be suppressed.

2.10 CORPORATE DISCLOSURE

Bricker and Chandar (1998, pp. 487-188) advanced that corporate disclosure originated from the agency theory, specifically, the agency problem. The authors maintain that it is the existence and persistence of agency problem that compelled market and other regulators to introduce disclosure requirements. The classical work of Berle and Means (1932), *The Modern Corporation and Private Property*, had a significant influence on accounting research, regulation and practice. Berle and Means (1932) explained that the separation of the risk-bearing functions from ownership and the control function of management created conditions in which professional managers could take actions to the detriment of the owner and for their personal gain. One consequence of this, they argued, was the urgent need for new and reliable channels of communication in order to protect shareholders' interest by enabling them to judge managerial performance in their role as stewards of corporate resources.

According to Bricker and Chandar (1998, pp. 487-188), Berle and Means's view, coming as it did on the heels of the Crash of 1929 found favour with securities regulators who were then looking for answers. The New York Stock Exchange (NYSE) was quick to implement several of their recommendations, and in 1933, the NYSE in conjunction with the American Institute of Accountants began to promulgate accounting standards for firms that were listed on the NYSE. The Berle and Means (1933) proposition became the foundation for the passage of the Securities Act of 1933 and

1934, which established legal responsibilities in connection with the agency relationship between shareholders and managers. One important outcome of these acts was that accounting reports containing information about the financial conditions and results of operations had to be made available by managers of firms interested in accessing public securities (Bricker and Chandar, 1998, pp. 487-188).

Consistent with the agency theory, this demand for financial information curtails agency problems and information asymmetry. Information asymmetry is seen as one of the key factors leading to agency problems, therefore, corporate disclosure has been an effective remedy to minimizing or eliminating information asymmetry and dealing with the agency problem. Today, almost all employees' contracts require them to be honest and ethical, hence, their information disclosure must be transparent without exacerbating the information asymmetry and making investors worse off. Information regarding the total operations of the firm is therefore highly demanded by shareholders and debtholders (investors) for decision-making.

2.10.1 The Dawn of Corporate Financial Reporting

The historical antecedence of financial reporting as recounted by Bricker and Chandar (1998) is that, until the 1880s, a typical manufacturing company, which was predominant at that time, because of industrialization, was small, within closed communities and largely served local markets; it existed merely as extended versions of sole proprietorships or partnership. Ownership and management in these cases were either substantially the same or were closely related. External financial reporting was, therefore, considered not necessary and, interestingly, a firm had the right to privacy regarding its financial information, just as any private citizen did. The regulation of the Accountancy profession during that period, as reflected in state corporate laws, also reflected this sentiment against public disclosure. These state laws generally required two sets of report - one submitted to supervisory authorities, which was considered to be confidential, and the other, a summarized financial information submitted to shareholders, but not to the public at large (Bricker & Chandar, 1998, p.491). Then came the need for mergers and restructuring in the late 19th century which resulted in the formation of several publicly-held firms. Due to absence of adequate financial information because there were no public disclosures from these firms, investors then purchased their securities largely on the basis of their self confidence and trust in the investment firms marketing the securities. Financial reporting in this era was rarely thought necessary, prudent or even demanded. The scanty financial statements that did exist were completely inadequate for purpose of individual investor valuation of securities.

The stock market crash of 1929, however, brought about regulatory measures like the Glass-Steagall Act which restricted investment activities of banks in the United States. The US federal government through the then newly-created Securities and Exchange Commission (SEC) played a direct role in pursuing for a fuller, more reliable and more useful disclosures by the managers of industrial firms. The SEC supported the efforts of the American Institute of Certified Public Accountants, and accounting rules, called 'generally accepted accounting principles' (GAAP) were promulgated; since this period, there has been relentless pressure on the part of firm managers to improve the quality of their accounting disclosure (Bricker & Chandar, 1998, p.495).

Investors today are more learned and more knowledgeable; their decisions to invest in a firm depends on the returns that they (existing and potential investors, lenders and other creditors) expect, for instance, dividends, principal and interest payments or market price increases. Shareholders, lenders and other creditors' expectations about returns depend on their assessment of the amount, timing and uncertainty of (the prospects for) future net cash inflows to the entity and on their assessment of management's stewardship of the entity's economic resources. Existing and potential investors, lenders and other creditors, therefore, now demand more information to help them make those assessments (Conceptual Framework, para.1.3).

2.11. CORPORATE DISCLOSURE AND ACCOUNTING INFORMATION

The IFRS requires management of firms to include management commentary in their financial reports. Such information should explain management's view about what has happened, including both positive and negative circumstances, why it happened and what the implications are for the firm's future. A prior study by Abrahamson and Park (1994: p.1305) reported that managers may not want shareholders to know about poor firm performance and negative information because the board might alter their remuneration or dismiss them. Disclosing negative information to shareholders and for that matter, the public, will damage managers' reputation and make it very difficult for them to get subsequent employment. Further, managers were unwilling to disclose negative information because they will be concerned that shareholders will sell off more of their shares in the stock market thereby reducing the share price and eventually reducing the market capitalization of the firm (market value). Lower share price is interpreted by the market to mean weak financial performance and this can expose the firm to take-over attempts. Any successful take-over bid will eventually oust managers, hence, they sometimes work to manipulate information disclosure.

Watts and Zimmerman (1979. p.275), however, pointed out that agreements to supply financial statements are usually included in articles of incorporation or by-laws of firms and in lending contracts between firms and creditors. These contracts do not only benefit the principals, but they

also increase the welfare of the managers when raising new capital, because they reduce the agency costs which they bear.

IFRS 9 and IFRS 7 require firms to disclose information about the significance of financial instruments to the firm, and the nature and extent of risks arising from those financial instruments, both in qualitative and quantitative terms. These instruments go further to require a special disclosure about financial assets and financial liabilities designated to be measured at fair value through profit and loss. This should include disclosures about credit risk, market risk as well as changes in fair values attributable to these risks and the methods of measurement (Deloitte, 2020). A firm, thus, should disclose information that enables investors to evaluate the nature and extent of risks arising from financial instruments to which the firm is exposed to, at the reporting date. Qualitative disclosures should also be provided to enable investors to link related disclosures and form a general accurate opinion of the nature and extent of risks arising from financial instruments. These risks generally include market risk, liquidity risk and credit risk (KPMG, 2019, p.74). The intent in this standard is to protect risk bearers, such as shareholders and debtholders, who are of particular interest to this present study.

2.11.1 Transparency and Corporate Disclosure

The foundation of good corporate governance is transparent disclosure (Rahman & Hamdan, 2019, p.87) and reliable accounting information is a crucial function of the structure of every firm (Jensen, 1983, p.319). In this present study, corporate disclosure is viewed as the fair presentation of a firm's financial and non-financial information, whether mandatory or voluntary. Essentially, for the information to be useful to investors, it must be relevant and faithfully represent that which it purports to represent (Modugu, 2017; Palea, 2013, p.249).

In accounting practice, annual financial statements are prepared for the purpose of providing financial information that is useful in making economic decisions (Pietersen, Stegmann, Schalkwyn, Wesson & Malan, 2016). Disclosure of financial information is an effective solution to narrow the information gap between managers and shareholders as well as reduce information asymmetry. This financial information could be disclosed through the traditional reporting medium such as through annual reports, or an advanced medium using a firm's website (Abdi, Kacem & Omri, 2017, p.468). Damodaran (2015, p. 28) contends that to enhance transparency, managers periodically provide stockholders with better and more updated information so that they can make informed judgments on how well management is doing. Firms with higher transparency and disclosure levels are valued higher than comparable firms with lower levels (Patel et al., 2002, p.326).

The issue of financial reporting goes beyond technical compliance and bothers on effective communication. In preparing the financial statements, firms need to focus more on improving communication by reporting financial information in a meaningful way (KPMG, 2019, p.3). To improve communication, information about the nature and amounts of a firm's economic resources as well as claims should be effectively communicated so as to help investors to identify the firm's financial strengths and weaknesses (IFRSs Conceptual Framework, para.1.13). There are economic consequences associated with such financial information; for instance, financial information provided in the financial reports constitutes an important element in the mix of data that investors utilize when they engage in the buying and selling of shares, since that determines share prices. For firms located in jurisdictions with undeveloped markets, such as in some developing countries, accounting data is even more important, since it is the only information available that can be used to value and evaluate firms, thus, one way or the other, directly or indirectly, accounting data is essential to corporate governance. Without accurate, reliable accounting information, it would be very difficult, if not impossible, to tell whether firms are keeping their promises to investors (Macey 2019, p.155).

Financial information also influences investors' behavior with respect to portfolio selection. This in turn affects security prices and, therefore, the terms on which a firm obtains additional financing (Palea, 2013, p.248). When firms practice greater transparency and better disclosure, they keep corporate stakeholders better informed about the way a firm is being managed (S&P, 2002, p.5). With the right information available for investors, securities in the market will be optimally priced and there will be efficient allocation of capital. This present study therefore, seeks to investigate the content of annual reports, specifically, content relating to the clarity and level of disclosure of certain pertinent information, financial performance and how these are disclosed and measured by listed firms. This leads to the following hypothesis; *H2: There is statistically significant positive relationship between disclosure clarity and disclosure compliance level.*

2.12 CORPORATE DISCLOSURE INDICES

The methodology for computing Disclosure indices involves the use of disclosure checklist at the initial stage. There are two approaches to the use of the disclosure checklist. The first one focuses on the use of the externally-developed disclosure checklist while the second involves self-constructing a disclosure checklist for the specific research. This present study employs the first type, by adopting an externally developed checklist constructed by Deloitte (2020); it is very current and very detailed and covers all the IAS and the IFRS. The checklist selected for this current study are checklist for - IAS 1, IAS 7, IFRS 7 and IFRS 9; the scores obtained using these checklists are then used for the computation of the indices.

2.12.1 Underlying Hypothesis on Corporate Disclosure

The intuition behind these indices is based on some assumptions;

- high disclosure clarity would have a positive relationship with financial performance
- firms with lower agency costs will disclose with higher clarity
- high disclosure level should lead to higher returns to investors because they can make decisions with precision and earn better returns
- higher agency costs diminish financial performance and liquidity

2.12.2 Different Indices Produce Different Results

Measuring the extent of information disclosed by listed firms is a complex task. That notwithstanding, accounting researchers generally rely on disclosure indices to obtain a proxy for the extent of information disclosed by firms (Bravo, Abad, & Trombetta, 2009). There is no consensus on a single best information disclosure index, as such some studies suggest that a particular type of disclosure index is irrelevant to its desired outcome (Abdi, Kacem & Omri, 2017). But in their study of Spanish IBEX 35 stock market index, Bravo et al., (2009, p.272) discovered that the choice of one index instead of another, can affect crucially the results of the analysis because different indices produce significantly different rankings of firms in terms of their disclosure.

Again, Tsalavoutas, Evans and Smith, (2010) found that the two indices (unweighted and partially unweighted) produced significantly different overall and relative disclosure scores and that these differences, and consequently the method used to measure disclosure, may have econometric implications affecting the explanatory power of ordinary least squares (OLS) and independent variables. The authors, therefore, recommended that the simultaneous application of the two methods would result in more robust and more informative findings for practitioners and academics.

Bravo, Abad and Trombetta (2009, p.255) also maintain that the choice of an index plays a crucial role in empirical disclosure studies and that different indices produce significantly different rankings of firms in terms of their disclosure.

In light of the preceding studies, the present study adapts both methods, introduces two novel WDI (weighted disclosure indices) and employs OLS regression for the analysis. The focus of this study is on corporate governance variables relating to finance and accounting information disclosure. There is paucity in the simultaneous application of UDI and PUDI in literature (Tawiah & Boolaky, 2019). Generally, disclosure studies employ OLS regression which is applied in this study (Tawiah & Boolaky, 2019) and similar to the research by Al-Shiab (2003), information for computations will be gleaned from sources like - the statement of comprehensive income, statement of financial position and auditor`s reports.

2.12.3 Unweighted Disclosure Index

The most commonly used metric for determining compliance with disclosure requirements by a firm is the unweighted disclosure index (UDI). It has been used by many researchers including Agyei-Mensah, 2019; Abdi, Kacem & Omri, 2017; Isukul & Chizea, 2017; Kamel & Awadallah, 2017; Tahat, Dunne, Fifield & Power 2016; Bepari & Mollik, 2015; Agyei-Mensah, 2013; Rouf, 2011. The UDI approach to measuring disclosure employs the binary measurement technique of 1 if an item is disclosed and 0 otherwise, hence, the assumption is that an item will either be disclosed (1) or not disclosed (0). Abdullah, Evans, Fraser and Tsalavoutas (2015, p.334) describe it as the ratio of the total number (T) of items disclosed (d_i) by company (j) to the maximum possible number of disclosure items (M) for that company. Tahat, Dunne, Fifield and Power (2016) contend that unweighted indices are more suitable research instruments in corporate disclosure studies when the research is focused on all groups who use a firm's annual report, rather than the requirements of any specific user category.

There are, however extreme case measures which overlook several options in-between these extremes; for instance, an item can be partially disclosed but the UDI technique will fail to accurately capture this. The index is described as an 'unweighted' because each item is treated equally; this is used for measuring a combination of voluntary and mandatory disclosures. This method has also been applied by many studies in measuring compliance with IAS/IFRS disclosures (Tawiah & Boolaky, 2019; Rahman & Hamdan, 2017; Bepari & Mollik, 2015; Khlif, Samaha & Azzam, 2015; Agyei-Mensah, 2013; Abd-Elsalam & Weetman, 2003; Street & Gray, 2001; Street & Bryant, 2000).

Rouf (2011) empirically tested the nexus between financial performance and level of corporate governance disclosure in Bangladesh using 94 non-financial listed firms. Employing the ordinary least squares estimation strategy and constructing an unweighted metric of corporate governance disclosure, the study showed that financial performance and board audit committees promote corporate governance disclosures; however, managerial ownership reduces corporate governance disclosure. Abdi, Kacem and Omri (2017) contend that unweighted index is better, even though both weighted and unweighted indices produce no differences in the results and that the main advantage of the unweighted method is to avoid the subjectivity characterizing the weighted index. The authors noted that with the weighted index, the same item can be weighted differently by various users. This argument, however, can be valid only if the measuring technique for the index is not properly constructed and not given standard weight. Obviously, if the same checklist is used and the scoring technique is a scoring scale as has been used in this present study, then the result will definitely be the same regardless of who does it and the number of times it is done.

In fact, the UDI approach has been found to have a high tendency of producing unjustifiably high scores for some firms because the scoring approach treats all items equally. Tawiah and Boolaky (2019, p.582) emphasised that while UDI approach is simple and understandable, it is limited by giving the same weight to all standards, irrespective of the number of disclosure requirements, per standards.

2.12.4 Partially Unweighted Disclosure Index

Partially Unweighted Disclosure Index (PUDI) is an enhancement of UDI and it has been used by authors, such as Alves (2017), Kolsi (2017), Appiah, Awunyo-Vitor, Mireku and Ahiagbah (2016), Abdullah, Evans, Fraser and Tsalavoutas (2015), Lu (2014), Tsalavoutas, Evans and Smith, (2010) and Al-Shiab (2003). The determination of PUDI goes one step beyond the UDI calculation. After using the binary score (1 or 0), the total score is aggregated to obtain total score for each firm, in each category. This figure is further divided by the total number of items in applicable standards for a firm.

According to Al-Shiab (2003) and Tsalavoutas, Evans and Smith, (2010) the unweighted index (UDI) suffers from a vital limitation, that is, the number of disclosure items required by different standards varies considerably and should be given the same weight. Their argument is especially valid when measuring mandatory disclosure requirement where some standards require a large number of items to be disclosed (for example, IAS 1 and IFRS 7) while others require only a few (for example, IAS 7 and IFRS 9). These observations clearly suggest that, standards which require more items to

be disclosed, in other words, standards with more items included in the index, are unintentionally and indirectly treated equally with those that require fewer items to be disclosed (Al-Shiab, 2003, p. 222). In order to eliminate this problem, Al-Shiab (2003) proposed an alternative method known as 'partial compliance' (PC) which alternatively can be viewed as 'partially-unweighted disclosure index' (PUDI) approach. With this method, the level of disclosure for each firm is measured by adding the level of disclosure for each item in each standard and then dividing this sum by the number of items applicable to each firm in the total points for all standards. This gives partial weight points to each applicable item and avoids the problem of unintentionally giving less/more weight to a sub-category with a larger number of items in the index (Tsalavoutas, Evans & Smith, 2010, p.216; Al-Shiab, 2003, p.220); that means, giving different partial weighting to disclosure items in different sub-categories. PUDI is more vigorous than UDI, however, it has received very little attention (Appiah et al., 2016; Kolsi, 2017; Alves, 2017; Miihkinen, 2008), although, some studies even employed both UDI and PUD. In their studies, Abdullah, Evans, Fraser and Tsalavoutas (2015) for instance, used both UDI and PUDI to study IFRS mandatory disclosures in Malaysia. Following these preceding studies, the present study utilised the Partial Compliance technique in combination with UDI in studying the extent of corporate disclosure in South Africa and Ghana. A critical look at this partial weighing technique by Al-Shiab (2003), which, was succinctly explained by Tsalavoutas et al., (2010) as its application confirmed that their technique, is a partially-unweighted disclosure index. While this approach is good and better than the unweighted index, it is not robust enough to capture the micro nuances in disclosure items as will be explained in the ensuing discussions on weighted disclosure index. There is, therefore, the need to develop it further in the present study using a new technique called 'weighted disclosure index' (WDI).

Lu (2014) used PUDI to examine disclosure of non-financial statement (NFS) and reported that the level of equity-related NFS disclosures is positively associated with subsequent equity financing, suggesting that equity-related disclosures facilitate the flow of funds from equity investors to the firms. The level of debt-related disclosures, however, is positively associated with subsequent equity financing, confirming that public disclosure of debt-related NFS information provides useful information to potential equity holders but not to potential lenders. Similarly, Appiah, Awunyo-Vitor, Mireku and Ahiagbah (2016) used PUDI and reported an insignificant relationship between profitability and a firm's level of compliance with IFRS mandatory requirements, indicating that profitability is not related to the disclosure of quality accounting information in the Ghanaian context. Tsalavoutas, Evans and Smith, (2010, p.221) claim that since the PUDI method measures compliance with the requirements of each standard separately, it allows researchers to explore non-compliance clusters of particular standards and correlation of such clusters with other variables such

as industry, national jurisdictions, auditor size, among others. When researchers include standards with a large range of required items in their research instrument, the PC method may produce fewer misleading results. Specifically, since the binary approach produced higher compliance scores for the sample of Tsalavoutas, Evans and Smith, (2010) and a different ranking order, it may provide a misleading perception of the extent to which firms comply with the disclosure requirements of accounting standards.

2.12.5 Weighted Disclosure Indices

PUDI is an enhancement on UDI, although, it still uses the binary (1 or 0) technique in scoring for whether an item has been disclosed or not and does not generate weight for each standard. Using the binary approach has been identified in this present study as having the tendency of over-awarding or under-awarding marks because of the extreme scoring of either disclosing nothing (0) or everything (1). In other words, the binary technique suggests that, it is either an item is not disclosed at all which translates to zero (0) or an item is 100 percent disclosed (1). The common scoring technique has been that an item is scored 1 if disclosed and 0 otherwise. Extant literature has mostly used this technique (Haddad, Shibly, Haddad, 2020; Chantachaimongkol & Chen, 2018; Hieu & Lan, 2015; LU, 2014; Siagian & Rahadian, 2013; Boubaker, Lakhali and Nekhili, 2012; Rouf, 2011; Khanna, Palepu & Srinivasan, 2004; Patel Balic & Bwakira, 2002), however, this scoring technique has a serious flaw which needs to be addressed - *What if an item in a standard is partially disclosed? Is it scored 1 or 0?* Scoring it 1 will result to over-scoring and scoring 0 will result to under-scoring.

To mitigate this flaw of extreme scoring by both UDI and PUDI, this current study formulates a weighted disclosure index (WDI) which uses a scoring scale technique and generate weight for each standard. This insight of a scoring scale is inspired by prior research work of Wardhani (2019, p.381) where the CG Watch report scoring scale was used. According to this, the scorings are ranked using the following scale: Full disclosure = 1 point; High disclosure: 0.8 - 0.99 points; Substantial disclosure: 0.51 - 0.79 points; Average disclosure: 0.30 - 0.50 point; Low Disclosure: 0.01 – 0.29 and Not disclosed = 0 point. This scoring scale minimizes subjectivity by minimizing the range of scores, with the intuition that it is capable of capturing all micro nuances and remedies the wide disparity in score when used by different researchers. Miihkinen (2008) also used a similar technique whereby on a checklist, a firm is scored 1 for complete disclosure but 0.5 if disclosed information is insufficient.

Essentially, the concept of generating weights can be derived from the concept of a portfolio return. In financial management, investment management and corporate finance, portfolio returns are calculated based on the weight of each security and its expected return. Brealey, Myers and Allen (2017, p.176) teaches that the expected return on a portfolio is the weighted average of the expected returns on the individual asset, also, Ross, Westerfield, Jaffe and Jordan (2016, p.338) teaches that the expected return on a portfolio is a weighted average of the expected returns on the individual securities.

There is no subjectivity in generating weights using this method, hence the issue of bias or subjectivity in assigning weights is eliminated because this method does not assign weights, it generates weights. This present study, therefore, applies this concept; the researcher conceptualizes and formulates a novel weighted disclosure index (WDI) for estimating disclosure levels on IASs and IFRSs. The formulation is in five-stages - it begins with a disclosure checklist adopted from Deloitte, the scoring scale and the weights and how the weights are generated from each standard. Besides the scoring shortfalls identified in UDI and PUDI, the second gap identified in the discussions concern generating weight for each standard which are disregarded by UDI and PUDI. Since some standards require more items to be disclosed than others, it is imperative to generate weight for each standard based on the number of items required to be disclosed. With PUDI an attempt is made to assign partial weights to the standards but these were not sufficient. This present study applies the concept of the calculation of a portfolio return as stated earlier, and then generate weights for each standard. The methods for generating the weights are similar to how weights are generated for each asset in portfolio return; the sum of these weights should equal 1. This eliminates the limitations of both UDI and PUDI where standards are not weighted. The computation of WDI entails five stages of extensive calculations. Detailed computations from stage one to five have been explained in the methodology section of Chapter three).

2.12.6 Corporate Disclosure Checklist

Marston and Shrivies (1991) hold that disclosure checklists are extensive lists of selected items that must be disclosed in firms' report so that calculating the index score for a particular firm gives a measure of the extent of disclosure. As a result, the content analysis approach which involves the adoption of a checklist to ascertain the extent of items disclosed in an annual report, is employed; the checklist developed by Deloitte (2020) is adopted for this present study. The focus of this present study is on corporate governance variables relating to accounting and finance; therefore, the adoption of this new index is further influenced by insights gained from disclosure checklists provided by KPMG (2019), Ernst and Young (2020) and S&P (2002).

In 2002, Standard and Poor (S&P) published their Transparency and Disclosure (T&D) checklist which sought, among other things, to uncover which companies at that time, provided the most extensive disclosure in their basic corporate filings, as well as which companies disclosed above and beyond what the law required (mandatory and voluntary). The Standard and Poor's T&D study was conducted as part of their initiative to introduce new governance information and analytical services; the study was a proprietary evaluation of corporate disclosure patterns of more than 1,500 companies. The T&D methodology incorporates disclosure items from the criteria that Standard & Poor's Governance Services uses in its interactive corporate governance scoring service.

To assess T&D practices, Standard and Poor's (2002) examined companies' annual reports for information attributes (items) broadly divided into three categories. The study then identified 98 disclosure items from these categories - ownership structure and investor rights, financial transparency and information disclosure, board and management structure and process.

The study investigated whether these individual items were disclosed by focusing on annual reports as the primary source of corporate disclosure. The overall ranking reflected the ratio of the number of present attributes out of the possible 98 items. Individual rankings for each of the three subcategories were also calculated. Major findings of the study included the amount of information companies provided in their annual reports that were correlated to market risk and valuations. The significance of the U.S. T&D rankings was explored by comparing Standard & Poor's rankings with factors affecting the cost of capital. It was found that companies with higher T&D rankings have lower market risk. In addition, companies with higher T&D rankings, based on annual reports alone tend to have higher price-to-book ratios. Their preliminary empirical findings indicate that companies can lower the cost of equity capital by providing higher transparency and disclosure.

The study also found that non-financial disclosure in annual reports needs improvement. Across the board, the most extensive disclosure was provided in the area of financial information. Disclosure

levels are lowest in the areas of ownership structure, investor rights, and management and board structures and processes. Companies that ranked highest in the study practiced a greater level of non-financial disclosure along with full financial disclosure. In particular, the differences in results between U.S. companies on annual reports alone and on a composite basis were largely due to non-financial disclosure. This suggested that if there is a clear area in which improvement is needed, it was in these non-financial categories.

The findings also suggest that for emerging markets, firms with higher T&D are valued higher than comparable firms with lower T&D. The study was based on the information disclosed in key public documents, so it did not include all of the different types of company disclosure that may exist; for instance, company web sites and other types of reports that provide additional information of interest to stakeholders were not used for data collection. For the purposes of consistent, objective, global comparison, the study only focused on core public disclosure documents. The Standard & Poor's T&D study enabled valuable benchmarking for other researchers and revealed interesting findings, however, S&P used annual reports only, whereas this study included website information. This approach has been used by previous researchers like Bokpin, 2013; Alves, 2011; Khanna et al., 2004 and Patel et al., 2002.

2.13 FINANCIAL INFORMATION REPORTING

One central function of financial reporting is to constrain managers to act in the shareholders' interest (Watts & Zimmerman, 1978, p.113). The objective of financial reporting is, therefore, to coerce managers to provide information about firms' financial position, performance and changes in their financial position; this is useful to a wide range of users in making economic decisions (Gowthorpe & Amat, 2005, p.58). Corporate disclosure in the annual report, therefore, publishes any financial and non-financial data emanating from the operations of the firm. This is usually both quantitative and qualitative data which should facilitate the making of financial decisions by stakeholders and it normally shows the firm's financial performance during the accounting period (Modugu, 2017). The real benefit to investors is that it aids in eliminating information asymmetry. The users/stakeholders include - shareholders, management, employees, suppliers, creditors, financial analysts, labour unions, stock brokers, regulators, government agencies and the public - however, priority is given to the information needs of investors as the providers of risk capital to the firm (Gowthorpe & Amat, 2005, p.58; Modugu, 2017; S&P, 2002, p.5). These risk-taking investors depend on these published financial and non-financial reports of the firm to make informed decisions (Gowthorpe & Amat, 2005, p.58), hence, this study focused on shareholders and debtholders.

2.13.1 INTERNATIONAL ACCOUNTING STANDARDS

International accounting standards play a crucial role in the stewardship responsibility of managers. It guides managers on what shareholders, debtholders and regulators expect from them. In other words, it sets the standards of practice regarding accountability and how to attain those standards. To meet these standards, firms are directly restrained from moral hazard. Compliance to these standards lead to operating within the tenets of the agency theory, the positive accounting theory and by extension improves value creation.

The Conceptual Framework of IFRS, (para. 1.12) states that a general-purpose financial report provides information about the financial position of a reporting entity. This information is about a firm's economic resources and any claims against the firm's assets. Financial reports also provide information about the effects of transactions and other events that change a firm's economic resources and claims. Both types of information provide useful input for investors to make decisions relating to providing resources to the firm.

The purpose of accounting, undoubtedly, is to communicate a firm's financial position to investors, including banks and other stakeholders, having a standardized way of presentation of the information becomes very necessary. Accounting standards were therefore introduced to provide a standardized format of accounting principles and rules that prescribe the content of financial statements which will enable investors assess the health of a firm. The main purpose for adopting one standard internationally is that, using different accounting standards makes it difficult for investors or lenders to compare the financial health of two firms. There are many IASs, however, the standards that are of particular importance to this study are IAS 1 and IAS 7.

2.13.2 International Accounting Standard 1: Presentation of Financial Statements

The IAS 1 prescribes the basis for the presentation of a general-purpose financial statements with the objective of ensuring comparability, both with a firm's financial statements of previous periods and with the financial statements of other firms (IFRS Foundation, p. A939, accessed in 2020).

The IAS 1 sets out the overall requirements for financial statements, including how they should be structured, the minimum requirements for their content and the principal concepts such as the going concern, the accrual basis of accounting and the current and non-current distinction. This standard requires that a complete set of financial statements should comprise of - a statement of financial position (the balance sheet), a statement of profit or loss and other comprehensive income (the income statement), a statement of changes in equity and a statement of cash flows.

The scope of IAS 1 applies to all general-purpose financial statements that are prepared and presented in accordance with the International Financial Reporting Standards (IFRSs). General purpose financial statements are those intended to serve users who are not in a position to require financial reports tailored to their particular information needs (IFRS Foundation, p. A939, accessed in 2020).

The objective of a general-purpose financial statements is to provide information about the financial position, financial performance, and cash flows of an entity that is useful to shareholders and debtholders in making economic decisions. To achieve these, a financial statement must provide information about - a firm`s assets, its liabilities, its equity, its income and expenses including gains and losses, contributions by owners and distributions to shareholders (dividend), and cash inflows and cash outflows (cash flows). This information, along with other information in the notes, assists users of financial statements in predicting the firm's future cash flows and, in particular, their timing and certainty. The requirement of the IAS 1 is that a financial statement must present fairly the financial position, the financial performance and cash flows of a firm. This fair presentation requires a faithful representation of the effects of transactions, other events, and conditions in accordance with the definitions and recognition criteria for assets, liabilities, income and expenses.

2.13.2.1. The Going Concern Concept

IAS 1, paragraph 25 prescribes that when preparing financial statements, management should assess a firm`s ability to continue as a going concern. It states that a firm should prepare financial statements on a going concern basis, unless management either intends to liquidate the entity or to cease trading, or has no realistic alternative but to do so. When management becomes aware, in making its assessment, of material uncertainties related to events or conditions that may cast significant doubt upon the entity`s ability to continue as a going concern, the entity shall disclose those uncertainties.

If this principle was applied, probably the collapse of the Ghanaian banks would not have been a surprise because they would have stated it in their previous year`s statement and investors would have picked some clues. It goes further to state that if for some reason an entity does not prepare financial statements on a going concern basis, it is expected to disclose that fact, together with the basis on which it prepared the financial statements and the reasons why the entity is not regarded as a going concern. The disclosure checklist of Appendix 1 contains all the disclosure requirements for IAS 1.

2.13.3. International Accounting Standard 7

Firms operate with cash, therefore, relatively, cash flow is more important than net income. Information about the cash flows of a firm is useful in providing investors who are users of financial statements (particularly shareholders and debtholders) with a basis to assess the ability of the firm to generate cash and cash equivalents as well as the needs of the firm to utilize those cash flows. The economic decisions that are taken by shareholders and debtholders require an evaluation of the ability of a firm to generate cash and cash equivalents and the timing and certainty of their generation (IFRS Foundation, p. A998).

IAS 7 require firms to provide information about any historical changes in cash and cash equivalents of a firm by means of a statement of cash flows which classifies cash flows, during the period from operating, investing and other financing activities. IAS 7 (para.3) states that users of a firm's financial statements are interested in how the firm generates and uses cash and cash equivalents. This is the case, regardless of the nature of the firm's activities and irrespective of whether cash can be viewed as the product of the firm, as may be the case with a financial institution. Firms need cash for essentially the same reasons, however different their principal revenue-producing activities might be. They need cash to conduct their operations, to pay their obligations, and to provide returns to their investors. Accordingly, this standard requires all entities to present a statement of cash flows. These disclosure requirements are contained in the disclosure checklist of Appendix 2.

IAS 7 which requires all entities to present a statement of cash flows, states that when used in conjunction with the rest of the financial statements, a statement of cash flows provides information that enable users to evaluate the changes in net assets of firms, their financial structure (including their liquidity and solvency) and their ability to affect the amounts and timing of cash flows in order to adapt to changing circumstances and opportunities. Cash flow information, thus, is useful in assessing the ability of a firm to generate cash and its equivalents and enable users to develop models to assess and compare the present value to future cash flows of different firms.

According to the IFRS Foundation, the requirement is that firms' statement of cash flows shall report such during the period which must be classified by operating, investing and financing activities. The classification by activities, provides information that allows users to assess the impact of those activities on the financial position of firms, the amount of their cash and cash equivalents. The amount of cash flows arising from operating activities is a key indicator of the extent to which the operations of firms have generated sufficient cash flows to repay loans, maintain the operating capability of the firm, pay dividends and make new investments, without recourse to external sources of financing.

2.13.3.1. Benefits of Cash Flow Information

IAS 7 (Paragraph 4) states that a statement of cash flows, when used in conjunction with the rest of the financial statements, provides information that enable users to evaluate the changes in net assets of an entity, its financial structure, including its liquidity and solvency, and its ability to affect the amounts and timing of cash flows in order to adapt to changing circumstances and opportunities. Cash flow information is useful in assessing the ability of a firm to generate cash and cash equivalents to enable users to develop models to assess and compare the present value of the future cash flows of different firms. Such generic information also enhances the comparability of the reporting of operating performance by different firms because it eliminates the effects of using different accounting treatments for the same transactions and events. Further, historical cash flow information is often used as an indicator of the amount, timing and certainty of future cash flows. It is also useful in checking the accuracy of past assessments of future cash flows and in examining the relationship between profitability and net cash flow and the impact of changing prices (IAS 7, paragraph 5). These disclosure requirements are contained in the disclosure checklist of Appendix 2.

2.13.3.2. Presentation of Statement of Cash Flow

Paragraph 10 and 11 of IAS 7 state that the statement of cash flows shall report cash flows during the period, classified by operating, investing and financing activities. Management is given the discretion to present it in a manner which is most appropriate to its business. These classifications are important because categorization by activity provides information that allows users to assess the impact of those activities on the financial position of a firm and the amount of its cash and cash equivalents. This information may also be used to evaluate the relationships among those activities. Paragraph 12 states that a single transaction may include cash flows that are classified differently; for example, when the cash repayment of a loan includes both interest and capital, the interest element may be classified as an operating activity and the capital element is classified as a financing activity.

Paragraph 13 explains that the amount of cash flows arising from operating activities is a key indicator of the extent to which the operations of the entity have generated sufficient cash flows to repay loans, maintain the operating capability of the entity, pay dividends and make new investments without recourse to external sources of financing. Information about the specific components of historical operating cash flows is useful, in conjunction with other information, in forecasting future operating cash flows. Paragraph 16 explains that the separate disclosure of cash flows arising from

investing activities is important because the cash flows represent the extent to which expenditures have been made for resources intended to generate future income and cash flows. Only expenditures that result in a recognised asset in the statement of financial position are eligible for classification as investing activities.

Paragraph 17 explains that the separate disclosure of cash flows arising from financing activities is necessary because it is useful in predicting claims on future cash flows, by providers of capital to the entity. Examples of cash flows arising from financing activities are - cash proceeds from issuing shares or other equity instruments, cash payments to owners to acquire or redeem the entity's shares, cash proceeds from issuing debentures, loans, notes, bonds, mortgages and other short-term or long-term borrowings, cash repayments of amounts borrowed and cash payments by a lessee for the reduction of the outstanding liability relating to a lease. These disclosure requirements are contained in the checklist of Appendix 2.

2.13.4 International Accounting Standard 23: Accounting for Borrowing Costs

Generally, firms account for costs of borrowing focusing on cost of debt and excluding costs of equity, however, costs of financing is a mix of costs of debt and cost of equity. In the IASs and the IFRSs, the focus has been on costs of borrowing. IAS 23, paragraph 3 states that the standard does not deal with the actual or imputed cost of equity, including preferred capital not classified as a liability. The standard defines borrowing costs to be interest and other costs that an entity incurs in connection with the borrowing of funds (Para.5). This could be the reason many firms generally focus on cost of debt, to the neglect of cost of equity. If a firm is closely held and managed by just a few owners, then ignoring cost of equity might not be a problem, however, listed firms raise substantial part of their financing from the general public who are investors, just like lenders/creditors, therefore, the focus should shift from cost of borrowing to costs of financing, which then includes costs of equity.

2.13.5 Financial Instruments: Disclosures (IFRS 7 and 9)

The objective of these IFRSs is for entities to provide disclosures in their financial statements that enable users to evaluate - the significance of financial instruments for the entity's financial position and performance, the nature and extent of risks arising from financial instruments to which the entity is exposed during the period and at the end of the reporting period, as well as how the entity manages those risks.

Paragraph 18 states that for loans payable recognised at the end of the reporting period, an entity shall disclose details of - any defaults during the period of principal, interest, sinking fund, or

redemption terms of those loans payable, the carrying amount of loans payable in default at the end of the reporting period, as well as whether the default was remedied, or the terms of the loan's payable were renegotiated, before the financial statements were authorised for issue.

2.13.5.1. Risk Management Strategies

Paragraph 22A states that an entity shall explain its risk management strategy for each risk category, of risk exposures that it decides to hedge as well as for which hedge accounting strategy was applied. This explanation should enable users of financial statements to evaluate - (a) how each risk arises (b) how the entity manages each risk (including whether the entity hedges an item in its entirety for all risks or hedges a risk component (or components) of an item and why) and (c) the extent of risk exposures that the entity manages. Paragraph 22C states that when an entity designates a specific risk component as a hedged item, it shall provide, in addition to the disclosures required by paragraphs 22A and 22B, qualitative or quantitative information about: (a) how the entity determined the risk component that is designated as the 'hedged item' (including a description of the nature of the relationship between the risk component and the item as a whole) and (b) how the risk component relates to the item in its entirety (for example, a designated risk component historically covers, on average, 80 per cent of the changes in fair value of the item as a whole).

Paragraph 23A states that unless exempted by paragraph 23C, an entity shall disclose by risk category quantitative information to allow users of its financial statements to evaluate the terms and conditions of hedging instruments and how they affect the amount, timing and uncertainty of future cash flows of the entity. (Details of these disclosure requirements are contained in the checklist of Table 3.3 and 3.4 in the methodology section of Chapter Three).

IFRS 7, paragraph 31 states that an entity shall disclose information that enables users of its financial statements to evaluate the nature and extent of risks arising from financial instruments to which the entity is exposed at the end of the reporting period. The disclosures required by paragraphs 33–42 focus on the risks that arise from financial instruments and how they have been managed. These risks typically include, but are not limited to - credit risk, liquidity risk and market risk (paragraph 32). Providing qualitative disclosures in the context of quantitative details enable users to link related disclosures, hence, form a comprehensive picture of the nature and extent of risks arising from financial instruments. The interaction between qualitative and quantitative disclosures contributes to providing information in a way that better enables users to evaluate an entity's exposure to risks, in its entirety (paragraph 32A).

2.13.5.2. Liquidity Risk

Liquidity risk represents the difficulties that an entity will encounter in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset (IFRS Foundation, p.A312). In accordance with paragraph 34(a) an entity must disclose summary quantitative data about its exposure to liquidity risk on the basis of the information provided, internally, to key management personnel and the entity shall explain how those data were determined. If the outflows of cash (or another financial asset) included in those data could either: (a) occur significantly earlier than indicated in the data, or (b) be for significantly different amounts from those indicated in the data (for example, a derivative that is included in the data on a net settlement basis but for which the counterparty has the option to require gross settlement), the entity shall state that fact and provide quantitative information that enables users of its financial statements to evaluate the extent of this risk unless that information is included in the contractual maturity analyses required by paragraph 39(a) or (b).

Appendix B11 states that in preparing the maturity analyses required by paragraph 39(a) and (b), an entity uses its judgement to determine an appropriate number of time bands. An entity, for example, might determine that the following time bands are appropriate: (a) not later than one month; (b) later than one month and not later than three months; (c) later than three months and not later than one year; and (d) later than one year and not later than five years.

Paragraph 39(b) requires an entity to disclose a quantitative maturity analysis for derivative financial liabilities that shows remaining contractual maturities, if these are essential for an understanding of the timing of the cash flows; for example, this would be the case for: (a) an interest rate swap with a remaining maturity of five years in a cash flow hedge of a variable rate on financial asset or liability; (b) all loan commitments.

Paragraphs 39(a) and (b) require an entity to disclose maturity analyses for financial liabilities that show the remaining contractual maturities for some financial liabilities. In this disclosure: (a) when a counterparty has a choice of when an amount is paid, the liability is allocated to the earliest period in which the entity can be required to pay (for example, financial liabilities that an entity can be required to repay on demand (for instance, demand deposits) are included in the earliest time band. (b) when an entity is committed to make amounts available in instalments, each instalment is allocated to the earliest period in which the entity can be required to pay (for example, an undrawn loan commitment is included in the time band containing the earliest date it can be drawn; (c) for issued financial guarantee contracts, the maximum amount of the guarantee is allocated to the earliest period in which the guarantee could be called.

Appendix B11E states that Paragraph 39(c) requires an entity to describe how it manages the liquidity risk inherent in the items disclosed in the quantitative disclosures required in paragraph 39(a) and (b). An entity shall disclose a maturity analysis of financial assets it holds for managing liquidity risk (for example, financial assets that are readily saleable or expected to generate cash inflows to meet cash outflows on financial liabilities), if that information is necessary to enable users of its financial statements to evaluate the nature and extent of liquidity risk.

Appendix B11F states that other factors that an entity might consider in providing the disclosure required in paragraph 39(c) include, but are not limited to, whether the entity: (a) has committed borrowing facilities (for example, commercial paper facilities) or other lines of credit (for example, stand-by credit facilities) that it can access to meet liquidity needs; (b) holds deposits at central banks to meet liquidity needs; (c) has very diverse funding sources; (d) has significant concentrations of liquidity risk in either its assets or its funding sources; (e) has internal control processes and contingency plans for managing liquidity risk; (f) has instruments that include accelerated repayment terms (for example, on a downgrade of the entity's credit rating); (g) has instruments that could require the posting of collateral (for example, margin calls for derivatives); (h) has instruments that allow the entity to choose whether it settles its financial liabilities by delivering cash (or another financial asset) or by delivering its own shares; or (i) has instruments that are subject to master netting agreements. Details of these disclosure requirements are contained in the checklist of Table 3.3 and 3.4 in methodology section in Chapter Three).

2.13.5.3. Market Risk

Market risks refers to the fact that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: currency risk, interest rate risk and other price risk. Currency risks represent those whose fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. Interest-rate risk represent the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. Other price risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices (other than those arising from interest rate risk or currency risk), whether those changes are caused by factors specific to the individual financial instrument or its issuer or by factors affecting all similar financial instruments traded in the market (IFRS Foundation, p. A312)

Paragraph 40 states that unless an entity complies with paragraph 41, it shall disclose: (a) a sensitivity analysis for each type of market risk to which the entity is exposed at the end of the reporting period, showing how profit or loss and equity would have been affected by changes in the

relevant risk variable that were reasonably possible at that date; (b) the methods and assumptions used in preparing the sensitivity analysis; and (c) changes from the previous period in the methods and assumptions used, and the reasons for such changes. Interest rate risk arises on interest-bearing financial instruments recognised in the statement of the financial position (for example, debt instruments acquired or issued) and on some financial instruments not recognised in the statement of financial position (for example, some loan commitments). Currency risk (or foreign exchange risk) arises on financial instruments that are denominated in a foreign currency, that is, in a currency other than the functional currency in which they are measured (Appendix B23). Details of these disclosure requirements are contained in the checklist of Appendix 3.

2.14. Corporate Governance and value creation

Transparency and disclosure are central to corporate governance. Higher transparency and extensive disclosure reduce the information asymmetry between management and the external investors (equity and bond holders), thereby mitigating the agency problem in corporate governance (Patel, Balic and Bwakira, 2002, p.326). The Chairperson of U.S SEC, on September 17, 2009, stated that corporate governance is about maintaining an appropriate balance of accountability between three key players: the shareholders, the board members (directors) elected by the shareholders, and the managers appointed by the directors. Accountability among these players requires not only adequate transparency, but also an effective means to take action against poor performance or bad decisions (Drake and Fabozzi, 2010, p.89). The key variables in the foregoing definitions are transparency and accountability.

The agency problem in corporate governance can be mitigated, in practice, in several ways. This includes - vigilant board of directors, timely and adequate disclosure of financial information, meaningful disclosure about the board and management process, and a transparent ownership structure classifying any conflicts of interests between managers, directors, shareholders, and other related parties (Patel et al., 2002, pp.326-327 and S&P, 2002, p.5). Generally, corporate governance refers to the policies, principles and measures put in place by shareholders to ensure that their investment is protected. It is also to ensure that the firm is managed efficiently for continuous survival. The King IV Report (2016, p. 20) defines corporate governance as the exercise of ethical and effective leadership by a governing body towards the achievement of outcomes such as ethical culture, good performance, effective control and legitimacy.

The application regime for King IV is “apply and explain” which are fundamental towards good corporate governance. The King IV report states that, all principles are aspirations and ideals that

firms should strive to achieve in their journey towards good governance and realising the governance outcome. The report continues that practices must be provided in the form of a narrative account, with reference to practices that demonstrate application of the principle and that explanations should address which recommendations or other practices have been implemented, and how these achieve or give effect to the principle. The conceptual framework of King IV states that the objective of general-purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling or holding equity and debt instruments, and providing or settling loans and other forms of credit.

Nalukenge, Nkundabanyanga and Ntayi (2018, p.773) studied corporate governance and compliance with IFRS and found that the two are positively and significantly related. Their findings imply that having good or bad corporate governance system is capable of causing significant variations in compliance with IFRS, hence, having the right information systems that can capture financial data accurately, enhances compliance with IFRS.

2.14.1. Corporate Disclosure and Cost of Equity

Findings regarding disclosure and cost of finance nexus are mixed for some studies find positive association, others find negative relationship. Those that support the view that higher corporate disclosure lowers cost of equity argue that there is a negative relationship between corporate risk disclosure and cost of equity capital. Corporate risk disclosure lowers the cost of capital because as more information is disclosed, investors obtain better information about managing risk, hence, they expect no shocks and have confidence in the firm (Nahar, Azim & Jubb, 2016, pp.483-490). In a review of prior studies, Wardhani (2019, pp.373-374) found that financial disclosure provides economic consequences - by reducing the cost of equity, enhancing stock market liquidity, reducing estimation risk, reducing information asymmetry and lowering bid-ask spread - therefore, transparency and disclosure are fundamental variables of corporate finance.

Kristandl and Bontis (2007) found that the level of disclosure is negatively related to cost of capital, while Khlif, Samaha and Azzam (2015, p.43,46) discovered that the correlation between the level of voluntary disclosure and cost of equity capital is negative and highly significant; showing that the level of voluntary disclosure contributes to a reduction of cost of equity capital. Embong, Mohd-Saleh and Hassan (2012, p.120), however, found that the level of disclosure does not affect cost of capital of foreign firms trading in the USA and argued that disclosure may not necessarily reduce cost of equity, despite the common perception.

2.15. The King IV Report and Corporate Reporting

The King IV Report is a model for good corporate governance in Africa; if its principles are applied as prescribed, almost all firms will attain impressive financial performance. The King IV (2016: p. 48) recommend the following corporate reporting practices: 1) a board of directors should ensure that annual reports issued by the firm enable stakeholders to make informed assessment of the firm's performance, and its short, medium and long term prospect; 2) a board of directors should assume responsibility for the firm's reporting by setting the direction for how it should be approached and conducted; 3) a board should approve management's determination of a reporting frameworks, including reporting standards, to be used, taking into account, legal requirement and the intended audience and purpose for each report; 4) a board should oversee that the annual financial statements, sustainability reports, and other online reports are issued, as is necessary, to comply with legal requirement, and/or to meet the legitimate and reasonable information needs of material stakeholders; 5) a board should oversee that the firm issues an integrated report at least annually; 6) a board should approve management's bases for determining materiality for the purpose of deciding which information should be included in the external reports; 7) a board should ensure the integrity of external reports and 8) a board should ensure that corporate governance disclosures required, integrated reports and annual financial statements and other reports are published on the firm's website, or on other platforms or through other media, as are appropriate for access by stakeholders.

Following the recommendations of the King IV Report, particularly, number 8, this study has included firms' websites as the second medium of disclosure of pertinent financial information in addition to the annual report. The World Wide Web (www) has now penetrated deep into almost every part of the 21st Century world and serves as the medium of obtaining global information, therefore, information disclosed on firms' website is as good as what is disclosed in the annual report.

2.16 The Annual Report

Traditionally, the disclosure of financial information is done using the annual report. Most prior studies on disclosure used the annual report as the main sources of data (Al-Shiab, 2003; Patel et al., 2002, and S&P, 2002). Hooks and Davey (2002, p.502) claim that annual reports are the most comprehensive document and are the main medium of disclosure to the public. These reports are mass communication medium for public accountability and the only sources of information about the performance of a firm. It has a wide coverage and is made available to all stakeholders (Bravo, Abad & Trambetta, 2009).

After reassessing the value of corporate reporting using a survey of 500 report users in the UK, US, and Canada, ACCA (2012) found that majority of respondents confirmed that annual report is their primary or only source of information while a minority claim that it is difficult to assess a company's performance using the annual report.

2.16.1 Website Disclosures and Annual Report

The growth of the internet has dramatically affected the way firms operate. The traditional ways of doing things have now become outmoded and has given way to computers and internet. Banking transactions, for instance, is gradually becoming more convenient being executed online than queuing and transacting at the banking halls. Corporate reporting has not been left out of this transformation. Investors and researchers depend on the traditional annual reports only as their main source of information when studying corporate disclosures and transparency (Al-Shiab, 2003; Patel et al., 2002; S&P, 2002). In addition to disclosures in the traditional annual reports, firms now host websites where they disclose extensive information online. With firms having increasing number of investors spread across the globe, due to the ease and speed of air travel, it is more convenient for shareholders to access information about firms on their websites. This study adopts the S&P transparency and disclosure index, however, it does not rely exclusively on annual reports for disclosed items as was done by S&P (2002).

Abdi, Kacem and Omri (2017, P.464) maintain that the internet offers various forms of disclosure presentation that are not available in traditional printed annual reports, such as video files, audio files, hyperlinks and dynamic graphics. Online disclosure allows for the providing of immediate, up-to-date and relevant information to users, consequently, it encourages management to do a more transparent disclosure; this leads to improvement of a firm's transparency because information put out there can be easily put to fact check. Lack of transparency can inhibit foreign direct investment which is critical for economic growth and employment in developing countries like Ghana and South Africa. Few prior studies have included websites disclosures in addition to the conventional annual report; such studies include Khlif, Samaha and Azzam (2015), Appiah and Acheampong, (2019), Boubaker, Lakhal and Nekhili (2012). It has been argued that online disclosure can be treated as a transmission a signal of a high-quality firm, which is modern, updated and more technologically advanced than other firms that do not use web-based disclosure (Abdi, Kacem and Omri, 2017, P.468).

In their study of French firms, Boubaker, Lakhal and Nekhili (2012) found that - large-sized firms, large-audited firms, firms featuring a dispersed ownership structure, those that have issued bonds

or equities and IT industry firms - extensively used the web to disclose information to their shareholders. Abdi, Kacem and Omri, (2017, p.485) reported in their study that firm size has positive significant association with financial information score, thus, firms that are large in size are more likely to disclose more financial information on their websites to benefit from decreasing agency costs. The size of the audit firm is significantly associated with financial information score. Surprisingly, Abdi, Kacem and Omri, (2017, p.485) found that there is no association between the online disclosure and the firm profitability and ownership concentration.

This present study assesses the ease of accessibility to firms' websites and the disclosure of financial information. Africa is the second largest continent in the world in terms of size and population. Its population is estimated by Internet World Stats to be around 1.34 billion in 2020. Internet penetration is estimated to be around 39.3 percent as at 2019, and growing. Ghana's population was around 31 million in 2020 and has internet penetration of around 37.8 percent as at December 2019 and is growing. South Africa's population is estimated to be around 60 million in 2020. Internet penetration is estimated to be 55 percent as at December, 2019. With Africa's population increasing rapidly and coupled with internet usage, it becomes prudent, on the part of firm managers, to consider developing web-based reporting on their websites to keep abreast with time.

These lead to the following hypothesis; *H3: There is statistically significant positive relationship between website reporting and disclosure indices.*

2.17. Corporate Disclosure and Financial Performance

The Conceptual Framework of IFRSs, para.1.16 states that financial reports provide information about the effects of transactions and other events that change a reporting entity's economic resources and claims. Information about a reporting entity's financial performance helps users to understand the return that the entity has produced on its economic resources; this information can help users to assess management's stewardship of the entity's economic resources. Information about the variability and components of that return is also important, especially in assessing the uncertainty of future cash flows. Additional information about a reporting entity's past financial performance and how its management discharged its stewardship responsibilities is usually helpful in predicting the entity's future returns on its economic resources.

It is generally acknowledged that high quality corporate disclosure should translate to high financial performance because stakeholders can then make informed investment decisions and keep managers in check. Concerning corporate disclosure and financial performance, Zaman, Arslan, and

Siddiqui (2015) examined the level of corporate disclosure and how it affects the financial performance of firms in Pakistan. Their findings revealed that the level of corporate disclosure is about 79% in Pakistan, implying that the level of disclosure is very impressive. Employing panel data of listed firms, the authors concluded that disclosure enhances the financial performance of listed firms in Pakistan.

Generally, it is believed that good corporate governance has positive effect on financial performance for good corporate governance promotes transparency which then induces high corporate disclosure. Previous studies support these concepts; for instance, Mans-Kemp (2014) investigated corporate governance and financial performance of selected industrial firms on the JSE. Using the panel data analysis approach, the study illustrated that corporate governance had a positive significant relationship with accounting-based measures of performance which was proxied by earning per share (EPS), but a negative significant relationship was reported between corporate governance and total shareholder return. Baffling as it may be, Michelberger (2017) found that companies complying with the German Corporate Governance Code in full were worse off than companies that did not follow the rules. Surprisingly, the qualitative and quantitative analysis showed that maximum fulfillment of good corporate governance standards had no effect on firm performance, neither in terms of revenue growth and profitability, nor in terms of shareholder return. Dzingia and Fakoya (2017) also studied the effect of corporate governance structures on the financial performance of listed mining firms on the JSE. Employing corporate governance indicators, such as – socially-responsible investment, sustainability reporting as well as integrated annual financial statements in a random effect panel model between 2010 and 2015 - the results indicate a weak negative relationship between a board's independence and financial performance. Similarly, Isukul and Chizea (2017) studied corporate governance disclosure in developing countries, by doing a comparative analysis in South Africa and Nigeria, using the unweighted disclosure index technique and data from annual reports of listed banks; their results suggested that Nigerian and South African banks had a high level of corporate governance disclosure, however, their study did not look at performance. In reporting on voluntary corporate governance disclosure, the researchers found that Nigerian banks appear to be collating information with no link to the overall business strategy of the organization, while the South African banks have a more robust approach to voluntary corporate governance disclosure because they apply international guidelines, such as the Global Reporting Initiative to their disclosure.

In Kenya, Rading and Wawera (2016) studied corporate governance guidelines compliance and financial performance of listed companies and found that compliance with the listed corporate governance index was positively related to firm performance. In 2013, Ntim examined the nexus

between integrated corporate governance framework and financial performance of South African-listed firms. Using a panel of listed firms in South Africa, the researchers reported a significant positive link between good corporate governance practices and Tobin's Q; performance was proxied by Tobin's Q. The result implied that better-governed corporations in South Africa tend to be associated with higher financial performance which is rewarding for investors.

In Bangladesh, Haque, Arun and Kirkpatrick (2011) examined corporate governance and capital markets and found that firm-level corporate governance quality can enhance both the firm's ability to gain access to finance and its financial performance, which eventually lead to capital market development.

Contextually, many of these studies have studied varied corporate finance variables and have produced mixed results. In an earlier study, Martinez-Ferrero (2014) investigated the consequence of financial reporting disclosure quality on corporate performance. Employing a generalized method of moment panel of non-financial listed firms from over 25 countries, the results showed that there is a significant positive relationship between financial performance and disclosure. The authors concluded that the quality of accounting information disclosure can reduce the cost of capital directly and indirectly. These findings imply that companies who have higher financial statement disclosures are associated with earnings' equality.

The preceding discussions suggest that the level of corporate disclosure indicates the extent to which management are operationalizing the agency theory, and the level of the process will influence financial performance, however, due to the choice of a performance metrics, all the studies above have either insignificant results or inconclusive results or both. This current study will, therefore, employ superior financial performance metrics (EVA and MVA) to analyse the issue of agency theory, corporate disclosure, and financial performance of listed firms in Ghana and South Africa. Detailed literature review of financial performance variables have been presented in chapter three.

Even though disclosure is expected to relate positively to profitability, some studies found no significant relationship among them such as in a study undertaken by Modugu, in 2017. Interestingly, the findings suggested that improved performance of firms does not necessarily induce them to disclose more information as widely reported by previous researchers. That notwithstanding, the recommendation has been that future research should attempt to increase firms' performance variables beyond those examined in that study (ROA, ROE), therefore, this study expands and includes EVA and MVA.

In the Ghanaian context, Bokpin (2013) found that mandatory disclosure has a negative relationship with firm value and is statistically significant, implying that when firms are compelled to disclose

information, the process does not necessarily translate into higher financial performance, however, mandatory and voluntary disclosure combined has a positive but statistically insignificant relationship between corporate disclosure and firm value. This is obviously inconclusive, partly due to the choice of performance variable. The key gap the above study identified which the present study will employ as one of the building blocks, is the choice of ROA as a measure of financial performance and as the dependent variable for firm value. This could be a factor in determining the insignificant effect of disclosure on firm value; nonetheless, Bokpin`s (2013) study regressed firm value represented by share price on the disclosure index and had a negative but statistically insignificant relationship. Unable to establish a link between the choice of firm value variable (ROA) and disclosure, the Bokpin (2013) then cited Osei (1998) and questioned whether firms in Ghana Stock Exchange (GSE) release enough information for investors compared to those of the industrialized nations.

In their study of IFRS compliance in Greece, Tsalavoutas and Dionysiou (2014, p.34-37) contend that with regard to standards concerned with assets and liabilities, firms with higher compliance levels exhibited higher market values and that the compliance score is significantly and positively related to market values. This implies that high-compliance firms are perceived as clean and accountable, practice good corporate governance, consequently, they are trusted and rewarded by investors. This finding is consistent with the principles of the signaling theory which contends that firms which incur any necessary high information costs to comply, do differentiate themselves from their competitors, therefore, mandatory disclosures do convey relevant information to investors and affect their investing decisions. The result was further supported by a significant high R^2 for the high-compliance firms indicating that compliance with IFRS mandatory disclosure requirements tend to produce more transparent financial statements which mitigates uncertainties. Braam and Borghans (2014, pp.136-137) aver that, although, voluntary disclosure may reduce information asymmetry and thereby lower a firm`s cost of capital, agency costs and mitigate litigation risks, nevertheless, voluntary disclosure of proprietary information can damage a firm`s competitive position.

2.18 Types of Corporate Disclosure

Three types of corporate disclosures have been recognized in literature as mandatory, voluntary and total disclosure.

2.18.1. Mandatory Disclosure

The two main types of corporate disclosure are mandatory and voluntary disclosures. The contending issues is whether the reporting of certain financial results should be mandatory or the

content of financial results disclosed to investors, should be left in the hands of managers. Mandatory corporate disclosure is the minimum amount of information that a firm is under obligation to disclose in their annual report whereas voluntary disclosure is any additional information that a firm can decide to disclose voluntarily in excess of what is required statutorily (Modugu, 2017; Owusu-Ansah, 1998; Palea, 2013, p.248). These disclosures include current cash flows, profits, net assets and ownership claims (Leuz and Wysocki, 2008, p. 68 as cited by Tsalavoutas & Dionysiou, 2014, p.22).

The general belief is that mandatory disclosure laws are very useful because they induce corporate managers to work harder to improve shareholder value. Mandatory disclosure rules provide better information to the capital markets and induce managers to focus more intensely on maximizing value for shareholders (Macey 2019, p.158). Palea (2013) explains that the goal of adopting IAS/IFRS in the European Union is to ensure a higher level of transparency of information which, in turn, should lead to a more effective and efficient functioning of capital markets.

2.18.2. Voluntary Disclosure

Voluntary disclosure is a discretionary release of financial and non-financial information through annual reports, over and above the mandatory requirements (Kolsi, 2017, p.256). Voluntary disclosure is a self-select to follow the IAS and the IFRS after considering its related costs and benefits (Palea, 2013, p.248). A study by S&P (2002, p.12) established that U.S. firms that provided more voluntary disclosure in their annual reports obtained a higher stock price. These correlations are noteworthy because they suggest that the market pays a premium for firms that provide more information in their annual reports, beyond what is required by regulation.

Voluntary disclosure is a tool that complements mandatory disclosure to minimize market failure caused by lack of information. High-quality disclosure enhances transparency which makes the stakeholders better informed, thus, firms that have good performance tend to have higher voluntary disclosures as well (Wardhani, 2019, p.375, 380). In the East Asian countries for instance, when firms disclose higher level of voluntary disclosures, the capital market shows positive responses (Wardhani, 2019, p.375, 386). Tsalavoutas and Dionysiou (2014) compared firms with high and low levels of compliance, that is, those above and below the median value. The relative value relevance of accounting information (measured using R^2) of firms with high levels of compliance was significantly higher than that of firms with lower disclosures levels. This indicates that increased levels of compliance imply more transparent financial statements, therefore, greater transparency of information mitigates any uncertainty about firms.

Alves (2011) examined corporate governance determinants of voluntary disclosure for the Iberian Peninsula (in Spain and Portugal) of non-financial listed companies and these determinants' effect on information asymmetry and found that turnover ratio had a negative relation with the ownership structure. The study focused on non-financial listed firms, however, ROE was used to proxy performance which does not account for WACC and the data scope was limited to voluntary disclosure.

In Vietnam, Hieu and Lan (2015) explored the factors that determine the extent of voluntary disclosure by examining the annual reports of 205 industrial and manufacturing listed companies, on the Ho Chi Minh Stock Exchange and Hanoi Stock Exchange in Vietnam, for the 2012 financial year. Results showed that corporate governance factors, including ownership types, that is either – state-owned, managerial ownership or foreign ownerships - a board's independence, CEO duality, and type of external auditor, affected the disclosure level of listed industrial and manufacturing firms in Vietnam. Additionally, firm-specific factors including, firm size, profitability and leverage also influenced the extent of corporate disclosure.

In France, Boubaker and Amal (2013) examined corporate governance structures using the disclosure behavior of French firms. Using a panel of 206 non-financial listed firms, the study discovered that managerial ownership, board and audit committee independence, frequency of board meeting and status of external audit, improve voluntary disclosure.

Alves (2011) studied voluntary disclosure and reduction of information asymmetry of Iberian-listed firms with data from annual reports. The study used turnover ratio and Bid-Ask spread as proxies for information asymmetry in the market. The results indicated that the main determinant of voluntary disclosure is firm size, growth opportunities and large shareholder ownership; this means that bigger firms tend to disclose more than smaller ones. Also, firms with opportunity for growth tend to disclose more for positive image and larger shareholders are able to pressure management to disclose more. This study used Cooke's dichotomous disclosure index and did not use the IFRS disclosure checklist.

2.18.2. Leverage and Corporate Disclosure

Leverage can be generally categorized into public debt and private debt. Each type will have a completely different effect on corporate disclosure. For instance, when firms go for public debt such as bond, they are more likely to use the international accounting standards (IAS) and therefore will make more disclosure of information (Tarca et al., 2005). Leverage can enhance corporate disclosure by compelling firms to accept to make additional disclosures and if managers think making additional disclosure will lower their cost of capital, then they will do voluntary disclosure.

2.18.3 Audit Quality and Corporate Disclosure

Corporate disclosure is also influenced by audit quality in a sense that the demand for reliable accounting data, in turn, creates a demand for reliable external auditors (Macey, 2019, p.158). Macey (2019) posits that firms demand external auditors as a signal to potential sources of capital that the accounting information on which valuations are largely based, is accurate; auditing firms have incentives to provide high-quality services because they seek to protect their reputation for independence and integrity.

Watts and Zimmerman (1979, p. 279) advanced that auditor's contract with shareholders and creditors to monitor management, and they are legally liable if they fail to report breaches of covenants in the firm's articles or by-law. To maintain their reputation and avoid reputation costs, credible auditing firms, generally called the Big 4, are more likely to demand a high level of disclosure than their other counterparts. The influence of the auditor is such that a company discloses more information in its annual reports and financial statement when audited by any one of the Big 4 auditing firms than when audited by other auditing/accounting firms (Bokpin, 2013; Jensen & Meckling, 1976). The reason is that, small audit firms are more concerned about the likelihood of losing their clients and for that matter, may not be prepared to demand greater disclosure.

Chantachaimongko and Chen (2018) investigated the impact of board characteristics and auditors on disclosure practices of listed firms in the Philippines. Constructing a disclosure index named ASEAN Disclosure Index and employing 21 listed firms in Philippines, the results showed that when an audit committee is independent it significantly promotes disclosure, while board size detracts disclosure.

The King IV report (2016: p. 55) recommends the establishment of audit committee as a means of providing independent oversight of the effectiveness of firms' assurance functions and service, with particular focus on combined assurance arrangement, including external assurance service providers, internal audit and the finance function. Audit committees should also provide independent oversight of the integrity of the annual financial statements to the extent delegated by the governing body. The audit committee should oversee the management of financial and other risks that affect the integrity of external reports issued by the firm. The members of the audit committee should, as a whole, have the necessary financial literacy, skills and experience to execute their duties effectively.

The capital market views the audit function of the BIG4 to be capable of inducing high quality financial reporting. Investors believe that these accounting firms are willing to put their seal of approval on

the financial records of a client firm only if the firm is willing to conform to the high standards imposed by the accounting profession. Investors trust accountants because investors know that any accounting firm that slacks or is corrupt cannot stay in business for long. With this trust, auditors have a significant incentive to do a superior work because accounting firms with strong reputations command a fee premium and high fees signaled quality in the auditing market. Consequently, even though firms can and do audit themselves, they still hire external auditing firms to enhance their financial reputation and credibility among a wide range of current and prospective claimants on their cash flows, including investors, suppliers, customers, and prospective employees (Macey, 2019, p.159). Collectively called the 'Big4' auditing firms, they are - Ernst & Young, Deloitte, PricewaterhouseCoopers, and KPMG - and presently they audit nearly all large firms. These lead to the following hypothesis: *H4: There is a statistically significant positive relationship between audit firm and level of corporate disclosure.*

2.18.4 Ownership Concentration and Corporate Disclosure

Ownership concentration refers to the structure of share ownership of a firm. The structure of share ownership can be segregated into - majority shareholders, minority shareholders and individual shareholders. Majority shareholders are very influential and can influence key decisions including corporate disclosure. Jiang and Habib (2009) explicate that ownership structure can be decomposed into four mutually exclusive groups - financial institution-controlled, government-controlled, management-controlled and other company-controlled - although further analysis reveal that there can even be five groups which may not necessarily be mutually exclusive. These groups of shareholders are: 1) institutional investors (for example, financial-institutions controlled, pension fund/government controlled as well as other-companies controlled), 2) Individual Investors (management controlled and private investor ownership).

These ownership types may not necessarily be mutually exclusive because a private person who holds shares can still invest in an insurance company that will fall under financial institutions or can invest in mutual fund which falls under other-companies.

Based on the efficient-monitoring hypothesis of ownership concentration, large block-holders would be expected to compel managers to provide more disclosures, in order to increase share prices and enhance the firm's value - this can hold if the information disclosed is positive. Evidence from, for example, New Zealand indicates that the effect of ownership concentration on voluntary disclosure is not monotonic, and that different types of controlling shareholders affect corporate disclosures differently. Firms, for instance, with financial institution-controlled ownership structures disclose

significantly less, whilst firms with governmental and managerial-controlled ownership structures report increased voluntary disclosures (Jiang & Habib, 2009). Juhmani (2013) also reported that an analysis of annual reporting practices of Bahraini-listed firms shows that there is a significant negative relationship between block-holder ownership and voluntary disclosures.

A study by Zhang (2016, p.55) estimated that pooled OLS FE and 2SLS using ROE and EPS as performance measures, illustrate that institutional investors in both South Africa and China concentrate their portfolios in firms with sound financial performance. In addition, the study found that institutional investors, as a whole are attracted by high dividend-paying firms with long listing histories and high trading liquidity as in South Africa. In China, institutional investors show preferences toward firms with low financial leverage; institutional investors, overall, exhibit strong preferences towards sound financial performance (Zhang, 2016: 69). The results of these estimations, hence, suggest that in South Africa, firms with greater aggregated institutional ownership are likely to achieve improved financial performance (Zhang, 2016: 92).

On the contrary, a study by Huang, Boateng and Newman (2016) concluded that when managers dominate the ownership of their firms, it leads to managerial entrenchment and reduces reporting transparency.

Patel et al., (2002, p.334) in their study of transparency and disclosure, established that concentration in ownership is harmful to the minority shareholders as it reduces transparency. They also found that the Asian emerging markets and South Africa have significantly higher transparency and disclosure compared to the Latin American, Eastern European, and Middle Eastern emerging markets. Due to their voting powers, institutional investors are effective in promoting corporate governance disclosures (Zhang, 2016, p. iii), yet, Khlif, Samaha and Azzam (2015, p.46-48) found that although ownership dispersion reduces cost of equity capital, state-ownership reduces corporate efficiency by increasing cost of equity capital.

2.18.5 Efficient Market Hypothesis and Corporate Disclosure

The Efficient Market Hypothesis (EMH) theory contends that the capital market thrives on information, therefore, new information released into the market is quickly incorporated into the prices of securities; consequently, information disclosure is vital to the players in the capital market. The content of a financial report is very crucial in a sense that efficient capital markets usually take available accounting information and process them regardless of the format in which it is presented. Firms that present valuable information in their financial reports in clear ways are, thus, rewarded by

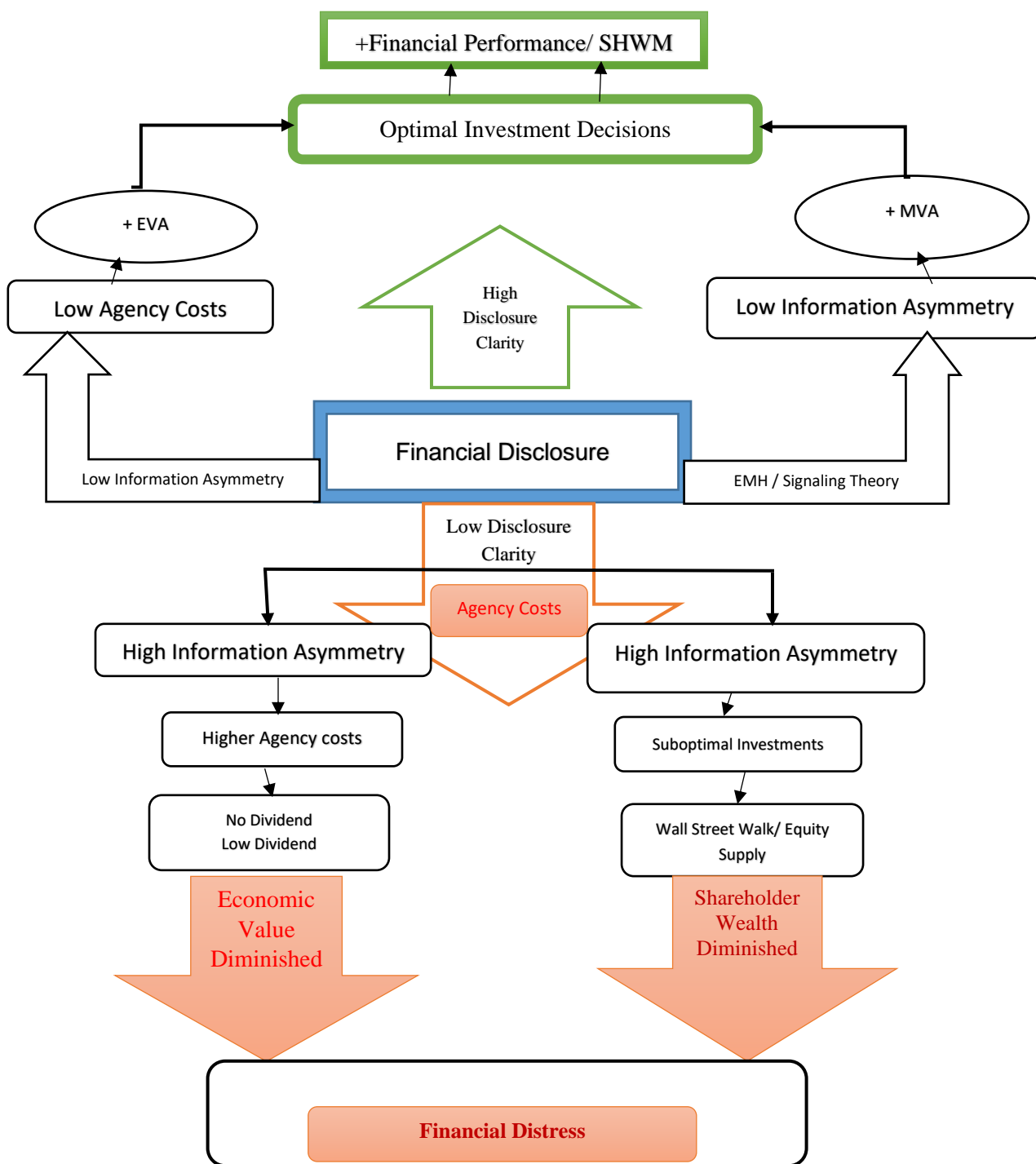
market participants, whereas, firms that fail to present important data or present it in ways that are difficult to comprehend are punished with share prices that reflect the uncertainty in the firms' accounting data.

2.19. CONCEPTUAL FRAMEWORK FOR THIS STUDY

The conceptual framework for the present study is grounded on the agency theory, the positive accounting theory, the information asymmetry theory, the signalling theory and the economic value-added theory. This conceptual framework is based on the principle that the agency relationship produces positive results and negative results which are influenced by whether the agents operationalize the theory or not. And that based on how accounting is practiced accounting information is disclosed with some level of clarity (positive accounting theory). The level of clarity determines the extent of information asymmetry that will exist between management (insiders) and investors (outside shareholders). Higher disclosure clarity (higher WDI_{scale}) should lead to lower agency and low information asymmetry which will enable investors make optimal investment decisions and that should increase financial performance (+EVA and +MVA). The signalling theory is the mode of communicating accounting information, thus, it is a proxy for corporate disclosure.

This framework depicts the expected outcome when the agency theory is operationalized or otherwise. When operationalized, the agency theory has an internal effect at the firm level, as well as external effect at the stock-market level. The firm level effect will be a positive EVA and the stock market effect will be a positive MVA; eventually, financial performance will be achieved and shareholder wealth will be maximized (SHWM).

Figure 2.3. Conceptual Framework



If the agency theory is not operationalized, it will result in high information asymmetry and high agency costs. High agency costs will diminish financial resources and economic value will diminish causing financial distress. Also, low disclosure clarity will cause high information asymmetry which will make investors lack information and make suboptimal investment decisions. With time

information asymmetry and poor investment outcome will compel investors to take the wall street walk by selling their shares and investing in better performing firms. The wall street walk will cause mass supply of equity which will cause financial distress.

2.20 Variables for Estimation

The three main variables in this study are dependent variables, independent variables, and control variables. The dependent variables are stochastic or have random values and the independent variables are non-stochastic or have fixed values. The control variables are variables which can influence the stochastic variables, although, they are not the variables of interest in this study.

2.20.1 Developing Dependent and Independent Variables

The dependent variables in this study from this chapter are Agency Cost1, Agency Cost2, WDI_{scale} and WDI_{dummy} . Agency cost1 and agency cost2 determines the operationalization of the agency theory while $WDI_{clarity}$ and WDI_{dummy} estimates disclosure clarity and the level of transparency between managers and the investment community.

Agency Cost1 and agency cost2

Jensen and Meckling (1976, p.6) defined agency costs as the sum of monitoring expenditures by the principal, the bonding expenditures by the agent, and the residual loss. Residual loss is cash equivalent of the reduction in welfare experienced by the principal as a result of divergence of interest. Agency cost1 is measured using expense ratio, measured as ratio of operating expenses to total sales whereas agency cost2 is measured using asset turnover and measured as the ratio of annual sales to total assets (Florakis, 2008, p.47). Prior studies have intriguing findings.

Bessler, Gonenc and Tinoco (2023) using an international dataset on 35 countries found that the propensity to pay dividends declined after the mandatory adoption of IFRS and then declined further due to the economic shock of the global financial crisis (GFC). They then provided evidence that firms facing high information asymmetry and high agency costs have a lower propensity to pay dividends because of the combined effects of IFRS adoption and the GFC. These findings suggest that the agency costs of FCF are more directly relevant in explaining dividend payout policy. Luo, Li and Chen (2018) studied Chinese A-Share listed firms and found that firms with better annual report readability experienced lower agency costs, and the negative association between readability and agency costs is more pronounced in firms with higher external audit quality, internal control quality

or analyst coverage. Readable annual reports can therefore help reduce agency costs. Ang, Cole and Lin (2000) found that agency costs are significantly higher when an outsider rather than an insider manages the firm and to a lesser extent, are lower with greater monitoring by banks. This means debt or leverage serves as a check to agency costs.

Weighted Disclosure Indices (WDI_{scale} and WD_{dummy})

Being new indices developed in this study, WDI_{scale} and WDI_{dummy} do not have prior applications but the existing UDI and PUDI have prior applications with mixed findings. Cuadrado-Ballesteros, Garcia-Sanchez and Ferrero (2016) posit that firms that increase their financial and social disclosure quality tend to reduce information differences (asymmetries) among investors in the market. But based on the analysis of annual reports of 118 French firms listed on the NYSE Euronext after 2005, Rajhi (2014) found that firms do not totally comply with the disclosure requirements of IFRS. The results showed that none of the French firms listed on NYSE Euronext was in full compliance with IFRSs mandatory disclosure requirements. However, it noticed an improvement in the level of compliance during the years of study. Furthermore, they realized that the two disclosure indexes produced different scores of compliances. The findings therefore support the assertion that the partial compliance approach (PUDI) provide significantly different score from the dichotomous approach (UDI). Precisely, the dichotomous approach (UDI) provided a higher compliance score than the PC approach (PUDI). It noticed that indeed, the dichotomous approach may include a margin of error due to the considerable variation in the number of items from one standard to another. In other words, the dichotomous approach leads to more accurate conclusions when standards do not include a big difference in the number of items.

Isukul and Chizea (2017) also analysed corporate governance disclosure practices in the annual reports of 10 listed banks in Ghanaian and Nigerian in the year 2014 and found that Ghanaian and Nigerian banks comply with corporate governance disclosure with Ghanaian banks having a lower level of disclosure than their Nigerian counterparts. But both Ghanaian and Nigerian banks have poor scores in voluntary corporate governance disclosure. Ghanaian banks tend to be worse off, as the level of variation in levels of corporate governance disclosure is higher than Nigerian banks.

Hooks, Coy and Davey (2002) studied transparent accountability in annual reports of 33 New Zealand electricity firms and found that many disclosure requirement items were not adequately disclosed, resulting in an information asymmetry. But Hassan and Song (2014) found that firms with superior disclosure policies obtain bank loans with more favorable loan contracting terms, such as larger amounts, longer maturity, and lower spread.

Using the dichotomous method, Tawiah and Boolaky (2019) found that on IFRS compliance, the average compliance score among the companies over the period was 73.09%, with a minimum score of 62.86% and a maximum of 85.61%. The authors found a significant positive association between audit committee competence and compliance. But Feyitimi (2014) studied Nigerian companies and found that in disclosing mandatory items, the average score is high, whilst the average score for voluntary disclosure is unbelievably low.

Miller (2002) studied how firms adjust disclosure in response to earnings increases, how disclosure changes as the period of strong earnings performance nears an end and how firms disclose during a subsequent period of earnings decline; the study found an increase in disclosure during the period of increased earnings. This increase was found to be pervasive across all types of disclosure and tended to be bundled with earnings announcements; the market responded positively to this disclosure. The firms continued to disclose at a high level as they approach earnings declines. However, they shifted to disclosures that focused on the positive short-term results and did not discuss the impending decreases. While this behavior is systematic, the market did not appear to anticipate the subsequent earnings declines. Once the firms announced earnings declines, the magnitude of disclosure returned to the level provided prior to the increased earnings. Lambert, Leuz and Verrecchia (2007) found that the quality of accounting information can influence cost of capital, both directly and indirectly.

Al-Shiab (2003) found from the Jordanian study that overall, the extent of disclosure was quite low, not only pre but also post the mandatory action of adopting IAS. Also, disclosure had a negative association with cost of equity capital. Modugu (2017) studied Nigerian listed firms and findings from the descriptive statistics revealed that, contrary to prior findings, there was a steady improvement in mandatory disclosure by Nigerian companies since the country's adoption of IFRSs, however, voluntary disclosure still remained relatively low. Akpanuko and Umoren (2018) contend in their study that accounting creativity contributes 90% to the unfair reporting of firms' operations. They contend that creativity in those practices is motivated by greed and intended to deceive the public, potential investors and shareholders and increases the rate of enterprise failures at a decreasing rate. Isukul and Chizea (2017) found that Nigerian and South African banks have a high level of corporate governance disclosure. However, Nigeria and South African banks have low levels of voluntary corporate governance disclosure. In conclusion, these mixed findings may have been influenced by prior finding from a study titled Innovation and Communication: Signalling with Partial Disclosure, Bhattacharya and Ritter (1983) contended that full disclosure is not necessarily socially optimal. Particularly in a context of a set of firms engaged in research and development rivalry, in which the value of privately held and disclosed information arises from its implications for the

likelihood and timing of productive innovation. They advised that models of this kind are of obvious relevance to realistic theories of product or financial market disclosure policies of firms, patenting, and a host of related behavioural and regulatory issues. Similarly, Imhof, Seavey and Watanabe (2018) hold same view and refer to it as strategic financial reporting.

These leads to the following hypothesis; H5: *There is a statistically significant negative relationship between agency costs and disclosure indices.*

The Big Four Auditing firms (BIG4)

This is a proxy for the biggest 4 global accounting firms computed as a dummy variable which takes the value of 1 if the auditor of the firm is one of the big 4 global accounting firms, and takes 0 otherwise (Wardhani, 2019; Kamel & Awadallah, 2017; Nahar, Azim & Jubb, 2016; Bepari & Mollik, 2015; Tsalavoutas & Dionysiou, 2014; Miihkinen, 2008). These firms are PricewaterhouseCoopers, Deloitte, Ernst & Young, and KPMG. A growing body of studies have shown that firms audited by these Big 4 auditing firms tend to disclose more information to stakeholders (Bokpin, 2013; Agyei-Ansah, 2013), therefore, we expect a positive relationship with disclosure and also with financial performance. In order to ensure auditor independence and audit quality, mandatory rotation of audit firms is sometime encouraged.

As part of external monitoring mechanisms, auditors play a significant role in ensuring the credibility of information disclosed by management and when a firm chooses any of the Big 4 accounting firm, the market reacts positively. It implies that the capital market has confidence in these accounting firms (Wardhani, 2019, p.374-390).

A firms' audit quality is an important factor to ensure increased level of transparency and compliance in the financial reporting (Bepari and Mollik, 2015). The fact that the Big-4 auditors enforce higher compliance than non-Big-4 auditors implies that, companies are able to signal the market of their transparent financial reporting and of their higher compliance levels by appointing a Big-4 auditor.

According to Bepari and Mollik (2015, p.213), the Big 4 was once known as the Big 8, until 1987. It was reduced to the BIG6 in 1989 and then to the Big 5 in 1998 by a series of mergers. The Big 5 then became the Big 4 after the demise of Arthur Andersen in 2002, following its involvement in the Enron scandal. Kamel and Awadallah, (2017, p.281) found that the type of auditing firm is a significant determinant of the level of voluntary disclosure in Egypt as they play a vital role in monitoring management in the Egyptian context. Appiah, Awunyo-Vitor, Mireku & Ahiagbah, (2016) found a positive significant relationship between the level of compliance and auditor type, and that about 79% of the listed firms in Ghana are audited by the Big 4 auditing firms. Tawiah and Boolaky

(2019) found a significant positive association between audit committee competence and compliance. Abdi, Kacem and Omri (2018) found that the size of an audit firm is significantly associated with total disclosure score, content score, presentation score and financial information score, hence audit firm size enhance disclosure score.

These leads to the following hypothesis; *H6: There is a statistically significant negative relationship between audit firm and agency costs.*

Firm Risk

Damodaran (2015, pp.52-53) explains that risk, in traditional terms, is viewed as negative and something to be avoided; it represents the uncertainties surrounding an investment. It comprises of three dimensions - the uncertainty of events, the likelihood of such events occurring and their effect, both negative and positive (King IV Report, 2016: pp. 30). The King IV Report's explanation of risk, thus, balances the traditional negative view of risk with one that recognizes the potential opportunities inherent with some risk; an opportunity, thus, may present itself as a potential of the upside of a risk that could adversely affect the achievement of company objectives.

In this study, a firm's risk is measured as the standard deviation of return on asset (ROA) and the expected sign can be either positive or negative. A positive sign implies that the firm has taken on higher risk investments, but these investments are in positive net present value (NPV) projects which are expected to yield higher returns, thus, satisfying the risk-return rule - the higher the risk, the higher the return. It also holds that if these risks are not in positive NPV projects, then a firm's risk will have a negative nexus. The King IV Report (2016: pp. 30) recommends that due to the rising complexity of risk and hence the need to strengthen oversight, the risk-committee should comprise of a majority of the non-executive members of the governing body.

Nahar and Azim (2016) found that corporate risk disclosure lowers the cost of capital as investors attain better information about managing risk and have confidence in the business. They found that corporate risk disclosure is significantly lower in high-performing banks. The study used the population of all 30 listed banks on the Dhaka Stock Exchange, Bangladesh, for the years 2006 to 2012 and uses three-stage least-squares simultaneous equations to deal with endogeneity issues

Board Size (BoDSize)

Board Size is measured as the total number of board members (Kolsi, 2017, p.257). Boards have become smaller over time. A median size board of directors has decreased from a range of sixteen to twenty in the 1970s to ten in 2007; smaller boards are manageable and more effective than larger ones (Damodaran, 2015, p.38). Agency theory assigns a significant role to the board of directors in a firm's governance. The board is responsible for the control of the firm and is empowered by the shareholders to exercise ultimate control over top management. Management is delegated, by the board to initiate and implement various decisions, however, it is the board that has the control and authority to ratify and monitor major policy initiatives and to hire, fire, and set the compensation of top-level managers (Fama and Jensen, 1983, p.311).

Zhang and Aboud (2019, p.608) from their findings suggest a negative relationship between board size and performance if the board size is above 16. This implies that the number of members of the board does not reflect the efficiency of the board's operations. This also suggests that as the size of the board of directors expands, the agency problem becomes more prominent and as the coordination and communication between the board members become more difficult, then the negative effect of the communication would exceed its positive effect. In the South African context, Pamburai et al., (2015, p.119) found that board size is negatively and significantly related to EVA, suggesting that firms with smaller boards perform better than those with large boards.

A board is usually composed of internal and external directors. The external board members usually called 'independent members' have their reputation as professional referees at stake, and so they do not suffer from group-think which internal members might possibly be prone. There are, however, few criticisms on the efficacy of outside board members, such as, outside directors lack the information superiority typically possessed by inside directors and they sometimes serve on several boards, and may not be able to understand each business well enough to be truly effective. Additionally, management may tend to dominate the boards by using *de facto* power to select and compensate directors, therefore, the assumption is that a majority of outside directors on the board is not necessarily optimal (Bathala and Rao, 1995).

Board size represent the number of members on the board of directors of a firm, hence, it is expected that a normal board size should have positive effect on disclosure. The board should constitute a group of experts or intellectuals who are very knowledgeable in the field of operations of the firm. If the board of a firm falls within the ideal board size, of between 7 and 11 members, then it is expected to have a positive influence on both disclosure and EVA. Any other size outside this should have negative nexus.

In a study of South African listed firms, Tshipa (2017, pp. 157, 207) found that the mean board size was 10.65 which falls within the ideal board size. The study indicated a significant positive relationship between board size and financial performance proxied by ROA and Tobin's Q.

Website Financial Reporting (Webreport)

Webreport estimates the extent of financial disclosure on firms' website. This measures the extent of global reach and accessibility of financial statement by global investors. It is measured using binary technique as dummy variable which takes the value of 1 when financial statement is disclosed on the firm's website or 0 otherwise. In their study of French firms, Boubaker, Lakhali and Nekhili (2012) found that large-sized firms, large-audited firms, firms featuring a dispersed ownership structure, those that have issued bonds or equities and IT industry firms - extensively used the web to disclose information to their shareholders. Again, their results also show that the extent of web-based disclosures is not associated with firm performance measured by the return on assets. Abdi, Kacem and Omri, (2017, p.485) reported in their study that firm size has positive significant association with financial information score, thus, firms that are large in size are more likely to disclose more financial information on their websites to benefit from decreasing agency costs. The size of the audit firm is also significantly associated with financial information score. Surprisingly, Abdi et. al. (2017) found that there is no association between the online disclosure and the firm profitability. Also, Al-Sartawi and Reyad (2019) found a negative and insignificant relationship between online financial disclosure and profitability of Islamic banks in the Gulf Cooperation Council (GCC) countries. Shan and Troshani (2020) studied US and Japan firms and found overall evidence providing support that digital corporate reporting technology enhances relevance and reliability of accounting measures.

These leads to the following hypotheses; *H7: There is a statistically significant negative relationship between webreport and agency costs*

2.20.3 The Control Variables

Firm size (LnTA)

A firm's size is generally known to be a factor that influences the quality and the quantity of its disclosure. This is because larger companies are more likely to suffer from litigation than their smaller counterparts, therefore, the former tend to disclose more voluntarily to avoid this cost; this, it is expected would have a positive relationship with EVA. Studying the level of voluntary information disclosures of companies listed on the Bahrain Stock Exchange, Juhmani (2013) found that size has positive association with disclosure. This basically means the bigger the firm, the more likely it is that it will disclose more information to the public. This finding supports the view of S&P (2002, p.14) that smaller firms generally provide less disclosure. In Standard & Poor's sample, small companies tend to disclose less in their annual reports, which is consistent with the hypothesis proposed by several academic researchers that the size premium is related to the lack of information available on small companies. Bepari and Mollik (2015, p.211) note that firm size is a significant determinant of compliance levels, similarly, Khlif, Samaha and Azzam (2015, p.43) maintain that the disclosure score is negatively associated with corporate size. Such result is due to the high presence of state-ownership in big companies which will negatively influence corporate reporting policy.

Generally, a firm size is measured as the natural log of total assets (Agrawal, Mohanty & Totala (2019, p.104, p.114; Alnaas & Rashid, 2019, p.391; Appiah & Acheampong, 2019, p.561; Wardhani, 2019; Abdi, Kacem & Omri, 2017; Rahman and Hamdan, 2017, p.99; Bepari & Mollik, 2015; Embong, Mohd-Saleh & Hassan, 2012; Wu, 2012; S&P, 2002). Others measure it as the size of the natural logarithm of net sales (Kamel and Awadallah, 2017, p.274).

Rahman and Hamdan (2017, p.103) maintain that accounting standards may not translate into higher disclosure quality if countries are unable to enforce the standards effectively. Larger firms tend to provide greater compliance with accounting standards compared to smaller companies

In a South African study, Pamburai et al (2015, p.119) reported that the relationship between company size and two of the performance measures (EVA and ROA) is both positive and significant, suggesting that larger companies seem to perform better than smaller ones.

Al-Shiab (2003, p230) posit that the following could be the reasons supporting the positive nexus between firm size and high disclosure in annual reports - larger firms can more easily afford the costs of collecting and disclosing more adequate information; larger firms may need even more funds from the capital markets in order to continue to expand their activities at a rate which might not be

possible with internal sources only, hence, these firms would be more likely to disclose more information so as to be able to obtain the needed funds at reasonable cost; the competitive advantage of larger firms may be less endangered by more adequate disclosure than would be the case for small firms; larger firms tend to employ highly-skilled individuals and sophisticated management reporting systems that can provide a wider array of corporate information; the number of subsidiaries and areas of activity tends to grow with the size of the company, thus, increasing the amount of information to be processed by manager; there may also be greater demands on large firms to provide information for analysts and the public.

A study of 2012, by Ebong, Mohd-Saleh and Hassan postulated that the size of a firms can moderate the relationship between disclosure and cost of capital; that means, the relationship between the levels of disclosure and cost of equity depends on the size of firms. Their study provided empirical evidence to support the argument that larger firms benefit more from their disclosure policy compared to smaller firms. In their study of Ghanaian-listed firms and their compliance to the IFRS, Appiah, Awunyo-Vitor, Mireku and Ahiagbah, (2016, p.144) established a positive significant relationship between firm size and its level of compliance, suggesting that firms with larger total assets comply with the IFRS, hence, disclosed quality information in their financial statement.

In the case of Egypt, Tunisia and Morocco, the level of compliance with IFRS increases with company size. The results from Alnaas & Rashid, 2019 illustrated that the level of compliance with IFRS was positively associated with size, thus, supporting the hypothesis that companies with a large size have a higher level of compliance with IFRS, than small ones do. One explanation for these findings is that large companies possess sufficient resources for collecting, analysing and presenting extensive amounts of data at minimal cost. In other words, large companies are more likely to have the financial and human resources to adopt IFRS, than small firms (Alnaas & Rashid, 2019, pp.398 - 399). On the contrary Kolsi (2017, p.260) discovered that firm size does not affect level of disclosure; consequently, firm size is expected to have a positive nexus with corporate disclosure and financial performance.

Firm age (Age)

Firm age (Age) refers to the firm`s age which is measured in years; thus, age is the natural logarithm of the number of years a firm has been established (Alnaas & Rashid, 2019, 392; Agrawal, Mohanty & Totala, 2019, p.104-114). It is measured, in this study, as the log of years a firm has been in business. Generally, older firms tend to be more profitable because they have a larger market share; their products are accepted by the market; they enjoy economies of scale and economies of scope

and they would have successfully diversified their investment. It is expected, therefore, that for mature firms, there should be positive nexus between Fage and EVA, however, it is also expected to have negative nexus with EVA, if the firm has reached its peak and profit is declining. For young firms, the general expectation is that there should be a negative nexus because they would disclose less and be less profitable, although, a fast-growing young firm can have a positive EVA and also make full disclosure. Contrary to the above prediction, Appiah, Awunyo-Vitor, Mireku and Ahiagbah, (2016, p.145) assert a negative significant association between level of compliance with IFRS and firm age, despite this, Alnaas and Rashid (2019, p.399) found that there is no relationship (not significant) between firm age and IFRS/IAS compliance.

2.21. Chapter summary

This chapter reviewed theoretical and empirical literature to establish the gap in literature, and to develop and present a conceptual framework for this research study. The main theories moderating this research are the agency theory, the information asymmetry theory, the positive accounting theory and the signaling theory, which have been reviewed, in addition to other related theories relevant to this study. The synthesis established that the agency theory moderates the relationship between managers, shareholders and debtholders and that this relationship produces a two-stage agency problem. The first stage of the agency problem occurs between top managers and shareholders, whereas the second stage occurs between top managers and the rest of the employees. This chapter then reviewed literature on how to deal with the agency problem during which concepts, such as compliance to IFRS accounting disclosures, EVA disclosure, using auditors and board of directors were discussed. The discussions also touched on the operationalization or otherwise of the agency theory which is expected to enlighten investors and regulators.

Outcome of the review suggest that to operationalize the agency theory, managers ought to align their interests to the principals and work in the interest of the shareholders; if they deviate from this principle, then managers create an agency problem. The existence of an agency problem causes shareholders to lose part of their wealth; this wealth loss is agency costs which may vary among firms. The severity of the agency costs can be measured and the process will be explained in the methodology using, expense ratio and asset turnover. The agency problem has negative effect on a firm`s performance but to capture the precise effect depends on the variable used in measuring performance. The commonly used variables are ROA, ROE and EPS, however, these variables ignore cost of equity which is an essential cost of finance which affects performance, therefore, this present study employs EVA which captures cost of equity to measure performance.

The review of the information asymmetry theory established, from the Conceptual Framework of IFRS (paragraph 2.4), that if financial information is to be useful, it must be relevant and faithfully represent what it purports to represent. The usefulness of financial information is enhanced if it is comparable, verifiable, timely and understandable. Theoretically, firms can reduce their cost of capital by reducing information asymmetry levels, or by increasing accounting information disclosure. Transparency in accounting information disclosure is essential because it enable investors to properly evaluate firms, know their level of risk and be willing to accept lower rates for lower risk or demand higher return for higher risk.

This chapter also reviewed the normative and the positive accounting theories. The theoretical review established that the positive accounting theory (PAT), just like the agency theory, portrays the fact that all individuals' actions are influenced by self-interest and that individuals will most likely act in an opportunistic way to increase their own utility. By extension, managers being rational, can select accounting principles that inure to their self-benefit or to the firm if there is interest alignment. Normative accounting theory, on the other hand prescribes accounting standards as guidelines for practitioners, however, in practice, these standards are adjusted by managers based on a firm's internal criteria. The normative accounting principle is used to maintain and improve accounting methods while the PAT attempts to forecast which firms will adopt a specific accounting method based on their circumstance and explains which accounting practices will be used under a particular circumstance faced by a firm. A firm's financial statements and the annual reports are a reflection of its accounting policies which in turn, are a reflection of managers' choice of accounting principles. The annual report can, therefore, reveal managers' actual practice of accounting in the firm. Based on the tenets of the PAT, this study reviews annual reports of listed firms to ascertain their level of compliance to the accounting standards (IAS and IFRS) and the clarity of financial disclosure.

This chapter then proceeded and reviewed the international accounting standards. The review established that the purpose of the IASs and the IFRSs is to place constraints on managers' discretion on the use of the firm's resources, therefore, corporate disclosures and compliances to IASs and IFRSs are a reflection of a firm's level of transparency to investors. To measure the level of transparency and compliance to the IASs and the IFRSs, the reviewed literature established that the existing and commonly-used metrics have been the unweighted-disclosure index (UDI) and the partially-unweighted disclosure index (PUDI). The synthesis, however, established that these two measures have deficiencies in using binary score and not generating weights for each standard. To remedy these shortfalls, this present study applies a scoring scale technique and conceptualizes weighted disclosure indices methods similar to the computation of a portfolio return which gives

weight to each standard under study. These new concepts contribute immensely to enlightening practitioners and academia as well as enriching literature.

The conceptual framework in Figure 3 depicts alternative results of the operationalization or otherwise of the agency theory. The conceptual framework shows that when managers operationalize the agency theory, they generate positive EVA which translates to positive financial performance and eventually shareholder wealth will be maximized (SWM). Alternatively, if managers do not operationalize the tenets of the agency theory, they create agency problem which will result in negative EVA and eventually destroy shareholder wealth and make investors worst off. The analysis generated some hypotheses which have summarized below.

Table 2.1 Summary of variables and their relationship

Hypotheses	Relationship	Expected Sign
H1	<i>information asymmetry and higher agency costs</i>	+
H2	<i>disclosure clarity and compliance level.</i>	+
H3	<i>website reporting and disclosure indices</i>	+
H4	<i>audit firm and level of disclosure.</i>	+
H5	<i>agency costs and weighted disclosure indices</i>	-
H6	<i>audit firm and agency costs.</i>	-
H7	<i>website report and agency costs</i>	-

Derived from literature

The next chapter presents literature review on financial performance measures covering EVA, MVA, ROA, ROE, EPS, ROCE, and Current Ratio.

CHAPTER THREE

LITERATURE REVIEW ON FINANCIAL PERFORMANCE MEASURES

3.1 INTRODUCTION

This chapter continues the literature review by focusing mainly on financial performance measures. The financial performance measures employed have been segregated into value-based financial performance measures as well as conventional accounting performance measures. The main interest of this study is on this concept of value-based management and the economic value-added metric which have received very limited attention from prior studies with notable ones such as Agrawal, Mohanty and Totala (2019), Sahoo and Pramanik (2016), Kumar (2011), Forker and Powell (2008), Garvey and Milbourn (2000), Stern, Stewart & Co. (1991 & 1990), Bacidore, Boquist, Milbourn and Thakor, (1997), and Chen & Dodd (1997 & 2001).

The King IV Report (2016: p. 47) prescribes that a board of directors of firms should assume responsibility for the firm's financial performance by steering and setting the direction and the realization of the firm's core purpose and values through its strategy. When approving a strategy from management, a board should carefully scrutinize the increase, decrease or transformation of the various forms of capital that may result from the execution of the proposed strategy. As part of its oversight responsibility of financial performance, the board should be alert to the general viability of the firm with regard to its reliance and effects on the capitals, its solvency and liquidity, and its status as a going concern. This view is an indication that financial performance is, therefore, the ultimate objective of the firm. The most commonly used financial performance variables have been the conventional accounting measures. These conventional accounting financial performance variables are earnings per share (EPS), return on asset (ROA) and return on equity (ROE), return on capital employed (ROCE) and liquidity and others. But these have been found to be incapable of capturing cost of equity capital and therefore subtly understate costs of finance and overstate financial performance.

The significant deficiency identified is that these performance measures do not show the real value added to shareholders' wealth or to the firm's value because they are computed using net income which is obtained using the accrual basis but not cash flow basis. This means the figures used in calculating these ratios may not necessarily be real cash available to be used. Meanwhile the cost of equity which is affected by information disclosure, eventually affects financial performance. This

omission is problematic, because it has the potential of overstating profit and making the firm look profitable, thereby, sending wrong signal (signalling theory) to the financial market; making any inference from this, therefore, will produce flawed results. Also using EPS, ROA or ROE in particular can be misleading because it can be micro-manipulated. Micro-manipulation describes the adjusting of accounting figures to produce a biased view at the firm's level of performance (Gowthorpe and Amat, 2005, p.55).

Further, using EPS, ROA or ROE to measure performance can create problems because they can churn out misleading information to shareholders, investors and other stakeholders in many ways. Agrawal, Mohanty and Totala (2019, p.104) contend that ROA and ROE are inadequate and unreliable measures of shareholder's value creation; at best they can only partially reflect past performance. Brealey, Myers and Allen (2017, p.313) explain that when firms compute income, they normally start with revenues and then deduct costs, such as wages, raw material costs, overhead, and taxes but one cost which they do not deduct is the cost of equity capital. Their study pointed out that a business that breaks even, in terms of the conventional accounting profits is actually making a loss because it is failing to cover the full cost of capital. Brealey, Myers and Allen (2017, p.222) defined a company's full cost of capital, as the expected return on a portfolio of all the company's outstanding debt and equity securities. The full cost of capital is estimated as a blend of the cost of debt (the interest rate) and the cost of equity (the expected rate of return demanded by investors in the firm's ordinary shares). The question that arises then is - *Why then do managers overlook this component of cost of equity when estimating financial performance, by computing EPS, ROA or ROE only, without using EVA?*

Brealey et al., (2017, p.221) strongly recommend that a firm's cost of capital should be estimated as a weighted-average cost of capital (WACC); that is, it should be estimated as the average rate of return demanded by investors in the firm's debt and equity. These researchers continue that the most difficult part of estimating the weighted average cost of capital is calculating the cost of equity, which is the expected rate of return to investors in the firm's common stock; it can be deduced from here that this could be the reason for the low application of economic value-added (EVA). They recommend rather using the capital asset pricing model (CAPM) to determine the cost of equity, therefore, this present study employs CAPM to estimate the cost of equity finance. The CAPM states that the expected rate of return should be equal to the risk-free interest rate, plus a risk premium that depends on beta and the market-risk premium.

EVA is considered contemporary financial performance metric which factors in, not just the cost of debt, such as in calculating net profit, but it also accounts for the cost of equity (Quiry, Dallochio, Fur & Salvi, 2005). Wood (2000) had similarly opined that if implemented fully, EVA represents a

comprehensive financial management system that integrates planning, controlling activities and provides a common metric for decision-making.

In practice, a firm's accounting disclosure should have impact on its financial performance; cost of equity, for instance is affected by a firm's level of disclosure. Khlif, Samaha and Azzam (2015, p.30) found that the level of voluntary disclosure is significantly and negatively associated with cost of equity capital, hence, the level of voluntary disclosure plays a notable role in reducing cost of equity capital. Khlif et al., (2015, p.32) further maintain that extensive disclosure of information helps investors to estimate more accurately the parameters of a security's payoff distribution and that any additional disclosure will reduce the non-diversifiable estimation risk, which in turn will be rewarded by risk-averse investors. They continue that since cost of equity capital represents an average required return for all investors (informed and uninformed) operating in the market, any improvement in disclosure levels will reduce the misalignment risk, lower the risk premium, thereby, reducing cost of equity capital (p.33). Theoretically, firms can reduce their cost of capital by reducing information asymmetry levels, or by increasing accounting information disclosure, thus, greater disclosure is associated with a lower cost of equity capital (Botosan, 1997, p.346; Sengupta, 1998, pp.472-473; Marquard & Wiedman, 1998).

It must also be noted that, due to adverse selection and moral predicaments during the employment process, it is difficult to control agents' behaviour, thus, using economic value measure ensures that employment contracts move away from behaviour-oriented contract to outcome-oriented contract. It is clear that using EPS, ROA or ROE only to measure performance, allows managers to violate the agency theory and still see themselves as insiders with their hands cupped as the money flows down, whilst seeing shareholders as outsiders pouring in the money (Labaton, 2004 as cited by Heath 2009, p.487). This study therefore employs value-based metrics (EVA and MVA) as financial performance measure and uses conventional performance measures as supplements. The focus therefore will be predominantly on EVA and MVA.

3.2 VALUE BASED MANAGEMENT METRICS

Value Based Management (VBM) theory opines that managers should focus on managing for value, therefore, be value-oriented. Value-oriented management usually quantifies the value of a firm and evaluate corporate financial performance using value indicators (Berzakova, Bartosova, & Kicova, 2015, p.318). Contemporary value-based performance metrics include - economic value added (EVA), market value added (MVA), cash flow return on investment (CFROI), cash value added (CVA), discounted economic profits (EP), shareholder value added (SVA) and refined economic value added (REVA) (Hall, 2017, p.427; Hall, 2016, p.190; Kumar and Sharma, 2011, p.83). These and many others such as - MVA, CVA, SVA, RONA and REVA by (Bacidor, Boquis, Milbourn & Thakor, 1997) are derivatives of the EVA used in practice (Berzakova, Bartosova, & Kicova, 2015, p.317).

In business valuation, using EVA is the most suitable technique for determining the health of a firm as the process provides valuable information for various areas of management. These value-based financial performance metrics endeavor to overcome some of the limitations of the traditional financial performance measures. The inclusion of a firm's cost of equity capital (K_e) in the computation of the value-based metrics makes the technique holistic in the evaluation of value creation. EVA attempt to eliminate some of the accounting distortions resulting from the limitations of conventional accounting information (Erasmus, 2008, p.69).

Generally, proponents of value-based management opine that there are three basics of VBM - creating value, managing for value and measuring value. When these basics are implemented properly, a firm derives the benefits of maximizing value creation, steadily. This will, also increase transparency in the firm, thereby, helping the firm satisfy its global investors. The technique will also align the interests of managers with those of shareholders and debtholders, facilitate communication with the firm's investors and analysts, encourage value-creating investments as well as improve efficient allocation of resources. Forker and Powell (2008, p.494) found that compared to the residual income valuation model, conventional accounting financial performance practice is limited by their non-recognition of cost of equity capital (K_e).

3.2.1 Economic Value-Added (EVA)

In 1993, Fortune Magazine published a cover story with the title - *The Real Key to Creating Wealth* - which introduced a new performance measurement metric, called the 'economic value added' (EVA) (Colley, Doyle, Hardie, Logan & Stettinius, 2007, p.247). This new performance metric is actually not entirely new, rather it combines the old accounting concept of residual income with current concepts in accounting and corporate finance. Basically, it is an improved contemporary accounting-based measure of operating performance (Sahoo & Pramanik, 2016, p.1-2; Worthington & West, 2001, p.71). Dissatisfied with the conventional accounting-based performance measures, many studies have produced a number of alternatives of which Stern Stewart's EVA is currently the most prominent amongst them (Garvey & Milbourn, 2000). EVA has gained wide acceptance, by the investment community, firm managers and researchers, as a metric that links managers' decisions to shareholder value creation (Ramezani, Soenen & Jung, 2002, p.56). Conventionally, managers have been focusing on maximizing profit, but investors now demand a new form of management which focuses on managing for value, hence, there is the need for a value-oriented method which is able to measure any change of value. The operationalization of the agency theory implies that managers must manage a firm for value and create value for the shareholders and debtholders. To measure the value created, EVA stands out as the most preferred financial performance measure. Besides being able to capture the level of income, value creation and maximization of market value, EVA also captures time factor and risk factors (Berzakova, Bartosova, & Kicova, 2015, p.318). Sustained financial performance is the principal variable for the survival of every firm, and to be financially viable means to generate positive cash flow and add value to shareholders' wealth. Application of EVA to firm management strategies creates this awareness among employees of the firm.

Managers have the option to estimate financial performance using either the conventional performance measures or using the contemporary value-based financial performance measures. The conventional profit measures are still being used by some firms for calculation of performance, however, financial analysts encourage the shift towards realistic estimation of financial benefits that a firm is able to generate for its investors. The traditional performance measures, including ROA, ROE, ROI, PAT and EPS, have been criticized for their weak explanatory power in terms of value creation (Berzakova, Bartosova, & Kicova, 2015; Erasmus, 2008). After identifying the shortfalls of these conventional accounting measures, Stern, Stewart & Co. (1989) propounded the Economic Value Added (EVA). Developed from an existing concept of residual income (RI) with some adjustments (Sahoo & Pramanik, 2016), this metric is used as a suitable measure of financial

performance as against the conventional performance measure of EPS, ROA and ROE as EVA is seen as a major improvement over the conventional measures (Guermat, Misirlioglu & Al-Omush, 2019, p.496; Erasmus, 2008, p.69).

The consensus is that EVA is difficult to understand and complex to calculate (Agrawal, Mohanty & Totala, 2019, p.106; Tripathi, Kashiramka & Jain, 2019, p.202 and Worthington & West, 2001, p.81), however, Stern Stewart & Co. made the EVA methodology understandable, thereby, many companies have begun implementing this performance measurement approach, regularly (Philips, 2007. p.6). Due to its exceptional prowess, EVA is able to accurately distinguish performing firms from underperformers. It sets high standards for measuring performance; hence, it is an essential metric for all firms wishing to create value for their shareholders (Philips, 2007. p.5).

Being a novel metric for measuring firms' performance, many prior studies have tested the strength and weakness of EVA and have proven its prowess with few weaknesses. For instance, after using EVA to study bank performance in Ghana, Owusu-Antwi, Mensah, Crabbe and Antwi (2015) produced a result that indicated that EVA factors capture bank-specific performance measure better than ROA. Wood (2000) also found EVA and MVA to be measures of firm performance that are designed to encourage managers to focus on shareholders' wealth-creation and that linking performance-related pay to EVA made it easier to distinguish better performers from weaker firms. In the study of some monopolistic state-owned enterprises in New Zealand, Austin (2005) argues that in the absence of normal benchmarking mechanisms, EVA can be used as a way to benchmark profits where a monopoly position may attract regulation. It can even be used as a standard for benchmarking if other industry information is not available (Bahri, St-Pierre & Sakka, 2011). Wood (2000) discovered that if implemented fully, EVA represents a comprehensive financial management system that integrates planning, controls activities and provides a common metric for decision-making. The author contends that with EVA's emphasis on value creation, it closely aligns the goals of management with shareholders and provides an objective means for instituting performance-related pay. Alignment of goals in the agency relationship is the most effective approach to dealing with problems that persist in the agency theory.

Closely related to EVA is another concept called REVA, conceptualised by Bacidor, Boquis, Milbourn and Thakor, (1997). Bacidor et al., (1997) maintains that REVA is theoretically superior to EVA but this argument was rebutted by Ferguson and Leistikow (1998). In REVA the capital charge is based on a firm's market value instead of its net asset value and an appropriate measure of operating performance must correlate highly with abnormal stock return; Ferguson and Leistikow (1998) argue that, theory, however, suggests that, no appropriate single-period measure of operating performance should be highly correlated with abnormal stock return. In practice, using abnormal stock return as

a basis for rewarding management is likely to be either inconsistent with shareholder wealth maximization or error prone. The authors concluded that REVA is inconsistent with finance theory and with wealth maximization, therefore, EVA is theoretically superior.

Philips (2007. pp.6) notes that EVA has greatly impacted the financial world and changed the way many people perceive value. That means investors now have a better way to measure the true performance of a firm and managers have a better knowledge on how to create value for their shareholders. This is made possible because the EVA metric quantifies the value that was added as a result of implementation of operational activities during a particular accounting period (Berzakova, Bartosova, & Kicova, 2015, p.320). Quiry et al., (2005, p.346) posit that economic-performance indicators emerged due to the realisation that profitability alone cannot fully measure value because it does not incorporate risks. To measure value, returns must also be compared with the cost of capital employed. Using the cost of financing of a firm - the Weighted Average Cost of Capital (WACC), EVA - makes it accurate to assess whether value has been created (when return on capital employed is higher than the cost of capital employed) or destroyed (when return on capital employed is lower than the cost of capital employed). The fact is that, while many firms operate seemingly successfully without using EVA, none will likely reach their full potential until they apply the concepts set forth in EVA (Philips, 2007. p.7).

3.2.2 The EVA Metric and the Dearth of its Application in Literature

Estimating financial performance is critical in contemporary corporate finance management because of the need for precision, as investors want to know, precisely, how a firm is performing. Generally, many firms use EPS, ROA and ROE to proxy financial performance (Agrawal, Mohanty & Totala, 2019). The issue of corporate disclosure combined with financial performance have received very little attention in Africa, although authors like - Rouf, 2011; Bokpin, 2013; Ntim, 2013; and Zaman, Arslan & Siddiqui, 2015 and Modugu, 2017 - have done some studies on the topic. More disturbing also is the fact that, almost all prior studies on disclosure, studied disclosure in isolation without looking at its relationship with financial performance (Rahman & Hamdan, 2017; Tsamenyi, Enniful-Adu & Onumah, 2007; Yu & Wang, 2016; Wardhani, 2019; Khlif, Samaha & Azzam, 2015; Kamel and Awadallah, 2017; Kolsi, 2017). Corporate Disclosure is an agency problem issue and financial performance is an agency costs issue. Surprisingly, the very few researchers who focused on the nexus between disclosure and financial performance employed EPS, ROA or ROE instead as proxies financial performance and had statistically insignificant and inconclusive results (Bokpin, 2013; Dzingai & Fakoya, 2017; Juhmani, 2013; and Tshipa, 2017; Ntim, 2013, Nahar, Azim & Jubb, 2016).

The deficiency in using EPS, ROA and ROE to proxy performance is that they have weak explanatory power in terms of value creation and they account for the cost of debt only, without taking into account, the cost of equity (Atrill & McLaney, 2009; Berzakova, Bartosova & Kicova, 2015, p.317; Kumar & Sharma, 2011, p.83 and Stern, Stewart et al., 1991).

Among the performance metrics, economic value added (EVA) is the only metric that accounts for the cost of equity finance. Hence, EVA represents the single most precise metric for measuring performance and accountability because it is able to capture the weighted average cost of capital (WACC). WACC is the minimum return companies need to earn to satisfy all of its investors, including stockholders and bondholders (Ross et al., 2016, p.396). Its capabilities to capture the full cost of capital sets the value-based metrics (EVA) apart from the conventional measures of performance such as EPS, ROA, ROE and return on investment (Drake & Fabozzi, 2015, p.121). With its emphasis on value creation, EVA closely aligns the goals of management to shareholders, thereby, mitigating the agency problem, and rigorously measures performance and ensures accountability.

As stated earlier, Brealey, Myers and Allen (2017, p.221), however, had posited that the challenging part of estimating the weighted average cost of capital is calculating the cost of equity, thus, computing EVA is very difficult. Tripathi, Kashiramka and Jain (2019) opined that EVA is a superior concept yet its application is limited, primarily due to its computational complexity.

Using a more comprehensive regression model, and including all relevant variables, specifically applying the EVA and MVA principles which captures cost of equity, and including EPS, ROA and ROE, and taking into account the interactions between them, therefore, will advance our understanding of their relationships and their effects on financial performance measurement.

The present study, hence, follows the recommendations by Van der Poll et al., (2011), De Wet (2005) and Weaver (2001) and employs a more robust and contemporary financial-performance estimator (EVA) that accounts for WACC, and includes EPS, ROA and ROE to do the analysis.

No doubt, some insights have been gained from prior studies on corporate disclosure and financial performance, yet, it is still difficult to draw a definite finding in this field because almost all of these prior studies avoided the application of EVA and did not use WDI. EPS, ROA and ROE may look like effective performance measures, but in reality, these metrics overlook numerous essential expenses that change performance results significantly (Philips, 2007. p.6).

3.2.3 EVA Not Superior Performance Measure?

There are divergent opinions regarding absolute superiority of EVA. Quite a number of studies demonstrate that EVA is not superior to the traditional accounting performance measures. Studies, such as those of Guermat, Misirlioglu and Al-Omush, (2019, p.497, 510) concluded that EVA adopters tend to utilise more net working capital, but are reluctant to use free cash flows for dividend payouts, repurchases and capital expenditure, as practiced by non-EVA adopters. The authors add that managers who are compensated on an EVA basis, tend to maximise cash flow rather than shareholder wealth. These findings suggest that it is likely that after the adoption of EVA, the conflict of interest between shareholders and managers will exacerbate, and this would be due to managers' focusing on their own utility maximization through incentive compensation plans, rather than shareholders' value. Managers do this through the reduction of share repurchases and dividend payouts; this behaviour is contrary to the general belief that the application of EVA mitigates the agency problem.

In a similar study of the superiority or otherwise of EVA, Paulo (2010, p.174) after synthesizing and comparing findings of previous studies, asserts that empirical evidence in favour of EVA is insufficient to support the claims that it is a superior performance metric, as against other established residual income metrics. Paulo (2021) concluded that there is no evidence from the scrutiny of publicly-available secondary sources to indicate that EVA is superior, however, it must be noted that the disagreement here is premised on how WACC and CAPM are calculated and used in the computation of EVA. Contextually, this finding is premised on the UK Companies Act 2006, hence, it cannot be generalized to other parts of the world with different company laws. Also worth pointing out is that, in the study (Paulo, 2021), there was no primary data for computation and comparison, and no statistical testing to arrive at this conclusion.

A study by De Wet (2005, p.2) in South Africa had some reservations concerning EVA, although the author argued that it can be proven theoretically that EVA is superior to other measures of performance, with the exception of residual income, the author still argued that EVA is not the superior performance measure. The author excluded residual income because it is able to accounts for the full cost of capital- the cost of equity and cost of debt. By comparing EVA to EPS and DPS, and similar to a prior study by Chen and Dodd (2001), using R^2 , De Wet (2005) found insignificant correlation between MVA and EPS and DPS; the study concluded that EVA did not show the strongest correlation with MVA, but also acknowledged that only 89 industrial companies were included in the final sample and that this imposed a limitation on the conclusions that was drawn. The performance indicators selected for the study were the changes in the standardised cash flow

from operations which explained the biggest percentage of changes in standardised MVA (38%); ROA came second best (15%) and standardised EVA (8%) came third. These findings suggest that some caution should be exercised when focusing only on EVA as the measure of choice for internal firm performance, hence, the thesis of the present study employs both EVA and MVA and the traditional accounting measures of EPS, ROA and ROE.

In another South African study, De Wet (2012, p.76) again found a stronger nexus between executive remuneration and the conventional performance measures such as ROA and ROE, compared to the nexus between executive remuneration and EVA and MVA. The study, in addition, established a stronger relationship between executive compensation and EVA than between executive compensation and MVA. The author interpreted the findings to be an indication that South African firms were starting to acknowledge EVA in their compensation plans, but had not yet progressed to the long-term view of shareholders' wealth creation, as represented by MVA. The weak nexus notwithstanding, DeWet (2012) concluded that from a strategic perspective, it is appropriate that a forward-looking focus based on shareholder value creation which incorporate risk, as advocated by EVA and MVA, is considered as essential for a sound executive remuneration policy. The author, therefore, recommended that South African firms be challenged to embrace the concept of shareholders' wealth creation in their quest to measure the performance of executives fairly and to remunerate them more appropriately.

In a similar study, Erasmus (2008, p.85), after adjusting for inflation, established that inflation-adjusted EVA measure does not outperform conventional earnings in explaining the variation in the market-adjusted return of a firm's shares; in most of the tests, residual income outperformed EVA *real*. The results of the study, therefore could not support claims that EVA outperforms other financial performance measures.

Hall (2016, p.196-197) also found that the accounting-based variables have a higher impact on shareholder value than the economic-based variables. The author found that accounting-based variables, such as EPS, ROA and NOPAT are dominant compared to economic-based variables such as EVA, the Spread and ROCE, in explaining shareholder value creation which was measured using MVA. A possible reason for the accounting-based variables being superior compared to economic-based variables in explaining shareholder value creation could be that the market (both investors and analysts) tends to rely more on and react to accounting earnings as an indicator of financial wellness of firms.

In the case of India, Kumar and Sharma (2011, p.83) contend that their results do not support the hypothesis that EVA is superior to traditional accounting-based measures in explaining market value

of the firm. The authors reported that accounting earning-based measures, such as net operating profit after tax (NOPAT) and operating cash flow (OCF) are better in explaining the market value of the sampled firms. In spite of these results, the researchers go on to state that their incremental information contents' tests revealed that EVA makes a marginal contribution to information content beyond traditional performance measures such as NOPAT, OCF, EPS and RONW (return on net worth).

In their 2020 research, Makhija and Trivedi also reported that accounting-based measures of return on equity (ROE), return on capital employed (ROCE) and return on assets (ROA) have relatively more information content in explaining the total shareholder return (TSR). Their incremental information content test, however, showed that including EVA in the model marginally improved the information that was provided by accounting measures, in explaining the TSR.

Tsuji (2006, p.1200) using WACC (CAPM) and WACC (Fama-French three-factor model) maintained that the often-repeated assertion that EVA is the best measure of valuation, is exaggerated, thus, relating to the level of corporate values, the author empirically confirmed that corporate values, which create or destroy shareholders' values, are indeed, associated with higher or lower levels of EVA. Cash flows, however, showed the strongest linkage with the levels of corporate market values, and when compared, EVA has a weaker relationship with corporate values than general accounting measures, such as operating income and profit after tax.

From a different perspective, Weaver (2001, p.8) argued that due to the measurement differences, EVA can be viewed as a limited tool that may not be used for competitive analysis. In practice, there is no one consistent definition of EVA® and numerous fundamental differences exist with regard to NOPAT, IC, and COC (cost of capita). The study confirms that in practice, EVA® is very dependent upon accounting measures and is not a measure of cash flow. Weaver (2001, p.9) showed that EVA® proponents primarily use EVA® as an additional performance metric for monitoring day-to-day operations, however, unlike the singular focus that others like Ehrbar (1998) advocates, EVA® proponents do continue to place importance on traditional financial performance measures. EVA® proponents do not abandon other measures and do not make EVA® the "singular focus" for financial performance monitoring which is consistent with Chen and Dodd's (1997) conclusion that "companies should continue to monitor the traditional measures of accounting profit." This finding has reinforced the approach of this study in choosing a combination of both EVA and other traditional accounting performance variables. Other observations by Weaver (2001, p.16) are that EVA® is primarily implemented to enhance financial performance metrics because the use of traditional

financial metrics continued after EVA® implementation, hence, its proponents perceive a “link” between EVA® and shareholder returns.

Paulo (2010, p.173) opined that there is insufficient supportive evidence to validate the claims of EVA, that it is superior to other accounting measures. From the perspective of epistemology and sound research methodology, it is not possible to make a robust case for the unqualified use of EVA in jurisdictions where the UK Companies Act of 2006 and the Sarbanes-Oxley Act of 2002 apply; therefore, directors who make unqualified use of this financial performance metric place themselves at unnecessary risk.

A careful analysis by Eljelly and Alghurair (2001, p.65), however, showed that lower debt ratios usually result in lower financing charges being deducted from earnings, thus inflating the base of ROE and EPS, but when EVA is calculated, the high cost of equity, which is usually the major source of financing, lowers the true economic profits. This is basically the reason why MVA is seen in these studies to be correlating better to the conventional measures of performance, rather than EVA.

Another researcher, Hall in 2016, (p.191) submit that the possible reasons for differences between the results of these and other studies on shareholder value creation measures seem to be due to - the shareholder value creation measure(s) used, the compilation of the sample, and the country whose data was analysed.

3.2.4 EVA is a Superior Financial Performance Metric

Contrary to the preceding divergent views of measuring financial performance, Chen and Dodd (1997, p.318) asserted that improving EVA performance is associated with a higher stock return and executives from firms that employ EVA, such as AT&T and Coca-Cola, have stated how very satisfied they are with EVA. Majority of subsequent studies on EVA confirmed its outstanding superiority over other conventional financial performance metrics (Zafiriris & Bayldon, 1999; Worthington & West, 2001; Fountaine, Jordan & Phillips, 2008; Forker & Powell, 2008; Poll et. al., 2011; Sahoo & Pramanik, 2016; Gupta & Sikarwar, 2016; Hall, 2017; Agrawal, Mohanty & Totala, 2019; Tripathi, Kashiramka & Jain, 2019; Zhang & Aboud, 2019).

The proponents of EVA, Stern Stewart & Co. (1991), maintain that EVA is almost 50% better than its closest competitors, such as EPS, ROE and ROA, in measuring changes in shareholder wealth and value addition and therefore it is superior (Gupta & Sikarwar, 2016 and Worthington & West, 2001). In their study of listed firms in India, Agrawal, Mohanty and Totala (2019, p.127) found that

EVA had a more significant impact on the annual stock returns compared to ROA and ROE for both OLS and mixed-effect models. In a similar study of South African firms, Hall (2017) found that economic-based value drivers were more significant than the traditional accounting-based value drivers in explaining shareholder value creation. The findings of Gupta and Sikarwar (2016, p.438) also indicated that EVA has more relevant and incremental information content than the conventional accounting measures for analyzing shareholder value creation. Their results confirmed EVA is a better performance measure than the traditional accounting measures which then supports the position of Stern Stewart and Co. (1991).

Zafiris and Bayldon (1999, p.88) add that EVA does emerge, statistically, as the principal explanatory variable of market value added and that it encourages the best use of capital resources, with the ultimate aim of maximizing the value accruing residually to equity holders. Tripathi, Kashiramka and Jain (2019, p.212) also contend that there is no denying the fact that EVA is a direct and credible measure of shareholders' value creation which can even be applied at the divisional level of firms, which is consistent also to Garvey & Milbourn, (2000).

In their study of determinants of bank performance in Ghana and using EVA as a performance measure, Owusu-Antwi et al., (2015, p.213) confirmed that EVA factors capture bank-specific performance measure better than ROA. A detailed analysis of their study showed that EVA had a positive impact on cost to income ratio, liquid assets and total assets. They discovered that both EVA and ROA as performance measures, were strongly determined by the liquid assets of the banks.

Another study in the South African context by Van der Poll et al., (2011, p.123) established that EVA improves the measurement of firms' performance, yet it was not widely used in South Africa. In a study by Stewart (1990), EVA may be viewed as a measure of value as well as a measure of performance, moreover, it can be used to set goals, evaluate performance, determine bonuses, communicate with investors and budget for capital expenditure. These authors recommend that to avoid a situation where firms show high profit but also incur high capital costs, investors should utilise EVA to mitigate this problem. With all of EVA's capabilities as stated above, Van der Poll et. al., (2011) maintain that EVA is not more important than other measures as an indicator, because just like the conventional accounting measures, its methodology can be subjective, it can be manipulated and it may be mostly dependent on the ethics of top management for its correct application.

A later study by, De Wet (2012) analysed the nexus between executive remuneration of South African listed firms and EVA and MVA, as well as between the conventional performance measures, such as ROA and ROE. The results indicated that the introduction of new measures for shareholders'

wealth such as EVA and MVA have allowed some firms to link executive remuneration to shareholder wealth creation. The findings in that study also revealed a significant nexus between executive remuneration and EVA and MVA, but that the correlation is better between executive remuneration and ROA and ROE; this is logical and understandable because EVA is more stringent in determining value creation than ROA. For instance, in the study of application of EVA by a monopolistic firm in New Zealand, Austin (2005, p.142) compared EVA with the traditional profit and cash flow information and found that the traditional accounting profit exceeded the EVA measure, whilst in loss periods the accounting loss was less than the corresponding EVA deficit, even though, both EVA and the conventional accounting profit are accrual measures. The point here is that the conventional profit measures usually exceed value-oriented measures because of the exclusion of equity capital charge.

In the midst of these mixed findings, Wilson (2008, p. 25) insist that although everyone may not agree on how accurate a measure EVA is, it is undisputable that it provides a better measure of the wealth that a firm creates or destroys than the traditional accounting figures of such measure as EPS, ROA, and ROE, which fail to take into account a firm's total cost of capital.

Sahoo and Pramanik (2016, p.1-2) describe EVA as a new accounting method which is becoming a more and more admired tool for - measuring the financial performance of firms, offering a consistent approach to setting goals and measure performance, communicating with investors, evaluating strategies, allocating capital valuing acquisitions and determining incentive bonuses. EVA, hence, has already acquired acceptance as a tool for assessing existing firms' financial status and predicting their future performance. Similar work by Raj, Beck and Soliman (2019, p.884) in Germany, indicate that EVA is the leading key performance indicator in the automotive industry, however, as mentioned earlier, the challenging aspect is that the calculation of EVA is non-uniform and allows for only limited comparability.

In recognition of the diverse context of EVA, Kaur and Narang (2010) had reported in their Indian study that their findings have implications for Securities and Exchange Board of India, Institute of Chartered Accountants of India, Company Law Board and other related parties, such that they recommend the need to make EVA reporting mandatory in Indian corporate sector.

Using margin of error as a measure of efficiency, Forker and Powell (2008, 474) found that EVA and other residual income measures outperform mandated earnings, by generating smaller valuation errors. This result provides support for the recognition of the cost of equity capital in measuring financial performance. The study concluded that although its valuation errors are not significantly lower than other residual income-based metrics, EVA does have the lowest variation of valuation errors in their USA study, indicating relative forecasting accuracy. In line with Kaur and Narang

(2010), the study by Forker and Powell (2008) also recommended that to improve the quality of earnings' measurement reported in financial statements, accounting regulators ought to mandate the recognition of the cost of equity capital when reporting equity income in financial statements. Other findings are neutral on superiority and suggest that managers on EVA bonus plans, who understand the EVA concept and are knowledgeable about its implementation in a firm perform, better than managers on traditional bonus plans (Riceman, Cahan & Lal, 2002, p.538) although, the authors also found that understanding of EVA is low. Another study that found that adopting EVA as a management tool significantly affects the adopting firm's potential investment, financial and operating decisions was conducted by Al-Omush, (2014).

In conclusion, there is almost a split in existing research findings regarding the superiority or otherwise of EVA as against the conventional accounting measures of corporate financial performance. Consistent with variables selection of the present study, prior studies recommend the adoption of both EVA and the traditional accounting measures to estimate financial performance. Secondly, in line with the recommendations of Agrawal, Mohanty and Totala (2019), Hall (2016), Al-Omush (2014), DeWet (2012 & 2005), Kaur and Narang (2010), Forker and Powell (2008), Weaver (2001), Chen and Dodd (1997) and others, this present study finds it prudent to use a combination of both the value-based performance measures - EVA and MVA- as well as the conventional accounting performance measures - EPS, ROA, and ROE- to evaluate firm performance.

3.2.5 Application of EVA

Globally, many authors have studied the philosophy behind the application of EVA by management to assist it to accurately measure value-oriented outcome. Some of the influential studies are Agrawal, Mohanty and Totala (2019); Guermat, Misirlioglu and Al-Omush (2019) in USA; Tripathi, Kashiramka and Jain (2019); Raj, Beck and Soliman (2019) in Germany; Zhang and Aboud, (2019) in China; Hall (2017 & 2016), Gupta and Sikarwar (2016) ; Berzakova, Bartosova, and Kicova (2015) in Slovakia; Al-Omush (2014); DeWet (2012) in South Africa; St-Pierre and Sakka (2011) in Canada; Kumar and Sharma (2011); Bahri, Paulo (2010) in the UK; Kaur and Narang (2010) in India; Rompho (2009) in Thailand; Erasmus (2008); Wilson (2008), Philips (2008) in US; Forker and Powell (2008) in UK and US; Tsuji (2006) in Japan; Austin (2005) and Riceman, Cahan and Lal (2002) in New Zealand; Ramezani, Soenen and Jung, (2002); Eljelly and Alghurair (2001) in Saudi Arabia; Paulo (2000) and Zafiris & Bayldon (1999) and in UK.

In addition to Abasi, Agbloyor and Abor (2016) who used EVA to proxy performance in their study of shareholder activism, the only available study in the Ghanaian context found to have used EVA

is by Owusu-Antwi, Mensah, Crabbe and Antwi (2015). Their study investigated the determinants of banks' profitability in Ghana for the period 1988 to 2011 using the EVA technique to measure performance. They evaluated two performance yardsticks to determine the best alternatives. Their findings showed that EVA is the better measurement compared to the traditional accounting measurement of ROA.

In the South African context, studies such as Hall (2016 & 2017), Erasmus (2008), De Wet (2012 & 2005), have produced mixed results, both in support of the superiority of EVA and the traditional accounting metrics - this dilemma influenced the direction of this study. For instance, De Wet (2012) recommends that South African firms need to shift the emphasis away from conventional performance measures to value-creation measures when designing and implementing executive compensation plans. This plausible recommendation is an indication that studies in this field is in the right direction and research needs to be ongoing.

3.2.6 Industry Application of EVA

Ability to measure EVA appropriately gives firms a better focus on how they are performing, however, the measure's real benefit is seen when it is used as the basis for a comprehensive financial management system that incorporates all the policies, procedures, methods and measures that guide firms' operations and strategy (Stern Stewart & Co. as cited by Philips, 2007, p.13). Players in the financial market, such as the investors and investment managers are usually in constant search to identify firms that can maximize shareholders' wealth. Similarly, managers within firms continuously look for ways to better evaluate their decisions with regards to capital expenditures and investments which affect the dynamics of providing principals with their required rate of return (Wilson, 2008, pp. 4-5).

The application of EVA is general and not limited to certain industries or areas of business. Philips (2007, p.24) claims that firms of all types have adopted EVA and it is yielding remarkable performance. In their study of EVA adoption in the USA, Guermat, Misirlioglu and Al-Omush (2019, p.512) documented the following firms as adopters - Coca Cola in 1987, Crane Co. in 1989, Quaker Oats in 1991, Whirlpool Corp in 1992, AT&T in 1992, Hewlett Packard Co. in 1993, Transamerica Corp in 1993 - and as many as 82 firms in the country.

Zhang and Aboud (2019, p.596) report that banks such as Centaur Bank in USA first introduced EVA to its performance evaluation system in 1994, then Citibank joined, and then China Construction Bank (2002) also joined the cohort of users. China Construction Bank for instance, started with the

objective of maximizing bank value and acknowledged the important role of EVA in the performance evaluation of commercial banks.

An industry analysis that was done by Al-Omush (2014) revealed that EVA firms outperformed their peers and the market portfolio S&P500 index. In addition, the results also found that adopting EVA significantly affected the adopting firm's potential investing and financing and operating decisions. Besides being used as criteria for maximization of wealth, EVA can also be adopted by monopoly firms to avoid exploiting the market by limiting earnings and wealth-creation by aiming to achieve zero EVA over time (Austin, 2005, p.142). EVA does not focus only on profit but also on the cost of capital, therefore, Rompho (2009, p.2) argues that it can be used in organizations such as universities, not for profit purpose but to manage income efficiently. In their comparative study of the superiority of EVA with other traditional performance measures, Kumar and Sharma (2011b, p.105) studied the Indian manufacturing sector and concluded that their empirical evidence do not support the superiority of EVA as compared to the traditional accounting-based measures in association with market value of firms. Other industry application includes the pharmaceutical industry (Zafiridis & Bayldon, 1999).

3.2.7 Interpretation of EVA Results

Regarding interpretation of results, O'Byrne and Stewart (1996) attest that a positive EVA is an indication of real profit and a sign for a future EVA improvement because a growing company can create EVA improvement simply by maintaining its current rate of return; a negative EVA, on the other hand, indicates value dissipation and reduction of market value. Similarly, Rompho (2009, p.4) explains that if the result of an EVA computation is zero, it means that shareholders have earned returns sufficient to compensate for risk taken, which is an adequate achievement. On the contrary, if the EVA result is positive, then it means shareholder value has been created, implying that shareholders have earned higher returns than the risk. In conclusion, if the result is negative, then it means no value has been added or shareholder value has been dissipated.

3.2.8 EVA and Financial Statements Analysis

Evaluating the financial strength of a firm involves many sets of principles in finance, and the process is viewed more as an art than a science. As such, there are many different ways that an investment manager, individual investor, or management of a firm can view the financial statements of a particular firm, including a performing ratio analysis. Even though financial ratio analysis is undoubtedly expedient when viewed through cross-sectional (comparing a firm to other firms within

the same industry) and time series analysis (comparing a firm's progress over time), there are many mismatches between the accounting figures that a financial statement provides and the reality of a firm's financial activities, thereby, causing a lag. Accounting principles are very necessary for consistency in the preparation of financial statements, however, they rely on historical costs, as such they do not accurately reflect the real costs of a firm. The result is that, many firms that appear to be profitable, when assessed using ratios but are sometimes in reality destroying wealth, and this is what EVA came to correct by supplementing the traditional ratios (Wilson, 2008, pp. 4-5).

In accounting, general purpose financial reports are not designed to show the value of a reporting firm, but they provide information to help existing and potential investors, lenders and other creditors to estimate the value of the reporting entity (Conceptual Framework of IFRSs, para.1.7). To show value in the presentation of financial statements, and following the case of Airways Corporation of New Zealand (Austin, 2005, p.142), it should be possible to produce EVA information as additional supplementary information to the conventional financial reports.

Durant (1999) observed that under the generally accepted accounting principles, most firms appear to be profitable, yet, many actually destroy shareholder wealth because they earn less than the full costs of capital. EVA overcomes this problem by explicitly recognizing that when capital is employed, it must be paid in full. In other words, equity capital is not free, it must be accounted for, thus, if an economic profit is not earned, then it does not matter what the net income shows, in reality, the firm is merely breaking-even or operating at a loss. It is only the economic profit that measures true performance and creates real value for a firm and its shareholders (Philips, 2007.p.8; Rutledge, 1993). The unique aspect of EVA is that, profit is created only when revenue exceeds the costs of doing business, plus the cost of capital. This compels managers to make good capital structure decisions, that is, ensuring that optimum capital structure is employed by making the firm well levered (Stern, Stewart, 1991, Durant, 1999; Chmelikova, 2008; Shil, 2009).

3.2.9 Financial Reporting and Economic Value Added

Enhanced financial reporting has been found to have an inverse relationship with costs of capital and by extension, improvement in disclosure content and understandability, reduces cost of debt (Muttakin, Mihret, Lemma & Khan, 2020); consequently, the quality of financial reports directly affects costs of debt and equity. These two variables of capital structure directly affect firm performance. A necessary requirement for the calculation of EVA is availability of standard financial statements. What makes it unique and comprehensive is that, EVA takes into consideration, all the financial information from the income statement and balance sheet, including - revenues, cost of goods sold, R&D costs, selling and administrative expenses, inventories, accounts receivable,

accounts payable, capital assets, debt and equity (Bahri, St-Pierre & Sakka, 2011, p.604). In analysing the extent of EVA disclosure practices in the annual reports of Indian companies, Kaur and Narang (2010) ascertained that just 7.4 per cent of their sample, specifically, mentioned the use of EVA metric in their public disclosures.

The Conceptual Framework of IFRS (para.1.2) states that the objective of general-purpose financial reporting is to provide financial information about a firm that is useful to existing and potential investors, lenders and other creditors in making decisions relating to providing resources to the entity; these decisions relate to buying, selling or holding equity and debt instruments. It also involves decisions about providing or settling loans and other forms of credit or exercising rights to vote on, or otherwise influence, management's actions that affect the use of an entity's economic resources. This shows that a performance metric which can capture these two instruments should be the preferred one by shareholders and debtholders, who are the providers of equity finance and debt finance. Accounting figures disclosed in financial reports are necessary requirements for EVA calculation.

Kaur and Narang (2010, p.400) reported that they observed from their study of Indian companies that approximately 35% of the firms who exploited EVA preferred to make a separate section in their financial reports for reporting their EVA performance. The firms include Hero Honda Motors, Crompton Greaves, Balrampur Chini Mills, Lakshmi Machine Works, Rolta India Ltd, etc. The next preferred medium of disclosure is the financial highlights where 30% of EVA users presented EVA figures through charts. In 27% of these cases, management discussion and analysis report were used as the medium of such disclosure. In addition, other sources used by Indian companies for EVA disclosure were director's report, corporate governance report, as additional information to shareholders and notes to the accounts. Nine firms used a combination of these mediums to disclose EVA-related information in their annual reports. The study also found that all the EVA-reporting firms used EVA measure in combination with the traditional performance measures such as profits, ROI, EPS, ROCE; this indicated that many firms continue to use the long-established accrual accounting-based measures after adopting EVA. The reason for this, according to the study is that, in contrast with the mandatory disclosure requirement of these conventional financial metrics, EVA disclosure is voluntary for Indian firms. Also, Indian stock markets seem to be more responsive to the traditional performance measures like Earnings, EPS and ROI than the new value-based performance measure EVA.

These lead to the following hypotheses; *H8: There is a statistically significant positive relationship between EVA/MVA and weighted disclosure indices*

According to Brealey, Myers and Allen (2017, p.313), EVA recognizes the amount of capital employed and the amount of additional wealth created and its most valuable contributions happen within firms as it is an internal performance metric. The variable encourages managers and employees to concentrate on increasing value, not just on increasing earnings.

The EVA theoretical framework is depicted in figure 2.2 below.

Figure 3.1. EVA Conceptual Framework



The capabilities of EVA seem to be innumerable. Some other studies posit that it can also be used as - a financial analysis tool, as a guide for setting pricing, as a tool of management and employee incentive, as a tool of evaluating the firm and as benchmark for checking financial performance (Berzakova, Bartosova, & Kicova, 2015, p.320; Austin, 2005, p.138). Kaur and Narang (2010, p.418) found that in India, EVA is used by firms to measure financial performance and shareholder value enhancement; it is known to be one of the best value-based performance measures (Erasmus, 2008, p.70) because the inclusion of risk-adjusted charge on equity in its calculation is a unique feature that distinguishes EVA from other conventional metrics (Agrawal, Mohanty & Totala, 2019, p.104; Zafiris & Bayldon, 1999, p.86).

The calculation of EVA is its main challenge because many companies struggle with the calculation of net profit as the process entails many computations and even more with the calculation of EVA due to its complexities. Another challenge uncovered by Van der Poll et al., (2011) is that EVA can be costly to implement, difficult to understand and often misunderstood by management and the staff who need to implement it. Future researchers in connection with the application of EVA should include more focus group discussions with participants from listed companies, which could contribute to a better understanding of EVA and other metrics. This study sought to do just that, by studying listed firms using EVA, including the closest competitors to EVA such as EPS, ROA and ROE, and recommending ways to enhance the understanding of these performance metrics.

EVA, economic profit, and other residual income measures are clearly better than earnings or earnings growth for measuring performance; EVA may also highlight parts of the business that are not performing up to expectation. That means if a division is failing to earn a positive EVA, it can be quickly identified and its managers are likely to be questioned about whether the division's assets

could be better employed elsewhere. Bases on this, EVA sends a message to managers, which is, invest, if and only, the increase in earnings is enough to cover the cost of capital, therefore, EVA is usually used in the firm as an incentive compensation system. It is a substitute for physical monitoring by top management, thus, instead of telling plant and divisional managers not to waste capital and then checking to ensure whether they are complying, EVA rewards them for careful investment decisions. EVA makes the cost of capital visible to operating managers so plant manager can improve it by increasing earnings or reducing capital employed; underutilized assets, therefore, tend to be identified and disposed of. The introduction of residual income measures often leads to significant reductions in assets employed, not from one or two big capital disinvestment decisions, but from many small ones.

Weighted Average Cost of Capital (WACC)

Cost of capital is the rate of return required by the suppliers of capital to the company. For a firm that finances its operations or investments using both debt and equity, the cost of capital includes not only the explicit interest on the debt, but also the implicit minimum return that owners require (Drake and Fabozzi, 2015, p.121). The weighted average cost of capital (WACC) is the combination of both cost of debt and cost of equity ($K_d + K_e$). Cost of debt is usually accounted for by managers but cost of equity is usually not. Equity capital is not free, and in practice, it is more expensive than debt financing, because shareholders almost always have a higher expected return than lenders (Stewart, Applied Corporate Finance, June 2, 2003; Tully, 1994). Cost of equity is the required rate of return demanded by investors, or a return equal to the amount that an investor could have received if this investor invested the money elsewhere. It is actually the opportunity cost of the investor that a firm must compensate. If a firm generates a return less than the cost of equity, it will send a signal that this firm is under-performing, therefore, destroying its shareholders' wealth (Philips, 2007, p.10). To create wealth, a firm must earn more than the cost of equity, therefore, the cost of equity is a critical benchmark rate which is invisible but is a profound dividing line between superior and inferior corporate performers (Stewart, WSJ, 2003, June 2, p. 2 as cited by Philips, 2007, pp.10).

Cost of equity is best calculated using the capital asset pricing model (CAPM). Following Khlif, Samaha and Azzam (2015, p.39) in applying the CAPM framework, there is the need to compute certain key variables to estimate cost of equity capital. These key variables are - the expected market return, the risk-free rate and the systematic risk of the firm. According to the CAPM model, cost of equity capital is determined by the risk-free rate and the risk premium. The specific computation of each of these variables are shown and explained in the methodology section of this report.

3.2.10 Market Value Added

Market value added (MVA) is a complementary measure to EVA; it is the present value of future EVA and is regarded as an operating performance measure (internal metric) whereas MVA is best used as wealth creation measure (external metric) (Eljelly & Alghurair, 2001, p.63). MVA is a variable that is known to have good explanatory power in valuation of a firm, as a whole, at the stock market (Berzakova, Bartosova, & Kicova, 2015, p.321). De Wet (2005, p.3) avers that MVA is the best external measure of a company's performance and EVA is an internal measure of performance that determines MVA.

In the South African study on industry analysis, Hall (2016, p.196) found that MVA-based models perform better, with a 77 per cent explanatory power for the food and beverages industry and an 80 per cent explanatory power for the industrial goods industry. It is also noted that for the construction and materials industry, the MVA-based model provides an explanatory value of 85 per cent, more than other measures, therefore, the author concluded that MVA performs better than other measures for shareholder value creation. MVA is a complement to EVA, hence, this study uses MVA as a metric for external firm performance, at the stock market.

3.3 CONVENTIONAL ACCOUNTING PERFORMANCE MEASURES

Variables used in this study as proxies for conventional accounting financial performance measures are earnings per share (EPS), return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and liquidity. Generally, many firms use EPS, ROA and ROE to proxy financial performance (Agrawal, Mohanty & Totala, 2019). The issue of corporate disclosure combined with financial performance have received very little attention in Africa, although authors like - Rouf, 2011; Bokpin, 2013; Ntim, 2013; and Zaman, Arslan & Siddiqui, 2015 and Modugu, 2017 - have done some studies on the topic. However, almost all these prior studies on disclosure, studied disclosure in isolation without looking at its relationship with financial performance (Rahman & Hamdan, 2017; Tsamenyi, Enniful-Adu & Onumah, 2007; Yu & Wang, 2016; Wardhani, 2019; Khlif, Samaha & Azzam, 2015; Kamel and Awadallah, 2017; Kolsi, 2017). Corporate financial disclosure is an agency problem issue and financial performance is an agency costs issue. Surprisingly, the very few authors who focused on the nexus between disclosure and financial performance employed EPS, ROA or ROE as proxies financial performance and had statistically insignificant and inconclusive results (Bokpin, 2013; Dzingai & Fakoya, 2017; Juhmani, 2013; and Tshipa, 2017; Ntim, 2013, Nahar, Azim & Jubb, 2016).

3.3.1 Earnings per share (EPS)

Over the years, EPS has reigned over other performance measures as the single most important financial performance metric (Eljelly & Alghurair, 2001, p.55). According to Gitman and Zutter (2012, p.11), firms commonly measure profits in terms of EPS, which represent the amount earned during the period on behalf of each outstanding share of ordinary shares, however, just like ROA, EPS is known to have distorting effects on asset utilisation. The growing popularity of EVA is, therefore, emanating from the general realisation that, just like ROA, EPS neglects the opportunity cost of equity capital which may have been employed sub-optimally (Zafiris & Bayldon, 1999, p.89). Quiry et al., (2005, p.346) further explained that EPS, for instance, is a key performance measure that is easy to alter, and that the practice of altering it is called “window-dressing” - improving the presentation of the accounts by adjusting exceptional items, provisions, among others. Zafiris and Bayldon (1999, p.89) argued that any potential expanding firm can increase both absolute and per-share earnings by investing capital beyond the margin where the return covers the opportunity cost, possibly ‘improving’ EPS at the expense of shareholders’ wealth. EVA by contrast, however, tends to focus management efforts on investing only in projects with positive spread or returns on capital ($ROC - WACC = \text{spread}$). Gitman and Zutter (2012, p.12) further argued that the EPS that firms report is simply an estimate of how it is doing, and that it is an estimate that is influenced by many different accounting choices that firms make when compiling their financial reports. They add that cash flow is a more straightforward measure of the money flowing into and out of the firm because firms have to pay their bills with cash, not earnings, so cash flow is what should matter most to financial managers. In addition, EPS does not necessarily result in cash flows being available to the shareholders, hence, board of directors do not necessarily increase dividends when EPS increase; this is because the real cash may not be available to be used. The accounting assumptions and techniques that a firm adopts can also, sometimes, allow a firm to show a positive profit even when its cash outflows exceed its cash inflows.

Earnings per share (EPS) is computed as a ratio of net income to total number of shares outstanding. Hall (2016, p.205) in South Africa found that EPS has a high impact on shareholder value creation. The study recommends that earnings reports should be actively used in considering investment decisions, because shareholder value follows earnings. Based on industry study of EPS, it recommends that board of directors of firms, in the construction industry, can reward their employees using performance indicators such as the EPS, ROA, NOPAT and EVA, whilst, employees of a firm in the retail industry should be rewarded based on improvements in the EPS, ROA, NOPAT, ROCE

and the Spread. A study by Barros, Boubaker and Hamrouni (2013) found that more profitable and less indebted firms have greater voluntary disclosure.

3.3.2 Return on assets (ROA)

Drake and Fabozzi (2015, p.263) stated that return on investment ratios compare measures of benefits, such as earnings or net income, with measures of investment. For instance, if an investor wants to evaluate how well the company uses its assets in its operations, the investor can calculate the return on assets (ROA). This can be calculated as the ratio of earnings before interest and taxes to total assets (also known as 'operating earnings').

$$\text{Basic earning power} = \frac{\text{Earnings before interest and taxes}}{\text{Total assets}}$$

$$\text{The most widely approach to calculating ROA is Return on assets} = \frac{\text{Net income}}{\text{Total assets}}$$

The first method does not take into consideration how assets are financed so it usually produces higher rates. The second method, which this study employs, takes into consideration how assets are financed so it gives a more accurate rate. The difference is due to interest payments emanating from debt financing and can be computed as - net income to total assets (Abraham, Harris & Auerbach, 2017). It can also be computed as ROA = Profitability = EBIT/total assets (Alnaas & Rashid, 2019, p.392).

Kamel and Awadallah, (2017, p.281) found that a firm's profitability and liquidity are not associated with the level of voluntary information disclosed by Egyptian companies. This finding is not surprising, taking into account the conclusion of Leventis and Weetman (2004) which argue that performance-related variables can be used to serve different purposes, therefore, no specific expectation can be made about the direction of the association between profitability and liquidity, from one side, and the extent of disclosure, from the other.

Another study by Appiah, Awunyo-Vitor, Mireku and Ahiagbah (2016, p.145) revealed a negative insignificant relationship between profitability and the firm's level of compliance with IFRS mandatory requirements. This suggests that profitability is not related to the disclosure of quality accounting information in the Ghanaian context, but their results was insignificant. This could mean that less-profitable companies are more interested in adopting a set of standards. But a study Kolsi (2017) of firms listed on the Abu Dhabi Securities Exchange found that profitability (ROA) positively affect the level of voluntary disclosure. Then Conway (2019) found in South African study that the production of higher quality reports is associated with decreased financial performance and risk. Siagian and Rahadian (2013) studied Indonesian firms and found negative associations between reporting

quality and the various proxies of firm value (ROA and Tobin's Q). These findings suggest that firms with lower values tend to disclose more information. Findings from Martinez-Ferrero (2014) highlights the positive effect of financial reporting quality on financial performance (market to book ratio).

3.3.3 Return on Equity (ROE)

Another popular conventional performance indicator is ROE, which compares returns with equity used, yet it can also be manipulated because a firm can boost its ROE by skilfully reducing its debt level. Just like EPS and ROA, ROE has similar weaknesses, thus, a better indicator, according to Quiry et al., (2005) is the Return on Capital Employed (ROCE) indicator which avoids these biases. ROCE tends to become the main measure of economic performance, although, it also fails to capture cost of equity which is a critical source of finance. Alnaas and Rashid (2019, p.399) found that profitability, as measured by return on equity (ROE), was an insignificant factor, indicating that IFRS compliance level is not associated with profitability.

Drake and Fabozzi (2015, p.263) assert that investors may not be interested in the return the company gets from its total investment (debt plus equity), but rather shareholders are interested in the return the company can generate on their investments. The return on equity is the ratio of the net income shareholders receive to their equity in the stock. ROE is measured as a ratio of net income to total equity (Abdi, Kacem and Omri 2017; Abraham, Harris & Auerbach, 2017; Khlif, Samaha & Azzam, 2015; Quiry et al., 2005, p.234). Bepari, Rahman and Molik (2014) found that firms' profitability (ROE) is a significant determinant of firms' compliance levels.

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Shareholders' equity}}$$

3.3.4 Liquidity Ratios (LIQ)

The Conceptual Framework of IFRSs, paragraph 1.03 states that, information about the nature and amounts of a reporting entity's economic resources and claims can help users to assess the reporting entity's liquidity and solvency, its needs for additional financing and how successful it is likely to be in obtaining that financing. Liquidity ratio measures the extent to which assets can be turned into cash quickly; the ratio is used to assess how much cash a firm has available in the short term. Current ratio is measured as the ratio of current assets to current liabilities (Drake & Fabozzi, 2015, p.251; Kamel & Awadallah, 2017, p.274); it shows a firm's short-term liquidity. Measuring liquidity is important because managers can only divert liquid assets and the cash flows produced by capital, but not the capital itself. The current ratio is an indication of how many times the company

can cover its current liabilities, using its current assets (Drake & Fabozzi, 2015, p.25). In the study of corporate disclosure of firms on the Egyptian Stock Exchange, Kamel and Awadallah (2017) did not find a significant relationship between liquidity and corporate disclosure. Modugu (2017) studied Nigerian listed firm and found no significant relationship between profitability and the three components of corporate disclosure. But liquidity showed a significant positive relationship with mandatory and total disclosure. The combined effect of profitability and liquidity showed no significant relationship with any of the components of corporate disclosure. Modugu (2017) then contend that the findings suggest that improved performance of companies does not necessarily induce them to disclosure more information as widely reported by previous researchers.

3.3.5 Firm leverage (LEV)

There are two approaches to calculating leverage. According Drake and Fabozzi (2015, p.157) one measure of the extent of debt used to finance a firm is the debt ratio, or the ratio of debt to equity:

$$\text{Debt ratio} = \frac{\text{Debt}}{\text{Equity}}$$

This is a relative measure of debt to equity. The greater the debt ratio, the greater is the use of debt for financing operations, relative to equity financing.

Another measure is the debt-to-assets ratio, which is the extent to which the assets of the company are financed with debt:

$$\text{Debt-to-assets ratio} = \frac{\text{Debt}}{\text{Total assets}}$$

This is the proportion of debt in a firm's capital structure, measured using the book, or carrying value of the debt and assets. A firm's use of debt financing may provide additional monitoring of a company's management and decisions, thereby, reducing agency costs.

Different authors adopt either one of these methods; for example, LEV was measured as debt-to-equity ratio by Agrawal, Mohanty & Totala, (2019, p.104-114), Khlif, Samaha & Azzam, (2015, p.37), Wardhani, (2019, p.380) and Nahar, Azim & Jubb, (2016, p.484). Firm leverage is measured as total debt divided by capital equity (Kolsi, 2017, p.257). In the second approach, leverage is measured as the ratio of total liabilities to total assets by Abdi, Kacem and Omri, (2017), Bepari & Mollik, (2015), Wu, (2012, p.11) and Florakis, (2008, p.47).

Kamel and Awadallah, (2017, p.274, 280) measured leverage as the ratio of total debt to total assets and found a positive but insignificant relationship between leverage and voluntary disclosure. This finding indicates that leverage does not provide an explanation for the variation in the level of voluntary corporate disclosure in Egypt. Tawiah and Boolaky (2019b, p.310) explained that leverage is the capital structure of a firm (debt plus equity = TA) which is measured as the ratio of total debt

to total capital. Rahman & Hamdan (2017, p.99); Hienu & Lan, (2015); Miihkinen, (2008) and Appiah & Acheampong (2019, p.561) also measured it as the total debts divided by total assets.

In their study of South African firms, Pamburai et al., (2015, p.119) narrated that the association between leverage and ROA is negative and marginally significant, suggesting that firms with less debt appear to perform better than those with more debt. Debts, like a bank debt helps in monitoring firms' activity and compels them to increase disclosure. Leverage of firms is generally known to significantly and positively associate with the level of voluntary information disclosures. Firms with high leverage will be required to disclose detailed information to the stakeholders. They need to disclose their capabilities to repay debts. In other words, there is an expectation that firms which have large sums of debt on their balance sheet, will disclose more information in their annual reports (Juhmani 2013), and the variable is expected to have either positive or negative relationship with EVA.

Bokpin (2013) in his study found a statistically significant negative relationship between financial leverage and corporate disclosure; this means higher financial leverage leads to higher information disclosure. These results disputed the aspect of the agency theory which predicts that there will be higher information asymmetry and agency cost if financial leverage is high while affirming the signaling theory in the Ghanaian context.

It is argued that higher disclosure reduces the lenders' (banks) information-gathering costs and their efforts to monitor borrowers and this leads to more favorable loan contracts' terms, hence, firms with superior disclosure policies pay lower interest rates on private debt. This result suggests that banks still depend on public disclosure to make their lending decisions and that private information from borrowers cannot completely eliminate information asymmetry.

Hasan and Song (2014, p.5-12) contend that when banks write a loan contract, they are concerned with two possibilities. The first is that the borrower may withhold valuable information relating to their default risk and the second is that the borrower may intentionally disclose false information. These agency problems may reduce the credibility of corporate disclosure and motivate banks to charge more by writing unfavorable loan contracts. Clearly, firms with superior disclosure policy obtain bank loans of larger amounts, longer maturity, and lower spread. By extension, firms with well-disclosed information obtain bank loan contracts with large amounts because public disclosure can reduce banks' information search costs.

Hasan and Song (2014, p.16-17) further note that banks in emerging countries still depend on information provided by public disclosure, although they can collect some private information from

borrowers, as one of the ways for firms to obtain low-cost financing is to increase their disclosure level.

In their study, Alnaas and Rashid (2019, p.399) discovered that leverage was not a significant explanatory variable, thereby, indicating that the level of compliance with IFRS was not associated with leverage and that debtholders do not exert pressure on firms to adopt IFRS when preparing their information. Finally, Appiah, Awunyo-Vitor, Mireku & Ahiagbah, (2016) found that the level of compliance exhibits a negative significant association with Leverage.

These findings from literatures leads to the following hypotheses;

H9: There is statistically significant negative relationship between EVA/MVA and agency costs.

H10: The association between conventional financial performance variables and weighted disclosure indices can be significant positive or negative.

H11: The association between conventional financial performance variables and agency costs can be significant positive or negative.

3.3.6. FREE CASH FLOW THEORY AND AGENCY COSTS

In the seminal paper titled *Agency Cost of Free Cash Flow, Corporate Finance, and Takeover*, Jensen (1986) posited that free cash is cash flow in excess of that required to fund all projects that have positive net present values (NPV) when discounted at the relevant cost of capital. Conflict of interest between shareholders and managers over payout policies are especially severe when the firm generates substantial free cash flow. The problem is how to motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on firm inefficiencies. These cash flow management concepts are the building blocks for *H9*, *H10* and *H11*. JSE- listed firms and GSE-listed firms that are liquid will generate free cash flow but how they manage these free cash flow will determine the relationships as hypothesized in *H9*, *H10* and *H11*. This free cash flow can also influence agency costs or can be influenced by agency costs as argued by Jensen (1986) regarding conflict of interest between shareholders and managers.

3.4 CHAPTER SUMMARY

This chapter thoroughly reviewed empirical studies on financial performance measures. Financial performance has been segregated into economic value based financial performance and the conventional accounting based financial performance. Empirical studies on EVA, in particular, were almost split in their findings regarding the superiority or otherwise of EVA, as against the conventional accounting measures of corporate financial performance, however, consistent with variables' selection of the present study, prior studies recommended the adoption of both EVA and the conventional accounting measures to estimate financial performance. Consistent, therefore, with the recommendations of Agrawal, Mohanty and Totala (2019), Hall (2016), Al-Omush (2014), DeWet (2012 & 2005), Kaur and Narang (2010), Forker and Powell (2008), Weaver (2001), Chen and Dodd (1997) and others, this present study finds it prudent to use a combination of both the economic value-based performance measures (EVA and MVA) and the conventional accounting performance measures (EPS, ROA, ROE and EPS), to evaluate firm performance.

The next chapter presents the methods formulated to calculate weighted disclosure indices, and those employed to calculate agency costs variables and economic value added and market value added variables. It also presents the various formulae for calculating all the conventional accounting performance measures variables, ending with a formulation of multivariate econometric models to estimate the relationship between dependent and independent variables.

Table 3.1 Summary of variables and their relationship

Hypotheses	Relationship	Expected Sign
H8	<i>relationship between EVA/MVA and weighted disclosure indices</i>	+
H9	<i>relationship between EVA/MVA and agency costs.</i>	-
H10	<i>association between conventional financial performance variables and weighted disclosure indices.</i>	+/-
H11	<i>association between conventional financial performance variables and agency costs.</i>	+/-

Derived from literature

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0. INTRODUCTION

This chapter explicate the methodology used for investigating the research problem and the established objectives. A methodology is generally an orderly scientific process of data collection, data analysis and testing theories. It is a strategy or an action plan that justifies the choice and use of certain techniques (Crotty, 1998). The discussions here will pertain to - the research paradigm, the design, methods for calculating variables, approaches used in treating variables, and procedures used in this investigation - which are well planned to achieve credible results from this study (Kivunja & Kuyini, 2017). Using a quantitative research approach, this study employs statistical procedures to identify variables and use numeric data for analysis and explanations (Creswell, 2014). Two new methods proposed for calculation of weighted-disclosure indices (WDI) are formulated and presented in this chapter as well as existing methods which are adopted for calculation of all dependent and independent variables. In addition, empirical regression models for determining the relationships among the dependent and independent variables are presented in this chapter as well.

4.1 RESEARCH PARADIGM / PHILOSOPHY

Paradigms are a philosophical way of thinking, a way of viewing and seeing the world and a way of perceiving things of interest that are common to a community of researchers, when generating knowledge. They influence the research method, strategies and the criteria for rigour shared by a philosophical community. Creswell (2014) calls it a 'worldview', which he explains as "a basic set of beliefs that guide action"; this means this set of belief is accepted by a community of researchers and their actions are guided by it when generating knowledge. Paradigms indicate what constitutes acceptable reality and knowledge in an area of discipline and it shapes the research strategy and methods. Creswell (2014) continues that worldviews are general philosophical orientation about the world and the background that a researcher brings to a study. The researcher's philosophical orientation in this present study, is that of post-positivist philosophy using quantitative research design to obtain and share knowledge. Rehman and Alharthi (2016, p.51) posited that a paradigm is a basic belief system and theoretical framework with assumptions about ontology, epistemology,

and methodology. Basically, it is our way of understanding the reality of the world and how to study it. The nature of our beliefs about reality is ontology and is about the researcher's assumptions about reality, how it exists and what can be known about it.

This study looks at the practical application of accounting standards by formulating methods, designing models and testing them, hence its methodology emanates from the positive accounting theory. Wildemuth (1993, p.451) posited that the positivist approach is commonly associated with quantitative studies, and that the positivist approach, with its goal of discerning statistical variables, is oriented toward counting the occurrences and measuring the extent of the variables being studied. The philosophy underlying the post-positivist worldview is that of reductionistic, in that the intent is to reduce the ideas, that is, the research questions, into a small, discrete set of variables and test them. The approach also includes empirical observations as well as measurement and theory verification (Creswell, 2014). The researcher in this present study collates financial figures from financial statements of the firms under study (empirical data) and does complex computations to obtain agency weighted disclosure indices, agency costs figures, EVA figures and liquidity figures, using the various methods (measurement), and verifies the operationalisation of the agency theory and makes conclusion from the results.

According to Rehman and Alharthi (2016), positivism assumes that reality exists independently of humans, hence, is not mediated by our senses and it is guided by absolute laws. As a means of ensuring reliability and validation, positivist researchers rely on large sample size and highly structured and standardized models and quantifiable variables that result into statistical analyses and inferences.

Accounting and finance focus on the study of values and figures which do not require close contact with the observations being studied and this conforms with the positivist paradigm where the researcher detaches himself from the observations to ensure that the researcher's personal values have minimal influence on the findings (Saunders et al., 2012). Objectivity, therefore, characterizes this present study which is shaped by the positivist paradigm. Kavrar (2020, p.311) explicates that the concept of positivism is a field of science which is based solely on physical facts with no metaphysical content, therefore, positivism, a purely philosophical way of thinking, attempts to explain research based on logical justifications. Positivism is concerned with information that can be obtained by observing data, hence, an accounting theory based on logic is undoubtedly influenced by positivism. This study, therefore, being positive accounting theory research focuses on logical explanations.

The ontological position of positivists is that of realism, that is how things really are and how things really work. Epistemology refers to a segment of philosophy which studies the nature of knowledge

as well as knowledge acquisition and validation process. Epistemology can also be viewed as the theory of methods or grounds of knowledge which expands into a set of assumptions about the means through which knowledge is gained or obtained about reality and how to discover existing knowledge. Consequently, the epistemological position of positivists is that of objectivism which influences this work.

The criticism of the positivist approach is that even though objective and scientific methods are appropriate for studying natural objects, they are not as successful when they are applied on social phenomena. Others argue that the complexity of laws governing individuals, their idiosyncrasies, their relationship with each other, with institutions and with society are in stark contrast with the order and regularity one finds in the natural world. Criticism of the positivist paradigm led to the emergence of post-positivism.

Post-positivism is an attempt to address the weaknesses of the positivist paradigm. The ontological position of post-positivism is that of critical realism which defines this study. It assumes a reality that exists independent of the researcher, but which can only be comprehended imperfectly because of the complexity of social phenomena. The post-positivist methodology approached used in this study relied extensively on investigations where assumptions were put forward in research questions form about the causal relation between variables. Empirical data were then gathered, analyzed and formulated in relation to the agency theory and weighted disclosure indices which explains the effect of the independent variables on the dependent variables. The approach to analyzing data in this study were deductive, which means statistical analysis were conducted, results obtained and findings posited. The main purpose was to measure, control, predict and ascribe causality (Cohen et al., 2007), therefore, this study was guided by the post-positivist paradigm, specifically, critical realism.

4.2 DESCRIPTION OF INQUIRY STRATEGY AND BROAD RESEARCH DESIGN

The researcher's philosophical orientation in this study is that of post-positivist philosophy using quantitative research paradigm. A secondary data collection approach was used to gather quantitative data (financial statements and other financial figures) which were then analyzed statistically. The quantitative approach involved the process of collecting, analyzing, interpreting, and writing the results obtained from the data. The researcher identified a population and a sample, specified the type of design, collected and analysed the data, presented the results, made an interpretation, and wrote the report in a manner consistent with a survey study (Creswell, 2014).

The objectives were addressed using purely quantitative methods, thus, data (financial statement and other financial figures) were obtained from annual reports of listed firms at the Ghana Stock

exchange (GSE) and the Johannesburg Stock Exchange (JSE), IRESS, Central Bank website, Ministry of Finance website, Revenue Authority website and others. Descriptive Statistics, Correlation analysis and multivariate regression analysis were modelled and run using Stata 14 Software. Quantitative research was adopted because the study examined the relationship among quantitative variables with statistical analysis (Creswell, 2014). The main variables in this study – WDI_{scale} , WDI_{dummy} , EVA, MVA, AgencyCost1, Agency cost2, Financial Distress (z-score), liquidity, ROA, EPS, ROE - are all quantitative variables.

The research design used in this study is an analytical quantitative survey. Conducting a survey is a method of data collection, done in a consistent manner to obtain same kinds of data from a large group of entities in a standardized and systematic way. Creswell (2014) advances that a survey provides a quantitative or numeric description of firms (population) by studying a sample of that population. This may include cross-sectional and longitudinal studies using secondary data such as the annual reports and other financial figures, with the intent of generalizing from a sample to a population. Quantitative research is ideal here because this study tested the operationalisation of the agency theory and examined the relationship among several quantitative variables of interest, such as WDI_{scale} , WDI_{dummy} , EVA, MVA, ROA, ROE, EPS, and FinDistress (z-score). There are three main types of data that can be employed in quantitative data analysis of financial issues - Time Series data, Cross-Sectional data and Panel data. Time series data are collected over a period of time on one or more variables. In this type of data, it is the time dimension which is the most important, and the analysis will be conducted using the values of the variables over time. Cross-sectional data are from one or more variables collected at a single point in time. Panel data have the dimensions of both time series and cross-sections. In this study, the dataset comprises of both time series and cross-sectional elements. In other words, this research investigated the same listed firms using their financial statements and other corporate governance variables and measured their quantitative results over time, therefore, panel data techniques were deemed the most appropriate.

To achieve the study objectives, empirical multivariate linear regression models were designed. Regression is a process of describing and evaluating the relationship between a given variable and one or more other variables (Brooks,2008). This survey research provides a quantitative or numeric description of the attribute of these listed firms (population) by enabling the researcher to study a sample of that population (Creswell, 2014). From the sample results, this study then draws inferences to the population.

This study obtained same kind of data from the published annual reports and websites of the listed firms; these were then arranged, computed, fitted into the relevant regression models and regressed

in a consistent scientific manner. The results were then used to do the analysis and generalization. The objective was to obtain a sample from the population and use it to estimate a relationship that represent the population. These estimates were done in a manner such that they were unbiased and precisely represented the actuals, hence, this study used ordinary least squares (OLS) in the estimation technique.

The population for this study is all listed firms on the Ghana Stock Exchange (GSE) and the Johannesburg Stock Exchange (JSE). Being a panel study or longitudinal survey, the study population are all listed firms on the GSE in Ghana (37 firms) and all listed firms on the JSE in South Africa (296), however, the focus is to study listed firms on the GSE and the JSE, using available data for the study period.

4.4.1 SAMPLING

Due to the relatively small number of firms listed on the Ghana Stock Exchange (37 firms), all firms were included and studied. To be included in the study, a listed firm must have data covering the study period (2011 to 2020). The firms were stratified into various industrial sectors. Sector classification according to the GSE are - Finance, Distribution, Food and Beverage, ICT, Insurance, Manufacturing, Mining, Agriculture, Exchange Traded Fund, Education and Advertising & Production. Stratified sampling technique was then employed, as in the case JSE firms, to obtain a representative sample of firms from the JSE where all firms with consistent data for the study period had equal probability of being selected to represent each stratum. Following Tshipa (2017: 121), firms with missing data were only accepted, if the missing data covers just one year. There were 296 equities on the JSE and 37 active firms on the GSE; 84 JSE firms were sampled due to availability of data, representing 28.39% while 27 firms on the GSE had the complete data covering the study period, representing 73%.

Similar to stratified sampling, listed firms were categorized according to sectors or industries, then within each sector, using purposive sampling, firms that have complete data covering the ten-year study period were selected.

The main objective here was to gather data from listed firms with consistent data available for the period of 2011 to 2020 - a ten-year period. It is a requirement for all listed firms to publish and submit annual reports each year, hence, substantial data on all active trading firms for the study period is available on JSE and GSE websites. Data was also gleaned from the firms' official websites, that is, the JSE and GSE websites. There were nine major industries on the JSE. These are: basic materials,

consumer goods, consumer services, financials, health care, industrials, oil and gas, technology and telecommunications (Tshipa, 2017:119; Listcorp.com/jse).

4.5 DATA COLLECTION

The study period covers a ten-year period, from 2011 to 2020. Sources of data were predominantly annual reports (secondary data), the firms' websites and on the websites of JSE and GSE. Similar to prior studies, such as Tshipa (2017, p.120), Hall (2017, p.431), and DeWet (2012) these data were obtained from IRESS database at the University of Pretoria for the JSE listed firms. Data for the GSE listed firms were obtained from the GSE website, Bank of Ghana website, Ministry of Finance website, Ghana Revenue Authority website, africafinancials.com, annualreportsghana.com and from the firms' own website. Obtaining data from the annual report proved the most reliable source because the data had been provided directly by the firms to meet regulatory requirements. After obtaining the data, the researcher carefully and thoroughly reads through to extract the relevant figures needed for computation and analysis. Both financial and non-financial firms were studied together in this research because the IFRS and IAS standards being studied applies to both and also because these categories of firms are subjected to similar disclosure requirement by JSE Listing Requirement (Tshipa, 2017, p. 120) and the King IV stipulations are also applicable to all firms.

4.6 DATA ANALYSIS

The entire data is quantitative in nature. Being a quantitative study, statistical data analysis, econometrics and statistical interpretation of financial figures, firm financial performance data analysis, weighted disclosure indices data analysis and agency costs data analysis were employed. The main types of variables used in this study were dependent variables, independent variables and control variables. The collected data were arranged, converted to measurable units and calculated using appropriate equations. Computed results were then fitted into the various multivariate regression models and processed using updated Stata 14 Software. Other analysis included descriptive statistics and correlation analysis. There were 2016 firm year observations (24 x 84 firms) comprising of 84 firms covering ten years for the South African context.

4.6.1 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE PROPOSED RESEARCH DESIGN

Corporate financial disclosure indices were estimated using the weighted-disclosure indices (WDI), the unweighted-disclosure index (UDI) and partially unweighted-disclosure index (PUDI); these three were used in this study for comparative purpose. This present study categorized the level of firm disclosure into 6 levels - extremely high disclosure level, very high disclosure level, high disclosure level, average disclosure level, weak disclosure level and poor disclosure level.

Extremely high disclosure level was assigned to firms with a WDI_{dummy} score of 0.8 to 1; very high disclosure level was assigned to firms with WDI_{dummy} score of 0.7 to 0.79; high disclosure level was assigned to firms with WDI_{dummy} score of 0.6 to 0.69; average disclosure level was assigned to firms with WDI_{dummy} score of 0.5 to 0.59; weak disclosure level was assigned to firms with WDI_{dummy} score of 0.4 to 0.49, while poor disclosure level was assigned to firms with WDI_{dummy} score of 0.39 and below. Detailed computations of WDI, PUDI and UDI are shown below.

In order to generate the data for WDI_{scale} , WDI_{dummy} , UDI and PUDI, four accounting standards were first obtained in excel format from Deloitte (2020). The annual reports for each firm from 2011 to 2020 were obtained as well. The items disclosed in the annual report for each were compared against items required by the IAS 1 to be disclosed. They were then assigned a score for each item. The scoring was done in two parts - the first part employed the scoring scale where items disclosed were scored based on their clarity of disclosure from 0 for 'no disclosure', to 0.25, 0.5, 0.75 and 1 for 'full disclosure'. The scoring was done for all the 231 items for each year covering ten years, for all the 84 firms for JSE. The scores for each year were then summed up and divided by the total items required to disclose. The weights computed earlier were 0.5526 for IAS 1, 0.0813 for IAS 7, 0.2368 for IFRS 7 and 0.1292 for IFRS 9. For IAS 1, there were 231 items required to disclose. Scores obtained by each firm were then multiplied by the weight for IAS. IAS 1 had 231 items required to be disclosed. Score obtained by each firm were then multiplied by its weight of 0.5526. For IAS 7, there were 34 items required to disclose. Score obtained by each firm were then multiplied by its weight of 0.0813. For IFRS 7, there were 99 items required to disclose. Scores obtained by each firm were then multiplied by 0.2368. IFRS 9 had 54 items to be disclosed. Scores obtained by each firm were then multiplied by 0.1292. The results generated became the weighted scores for the various standard. The weights obtained for the four standards were multiplied and added up to generate WDI_{scale} which is then used in the regression models.

A similar method was applied to generate WDI_{dummy} , however, the scoring was done using the binary score of either 1 for items 'disclosed' or 0 for 'not disclosed'. The total score obtained was then

divided by the total required to be disclosed (231 for IAS1) to get the unweighted-disclosure score (UDI); this was then multiplied by the weight (0.5526 for IAS1) to obtain the WDI_{dummy} . The same approach was used for the remaining standards. Two variables were generated simultaneously here - UDI and WDI_{dummy} .

Detailed data points comprised of 418 data points for the two IAS and two IFRS standards for each year (WDI, UDI and PUDI), plus 220 data points for the remaining variables for each year, by ten years for the 84 JSE firms ($418 \times 10 = 4180 + 22 \times 10 = 220$), therefore, $4180+220 = 4,400 \times 84$ firms = 369,600 data points.

The Ghanaian data had 624 firm year observations (24 x 26 firms) comprising of 26 firms. Details of the data points were 418 data points for two IAS and two IFRS standards for each year (WDI, UDI and PUDI) plus 220 data points for the remaining variables for each year, by ten years for 26 firms ($418 \times 10 = 4180 + 22 \times 10 = 220$), therefore, $4180+220 = 4,400 \times 26$ firms = 114,400 data points. Each firm had 10 years observations covering 2011 to 2020.

4.6.2 Estimating Corporate Financial Disclosure Indices

To estimate the level of a firm's compliance to the IFRS and IAS, there are two disclosure indices generally used in literature. The first method which is predominantly used, is the unweighted-disclosure index (UDI) also called 'dichotomous disclosure index' which was first conceptualized by Cooke (1992) when he studied disclosure in the corporate annual reports of Swedish companies. The second method, which is rarely used, is the partially unweighted disclosure index (PUDI).

4.6.3 Unweighted Disclosure Index (UDI)

With unweighted-disclosure index (UDI), estimation is done using the dummy variable approach. The technique is that, if a required item is disclosed in the annual report, it is scored as 1 and if it is not disclosed, it is scored 0 (Cooke, 1992; Al-Shiab, 2003, p.220). This is commonly known as the 'dichotomous method'. The disclosure index for each firm is then calculated as the ratio of the total items disclosed to the maximum possible score applicable for that firm:

$$UDI_j = \frac{TD = \sum_{i=1}^M di}{M = \sum_{i=1}^n di} \quad (\text{eq. 4.1})$$

where UDI_j is the unweighted-disclosure index (score) for each firm and it range between $0 \leq UDI_j \leq 1$. TD is the total number of items disclosed (d_i) by company j.

M is the maximum number of applicable disclosure items for company j that is expected to be disclosed.

$d_i = 1$, if the item is disclosed and 0 if not disclosed.

This index is described as an unweighted index because each standard is treated equally. The index is used for measuring a combination of voluntary and mandatory disclosures. This method has been applied by many studies in measuring compliance with IAS/IFRS disclosures (Tawiah & Boolaky, 2019; Rahman & Hamdan, 2017; Bepari & Mollik, 2015; Khlif, Samaha & Azzam, 2015; Agyei-Mensah, 2013; Abd-Elsalam & Weetman, 2003; Street & Gray, 2001; Street & Bryant, 2000).

This approach, however, has a high tendency of producing unjustifiably high scores for firms because the scoring approach treats all standards and items equally. Tawiah and Boolaky (2019, p.582) maintain that while this approach is simple and understandable, it is limited by giving the same weight to all standards, irrespective of the number of disclosure requirements per standard.

4.6.4 Partially Unweighted Disclosure Index (PUDI)

Following prior studies, Al-Shiab (2003) and Tsalavoutas, Evans and Smith, (2010) contended that the unweighted-disclosure index (UDI) is challenged by a notable limitation - the number of disclosure items required by different standards varies considerably. Their argument is especially valid when measuring mandatory disclosure requirement. In mandatory disclosure, some standards require a large number of items to be disclosed, while others require only a few; for instance, IAS 1 on Presentation of Financial Statements requires about 231 items to be disclosed, whereas IAS 7 requires 34 items, IFRS 7 requires about 99 items and IFRS 9 requires about 54 items (Deloitte, 2020). Due to these observations, standards which require more items to be disclosed or, in other words, standards with more items included in the index are unintentionally and indirectly treated equally with those that require fewer items to be disclosed (Al-Shiab, 2003, p. 222).

Al-Shiab (2003) then conceptualized an alternative method to avoid this problem, which was termed 'partially-unweighted disclosure index' (PUDI) approach. With this method, the level of disclosure for each firm is measured by adding the level of disclosure for each item in each standard and then dividing this sum by the number of items applicable to each firm in the total points for the selected standards. This gives partial weight points to each standard and avoids the problem of unintentionally giving less/more weight to standards with larger/small number of items in the index (Tsalavoutas, Evans & Smith, 2010, p.216; Al-Shiab, 2003, p.220). That means, giving different

partial weighting to the disclosure items in different standards. Tsalavoutas, Evans and Smith (2010) then proposed this method:

$$PC_j = \frac{\sum_{i=1} X_i}{R_j} \quad (\text{eq.4.2})$$

where PC_j is the total compliance score for each firm and $0 \leq PC_j \leq 1$. X_i is the level of compliance with each standard's mandatory disclosure requirements. This means that, initially, a researcher calculates the compliance with each standard separately, subsequently, the sum of these compliance scores (X) is divided by the total number of relevant/applicable standards for each firm j , that is R_j .

This method, although an advanced form of UDI, has received very little application (Appiah et al., 2016; Kolsi, 2017; Alves, 2017). A critical look at this partial weighing technique by Al-Shiab (2003) which was implemented then succinctly explained by Tsalavoutas et al., (2010) confirms that the technique, as was rightly described, is a partially-unweighted disclosure index. While this approach is better than the unweighted index, the two metrics (UDI and PUDI) are not rigorous and robust enough to capture the finest nuances in a firm's disclosure of items, in compliance with the disclosure requirements in IASs and IFRSs. There are two critical limitations which must be addressed. The first relate to the dichotomous scoring technique of 1 if disclosed and 0 otherwise; the second relates to the handling of weight which is completely left out in UDI but partially attempted in PUDI. There is, therefore, the need to conceptualize a more advanced and robust metric to capture the micro nuances challenging these estimation gaps, which are addressed by weighted disclosure indices (WDI) in the next topic. Details of these two gaps are addressed next.

4.6.5 Formulation of Weighted Disclosure Indices (WDI)

In financial management, investment management and corporate finance, a portfolio return is computed by multiplying the weight of a security by the expected return and then taking the sum of them. This finance concept is adapted and applied in this present study to obtain the weighted-disclosure index (WDI). That means, this study has empirically conceptualized and formulated a novel weighted-disclosure indices (WDI) for estimating corporate financial disclosure clarity and levels for both IASs and IFRSs using the portfolio return method. WDI entails five stages and the formulation of this five-stage method begins with weighted scoring scale and how they are scored based on each item in each standard on the disclosure checklist adopted from Deloitte (2020) (See Appendix 1). The weighted scale scoring takes the form of 0, 0.25, 0.5, 0.75 and 1 whereas the

dummy score takes the form of 0 or 1. The weighted scoring scale is ranked using the following self-designed scale: Full disclosure = 1 point; Very high disclosure = 0.9 – 0.99; Substantial disclosure = 0.70 - 0.89 points; High disclosure: 0.5 - 0.69 points; Average disclosure: 0.30 - 0.49 point; Low Disclosure: 0.01 – 0.29 and Not disclosed / Non-compliant = 0 point. This scoring scale is very objective as it is capable of capturing all micro nuances in the estimation.

According to Gitman and Zutter (2013, p.373), a portfolio return is a weighted average of the returns on the individual securities from which it is formed. Other authors, such as Ross, Westerfield, Jaffe and Jordan (2016, p.338) and Brealey, Myers and Allen (2017, p.176) explain that the expected return on a portfolio is the weighted average of the expected returns on the individual assets.

A portfolio return is thus calculated as follows:

$$r_p = (w_1 \times r_1) + (w_2 \times r_2) + (w_3 \times r_3) \dots + (w_n \times r_n) \quad (\text{eq.4.3})$$

This can be rewritten as;

$$r_p = \sum_{j=1}^n (w_j \times r_j) \quad (\text{eq.4.4})$$

where;

w_j = proportion of the portfolio's total value represented by asset j

r_j = return on asset j

Based on the portfolio return concept, the researcher now formulated these empirical equations to calculate the weighted disclosure index (WDI_{scale}) and WDI_{dummy} .

The generic equation for both (WDI_{scale}) and WDI_{dummy} are postulated as follows:

$$WDI = \sum_{sds=1}^n WS_{SDS} \quad (\text{eq.4.5})$$

$$WDI = WS1_{SDS1} + WS2_{SDS2} + WS3_{SDS3} + WS4_{SDS4} + \dots + WS_{SDS-N} \quad (\text{eq.4.6})$$

where WS_{SDS} is proxy for weighted score for each standard.

SDS represent each standard's disclosure score

WDI is the same as Total Weighted Disclosure Index

In this study, there are four standards under study - IAS 1, IAS 7, IFRS 7 & IFRS 9 - so subscripts SDS 1 to 4 represent each of these standards.

The weight (W) for the four selected standards are - IAS 1 = 0.5526, IAS 7 = 0.0813, IFRS 7 = 0.2368 and IFRS 9 = 0.1292. The weights are calculated based on the number of items required by each standard. Details of the computation of the weights are as follows:

$$IAS\ 1 = \frac{231}{418}(100\%) = 55.26\% \quad (\text{eq.4.7})$$

$$IAS\ 7 = \frac{34}{418}(100\%) = 8.13\% \quad (\text{eq.4.8})$$

$$IFRS\ 7 = \frac{99}{418}(100\%) = 23.68\% \quad (\text{eq.4.9})$$

$$IFRS\ 9 = \frac{54}{418}(100\%) = 12.92\% \quad (\text{eq.4.10})$$

Similar to the calculation of portfolio return, to obtain the *WS* (weighted score), the weight for each standard is multiplied by the *SDS* (standard disclosure score) as follows:

$$WS = \sum_{s=1}^n w_s \times SDS \quad (\text{eq. 4.11})$$

where *WS* represents weighted score, w_s represents weight of a standard, $s = 1$ represents standard 1 to n and *SDS* represents sum of standard disclosure score.

The equation for *SDS* is computed as follows:

$$\text{Standard Disclosure score: } SDS_j = \frac{\sum_{i=1}^n SNID_j}{TIR_j} \quad (\text{eq. 4.12})$$

SNID = score for number of items disclosed within a standard

TIR = total items required to be disclosed

In stage one, the weight for each standard is computed (eq.3.9 to 3.12), in stage two, the firm's disclosure level is scored using the scoring scale and the checklist (all items disclosed are scored based on their degree of disclosure), in stage three, computed *SDS* (eq.3.14). In stage four, computed *WS* (eq.3.13) and finally, in stage 5, computed *WDI* is as shown in equation 3.7 and 3.8. Even though this WDI_{scale} technique may involve some minimal subjective scoring (using the scale), it captures enormous amounts of detailed micro information which is grossly overlooked by *UDI* and *PUDI*. The scoring scale approach is reliable, verifiable and can be repeated. Contrary to assertions by prior studies, WDI_{scale} minimizes the level of subjectivity in scoring, compared to dummy scoring; for instance, suppose a firm partially discloses an item in a statement, using *UDI*, the score will be 1. This implies a 100% score, but this is likely to lead to an overscoring of 25%, 50% or even 75%, however, using WDI_{scale} , the score will either be 0.25, 0.5 or 0.75. This method, WDI_{scale} accurately captures the level of clarity or vagueness in the financial statement disclosed and eliminates subjectivity or reduces it to the lowest minimum.

To overcome the genuine concerns expressed by prior studies regarding the subjectivity of scale scoring, a second approach was formulated and proposed - WDI_{dummy} . This is still a weighted disclosure index, however, the technique uses dummy scoring and goes through the same process as WDI_{scale} using each standard's weight. This approach measures the general level of compliance

to IFRS and IAS but does not capture the level of clarity or vagueness of terms in the financial statements, thus, instead of scoring using scale, the score must be done now using dummy (1 or 0) and follow the rest of the steps of WDI_{scale} to obtain WDI_{dummy} . These have been used in this research to study the JSE and GSE-listed firms and their results have been presented in Chapters Four and Five.

4.7 THE PANEL DATA

Panel data analysis is an econometric method that is generally used to analyse two-dimensional data, typically, a cross-sectional dimension (N) and a time-series dimension (T). It is a technique which enables a researcher to follow a sample of variables (same firms) over time, thus, provides multiple observations on each firm in the sample (Wooldridge, 2013, p.10; Hsiao, 2003, p.1). Baltagi (2005, p.1) explains panel data analysis as the pooling of observations on a cross-section of firms over several time periods which can be achieved by surveying a number of firms or following same firms over time. In this study, listed firms on the GSE and JSE are surveyed and studied over the study period - 2011 to 2020.

In the analysis of panel data, the stochastic disturbance term assumes an extremely critical role in regression analysis because assumptions about the disturbance term determine whether fixed effects or random effects ought to be selected for the regression (Wooldridge, 2013, p.5; Gujarati, 2004, p.47). There are broadly two classes of panel estimator approaches that can be employed in finance and accounting research - fixed effects models and random effects model (Brooks, 2008, p.490). According to Hsiao (2003, p.43), the fixed-effects model is viewed as one in which investigators make inferences conditional on the effects that are in the sample. The random-effects model, on the other hand, is viewed as one in which investigators make unconditional or marginal inferences with respect to the population for all effects. The situations to which a model applies and the inferences based on them are the deciding factors in determining whether we should treat effects as random or fixed. The random effects model is an appropriate specification if we are drawing N firms randomly from a large population, like in the case of firms on JSE. When inferences are going to be confined to the effects in the model, the effects are more appropriately considered fixed, like in the case of GSE. When inferences will be made about a population of effects from which those in the data are considered to be a random sample, then the effects should be considered random. Extreme care, therefore, has been taken in the design of the panel in this study to make sure the data/sample is representative of the population.

Basically, fixed-effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed, both cross-sectionally and over time. The

panel under study can be balanced panel or unbalanced panel. A balanced panel has the same number of time-series observations for each cross-sectional unit, just as in this study, whereas, an unbalanced panel has some cross-sectional elements with fewer observations or observations at different times to each other. In the fixed-effects model, the error term is assumed to vary non-stochastically over firm (i) or time (t), whereas in random effects model, the error term is assumed to vary stochastically over firm (i) or time (t), which then requires special treatment from the error variance matrix.

Panel data analysis has three approaches; the first is independently-pooled panels, the second being random-effects models and the third approach being fixed-effects models. The selection between these methods depends upon the objective of the analysis, and the problems concerning the exogeneity of the explanatory variables. To test whether fixed effects or random effect is appropriate, and similar to prior studies, such as, Tawiah and Boolaky (2019, p.588) and Appiah, Awunyo-Vitor, Mireku and Ahiagbah (2016), the Hausman test (Durbin-Wu-) was used in this study. The test was used in this study to evaluate if the statistical model corresponds to the data; generally, the random-effect models are employed with just two fixed-effect models.

4.7.1 Benefits of Panel Data

Baltagi (2005, p.4), Hsiao (2003, p.3,5) and De Wet (2012, p.67) listed several benefits from using panel data, including controlling for individual heterogeneity. Panel data suggests that firms are heterogeneous and not controlling this heterogeneity one runs the risk of obtaining biased results. Panel data give more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency. The cross-section dimension adds a lot of variability and informative; informative data produce more reliable parameter estimates. Panel data are better able to study the dynamics of adjustment. An analysis using panel data is better able to identify and measure effects that are simply not detectable in pure cross-section or pure time-series data. Panel-data models also allow researchers to construct and test more complicated behavioral models than purely cross-section or time-series data. Hsiao (2003, p.3,5) explains further that panel data usually give the researcher a large number of data points, increasing the degree of freedom and reducing the collinearity among explanatory variables, which then improve the efficiency of econometric estimates.

Further, Brooks (2008) explained that panel data provide the possibility of generating more accurate predictions for individual outcomes than time-series data alone, hence, there are multiple advantages in making full use of the panel technique, such as:

- ❖ it can address a broader range of issues and handle more complex problems than would be possible with pure time-series or pure cross-sectional data alone.
- ❖ it is often of interest to examine how variables, or the relationships between them, change dynamically (over time). To do this, using pure time-series data would often require a long run of data simply to get sufficient number of observations to be able to conduct any meaningful hypothesis tests. In combining cross-sectional and time series data, however, can increase the number of degrees of freedom, thus the power of the test, by employing information on the dynamic behavior of a large number of entities at the same time. The additional variation introduced by combining the data in this way, can also help to mitigate problems of multicollinearity that may arise if time series are modelled individually.
- ❖ by structuring the model in an appropriate way, it can remove the impact of certain forms of omitted variables' bias in regression results.

4.7.2 Limitations of Panel Data

These benefits notwithstanding, panel data has limitations with design, data-collection problems, as well as distortion of measurement errors (Baltagi, 2005, p.7). To overcome these limitations, this present study makes all the necessary effort to ensure that the data collected is not distorted in any way. The researcher, hence, ensured that the data used in this study were accurately recorded and were representative of the population.

4.8 Least Squares Regressions

The two generally used methods of estimation which are suitable for this study are - ordinary least squares (OLS) and maximum likelihood (ML). The method of OLS is used extensively in regression analysis primarily because it is intuitively appealing than the method of maximum likelihood. The method of ordinary least squares is attributed to Carl Friedrich Gauss, a German mathematician (Gujarati, 2004, p.58). Following Gujarati (2004, pp.66-75), this research model was designed to satisfy the following classical linear regression model (CLRM) assumptions/conditions of OLS:

Assumption 1: The Linear regression model shows that the regression model is linear in the parameters.

Assumption 2: The X values are fixed in repeated sampling. Values taken by the regressor X are considered fixed in repeated samples, hence, X is assumed to be non-stochastic.

Assumption 3: Zero mean value of the disturbance term - given the value of X , the mean, or expected value of the random disturbance term ε_{it} is zero.

Assumption 4: Homoscedasticity or equal variance of ε_{it} - given the value of X , the variance of ε_{it} is the same for all observations. Put simply, the variation around the regression line (which is the line of average relationship between Y and X) is the same across the X values; it neither increases or decreases as X varies.

Assumption 5: No autocorrelation between the disturbances - given any two X values, X_i and X_j ($i \neq j$), the correlation between any two ε_i and ε_j ($i \neq j$) is zero. The disturbance ε_i and ε_j are uncorrelated and technically, this is the assumption of no serial correlation, or no autocorrelation.

Assumption 6: Zero covariance between ε_i and X_i - the disturbance ε_i and explanatory variable X are uncorrelated.

Assumption 7: The number of observations n must be greater than the number of parameters to be estimated. Alternatively, the number of observations n must be greater than the number of explanatory variables.

Assumption 8: Variability in X values - the X values in a given sample must not all be the same; technically, $\text{var}(X)$ must be a finite positive number.

Assumption 9: The regression model is correctly specified - alternatively, there is no specification bias or error in the model used in empirical analysis.

Assumption 10: There is no perfect multicollinearity - that is, there are no perfect linear relationships among the explanatory variables.

These Gauss-Markov theorem assumptions guarantee the validity of OLS for estimating the regression coefficients, therefore, this study ensured that the data satisfied these assumptions as a vital part of estimating the regression coefficients.

Given these assumptions of the classical linear regression model, the least-squares estimates possess some ideal or optimum properties which are contained in the well-known Gauss–Markov theorem. The theorem requires an estimator to be best linear unbiased estimator (BLUE). The OLS estimator in this study conforms to the BLUE because it satisfies the following:

1. Linearity, that is, a linear function of a random variable, such as the dependent variable Y in the regression model.

2. It is unbiased, that is, its average or expected value, is equal to its true value.
3. It has minimum variance in the class of all such linear unbiased estimators; an unbiased estimator with the least variance is known as an efficient estimator.

4.8.1 Generalised Least Squares (GLS)

First propounded by Alexander Aitken (1936), generalised least squares (GLS) is a technique for estimating the unknown parameters in a linear regression model when there is a certain level of correlation between the residuals in the regression model. In such cases, ordinary least squares and weighted least squares may need to be more statistically efficient or lead to misleading inferences. The GLS models have the advantage of correcting heteroscedasticity into homoscedastic (Gujarati, 2004, p.861). GLS estimators make the most use of available information. The procedure of transforming original variables in such a way that the transformed variables satisfy the assumptions of the classical model and then applying OLS to them, is known as the method of 'generalized least squares' (GLS). GLS is OLS on the transformed variables that satisfy the standard least-squares assumptions. The estimators, thus, obtained are known as GLS estimators, and it is these estimators that are BLUE (Gujarati, 2004, p.396), hence, GLS is nothing but OLS applied to the transformed model which satisfies the classical assumptions. According to Brooks (2008, p.136), GLS can be viewed as OLS applied to transformed data that satisfy the OLS assumptions. GLS models have been used in this study due to these foregoing purposes.

4.9 Model Specification

This section provides the models used to analyze the data from JSE and GSE-listed firms. The objective was to run least-square regressions with all N T observations, such that the regression parameters take values common to all cross-sectional units, for all time periods (Hsiao, 2003, p.14). The purpose was to test the operationalization of the agency theory (agencyCosts) and corporate disclosure in the form of weighted disclosure indices (WDI) of listed firms and to measure its effect on financial performance (EVA).

4.9.1 Econometric Model

This study employed multivariate least-squares regression models to examine the relationship between the variables. The general form of the Linear Regression model, according to Gupta and Sikarwar (2016), Baltagi (2014), Wooldridge (2013), Montgomery, Peck and Vining (2012), Brooks (2008), and Gujarati (2004) can be specified as:

$$Y_{itj} = \alpha_0 + \beta_1 X_{itj} + \mu_{itj} \quad (\text{model 4.1})$$

$$i = 1, \dots, N$$

$$t = 1, \dots, T$$

$$j = \text{Gh and Za}$$

This is derived from the general equation of a straight line to get the line that best fits the data.

Where Y_{itj} is the dependent variable (endogenous) for firm i in year t in country j . It is assumed to be random or stochastic in nature, that means it has a probability distribution.

Subscript i denotes the cross-sectional dimension (firm) $i = 1 \dots N$

Subscript t denotes the time-series dimension (time) $t = 1 \dots T$ (2011 to 2020)

Subscript j denotes country-specific dimension (country Gh and Za), Gh for Ghana and Za for South Africa.

α_0 is the intercept for all periods (t), specific to a firm-specific effect (i) and country-specific effect (j)

β_1 is a $k \times 1$ vector of parameters to be estimated on the independent variables (coefficient/slope parameter). This is interpreted as the change in the mean of y for a unit change in x .

X_{itj} is a $1 \times k$ vector of observations on the variables (exogenous) in the model which include the control variables. The X_t variables are assumed to have non-stochastic values (fixed) in repeated samples. Which means all of the variables contained in the X_t matrix are assumed to be exogenous, that is, their values are determined outside of the equation.

μ_{itj} is a statistical disturbance term, that is the random variable that accounts for the failure of the model to fit the data exactly (Montgomery, Peck & Vining, 2012; Kumar & Sharma, 2011).

4.9.2 Discussion of Variables

The prime variables in this study are the financial disclosure variables. Two novel weighted disclosure indices formulated in this present study are the WDI_{scale} and WDI_{dummy} . WDI_{scale} has been formulated to measure financial disclosure clarity whereas WDI_{dummy} has been formulated to measure extent of disclosure compliance. The difference between these two lies in how their compliance to IFRS and IAS were scored. Scorings for WDI_{scale} are done using the scale format, thus, from 0, 0.25, 0.5, 0.75 and 1. However, scorings for WDI_{dummy} are done using the binary format, thus, 0 or 1. How to calculate them are as presented next.

4.9.2.1 Weighted Disclosure Indices (WDI)

$$WDI = \sum_{sds=1}^n WS_{SDS} \quad (\text{eq. 4.13})$$

$$WDI = WS1_{SDS1} + WS2_{SDS2} + WS3_{SDS3} + WS4_{SDS4} + \dots \dots \dots WS_{SDS-N} \quad (\text{eq. 4.14})$$

where WS_{SDS} is proxy for weighted score for each standard.

SDS represent each standard's disclosure score

Subscripts SDS 1 to 4 represent each of these standards (IAS 1, IAS 7, IFRS 7 & IFRS 9)

The weight (W) for the four selected standards are - IAS 1 = 0.5526, IAS 7 = 0.0813, IFRS 7 = 0.2368 and IFRS 9 = 0.1292. These were calculated earlier.

The weight for each standard is multiplied by the SDS (standard disclosure score) as follows:

$$WS = \sum_{s=1}^n w_s \times SDS \quad (\text{eq.4.15})$$

where WS represents weighted score, w_s represents weight of a standard,

$s=1$ represents standard 1 to n and SDS represents sum of standard disclosure score.

The equation for SDS is computed as follows:

$$\text{Standard Disclosure score: } SDS_j = \frac{\sum_{i=1}^n SNID_j}{TIR_j} \quad (\text{eq.4.16})$$

$SNID$ = score for number of items disclosed within a standard

TIR = total items required to be disclosed

4.9.2.2 Partially Unweighted Disclosure Index (PUDI)

Partially unweighted disclosure index (PUDI) is an unweighted disclosure index developed in earlier studies which can be calculated as;

$$PC_j = \frac{\sum_{i=1} X_i}{R_j} \quad (\text{eq. 4.17})$$

where PC_j is the total compliance score for each firm and it ranges $0 \leq PC_j \leq 1$.

X_i is the level of compliance with each standard's mandatory disclosure requirements.

R_j is total number of relevant/applicable standards for each firm j

4.9.2.3 Unweighted Disclosure Index (UDI)

This is a simple conventional unweighted disclosure index and it is calculated as;

$$UDI_j = \frac{TD = \sum_{i=1}^M d_i}{M = \sum_{i=1}^n d_i} \quad (\text{eq. 4.18})$$

where UDI_j is the unweighted-disclosure index (score) for each firm and it range between $0 \leq UDI_j \leq 1$. T is the total number of items disclosed (d_i) by company j .

M is the maximum number of applicable disclosure items for company j that is expected to be disclosed. $d_i = 1$, if the item is disclosed and 0 if not disclosed.

4.9.2.4 Economic Value Added (EVA)

EVA is an estimate of a firm's economic profit which is calculated as - net operating profit after tax less invested capital multiplied by the weighted average cost of capital (WACC). It is aptly explained by Sahoo and Pramanik (2016, p.01) as follows - Economic Value Added is net operating profit after tax (NOPAT) minus an appropriate charge for the opportunity cost of all capital invested (WACC) in a firm.

The equation for calculating EVA is adapted and specified as below, as has been applied by prior studies such as - Makhija and Trivedi (2020), ACCA (2019), Zhang and Aboud (2019, p.598), Brealey, Myers and Allen (2017, p.313), Gupta and Sikarwar (2016, p.439), Sahoo and Pramanik (2016), Berzakova, Bartosova, and Kicova (2015, p.320), Kumar (2011), Bahri, St-Pierre and Sakka

(2011, p.604), Shil and Dhaka (2009), Austin (2005, p.142), Stern, Weaver (2001), Stewart and Co. (2000), Wood (2000), Zafiris and Bayldon (1999), Chen and Dodd (1997).

$$EVA = \text{Income Earned} - \text{Total Capital Invested} \times \text{Cost of Capital} \quad (\text{eq.4.18})$$

$$EVA = \text{NOPAT} - [\text{TCI} \times \text{WACC}]$$

NOPAT denote net operating profit after tax

$$\text{NOPAT} = \text{PAT} + (\text{Interest Charge} \times (1 - T_c)) \quad (4.19)$$

$$\text{NOPAT} = \text{Profit After Tax} + (\text{Interest Charge} \times (1 - \text{Corporate Tax rate}))$$

All necessary figures required for the calculation of net operating profit after tax are obtained from the financial statements disclosed by the various firms (Zhang & Aboud, 2019, p.598)

[TCI x WACC] is usually referred to as capital charge (Rompho, 2009, p.4)

Total Capital Invested (TCI) is the sum of equity capital plus debt capital used in operation (total assets). Invested capital is defined as total assets, net of non-interest-bearing current liabilities (Worthington & West, 2001, p.73).

WACC = weighted average cost of capital which includes both the cost of debt and equity finance.

This financial indicator (EVA) often represents the production capacity of a firm, less the cost of capital invested by shareholders and creditors of the firm.

Value Spread approach can be used to express EVA in percentage form as expressed in Berzakova, Bartosova, and Kicova (2015, pp.320-321)

$$\text{Value Spread} = \frac{EVA}{NOA}$$

where EVA = NOPAT – NOA x WACC

NOA = Net Operating Assets

$$\text{then EVA} = \left(\frac{\text{NOPAT}}{\text{NOA}} - \text{WACC} \right) \times \text{NOA}$$

According to Zhang and Aboud (2019, p.604) EVA is an absolute indicator and it reflects the size of the firm as a whole, which means the absolute figure would produce a larger EVA value. It is, therefore, appropriate to normalize the EVA figures by using the economic value-added rate of return, which divides the EVA by the TCI. That means, in order to reduce the heteroscedasticity in the data, EVA is deflated by converting the absolute value into ratios, that is, cash basis NOPAT / (cost of capital x cash basis invested capital (Makhija & Trivedi, 2020).

Similar to Makhija and Trivedi (2020) and ACCA (2019), WACC is estimated as;

$$\text{WACC} = \left[\left(K_e \times \frac{E}{V} \right) \right] + \left[\left(K_d (1 - T_c) \times \frac{D}{V} \right) \right] \quad (\text{eq.4.20})$$

where:

K_e = required rate of return on equity finance (cost of equity)

$K_d(1-T_c)$ = after tax rate of return on *debt* finance (Drake and Fabozzi, 2015, p.470)

K_d is proxied by average commercial banks' lending rate obtained from Bank of Ghana

D = total debt capital

T_c = corporate tax rate. T_c is obtained from Ghana Revenue Website and KPMG's corporate tax table.

E = total equity capital. The cost of equity consists of the cost of using shareholders' equity (Zhang & Aboud, 2019, p.598)

$$V = D + E$$

Debt capital refers to short-term and long-term loans provided by creditors other than commercial liabilities such as, accounts payable, notes payable and other payables (Zhang & Aboud, 2019, p.598). Some studies employ the yield on corporate bonds as proxy for cost of debt (Gupta & Sikarwar, 2016), but generally there are many firms who do not qualify to issue bonds, and they usually borrow from the commercial banks at a higher rate. The average commercial banks' lending rate is, therefore, more appropriate; the data for this study was obtained from the Bank of Ghana's website. Debt financing comes in various forms, such as revolving lines of credit for their working capital or private fixed-term loans, short-term and long-term bank loans or bonds sold in public markets (Agrawal, Mohanty & Totala (2019, p.104, p.116).

$$\text{Spread} = \text{Return on Invested Capital (ROIC\%)} - \text{WACC (\%)} \quad (\text{eq.4.21})$$

$$\text{ROIC} = \frac{\text{Net Income} - \text{Dividend}}{\text{Debt} + \text{Equity}}$$

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}} \quad (\text{eq.4.22})$$

4.9.2.5 Capital Assets Pricing Model (CAPM)

Most firms use CAPM to estimate the cost of equity, which is the expected rate of return on the firm's common stock (Brealey, Myers & Allen, 2017, p.225). In a study measuring EVA in the USA, Weaver (2001, p.14) found that all the 29 firms surveyed, employed the Capital Asset Pricing Model to calculate the cost of equity and this is similar to Makhija and Trivedi (2020), Brealey, Myers and Allen (2017, p.225), Ross, Westerfield, Jaffe and Jordan (2016, p.397), Gupta and Sikarwar (2016, p.439), Drake and Fabozzi (2015, p.448), Austin (2005, p.143), and Zhang and Aboud (2019, p.600). The cost of equity in this study was computed using the Capital Asset Pricing Model (CAPM).

$$K_e = R_f + \beta(R_m - R_f) \quad (\text{eq.4.23})$$

K_e = cost of equity for each firm (expected stock return)

R_f = risk free rate, which is proxied by the one-year Treasury Bill rate, and obtained from the economic data of Bank of Ghana and the central bank of South Africa.

R_m = expected market rate of return

$R_m = R_f + \text{normal risk premium}$ (Brealey, Myers and Allen, 2017, p.166)

Brealey, Myers and Allen (2017, p.169) believe that a range of 5% to 8% is reasonable for the risk premium; in this present study, 7% risk premium was used.

$(R_m - R_f)$ denotes the risk premium

β = beta measures the sensitivity of a stock's return to market returns. It represents risk coefficient of a specific firm or investment (Gupta & Sikarwar, 2016, p.440; Brealey, Myers and Allen, 2017, p.225).

To estimate *beta*, stock returns are regressed on the market returns (Brealey, Myers & Allen, 2017, pp.225 & 240). The *beta* is computed using the Data Regression method, thus, annual percentage changes of the GSE and JSE composite index were computed for the period of study. Then annual percentage changes in the firms' stock returns were also computed. These percentage changes of the stocks were then regressed on the percentage changes of the GSE composite index as well as the JSE composite index. The *betas* obtained were then substituted into $K_e = R_f + \beta(R_m - R_f)$ to attain the cost of equity for each firm, for the entire period of this study.

Alternatively, $\beta = \frac{\text{stock return} - \text{risk free rate}}{\text{market return} - \text{risk free rate}}$

4.9.2.6 FinDistress: Multivariate Ratio Analysis Model (z-score)

This present study applied the multivariate ratio analysis model (Z-score) developed by Altman (1968). In the multivariate ratio analysis model, Altman (1968) applied the Z-score model to a sample of firms and developed a discriminant function which classified firms either as 'failed' (likely to fail) or 'successful' (likely to succeed). A firm with a Z-score of more than 3.0 implies that such a firm will succeed or will not fail, whilst a firm with a Z-score of less than 1.8 is considered very likely to fail. The weightings used in the Z-score calculation were arrived at as the result of research into the relative importance of each ratio to a company's survival. According to McGregor BFA, the weighting should be $-0.012x_1 + 0.014x_2 + 0.033x_3 + 0.006x_4 + 0.0999x_5$; alternatively, according to Melville (2019) the weighting can be $3.3A + 1.0B + 0.6C + 1.2D + 1.4E$. These two approaches when computed produced analogous results.

The multivariate ratio analysis model is, therefore, modelled as below:

$$\text{Z-score} = 0.012x_1 + 0.014x_2 + 0.033x_3 + 0.006x_4 + 0.0999x_5 \quad (\text{eq.4.24})$$

where:

X1 = net working capital / total assets.

X2 = retained earnings / total assets.

X3 = EBIT / total assets.

X4 = market value of common and preferred stock/book value of debt.

X5 = sales / total assets.

Alternatively, according to Melville (2019, p.380)

$$Z = 3.3A + 1.0B + 0.6C + 1.2D + 1.4E \quad (\text{eq.4.25})$$

where:

A = earnings before interest and tax ÷ total assets

B = sales ÷ total assets

C = market value of equity ÷ total liabilities

D = working capital ÷ total assets

E = retained earnings ÷ total assets.

McGregor BFA explained that Altman (1968) found that the mid-point of his distribution was 2.675 and that a zone of ignorance existed from 1.81 to 2.99. This means that when the model is applied to a firm and a score between 1.81 and 2.99 is obtained, a classification cannot not be made with certainty. If, however, the score falls below 1.81, then the firm is almost certain to fail, whereas if the score falls above 2.99 then the firm is almost certain to succeed. Melville (2019) reports that a company with a z-score of more than 3.0 will not fail, whilst a company with a z-score of less than 1.8 is very likely to fail.

4.9.2.7 Agency Cost¹ and Agency cost²

Agency cost is measured using two methods. In the first method, AgencyCost¹ is measured as expense ratio which is a direct proxy for agency cost. Expense ratio is for operating expenses (selling, general and administrative expenses, excluding financing expenses and any non-recurring expenses, such as, losses on the sale of assets) to total annual sales. It measures how effectively a firm's management controls operating costs; it captures excessive expenses, including perk consumption. A low expense ratio indicates that management is controlling the operating expenses and vice versa (Ang et al., 2000, p.82; Rashid, 2015, p.187; Florakis, 2008, p.47). A reasonable expense ratio is between 0.5% and 0.75% while an expense ratio greater than 1.5% is typically considered high. Expense ratio (also referred to as 'expense to sales ratio') is computed to show the relationship between an individual expense or a group of expenses and net sales. It is computed by

dividing a particular expense or group of expenses, by net sales revenue generated during the reporting period; expense ratio is expressed and communicated in percentage form. The numerator may be an individual expense or a group of expenses such as administrative expenses, sales expenses or cost of goods sold among others. The denominator is the net sales revenue - the total gross sales less sales returns and allowances. An expense ratio shows what percentage of sales an individual or a group of expenses is; a lower ratio means more profitability and a higher ratio means less profitability.

The second measure (*AgencyCost2*) is Asset Turnover which is measured as a ratio of annual sales to total assets (Florakis, 2008, p.47); the higher the asset turnover, the better (Melville, 2019, p.365). Florakis (2008, pp.45-46) argue that only very few studies directly tackle the measurement issue of agency costs, but notable exceptions are Ang et al., (2000), Singh and Davidson (2003) and Fleming et al., (2005), who investigated the empirical determinants of agency costs and focused on the role of debt and ownership structure in mitigating agency problems. In doing so, they used two alternative proxies for agency costs - the ratio of total sales to total assets (asset turnover) and the ratio of selling, general and administrative expenses to total sales (SG&A). These studies provided evidence that managerial ownership aligns the interests of managers and shareholders, therefore, it reduces agency costs. Florakis (2008, pp.45-46) used the ratio of selling, general and administrative expenses to sales (SG&A) as a direct proxy for agency costs and concluded that SG&A expenses include, among others, commissions charged by agents to facilitate transactions, travel expenses for executives, advertising and marketing costs, rents and other utilities, therefore, the SG&A ratio is likely to reflect, to some extent, managerial discretion in spending the firms` resources. This is due to the fact that management usually uses advertising and selling expenses to conceal expenditures on perquisites.

$$\text{AgencyCost1} = \text{Expense Ratio} = \frac{\text{Operating Expenses}}{\text{Total Sales}} \times 100\% \quad (\text{eq.4.26})$$

$$\text{AgencyCost2} = \text{Asset Turnover} = \frac{\text{Annual Sales}}{\text{Total Assets}} \quad (\text{eq.4.27})$$

4.9.2.8 Firm Leverage (Leverage)

In corporate finance, leverage represents debt. Theoretically, a firm with a high proportion of debt is said to have a high financial leverage. Debt has the potential to magnify both gains and losses. Unlike equity, debt must be repaid plus interest, whether a firm makes a profit or not. The risk here is that, a firm that uses a high proportion of debt, has a higher probability of going bankrupt because of it being unable to meet its financial obligations due to the high interest payments it must make to its debtholders. This is because there is a higher probability of defaulting on its debt payments;

notwithstanding that, there is also a more volatile residual cash flows, such that it affects the equity claims, thereby, making investment in a firm's equity, riskier. On the contrary, a firm with a low proportion of debt has low financial leverage, which is an indication that the firm, under normal operating conditions, will be able to meet its debt obligations, therefore, has a lower probability of bankruptcy. The overall effect creates a tendency of reducing the relative risk borne by a firm's debtholders and equity holders.

IAS 1, (paragraph 13 b) require firms to disclose their sources of funding and their targeted ratio of liabilities to equity. Leverage can be calculated as ratio of total liability to total assets or total debt (long-term + short-term)/total assets (Alnaas & Rashid, 2019, p.391; Green, Morris & Tang, 2010; Jiang & Habib, 2009 and Miihkinen, 2008).

It can also be calculated as a ratio of total debt to capital equity (Kolsi, 2017, 259); this calculation by Kolsi (2017) is consistent with IAS 1. Leverage is expected to correlate positively with WDI but can be positive or negative with EVA, because as Florackis (2008) explains, a bank debt helps in monitoring a firm's activity and increases disclosure. This is because when firms contract bank credit and publicise it, the announcement of that agreement conveys positive news to the stock market about a borrower's worthiness, therefore, decreases the asymmetric information between borrowers and investors.

4.9.2.9 Audit firm (BIG4)

This is a binary variable measured as a dummy variable that takes the value of 1, if a firm is audited by a BIG4 audit firm (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young, and KPMG) or 0 otherwise (Muttakin, Mihret, Lemma & Khan, 2020; Ntim, 2013). Auditing by the BIG4 is expected to have a positive nexus with WDI and EVA and the relationship with UDI, PUDI, ROA, ROE, and EPS can be either positive or negative. It captures the extent of influence of audit firms on firms' willingness to adhere to IASs and IFRS and disclosing more information reduces agency costs.

4.9.2.10 Board Size (BoDSize)

This is a corporate governance variable which is measured as the total number of board members (Kolsi, 2017, p.260); it is expected to be positive for ideal board size of between 7 and 11 and should be negative for a larger number.

Control variables

4.9.2.11 Firm Size (LnTA) is measured as the natural log of total assets (Alnaas & Rashid, 2019, p.391; Braam & Borghans, 2014; Kolsi, 2017, p.259; Rashid, 2015, p.188) and because of its large value, which might cause heteroscedasticity, it is adjusted by natural logarithm (Zhang & Aboud, 2019, p.604). Bokpin (2013) demonstrated that firm size has a positive nexus with its disclosure level. **LnTA** has also been reported to be a factor that influences the quality and the quantity of firm disclosure (Green, Morris & Tang, 2010; Johnson et al., 2001; and Lang & Lundholm, 1993). This is because larger firms are more likely to be exposed to litigation than their smaller counterparts and, therefore, they may disclose more voluntarily to avoid such costs (Kasznik and Lev, 1995).

4.9.2.12 Firm Age (Age) is measured in years (Alnaas & Rashid, 2019, p.391; Rashid, 2015, p.188), hence, is measured as the natural log of years a firm has been in business. Certain signs can be positive or negative depending on age; Bokpin (2013) established that firm age is positive and significant determinants of corporate disclosure.

4.9.2.13 ROA = ratio of Net Income to Total Asset (Kolsi, 2017, p.527; Zhang & Aboud, 2019, p.604)

4.9.2.14 EPS = ratio of Net Income to Total Number of Shares Outstanding

4.9.2.15 Liquidity (Liquid) = Liquidity can influence a firm's willingness to disclose information. LIQ is measured by the current ratio (CR) and is the ratio of current assets over current liabilities (Rashid, 2015, p.188; Dyson, 2007, p.224).

$$\text{Liquidity} = \frac{\text{Current Assets}}{\text{Current Liabilities}} \times 100 \quad (\text{eq.4.28})$$

4.9.2.16 Website Reporting (WebReport) represents website financial reporting of firms. It is measured as a dummy variable which takes the value of 1 if a firm has its financial statement disclosed on its website or on the website of JSE / GSE and zero otherwise.

Market Value Added (MVA) is a complement metric of EVA, which is used to estimate the firm's performance at the stock market level. It is a reflection of the firm from the perspective of the investors who hold equity stake in the firm. The value of the firm from the outside (MVA) is dependent on the firm's internal performance (EVA); these two are always used together, as proposed by Stern, Stewart & Co. (1991).

Mathematically, following Sahoo and Pramanik, (2016), MVA can be stated as:

MVA = Market Value of Equity - Book Value of Equity

$$MVA = MVE - BVE \quad (\text{eq.4.29})$$

where:

MVE is the market value of equity and BVE is the book value of equity (capital invested).

$MVA = (\text{Number of common shares outstanding} \times \text{share price}) + (\text{Number of preferred shares outstanding} \times \text{share price}) - \text{book value of equity}$; BE is also called 'Net Worth'.

The closing share price for a particular year is used as a proxy for that year's share price. This ensures that all variations in share prices are captured. The rule is that Value is added when MVA is positive and diminished when MVA is negative. In order to reduce the heteroscedasticity in the data, MVA is deflated by converting absolute value of MVA into ratio. That is, the MVA value is normalized by dividing market capitalization by net worth.

4.9.3 The Empirical Models

The objective here is to estimate the unknown parameters in these cross-sectional linear regression models by fitting the models to the data. Similar to Wooldridge (2013, p.4), this empirical model is constructed as follows:

Multivariate Regression Model 4.2

Model 4.2 tests the nexus between EVA and the independent variables including agency cost1 and agency cost2 to establish their relationship.

$$EVA_{ij} = \beta_0 + \beta_1 MVA_{ij} + \beta_2 ROE_{ij} + \beta_3 ROA_{ij} + \beta_4 BIG4_{ij} + \beta_5 EPS_{ij} + \beta_6 DPS_{ij} + \beta_7 ROCE_{ij} + \beta_8 LIQUID_{ij} + \beta_9 \text{WebReport}_{ij} + \beta_{10} \text{AgenCost1}_{ij} + \beta_{11} \text{AgenCost2}_{ij} + \beta_{12} \text{FinDistress}_{ij} + \beta_{13} \text{BoDSize}_{ij} + \sum_{i=14}^{15} \phi \text{controls}_{ij} + \lambda_t + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.2}$$

Where:

μ_i denotes the unobservable individual effect;

the λ_t denotes the unobservable time effect which accounts for any time-specific effect that is not included in the regression.

ε_{it} is the stochastic disturbance term which represents all those factors that affect the dependent variable (s) but are not taken into account explicitly.

Regression Model 4.3

Model 4.3 tests the nexus between MVA and the independent variables including agency cost1 and agency cost2 to establish their relationship.

$$MVA_{ij} = \beta_0 + \beta_1 EVA_{ij} + \beta_2 ROE_{ij} + \beta_3 ROA_{ij} + \beta_4 BIG4_{ij} + \beta_5 EPS_{ij} + \beta_6 DPS_{ij} + \beta_7 ROCE_{ij} + \beta_8 LIQUID_{ij} + \beta_9 WebReport_{ij} + \beta_{10} Agen\ Cost1_{ij} + \beta_{11} Agen\ Cost2_{ij} + \beta_{12} FinDistress_{ij} + \beta_{13} BoDSize_{ij} + \sum_{i=14}^{15} \phi controls_{ij} + \lambda_t + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.3}$$

Regression Model 4.4

Model 4.4 tests the nexus between EVA and the independent variables including weighted disclosure indices, agency cost1 and agency cost2 to establish their relationship.

$$EVA_{ij} = \beta_0 + \beta_1 BIG4_{ij} + \beta_2 EPS_{ij} + \beta_3 WDI_{scale_{ij}} + \beta_4 WDI_{dummy_{ij}} + \beta_5 PUDI_{ij} + \beta_6 ROCE_{ij} + \beta_7 LIQUID_{ij} + \beta_8 WebReport_{ij} + \beta_9 Agen\ Cost1_{ij} + \beta_{10} Agen\ Cost2_{ij} + \beta_{11} FinDistress_{ij} + \beta_{12} BoDSize_{ij} + \sum_{i=13}^{14} \phi controls_{ij} + \lambda_t + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.4}$$

Where;

WDI = Weighted-Disclosure Index

WDI_{scale} = weighted-disclosure index scale score

WDI_{dummy} = weighted-disclosure index dummy score

UDI = unweighted-disclosure index

PUDI = partially-unweighted disclosure index

ROE = return on equity measured as ratio of Net Income to Total Equity

Regression Model 4.5

Model 4.5 tests the nexus between WDI and the independent variables including agency cost1 and agency cost2 to establish their relationship.

$$WDI_{ij} = \beta_0 + \beta_1 EVA_{ij} + \beta_2 MVA_{ij} + \beta_3 ROE_{ij} + \beta_4 ROA_{ij} + \beta_5 BIG4_{ij} + \beta_6 EPS_{ij} + \beta_7 DPS_{ij} + \beta_8 ROCE_{ij} + \beta_9 LIQUID_{ij} + \beta_{10} WebReport_{ij} + \beta_{11} Agen\ Cost1_{ij} + \beta_{12} Agen\ Cost2_{ij} + \beta_{13} FinDistress_{ij} + \beta_{14} BoDSize_{ij} + \sum_{i=15}^{16} \phi controls_{ij} + \lambda_t + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.5}$$

where:

WDI = Weighted-Disclosure Index

WDI_{scale} = weighted-disclosure index scale score

WDI_{dummy} = weighted-disclosure index dummy score

UDI = unweighted-disclosure index

PUDI = partially-unweighted disclosure index

ROE = ratio of Net Income to Total Equity

$$\text{Spread} = \frac{CF_2 - CF_1}{CF_0} \times 100\%$$

CF = cash flow

BoDSize = Board Size - computed as log of number of board members

4.11 Regression Model 6: Agency Cost1

Model 4.6 tests the nexus between agency cost1 and the independent variables including weighted disclosure indices to establish their relationship.

$$\begin{aligned} \text{AgenCost1}_{ij} = & \beta_0 + \beta_1 \text{EVA}_{ij} + \beta_2 \text{MVA}_{ij} + \beta_3 \text{ROE}_{ij} + \beta_4 \text{ROA}_{ij} + \beta_5 \text{BIG4}_{ij} + \beta_6 \text{EPS}_{ij} + \beta_7 \text{DPS}_{ij} + \beta_8 \text{ROCE}_{ij} + \beta_9 \text{LIQUID}_{ij} + \\ & \beta_{10} \text{WebReport}_{ij} + \beta_{11} \text{WDI}_{ij} + \beta_{12} \text{AgenCost2}_{ij} + \beta_{13} \text{FinDistress}_{ij} + \beta_{14} \text{BoDSize}_{ij} + \sum_{i=15}^{16} \phi \text{controls}_{ij} + \lambda_i + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.6} \end{aligned}$$

4.12. Regression Models 7: Agency Cost2

Model 4.7 tests the nexus between agency cost2 and the independent variables including weighted disclosure indices to establish their relationship.

$$\begin{aligned} \text{AgenCost2}_{ij} = & \beta_0 + \beta_1 \text{EVA}_{ij} + \beta_2 \text{MVA}_{ij} + \beta_3 \text{ROE}_{ij} + \beta_4 \text{ROA}_{ij} + \beta_5 \text{BIG4}_{ij} + \beta_6 \text{EPS}_{ij} + \beta_7 \text{DPS}_{ij} + \beta_8 \text{ROCE}_{ij} + \beta_9 \text{LIQUID}_{ij} + \\ & \beta_{10} \text{WebReport}_{ij} + \beta_{11} \text{WDI}_{ij} + \beta_{12} \text{AgenCost1}_{ij} + \beta_{13} \text{FinDistress}_{ij} + \beta_{14} \text{BoDSize}_{ij} + \sum_{i=15}^{16} \phi \text{controls}_{ij} + \lambda_i + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.7} \end{aligned}$$

4.13. Regression Model 8: Liquidity

Model 4.8 tests the nexus between liquidity and the independent variables including weighted disclosure indices, agency cost1 and agency cost2 to establish their relationship.

$$Liquidity_{ij} = \beta_0 + \beta_1 EVA_{ij} + \beta_2 MVA_{ij} + \beta_3 ROE_{ij} + \beta_4 ROA_{ij} + \beta_5 BIG4_{ij} + \beta_6 EPS_{ij} + \beta_7 DPS_{ij} + \beta_8 ROCE_{ij} + \beta_9 AgenCost1_{ij} + \beta_{10} WebReport_{ij} + \beta_{11} WDI_{ij} + \beta_{12} AgenCost2_{ij} + \beta_{13} FinDistress_{ij} + \beta_{14} BoDSize_{ij} + \sum_{i=15}^{16} \phi controls_{ij} + \lambda_t + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.8}$$

4.14 Regression Model 9: Website Financial Reporting

Model 3.9 tests the nexus between website disclosure and the independent variables including weighted disclosure indices, agency cost1 and agency cost2 to establish their relationship.

$$WeReport_{ij} = \beta_0 + \beta_1 EVA_{ij} + \beta_2 MVA_{ij} + \beta_3 ROE_{ij} + \beta_4 ROA_{ij} + \beta_5 BIG4_{ij} + \beta_6 EPS_{ij} + \beta_7 DPS_{ij} + \beta_8 ROCE_{ij} + \beta_9 AgenCost1_{ij} + \beta_{10} LIQUID_{ij} + \beta_{11} WDI_{ij} + \beta_{12} AgenCost2_{ij} + \beta_{13} FinDistress_{ij} + \beta_{14} BoDSize_{ij} + \sum_{i=15}^{16} \phi controls_{ij} + \lambda_t + \mu_i + \varepsilon_{it} \dots \dots \dots \text{model 4.9}$$

4.13 RESEARCH ETHICS

Ethical clearance was applied for and approval was given by the Research Ethics Social Sciences Committee (RESSC) on 26th May 2020 describing this research work as; *Risk: Straightforward research without ethical problems*. All methods developed by other authors have been duly acknowledged, cited and referenced. The data used in this study were mainly secondary data. Sources of data have been duly acknowledged as well. This research focused on the study of values and figures which did not require close contact with human beings or the observations being studied.

4.14 CHAPTER SUMMARY

This chapter presented the methodology used in conducting this research. It presented value based financial performance methods, EVA and MVA and how they are calculated. It went further and presented two existing financial disclosure indices PUDI and UDI and how they are calculated and then presented the conventional accounting performance measures variables such as ROA, ROE, EPS and ROCE. The objective of this study is mainly on formulating new weighted disclosure indices. Hence, the author went further and formulate two novel weighted disclosure indices as WDI_{scale} and WDI_{dummy} which are being proposed to be used to measure accounting disclosure clarity

and disclosure compliance level in financial statements. Another focus as part of the objective of this study is on agency costs. Therefore, this chapter presented two methods used in calculating agency costs as agency cost₁ measured as expense ratio and agency cost₂ measured as asset turnover. The author finally formulated multivariate econometric models to used in estimating the relationship between the dependent variables and independent variables. To compute WDI_{scale} , a scoring scale format was used in the scoring of items required to be disclosed in the financial disclosure checklist. To compute WDI_{dummy} , a binary scoring format was used in the scoring of items required to be disclosed in the financial disclosure checklist. Firm liquidity was computed using the current ratio. The search for items disclosed was widened to include items disclosed on a firm`s website, hence, website disclosure (WebReport) was computed using dummy variables, 1 for disclosed on website or 0 otherwise. Cost of capital was computed using the weighted average cost of capital (WACC) while the Cost of equity was computed using the capital asset pricing model (CAPM). The next chapter presents and discusses the results generated from this methodology.

CHAPTER FIVE

EMPIRICAL RESULTS FROM JSE LISTED FIRMS

5.1 INTRODUCTION

This chapter presents and discusses the results generated from the panel data models. Panel data analysis refers to the pooling of observations on a cross-section of listed firms over several time periods (Baltagi, 2021). In the present study, data was collected and analysed for a sample of 84 JSE- listed firms over a ten-year period (micro-panels). The chapter is organized into four sections. Section One discusses the data management procedure, techniques, and validity tests by checking for linear regression assumptions. Section Two presents and discusses the descriptive statistics and analysis. Section Three presents and discusses Pearson pairwise correlation analysis by analyzing the bi-causal relationship between the various variables. Section Four presents and discusses the multivariate regression results by analyzing the nexus between the dependent variables and the independent variables.

5.2 DATA MANAGEMENT

When analysing a classical linear regression model, it is imperative to generate robust results, such as robust OLS coefficients, by satisfying certain classical linear regression model assumptions. The nature of the data for this study requires that the following four assumptions must be satisfied – first, there is linearity in the parameters; second, there is no multicollinearity among the predictor variables; third, there is homoscedasticity or constant variance of residuals and fourth there is no endogeneity or no covariance between the error term and the independent variables. Issues of outliers were also checked. When the above assumptions are satisfied, the OLS regression results will turn out to be BLUE, that is, best linear unbiased estimators, otherwise the estimates may be biased (Alnaas & Rashid, 2019, p.329 and Gujarati, 2004, p.348).

Similar to Zhang and Aboud (2019), the method of ordinary least squares (OLS) regressions was used to estimate coefficients (β_0 and β_1) so that the sum of squares of the differences between the observations y_i and the straight line is at its minimum. OLS can be used to estimate the parameters in a linear regression model, regardless of the form of the distribution of the error term (ϵ). Least squares produce best linear unbiased estimators of β_0 and β_1 (Montgomery, Peck & Vining, 2012).

The regression analysis in the Stata Software was commenced by first setting the software to recognize and declare the data as panel. This enables Stata to show whether the panel variable is balanced or unbalanced and further generate panel results. The results generated indicated that the variables were strongly balanced which suggested that all firms have the required data for all years under study; the command was - xtset FirmCode Year. FirmCode represents the panels (i) and Year represents time variant (t)

5.2.1 Linearity in Parameters

According to the Linearity principle, a dependent variable is formulated as a linear function of a set of independent variables and the error (disturbance) term (Gujarati, 2015, p.8). Linearity in econometrics tests the linear relationship between parameters under study. To test for a linear relationship in the present study, a scatterplot of the data was generated by using the graph matrix command in Stata, thus, the command was - graph matrix, dependent variable and independent variables. The results showed that generally the variables take the pattern of positive and negative relationship (see matrixes in appendix 2 for results).

5.2.2 Multicollinearity

Collinearity occurs when one regressor is highly correlated with another regressor; it can also occur when one regressor is highly correlated with a linear combination of other regressors. This classical linear regression model assumption states that there should be no multicollinearity among the predictor variables (Gujarati, 2004, p.341). The effect of multicollinearity is that the parameter estimates may not be correct and will show wrong signs; this can also bias the standard errors. The most reliable technique for assessing multicollinearity is the variance inflation factors (VIF) which shows the extent to which the variance of the standard errors (square of standard errors) have been inflated. The technique with dealing with multicollinearity is to remove variables that are highly correlated. VIF is computed by first running linear regression model and then simply typing 'vif' or 'estat vif' in Stata; this must be done before setting the data to panel in Stata. The VIF results are presented in Table 4.1; the critical value for VIF is 10. According to Gujarati (2004, p.363, 365) a VIF higher than 10 is considered high collinearity, hence, one of these variables must be dropped from the model. From Table 4.1, WDI_{dummy} and PUDI were found to have high VIF with UDI, hence, the latter was dropped from models which contained these variables.

Table 5.1. Variance inflation factor

	VIF	1/VIF
WDI _{dummy}	13.226	0.076
PUDI	8.112	0.123
WDIscale	8.058	0.124
AgenCost2	5.419	0.185
Leverage	5.412	0.185
WebReport	2.012	0.497
Spread	1.847	0.541
Size	1.743	0.574
ROCE	1.66	0.603
BoardSize	1.588	0.63
BIG4	1.415	0.707
ROA	1.322	0.756
ROE	1.209	0.827
Liquidity	1.159	0.863
Age	1.154	0.867
NormalisedEVA	1.112	0.9
FinDistress	1.106	0.904
AgenCost1	1.083	0.924
EPS	1.038	0.964
DPS	1.032	0.969
Mean VIF	3.035	.

(Source: Self-Generated from empirical data)

5.2.3. Heteroscedasticity Test (Homoscedasticity)

The heteroscedasticity assumption states that the disturbance's terms have equal variance (homoscedasticity) (Gujarati, 2004, p.387, Baltagi, 2021, p.109). The appropriate technique to test heteroscedasticity in panel data is to first run the fixed-effect regression, then run `xttest3` command in Stata to generate results of heteroskedasticity. The null hypothesis in this case means that the residuals are not correlated, hence, if the p-value is statistically significant (less than 0.05), it is an indication of a problem of cross-sectional dependence (heteroskedasticity). The Stata command is `xttest3`, and the result is the Modified Wald test for groupwise heteroskedasticity, in fixed effect regression model. The null hypothesis is homoskedasticity (or constant variance) and the alternate hypothesis is heteroskedasticity. An alternative test for heteroskedasticity is the 'hettest command' which generates the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity (Gujarati, 2004, p.411). The Null hypothesis of the `hettest` is that the variance of the residuals is constant. In other words, the variance of the residuals is homoscedastic, however, this test does not work for panel data once the data is declared in Stata as panel. There is also the IM-test with the command 'estat imtest' which produces the results of Cameron and Trivedi's decomposition of IM-test.

The result of the Modified Wald test for groupwise heteroskedasticity conducted, showed the presence of heteroskedasticity. According to Baltagi (2014, p.109), assuming homoscedastic disturbances in a data when heteroskedasticity is present, will still result in consistent estimates of the regression coefficients, but these estimates will not be efficient. Also, the standard errors of these estimates will be biased, therefore, it is imperative to compute robust standard errors to correct the heteroskedasticity. This technique was employed, and following Gujarati (2004, p.417), the issue of heteroscedasticity was corrected using robust standard errors command in Stata (Huber/White or sandwich estimators). This approach is described as a goodness of fit test that are robust to heteroskedasticity and serial correlation (Baltagi, 2014, p.113). EVA is an absolute indicator, therefore, reflects the size of the firm, as a whole. This means that the absolute figure would produce a larger EVA value which are prone to heteroscedasticity. It is therefore appropriate to normalize the EVA figures by using the economic value-added rate of return which divides the EVA by the TCI (Zhang and Aboud (2019, p.604); thus, to reduce the heteroscedasticity in the data, EVA figures were deflated by converting the absolute values into ratios (Makhija & Trivedi, 2020).

5.2.4. Endogeneity Test

Endogeneity assumption states that there is no covariance between the error term and the independent variables, however, if there is a correlation then there is endogeneity problem which will affect the coefficient and lead to a biased estimate (Gujarati, 2004, p.9). The `rvpplot` plus variable command in Stata was used to plot the residuals, with each variable, to check whether there is a pattern of relationship, thus, the residuals were plotted and their relationship with the fitted values were checked. Once there is no pattern, then, there is no endogeneity. The results showed the presence of endogeneity with some few variables whereas the rest did not have endogeneity problem (See Appendix 3); since there was presence of endogeneity, the solution to resolve this was to use instrumental variables and the Two-Stage Least Squares model (Zhang, 2016, p.32 & 33), as the model is able to successfully untangle causality from spurious correlation (Wooldridge, 2013, p.512). To fix the problem, with this present study, the author conducted panel regression, and generated the residuals by using the `predict resid` command 'predict resid'. After generating the residuals, the regression was run again, but this time the residual was included as a variable; thereafter, the 2SLS regression was run by selecting statistics, endogenous covariates, single-equation instrumental-variables regression, then dependent variable was selected, independent variables were selected, endogenous variables were selected, instrumental variables were selected, then 2SLS was selected, and then SE/robust was selected.

5.2.5. Checking for Outliers

Checking for outliers is also very necessary in the data management process. In this study, outliers were checked using Box Plot (Tsipa, 2017:139). By selecting Box Plot from the main menu in Stata and choosing each variable, the resultant graph gives an indication of the presence of outliers or otherwise. A more detailed check was then employed by using the Sort command to sort the outliers from smallest to largest, and then, corrected; the extremes command approach Stata was also used. This is necessary because Box Plot shows the outliers which are far apart from the normal pattern of the data but does not give their actual values or numbers. The cut-off point was that any value above 300% of the inter-quartile range in the box plot is considered outliers, hence, the command was set to include inter-quartile range of 300% [extremes + variables, iqr (3)] where iqr represents inter-quartile range. The results showed that only one firm had board size of 26, which fell outside the range. A histogram was also used to check outliers, also a Spike plot, as well as a Zscore. Zscores can be calculated as [egen + new variable name + std(BoardSize)], edit then enter; this process will then sort data. The results showed that there were no substantial differences in higher Zscore (4 standard deviation from the mean) as against 3 standard deviations from the mean. To correct outliers, variables were winsorised using the Stata command. The variables were first summarised [sum BoardSize,detail] to get the deferences' percentile values. Then winsorised [winsor2 variable name, replace cut (1 99)] then edited, however, there were no substantial outliers in the variables used in this study.

5.3. DESCRIPTIVE STATISTICS

This section provides the results on descriptive statistics of the data obtained from JSE-listed firms. Table 5.2 shows the average, minimum, maximum and standard deviation of the variables.

Table 5.2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
WDI _{scale}	839	0.258	0.11	0	0.521
WDI _{dummy}	838	0.4	0.163	0	0.75
UDI	838	1.731	0.803	0	2.761
PUDI	838	0.433	0.201	0	0.69
WebReport	840	0.801	0.399	0	1
AgenCost1	696	1.359	25.463	-482.325	28.058
AgenCost2	698	1.144	9.018	-0.64	218.519
EVA	838	-2918326	19223709	-2.654e+08	80486445
Normalized EVA	697	-0.002	0.046	-0.762	0.448
MVA	833	2.187	20.17	-119.13	560.49
Liquidity	840	3.15	12.116	0	209.78
Spread	837	-6.908	113.377	-3061.46	555.71
ROE	840	-4.32	310.826	-6903.87	1217.14
ROA	840	-3.03	94.825	-1777.88	343.73
BIG4	840	0.552	0.498	0	1
EPS	840	59.617	1569.182	-9322.73	41572.73
DPS	840	10.336	83.814	-338.46	1990.91
Leverage	646	0.76	3.939	0	97.098
ROCE	840	4.065	77.922	-1813.73	654.8
FinDistress (z-score)	837	2.813	33.416	-135.836	760.698
BoardSize	840	10.485	3.174	4	26
FirmSize	698	22.527	2.49	13.832	28.864
FirmAge	840	39.458	29.171	3	172

5.3.1. WDI_{scale} and WDI_{dummy}

This descriptive statistic shows that the average score for weighted disclosure index (WDI) using scale scoring (WDI_{scale}) is 26% with a maximum score of 52%. The 52% maximum is a high disclosure level, although, a much higher score had been expected. The 26% average score can be categorized as 'low disclosure', which is below expectation. This implies that, even though substantial information is disclosed online, content analysis of the financial accounting information disclosed, when examined using the WDI_{scale} test, the average score is only 26%, far below expectation. This gives an indication of the level of vagueness associated with the financial disclosure. A higher WDI_{scale} disclosure gives an indication of the level of clarity associated with the

disclosure, while a low WDI_{scale} disclosure is an indication of the level of vagueness of the financial report. Consistent with the information asymmetry, this indicates the presence of information asymmetry among JSE-listed firms.

This low disclosure could also be influenced by the fact that this research studied total disclosure, hence, some voluntary disclosures may have been left out by some firms, since they are not mandatory. Their average WDI_{scale} score on mandatory disclosure, with a lower denominator would be much higher than 26%. This result can also be attributed to excessive focus on the signaling theory where managers dedicated substantial part of the report to issues such as advertising, report of good performance from other jurisdictions, awards received, corporate social responsibilities among others. Another possible cause could be that, the low score could be a strategy by managers to purposely avoid or suppress full disclosure because they may not want to disclose too much financial information, since their competitors also read their reports, not just investors. Their maximum score of 52%, however, falls within the high disclosure zone, implying that although average disclosure is low, some firms disclosed higher, therefore, performed above the average and disclosed quite extensive financial information in their financial statement. The wide disparity between the average and the maximum can be explained by the 11% standard deviation, despite, the average dummy score for the weighted disclosure index using binary scoring method (WDI_{dummy}) was 40%. This falls within the average disclosure zone, which is a good score; further, the maximum score for WDI_{dummy} was 75% which falls within the substantial disclosure zone. This is a very good performance which implies that JSE-listed firms complied with IFRSs and IASs, and disclosed substantial financial information in their financial statements, thereby, enabling investors to have substantial information to make economic decisions. These were generated from Appendix 5.

5.3.2. PUDI and UDI

When information is measured using the partially unweighted-disclosure index (PUDI), the average disclosure score increases marginally to 43.3% which still falls within average disclosure, although, its maximum score is 69% which can be categorized as high disclosure, is also an indication of good performance score; the average score is, however, astronomically 173% when measured using unweighted-disclosure index (UDI). This confirms the assertion by prior researchers that UDI produces unjustifiably high results due to its flaws. The deviation from the mean is just 11% for WDI_{scale} , 16% for WDI_{dummy} , and 20% for PUDI. These are indications of very low probability of departure from the average, however, the standard deviation is a substantial 80% for UDI indicating a very high probability of departure from the mean. These results, clearly, demonstrate that UDI is an outlier which excessively overestimates disclosure results with very high variability and

inconsistencies, therefore, the findings here is that WDI_{scale} , WDI_{dummy} , and PUDI are consistent methods for measuring corporate disclosure. In addition, the findings are that, consistently, the results for WDI_{scale} , WDI_{dummy} , and PUDI indicate that JSE-listed firms' disclosure level can be categorized as being between - low disclosure, high disclosure and substantial disclosure. These were also generated from Appendix 5.

5.3.3. Agency Cost1 and Agency Cost2

The results on agency costs showed that the average expense ratio (agency cost1) is 1.359 which is an indication of the presence of moderate agency cost among JSE-listed firms. This implies that managers of JSE-listed firms spend moderately on operating expenses compared to total sales made. The expense ratio measures how effectively managers controls operating costs. Expense ratio captures managers' excessive expenses including perk consumption; a low expense ratio indicates that management is controlling the operating expenses and vice versa (Ang et al., 2000, p.82; Rashid, 2015, p.187; Florakis, 2008, p.47). A reasonable expense ratio expected is between 0.5% and 0.75% while an expense ratio greater than 1.5% is typically considered high, therefore, the average expense ratio of 1.359 recorded by JSE is considered moderate, not high, which is good news for South African investors. The second measure of agency cost is the asset turnover (agency cost2). These results showed that JSE listed firms recorded an average asset turnover of 1.144. This indicate that for every ZAR1 invested, managers were able to generate ZAR1.144. A higher asset turnover is an indication of lower agency cost, whereas a lower asset turnover is an indication of a high agency cost. The asset turnover of ZAR1.144 recorded by JSE-listed firms was an indication of moderate agency cost because it is just above the threshold of one (1). This result is consistent with the expense ratio.

5.3.4. EVA and MVA

The results from the descriptive statistics shows an average EVA of -2918326 units, a minimum of -2.65408 and a maximum of 80486445 units, indicating that on average, JSE listed firms generated negative Economic Value Added (EVA) during the period of this study (2011 to 2020). The results imply that, during this study period, JSE-listed firms generated a maximum EVA of 80,486,445 units. This is a very good performance result, however, some firms generated negative EVA figures bringing the combine result into a negative average EVA of -2,918,326 units. Many firms added value to shareholders' wealth by generating positive EVA up to 80,486,445 units maximum, however, their combined results yielded an average negative EVA of -2918326 units. The results of the raw EVA

figures are consistent with the normalized EVA figures of negative average (-0.002), negative minimum (-0.762) and positive maximum (0.448). The firms' results on Market Value Added (MVA), however, showed a positive average MVA of 2.187 units, with negative minimum of -119.13 units and a positive maximum of 560.49 units. This indicates that, on average, JSE-listed firms generated positive MVA.

5.3.5 Liquidity.

The results show an average liquidity score of 3.15. Current ratio was used as a proxy for liquidity. A higher current ratio indicates a higher degree of liquidity (Gitman & Zutter, 2015, p.119), hence, a firm's current ratio should be at least 1. This result therefore indicate that JSE-listed firms can comfortably meet their short-term finance obligations as they fall due.

5.3.6. Spread, ROE and ROA

The results further showed that the average Spread generated by these firms is -6.908, minimum spread was -3061.46 and maximum spread was 555.71. These results suggest that although some firms generated positive return for their investors, their combined average generated negative returns on investment. The average return on equity (ROE) generated was -4.32 with a maximum ROE of 1217.14. Consistent with practice, the results indicate that some firms generated positive ROE while others generated negative ROE but their combine results indicate that on average these firms generated a negative ROE. The average ROA was -3.03 with a maximum of 343.73; average ROA was -3.03% with a maximum of 343.73, indicating that although some firms generated positive ROA, on average, the firms generated losses on their return on assets. The average EPS was 59.617 indicating that on average the firms generated about R0.60 earnings per share for their investors. Average DPS is 10.336 indicating that on average, listed firms on JSE paid dividend of 0.10 cents to their investors. The Average ROCE is 4.065 indicating that on average, the listed firms on JSE were able to generate 4.065% of return on capital employed, from their operations. Average liquidity is 3.15% which is higher than 1 indicating that on average, listed firms on the JSE are liquid and can meet their annual financial obligations as they fall due.

5.3.7. Website Disclosure

The results from the descriptive statistics portrayed that an average score for website reporting was an impressive 80.1% (0.801), indicating that JSE-listed firms disclose substantial information on their website, as well as on the website of the JSE. The following disclosure scale was self-designed to interpret the level of disclosure: Full disclosure = 1 point; Very high disclosure = 0.9 – 0.99; Substantial disclosure = 0.70 - 0.89 points; High disclosure: 0.5 - 0.69 points; Average disclosure:

0.30 - 0.49 point; Low Disclosure: 0.1 – 0.29 and Not disclosed / Non-compliant = 0 point. The maximum 1 point representing 100% website disclosure is an indication of full disclosure by some JSE-listed firms.

5.3.8. Financial Distress

The maximum Z-score was 760.69, far above the threshold of 2.99, indicating that firms listed on the JSE are certain to succeed. The minimum was -135.836 indicating that some JSE-listed firms are likely to fail, however, the average Z-score of JSE-listed firms was 2.81, which falls within the safe zone. According to Altman (1968), a score between 1.81 to 2.99 cannot be classified as - certain to fail or certain to succeed - hence, it falls within the zone of 'ignorance'. Correia, Flynn, Uliana, Wormald and Dillon (2015) classify the Z-score barriers as; $Z > 2.60 = \text{Safe Zone}$, $1.10 < Z < 2.60 = \text{Grey or Danger Zone}$, and $Z < 1.10 = \text{Distress or Fail Zone}$. This, therefore, implies that on average, JSE-listed firms fall within the safe zone, and they are most likely to succeed.

Average board size of JSE-listed firms was 10.485 indicating that on average, board members of listed firms on the JSE is 10 members, and average firm age is 39.458 indicating that, on average, listed firms on the JSE is 39 years.

5.4. CORRELATION ANALYSIS

Correlation analysis is a statistical technique which shows how two variables move in relation to each other and shows the strength of association between two variables and the degree of association is measured by Pearson's correlation coefficient. Correlations aid a researcher to identify the association or its absence between variables under study; if the variables are found to be correlated then they have some statistical association between them. Correlation coefficient is mutual and symmetrical implying that correlation between 'x and y' is the same as 'y and x'. In contrast, regression coefficient is not symmetrical, implying that regression of 'y on x' is not the same as 'x on y'. Correlation shows the linear relationship between two variables, whereas regression fits the best line into the data and estimates one variable based on another.

5.4.1 Correlation matrix for website reporting

Table 5.3 provides the pairwise correlation of website reporting and other key variables of the study.

Table 5.3: Pairwise Correlations Matrix (5.1)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) WebReport	1.000									
(2) WDI _{scale}	0.761*	1.000								
(3) WDI _{dummy}	0.786*	0.968*	1.000							
(4) UDI	0.814*	0.921*	0.943*	1.000						
(5) PUDI	0.814*	0.921*	0.943*	1.000*	1.000					
(6) FinDistress	-0.014	-0.019	-0.007	-0.006	-0.006	1.000				
(7) Board Size	0.193*	0.217*	0.231*	0.226*	0.226*	-0.085*	1.000			
(8) Spread	-0.003	0.021	0.022	0.001	0.001	0.098*	0.053	1.000		
(9) Firm Size	0.119*	0.216*	0.208*	0.194*	0.194*	-0.023	0.552*	0.088*	1.000	
(10) Firm Age	-0.080*	-0.075*	-0.056	-0.062*	-0.062*	-0.053	0.169*	0.013	0.311*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The pairwise correlation results showed that there was a significant positive correlation between website reporting and weighted-disclosure index scale score. This implies that, when firms increase the amount of financial accounting information they disclose on their website and on the website of JSE, they tend to score higher in WDI_{scale}. There was also a positive significant correlation between website reporting and dummy-weighted disclosure index score. This implies that even when weighted-disclosure index is computed using the binary scores, an increase in a firm's website reporting leads to an increase in their score for WDI_{dummy}. There was also positive correlation between website reporting and UDI and PUDI. The implication is that, an increase in website reporting leads to higher score in both unweighted-disclosure index (UDI) and partially-unweighted disclosure index (PUDI).

Further, there was a negative correlation between website reporting and financial distress, implying that an increase in website reporting leads to a reduction in the possibility of a firm experiencing financial distress. The correlation between webreport and board size was positive and significant, indicating that firms with large board sizes disclose more information on their website and on the website of JSE. The correlation between webreport and interest rate spread is negative indicating that when firms disclose more financial accounting information, they tend to record less interest rate spread. This implies that high transparency in financial reporting leads to normal profit, whereas less transparent financial reporting leads to super normal profit. The results also show a positive correlation between webreport and firm size, indicating that large firms usually disclose more information on their websites and on the website of the JSE, however, there was a negative correlation between webreport and firm age, indicating that older firms disclose less information.

The correlation between WDI_{scale} and WDI_{dummy} was positive and significant indicating that, although, WDI_{dummy} uses binary scoring, they are both consistent with each, hence, an increase in WDI_{scale} leads to a corresponding increase in WDI_{dummy} . The correlation between WDI (scale and dummy) and UDI and PUDI were positive and significant indicating that they all move in the same direction, hence, that a score positive in WDI would also score positive in UDI and PUDI. There was, however, a negative correlation WDI (scale & dummy) and financial distress, indicating that when firms succeed in increasing their score for WDI, they tend to reduce their possibility of getting into a financial distress. Board size had a positive and significant correlation with WDI (scale & dummy) indicating that firms with large board size (around the average of 10) tend to score higher in WDI (scale & dummy). Interest rate spread had a positive correlation with WDI (scale and dummy) indicating that an increase in WDI (scale and dummy) score leads to an increase in return on investment (profit). This correlation implies that managers should pay particular attention to their score in WDI (both scale and dummy) and by extension, the content of their financial disclosure because it has a direct correlation with their profit.

5.4.2 Correlation matrix for EVA

Table 5.4 provides the pairwise correlation of normalized EVA and other key variables of the study.

Table 5.4 Pairwise Correlations matrix (5.2)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) NormEVA	1.000										
(2) MVA	0.004	1.000									
(3) Spread	0.040	-0.003	1.000								
(4) ROE	0.020	-0.702*	0.052	1.000							
(5) ROA	0.048	-0.037	0.375*	0.092*	1.000						
(6) BIG4	-0.021	-0.024	0.027	0.052	0.084*	1.000					
(7) EPS	0.010	-0.002	0.001	0.015	0.006	-0.027	1.000				
(8) DPS	0.039	-0.001	0.012	0.011	0.021	-0.006	0.003	1.000			
(9) Leverage	-0.012	-0.007	0.103*	-0.003	-0.076*	0.024	0.055	-0.009	1.000		
(10) ROCE	0.057	-0.228*	0.276*	0.752*	0.073*	0.013	0.000	0.016	0.063	1.000	
(11) Liquidity	0.076*	-0.011	0.006	0.013	0.020	-0.085*	0.004	0.011	-0.028	0.021	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The results from the correlation matrix (Table 5.4) showed a positive correlation between normalized EVA and MVA, indicating that an increase in a firm's EVA leads to an increase in its MVA, and vice versa. This result confirms that EVA and MVA are consistent with each, as postulated by the EVA/MAV theory - that MVA represents the present value of future EVA.

The correlation results also showed - a positive correlation between normalized EVA and Spread, positive correlation between EVA and ROE, positive correlation between EVA and ROA, positive

correlation between EVA and EPS, positive correlation between EVA and DPS, positive correlation between EVA and ROCE and, finally, a positive correlation between EVA and Liquidity. These indicate that when JSE firms generate positive EVA, its multiple effects are that - an increase in the company's Spread, an increase in its ROE, an increase in its ROA, an increase in its EPS, an increase in its DPS, an increase in its ROCE, and finally, an increase in its liquidity. The implication is that when firms focus on EVA and succeed in generating a positive EVA, they tend to achieve all other desired objectives, however, the results show a negative correlation between EVA and BIG4 and EVA and Leverage. This indicates that firms that engage the BIG4 accounting firms tend to generate lower EVA and firms that employ high leverage tend to generate lower EVA. The implication is that managers who use high debt financing tend to generate lower EVA.

Unlike EVA, there was a negative correlation between MVA and Spread, MVA and ROE, MVA and ROA, MVA and BIG4, MVA and EPS, MVA and DPS, MVA and Leverage, MVA and ROCE, as well as MVA and Liquidity. This indicates that an increase in all these conventional accounting variables does not lead to an increase in MVA. The implication is that a firm - can record a lower Spread and still generate an increase in MVA; it can record a lower ROE and still have an increase in MVA, a lower ROA and still have an increase in MVA; firms not audited by any of the big four firms can still record an increase in MVA, they can record a lower EPS and still have an increase in MVA, they can record a lower DPS and still have an increase in MVA; firms that employ higher debt-financing can still record an increase in MVA; a lower ROCE can still record an increase in MVA and lower liquidity can still lead to an increase in MVA. The implication is that, recording a positive result on these conventional accounting variables does not necessarily translate into an increase in market value-added; also, if investors believe any of these conventional accounting variables have been massaged, an increase in any of them will not lead to an increase in MVA. In addition, since MVA is information-driven, depending on how negative results of any of these variables are managed, the situation may yield a positive MVA if investors still believe the firm will generate positive results with any of these variables in the future.

The correlation results also demonstrated a positive correlation between - Spread and ROE, Spread and ROA, Spread and BIG4, Spread and EPS, Spread and DPS, Spread and Leverage, Spread and ROCE, and Spread and Liquidity. These correlations indicate that a positive spread generated will lead to - an increase in return on equity, an increase in return on assets, an increase in earnings per share, an increase in dividend per share, an increase in return on capital employed and an increase in the firm's liquidity. This further means that firms audited by any of the BIG4 accounting firms, tend to generate positive spread, and firms that employ debt financing tend to increase their spread. This

confirms the fact that leverage maximizes a firm's potential gains as well as its potential financial distress.

The correlation matrix also showed a positive correlation between ROE and ROA, ROE and BIG4, ROE and EPS, ROE and DPS, ROE and ROCE and ROE and Liquidity, but a negative correlation between ROE and Leverage. These indicate that an increase in a firm's ROE leads an increase in all these variables except Leverage. For Leverage, the results show that high debt-financing reduces return on equity.

The correlation matrix illustrated a positive correlation between ROA and BIG4, ROA and EPS, ROA and DPS, ROA, and ROCE, and ROA and Liquidity, but a negative correlation between ROA and Leverage. This indicates that an increase in a firm's ROA leads to an increase in all these variables, except where an increase in a firm's leverage leads to a decrease in its return on asset.

The correlation - between BIG4 and EPS was negative, between BIG4 and DPS was negative, and between BIG4 and Liquidity was negative. These indicate that firms audited by any of the BIG4 accounting firms tend to record lower EPS, lower DPS, and lower liquidity. The implication is that such firms are restricted and compelled to operate within the confines of the international financial reporting standards, therefore, cannot make abnormal profit; this affects EPS, DPS and liquidity. The correlation is, however, positive between BIG4 and Leverage and BIG4 and ROCE, indicating that firms audited by any of the BIG4 tend to have access to debt-financing due to trust and this leads to higher return on capital employed.

There was also a positive correlation between - EPS and DPS, EPS and Leverage, EPS and ROCE and EPS and Liquidity. These correlations indicate that, consistent with practice - an increase in EPS leads to an increase in dividend per share, an increased leverage leads to an increase in EPS, as well as an increase in EPS leads to an increase in return on capital employed.

The correlation on DPS shows a negative correlation between DPS and Leverage, but a positive correlation between DPS and ROCE, and between DPS and Liquidity. These indicate that high leverage reduces dividend per share, whereas higher return on capital employed, increases dividend per share and high liquidity increases dividend per share.

The correlation on Leverage shows a positive correlation between leverage and return on capital employed but a negative correlation between leverage and liquidity. These indicate that firms that employ high leverage tend to record an increase in return on capital employed but debt financing reduces their liquidity due to interest payment.

5.4.3 Correlation matrix for EVA

Table 5.5 provides the pairwise correlation of normalized EVA and other the key variables of the study.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Norm EVA	1.000											
(2) MVA	0.004	1.000										
(3) WebReport	-0.066*	0.002	1.000									
(4) WDI _{scale}	0.019	0.021	0.761*	1.000								
(5) WDI _{dummy}	-0.041	0.019	0.786*	0.968*	1.000							
(6) UDI	0.041	0.004	0.814*	0.921*	0.943*	1.000						
(7) PUDI	0.041	0.004	0.814*	0.921*	0.943*	1.000*	1.000					
(8) AgenCost1	-0.003	0.043	0.089*	0.147*	0.157*	0.104*	0.104*	1.000				
(9) AgenCost2	-0.003	-0.009	0.006	-0.047	-0.039	-0.040	-0.040	0.007	1.000			
(10) FinDistress	-0.019	-0.012	-0.014	-0.019	-0.007	-0.006	-0.006	-0.015	-0.013	1.000		
(11) BoardSize	0.058	0.010	0.193*	0.217*	0.231*	0.226*	0.226*	0.107*	0.002	-0.085*	1.000	
(12) Firm Size	0.106*	-0.048	0.119*	0.216*	0.208*	0.194*	0.194*	0.123*	-0.100*	-0.023	0.552*	1.000
(13) Firm Age	0.001	-0.004	-0.080*	-0.075*	-0.056	-0.062*	-0.062*	0.043	-0.003	-0.053	0.169*	0.311*

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5.5: Pairwise Correlations Matrix (5.3)

The correlation matrix results in Table 5.5 above show that there is a negative correlation - between normalized EVA and WebReport, a negative correlation between EVA and WDI_{dummy}, a negative correlation between EVA and Agency Cost1, a negative correlation between EVA and Agency Cost2, as well as a negative correlation between EVA and FinDistress (Z-score). These indicate that an increase in website reporting is caused by a decrease in EVA and a decrease in website reporting is caused by an increase in EVA. This could mean that low-performing firms disclosed more, to explain in detail, to enable investors better understand their underperformance. The negative correlation between EVA and WDI_{dummy} is an indication that, consistent with website reporting results, an increase in EVA leads to a decrease in WDI_{dummy} score. This implies that low-performing firms disclose more to win investor confidence and better-performing firms disclose less because their good EVA results will win them investor confidence.

The negative correlation between EVA and Agency Cost1 is an indication that for JSE-listed firms, an increase in agency cost1 (expense ratio) leads to a reduction in economic value-added. This implies that agency costs cause wastage of a firm's resources and destroys economic value added. An increase in asset turnover (Agency Cost2) is supposed to lead to an increase in EVA, however, the correlation results show that an increase in asset turnover leads to a decrease in EVA. This implies that JSE firms, which focus on sales can achieve high asset turnover, however if the main objective is not on shareholder wealth-maximization, then an increase in asset turnover can lead to lower EVA. In addition, the correlation between EVA and financial distress (z-score) is negative, indicating that an increase in financial distress is caused by a reduction in EVA. The implication is that JSE firms which produce lower EVA tend to experience financial distress. Board size has a positive correlation to EVA as well as firm age. These findings indicate that JSE firms with large board size tend to produce higher EVA and older firms also tend to also produce higher EVA.

MVA, on the other hand, tends to have positive relationship with website reporting, WDI_{scale} , WDI_{dummy} , UDI, PUDI, Agency Cost1, and board size. This indicates that JSE listed firms which generate positive MVA tend to disclose more on their website - score higher in WDI_{scale} , score higher in WDI_{dummy} , score higher in UDI, score higher in PUDI, incur higher Agency Cost1 and usually have large board size. MVA, however, has a negative correlation with Agency Cost2, financial distress, firm size and firm age. These indicate that lower Agency Cost2 (higher asset turnover) improves market value-added, bring about firms that are not financially distressed, thus, having a higher z-score tends to generate higher MVA.

Website reporting had a positive correlation with WDI_{scale} , WDI_{dummy} , UDI, PUDI, Agency Cost1, Agency Cost2, board size and firm size. These indicate that, an increase in a firm's website reporting leads to an increase in its score in WDI_{scale} , WDI_{dummy} , UDI, PUDI. An increase in website reporting also leads to an increase in Agency Cost1, probably due to the extra cost it requires to disclose financial information online. The positive correlation between website reporting and Agency Cost2 implies that firms with higher asset turnover, therefore, a higher efficiency, tend to disclose more financial information on their website.

There was a positive correlation between WDI_{scale} and WDI_{dummy} , WDI_{scale} and UDI, WDI_{scale} and PUDI, WDI_{scale} and Agency Cost1, WDI_{scale} and Board Size and WDI_{scale} and Firm Size. These indicate that these indices are consistent with each other, hence, an increase in WDI_{scale} leads to a corresponding increase in WDI_{dummy} . The positive correlation between WDI_{scale} , UDI and PUDI implies that JSE-listed firms who score higher in WDI_{scale} also tend to score higher in unweighted disclosure index, and partially-unweighted disclosure index. The positive correlation between WDI_{scale} Agency Cost1 implies that JSE-listed firms which incur higher agency costs, tend to score higher in weighted-disclosure index scale scoring. The results also indicated that firms with large board size tend to score higher WDI_{scale} and large firms tend to score higher in WDI_{scale} . There was, however, a negative correlation between WDI_{scale} and Agency Cost2, WDI_{scale} and financial distress and WDI_{scale} and firm age. These indicate that an increase in agency cost2 leads to - a decrease in WDI_{scale} score, an increase in financial distress leads to a decrease in WDI_{scale} score and older firms tend to score lower WDI_{scale} .

The correlation matrix also shows a positive correlation between WDI_{dummy} and UDI, WDI_{dummy} and PUDI, WDI_{dummy} and agency cost1, between WDI_{dummy} and board size and WDI_{dummy} and firm size. These implies that JSE firms that score higher in WDI_{dummy} also tend to score higher in UDI and PUDI. In addition, firms with large board size tend to score higher in WDI_{dummy} , and older firms tend to score higher in WDI_{dummy} . There is, however, a negative correlation between WDI_{dummy} and Agency Cost2, WDI_{dummy} and financial distress, and between WDI_{dummy} and firm age.

There was also a positive correlation - between Agency Cost1 and Agency Cost2, between Agency Cost1 and board size, between Agency Cost1 and firm size as well as, Agency Cost1 and firm age.

These indicate that - an increase in expense ratio (Agency Cost1) leads to an increase in asset turnover (Agency Cost2); that firms with large board size tend to have higher expense ratio; that large firms tend to have higher expense ratio and finally, that older firms tend to have higher expense ratio. The implication is that a higher expense ratio used for productive purposes, will translate into higher asset turnover. Firms with large board size tend to have higher expense ratio because management will have to incur extra expenses on all board members. There was, however, a negative correlation between Agency Cost1 and financial distress (FinDistress). This indicates that firms that incur higher agency costs (higher expense ratio) tend to experience financial distress. This is because firms with higher agency cost1 tend to have lower z-score and therefore fall within the danger zone, where they are likely to fail.

The matrix also showed a negative correlation between agency cost2 (asset turnover) and financial distress (z-score), a negative correlation between agency cost2 and firm size and a negative correlation between agency cost2 and firm age. This implies that firms with higher asset turnover tend to experience lower financial distress, smaller firms tend to have higher asset turnover and younger firms tend to have higher asset turnover. There was, however, a positive correlation between agency cost2 and board size, indicating that firms with large board size tend to generate higher asset turnover.

5.4.4 Correlation matrix for WDI

Table 5.6 provides the pairwise correlation of WDI and other the key variables of the study.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) WDI _{scale}	1.000												
(2) WDI _{dummy}	0.968*	1.000											
(3) Norm EVA	0.019	-0.041	1.000										
(4) MVA	0.021	0.019	0.004	1.000									
(5) Spread	0.021	0.022	0.040	-0.003	1.000								
(6) ROE	0.051	0.052	0.020	-0.702*	0.052	1.000							
(7) ROA	0.096*	0.093*	0.048	-0.037	0.375*	0.092*	1.000						
(8) BIG4	0.458*	0.474*	-0.021	-0.024	0.027	0.052	0.084*	1.000					
(9) EPS	-0.055	-0.060*	0.010	-0.002	0.001	0.015	0.006	-0.027	1.000				
(10) DPS	-0.006	0.001	0.039	-0.001	0.012	0.011	0.021	-0.006	0.003	1.000			
(11) Leverage	-0.076*	-0.076*	-0.012	-0.007	0.103*	-0.003	-0.076*	0.024	0.055	-0.009	1.000		
(12) ROCE	0.029	0.033	0.057	-0.228*	0.276*	0.073*	0.013	0.000	0.016	0.063	1.000		
(13) Liquidity	-0.021	-0.015	0.076*	-0.011	0.006	0.013	0.020	-0.085*	0.004	0.011	-0.028	0.021	1.000
(14) WebReport	0.761*	0.786*	-0.066*	0.002	-0.003	0.046	0.029	0.505*	-0.049	0.000	0.005	0.044	0.012

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5.6: Pairwise Correlations Matrix (5.4)

The correlation matrix (Table 5.6) shows a positive correlation between WDI_{scale} and the following variables - normalized EVA, MVA, spread, ROE, ROA, BIG4, ROCE, and website report. These indicate that an increase in JSE-listed firms' positive EVA leads to - higher weighted-disclosure index score, a positive MVA leads to higher score in WDI_{scale}, an increase in spread leads to a higher score in WDI_{scale}, an increase in ROE and ROA leads to a higher score in WDI_{scale}, - and that firms audited by the BIG4 tend to score higher in WDI_{scale}, that an increase in return on capital employed leads to a

higher score in WDI_{scale} and that firms who disclose more on websites tend to score higher in WDI_{scale} . There was, however, a negative correlation between WDI_{scale} and the following variables - EPS, DPS, Leverage and Liquidity. These results indicated that JSE firms who generate higher EPS and DPS tend to score lower in WDI_{scale} , firms with higher Leverage (higher debt-financing) tend to score lower in WDI_{scale} , and liquid firms tend to score lower in WDI_{scale} .

The results for WDI_{dummy} showed a positive correlation between WDI_{dummy} and the following variable - MVA, Spread, ROE, ROA, BIG4, DPS, ROCE and Webreport. These indicated that a positive MVA leads to a higher score in WDI_{dummy} , an increase in Spread leads to a higher score in WDI_{dummy} , an increase in ROE and ROA leads to an increase in WDI_{dummy} , and that firms audited by the BIG4 tend to score higher in WDI_{dummy} , that an increase in dividend per share and return on capital employed leads to a higher score in WDI_{dummy} and JSE firms who disclose more on websites tend to score higher in WDI_{dummy} . There was, however, a negative correlation between WDI_{dummy} and the following variables - normalized EVA, EPS, Leverage, and Liquidity. These results indicate that - an increase in a firm's normalized EVA leads to a lower score in WDI_{dummy} , an increase in EPS leads to a decrease in WDI_{dummy} , an increase in leverage leads to a decrease in WDI_{dummy} and liquid firms tend to score lower in WDI_{dummy} .

The results on normalized EVA showed a positive correlation between EVA and the following variables - MVA, Spread, ROE, ROA, EPS, DPS, ROCE, and Liquidity. These indicate that JSE firms which generate positive, normalized EVA are also able - to generate positive MVA, increase their Spread on capital, increase return on equity, increase return on asset, increase earnings per share, increase dividend per share, increase return on capital employed and increase their liquidity. There was, however a negative correlation between normalized EVA and the following variables - BIG4, Leverage, and Website report. These indicate that JSE firms audited by any of the BIG4 accounting firms tend to generate a lower normalized EVA; that firms that employ higher debt-financing (high leverage) tend to generate lower EVA and higher EVA leads to a lower webreport. The results on MVA show a negative correlation between MVA and the following - Spread, ROE, ROA, BIG4, EPS, DPS, Leverage, ROCE and Liquidity. These indicate that an increase in all these conventional accounting performance measure variables, leads to a decrease in MVA. The positive correlation between MVA and website report implies that an increase in MVA leads to higher website disclosure.

The results on Spread showed a positive correlation between Spread and the following variables - ROE, ROA, BIG4, EPS, DPS, Leverage, ROCE, and Liquidity. These indicate that an increase in return on asset leads to - an increase in spread, an increase in return on asset leads to an increase in spread; and that firms audited by any of the BIG4 generate positive spread; that an increase in earnings per share leads to an increase in spread, which in turn leads to an increase in dividend per share; and that the use of leverage leads to an increase in spread (leverage can magnify gains and

losses), an increase in return on capital employed leads to an increase in spread and that liquid firms generate higher spread. The negative correlation between Spread and website report indicates that an increase in spread leads to a decrease in website reporting, probably due to dividend-smoothing strategy.

5.4.5 Correlation matrix for Agency Costs

Table 5.7 provides the pairwise correlation of agency cost and other the key variables in the study.

Table 5.7: Pairwise Correlations Matrix (5.5)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) AgenCost1	1.000										
(2) AgenCost2	0.007	1.000									
(3) Norm EVA	-0.003	-0.003	1.000								
(4) MVA	0.043	-0.009	0.004	1.000							
(5) ROE	-0.029	0.001	0.020	-0.702*	1.000						
(6) ROA	-0.045	0.004	0.048	-0.037	0.092*	1.000					
(7) BIG4	0.024	0.030	-0.021	-0.024	0.052	0.084*	1.000				
(8) EPS	-0.009	0.038	0.010	-0.002	0.015	0.006	-0.027	1.000			
(9) DPS	0.007	-0.061	0.039	-0.001	0.011	0.021	-0.006	0.003	1.000		
(10) ROCE	-0.023	-0.004	0.057	-0.228*	0.752*	0.073*	0.013	0.000	0.016	1.000	
(11) Liquidity	0.014	-0.009	0.076*	-0.011	0.013	0.020	-0.085*	0.004	0.011	0.021	1.000
(12) WebReport	0.089*	0.006	-0.066*	0.002	0.046	0.029	0.505*	-0.049	0.000	0.044	0.012

The pairwise correlation matrix (4) (Table 5.7) shows a positive correlation between agency cost1 and the following variables - agency cost2, MVA, BIG4, DPS, Leverage, Liquidity and WebReport. These indicate that a firm can be audited by any of the big four accounting firms and still experience agency cost1. Again, firms can pay dividend and still experience agency cost1, borrowing does not necessarily stop managers from perpetuating agency cost1, and finally, profitable firms with high liquidity experience increase in agency cost1. The positive correlation between agency cost1 and agency cost2 implies that an increase in a firm's expense ratio, leads to an increase in its asset turnover (agency cost2). This positive correlation is contrary to the expected sign, however, this result means that an increase in expense ratio (agency cost1) up to a threshold (1.5%) will increase asset turnover, however, beyond this point, it is likely to generate negative results. The positive correlation between agency cost1 and leverage indicate that firms who employ higher leverage tend to have higher agency cost1. There was, however a negative correlation between agency cost1 and the following variables - normalized EVA, Spread, ROE, ROA, EPS, and ROCE. Consistent with expected sign, these negative correlations indicate that - an increase in agency cost1 (expense ratio) causes a decrease in EVA, an increase in agency cost1 causes a decrease in spread, and an increase in agency cost1 causes a decrease in ROE, ROA, EPS and ROCE. Consistent with expected sign, these negative correlations indicate that - an increase in agency cost1 (expense ratio) causes a decrease in investment spread,

and an increase in agency cost¹ causes a decrease in ROE, ROA, EPS and ROCE. These imply that when managers incur higher agency cost¹, it diminishes return on equity to shareholders, and also diminishes return on asset, earnings per share and return on capital to investors. Agency cost¹ therefore destroys shareholders' wealth and make investors worse off.

The correlation matrix results on agency cost² showed a positive correlation between agency cost² and the following variables - ROE, ROA, BIG4, EPS, Leverage, and WebReport. These indicate that an increase in asset turnover (agency cost²) leads to an increase in ROE, ROA, EPS and webreport. In addition, firms audited by any of the BIG4 accounting firms tend to produce higher asset turnover, while higher leverage increases asset turnover. There was, however, a negative correlation between agency cost² and the following variables - EVA, MVA, Spread, DPS, ROCE, and Liquidity. These indicate that an increase in agency cost² leads to a decrease in EVA, MVA, Spread, DPS, ROCE, and liquidity.

5.5. MULTIVARIATE REGRESSION ANALYSIS

Regression is a statistical tool used to establish the nature of relationship between dependent and independent variables. Regressions usually have a line of best fit called the 'regression line'. It estimates how independent variable (x) is numerically related to dependent variable (y), hence, it helps to identify the functional relationship between the variables to enable an estimation of unknown coefficients with the help of the known variables. The objective is to determine the value of random variable (y) depending on the values of fixed variables. Regression helps to determine the effect of one unit change, in x on y .

According to Gujarati (2004, p.506), assumption 9 of the classical linear regression model, is that a regression model used in an analysis should be correctly specified. That means, a model chosen for empirical analysis should satisfy criteria, such as, the data must be admissible, meaning, predictions made from the model must be logically possible; it should be consistent with theory, and have weakly exogenous regressors, among others. Being mindful of this assumption, the author employed Generalized Least Squares (GLS) regression technique, and modelled all the empirical regression models to satisfy these criteria, including avoiding overfitting and underfitting the models. There are several model selection criteria that can be used to compare and choose appropriate models. According to Gujarati (2004, p.536), these criteria include - using R^2 , adjusted R^2 , Akaike information criterion (AIC), Schwarz information criterion (SIC), Mallow's C_p criterion, as well as forecast X^2 ; all these criteria aim at minimizing the residual sum of squares (RRS) (or increasing the R^2 value). Based on these, the model selection criteria used in this study are - the significance of F statistic, the R-square (R^2) and the Akaike information Criteria (AIC). These give an indication as to whether the models selected in this study satisfied assumption 9. Based on all these criteria, the models were finally selected which had - significant F statistic, had the highest R^2 and had the lowest value of AIC.

The data for this study were longitudinal, hence panel regression analysis was appropriately selected. To run the panel regression, it was first checked, whether fixe-effect (fe) model, random-effect (re), between effect or pooled OLS regression was suitable (Zhang, 2016, p.32 & 33; Wooldridge, 2013, p.495). In the Stata Software, the dataset was first declared as panel data, and the command used was 'xtset FirmCode Year'. The results showed that the data was indeed panel variable and strongly balanced.

Panel variable: FirmCode (strongly balanced)

Time variable: Year, 1 to 10

delta: 1 year

This meant the dataset had no missing observations and that every cross-sectional entity could be matched with the time series; it also showed time variable, from year 1 to 10.

The Hausman test is usually used to choose between 'fe' and 're' and holds that:

Null Hypothesis: 're' model is appropriate and preferred

Alternative Hypothesis: 'fe' model is appropriate

First, the fixed-effect model is run, estimated and stored; second, the random-effect model is run, estimated and stored. The Hausman test is then run (Hausman *fe re*). If the p-value is less than 0.05 (5%), then the fixed-effect model should be selected, and the random effect selected, if otherwise. This test process is done for each model before the regression is run. Using this process, the *fe* model was selected for model 1, *re* for model 2, *re* for model 3, *re* for model 4, *re* for model 5, and *re* for models 6 and 7. Stata does not allow the use of Hausman test when robust standard errors are selected, therefore, the test is done before incorporating robust standard errors. Finally, the Breusch and Pagan Lagrangian multiplier test for random effects was run to check whether Pooled OLS model would be preferred; the command is 'xttest0' and the Pooled OLS regression command is (xi).

Hausman test

When a fixed effect (*fe*) or random effect (*re*) model is selected, it is then run again using the selected model (*fe* or *re*) but this time, incorporating the robust standard errors in it to generate robust results. Due to endogeneity and heteroscedasticity, the GLS regression models were used but still incorporating robust standard errors. Validity tests of heteroscedasticity, multicollinearity, endogeneity, and outliers were conducted to ensure efficient, consistent, reliable and robust results (See results in appendices).

5.5.1: Test of Relationship between Liquidity and other Variables

The objective of this section was to test whether there exists any significant relationship between liquidity as dependent variable and the multivariate independent variables.

Multivariate Regression Results (Model 5.1)

Empirical Regression Results (1)

Liquidity	Coefficient	Robust St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
WDI _{scale}	11.558	0.497	23.27	0.000	10.57	12.546	***
WDI _{dummy}	-17.666	0.363	-48.72	0.000	-18.387	-16.944	***
PUDI	4.828	0.299	16.13	0.000	4.232	5.423	***
WebReport	0.218	0.064	3.42	0.001	0.091	0.345	***
BoarD Size	-0.018	0.01	-1.84	0.070	-0.038	0.002	*
Spread	0	0	-4.07	0.000	0	0	***
FinDistress	0	0	1.28	0.205	0	0.001	
Firm Age	0.384	0.009	44.02	0.000	0.367	0.401	***
Constant	-9.31	0.406	-22.95	0.000	-10.117	-8.503	***
Mean dependent var		3.295	SD dependent var				13.097
R-squared		0.999	Number of obs				694
F-test		116792.027	Prob > F				0.000
Akaike crit. (AIC)		227.962	Bayesian crit. (BIC)				268.844

*** $p < .01$, ** $p < .05$, * $p < .1$

With a very strong R^2 of 99% and $\text{Prob} > F = 0.000$, this regression shows a significant and robust regression results. The coefficient for WDI_{scale} is positive (11.558) and its p-value is significant at 1%, (0.000) indicating a positive nexus between liquidity and WDI_{scale}. This implies that an increase in weighted disclosure score (WDI_{scale} score) leads to 12% increase in a firm's liquidity. This indicate that there is appositve relation between a firm's WDI_{scale} score and its solvency. This can be attributed to the stringent method used to measure WDI_{scale}, which enables it to carefully extract the real financial accounting information disclosed. The WDI_{scale} was, therefore, able to correctly measure the financial health of a firm and by extension, its liquidity. This explains their positive nexus and strong significance level (p-value of 0.000).

The coefficient for WDI_{dummy} however, was negative and its p-value was significant at 1%, indicating a negative nexus between liquidity and WDI_{dummy}. This implies that an increase in the WDI_{dummy} score, leads to a 17.67% decrease in a firm's liquidity. This can be attributed to the fact that, although, WDI_{dummy} is a weighted disclosure index, the method for scoring is binary. The binary scoring could inflate the WDI_{dummy} score to make it look like it is increasing when in fact, it is not, therefore, the nexus between WDI_{dummy} and liquidity should be interpreted with care.

The coefficient for PUDI was positive and statistically significant at 1% indicating a positive linear nexus between liquidity and PUDI. This implied that the increase in the firms' PUDI score led to an increase in their liquidity, however, the increment was a minimal 4.83%.

The coefficient for website reporting and liquidity was positive and statistically significant at 5% indicating a positive linear nexus, between webReport and liquidity. This implied that liquid firms disclosed much more information on their websites and on the website of JSE. This is consistent with the signaling theory which posits that managers generally signal to the market when they have positive information, to improve their reputation.

The coefficient for board size was negative and its p-value was statistically significant at 10%, indicating a negative linear nexus between liquidity and board size. This implied that an increase in the number of board members, beyond the normal size led to a decrease in the firms liquidity. This can be attributed to the marginal cost incurred on additional member as well as the possibility of a decrease in the rapidity of decision making.

The coefficient for spread and financial distress was zero indicating that there was no linear nexus between liquidity and any of them. Firm age is used as a control variable, that notwithstanding, its coefficient was positive, and its p-value was statistically significant at 1%. This indicated that there was a positive linear nexus between liquidity and the firm's age, implying that the longer a firm operates in its industry, the more liquid it becomes.

5.5.2: Test of Nexus between Normalized EVA and other Variables

The objective of this section was to test whether there was any significant relationship between EVA and the multivariate independent variables.

Multivariate Regression results (Model 5.2)

Normalized EVA	Coefficient	Robust St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
MVA	-0.0001813	0	-18.01	0.000	0	0	***
ROE	-0.0000267	0	-21.03	0.000	0	0	***
ROA	9.5206	0	9.05	0.000	0	0	***
BIG4	-0.0053624	0.001	-8.52	0.000	-0.007	-0.004	***
EPS	-7.6508	0	-2.09	0.037	0	0	**
DPS	0.0000183	0	16.03	0.000	0	0	***
ROCE	0.000105	0	22.68	0.000	0	0	***
Liquidity	0.0003867	0	18.31	0.000	0	0	***
WebReport	-0.0137496	0.001	-9.92	0.000	-0.016	-0.011	***
Agency Cost1	-0.0000277	0	-12.93	0.000	0	0	***
Agency Cost2	0.0000888	0	8.43	0.000	0	0	***
FinDistress	-0.0000653	0	-11.32	0.000	0	0	***
Board Size	0.0002071	0	2.21	0.027	0	0	**
Firm Size	0.0032025	0	22.18	0.000	0.003	0.003	***
Firm Age	-0.0000632	0	-5.51	0.000	0	0	***
Constant	-0.0596835	0.003	-17.23	0.000	-0.066	-0.053	***
Random-effects GLS regression							
Mean dependent var		-0.002	SD dependent var		0.047		
Overall r-squared		0.986	Number of obs		683		
Chi-square		76339.323	Prob > chi2		0.000		
R-squared within		0.985	R-squared between		0.989		

*** $p < .01$, ** $p < .05$, * $p < .1$

The coefficient for MVA from the regression results (Model 4.2) showed a negative relationship between normalized EVA and MVA and the p-value indicate a 1% significant level. This indicates that for South African-listed firms, an increase in MVA does not lead to an increase in EVA, rather, it leads to a marginal decrease in EVA, although the decrease is negligible (-0.0001813 units), it was contrary to expected sign. Theoretically, an increase in EVA should lead to corresponding increase in MVA, because it is the present value of future EVA, but this result showed the contrary. A more careful analysis shows that the relationship between MVA and EVA is not bi-causal. This implies that, in practice, an increase in EVA will lead to an increase in MVA, however, an increase in MVA does not necessarily lead to an increase in EVA. This is practical because EVA is based on internal productivity, whereas MVA is based market trading, driven by information regarding internal productivity. An increase in internal productivity and real value added (EVA), therefore, will be well understood by investors to mean good financial performance, therefore, it will lead to an increase in MVA. An increase in MVA, however, will not necessarily increase internal productivity (EVA), rather, since MVA is the present value of future EVA, a present increase in MVA will have a corresponding decrease in present EVA (lower EVA) if investors believe that future EVA will be higher.

Significant at 1%, the coefficient for ROE showed a negative relationship between EVA and ROE. This indicated that an increase in ROE led to a marginal decrease (-0.0000267 units) in EVA. This implies that an increase in this conventional accounting measure does not mean an increase in the economic value added to shareholders wealth, rather, an increase in ROE led to a marginal increase in EVA. Significant at 1%, the results showed that JSE firms, audited by any of the BIG4 record a marginal decrease in EVA. This implied that because the BIG4 ensure compliance to the international accounting standards, firms they audit do not make excess profit.

Significant at 5% the coefficient for EPS showed a negative nexus between EVA and EPS. This indicated that an increase in EPS did not lead to an increase in EVA. This implied that showing an increase in EPS on a firm's income statement, did not mean there is an increase in economic value added. The coefficient for DPS, however, showed a positive nexus between DPS and EVA, implying that an increase in dividend per share was an indication of an increase in EVA. There was also a positive nexus between ROCE and EVA, implying that, unlike EPS, an increased return on capital employed is an indication of an increase in EVA.

The coefficient for liquidity was positive and significant at 1%, indicating a positive nexus with EVA. This implied that JSE-listed firms that generate positive EVA are generally liquid firms, hence, an increase in a firm's liquidity (current ratio) leads to an increase in its EVA. This is consistent with expected sign, because EVA uses WACC in its computation, therefore, the net effect is that a positive EVA firm is truly profitable and liquid. In other words, financially healthy firms generate positive EVA. The website

reporting and EVA nexus showed a negative relationship, indicating that an increase in website reporting score did not lead to an increase in EVA.

The negative nexus between EVA and agency cost1 was an indication that an increase in agency cost1 (expense ratio) led to a decrease in economic value added (EVA). This implied that an increase in agency cost1 caused dissipation of resources available for shareholders, hence, agency cost1 should be controlled, otherwise, it would exacerbate the agency problem. The positive significant nexus between EVA and agency cost2 is an indication that, consistent with expected sign, an increase in asset turnover (agency cost2) leads to an increase in economic value added (EVA). Since higher asset turnover is an indication of management efficiency, managers should therefore work harder to increase their asset turnover if they want to achieve positive EVA.

The negative nexus between EVA and FinDistress was an indication that firms in financial distress generate lower EVA. The positive nexus between EVA and board size, and between EVA and firm size indicated that firms with large board size generate positive EVA and larger firms generate higher EVA. This was consistent with expectation because of the number of experts brought on board, by board members for optimal decision-making. The coefficient for firm age indicated that there is a negative nexus between EVA and firm age and significant at 1%. The negative nexus between EVA and firm age indicated that younger firms generate higher EVA whilst older firms generated lower EVA. This implied that as firms on the JSE get older, their ability to generate positive EVA is impaired hence, they generate negative EVA. This can be attributed to the product life cycle where their products might have reached its maturity stage.

5.5.3: Test of Nexus between MVA and other Variables

The objective in this section was to test whether there exists any significant relationship between MVA and the multivariate independent variables.

Multivariate Regression Results (Model 5.3)

MVA	Coefficient	Robust St.Err.	t-value	p-value	[95% Conf Interval]	Sig
Normalised EVA	-566.455	234.722	-2.41	0.016	-1026.502 -106.408	**
ROE	-0.0966429	0.02	-4.77	0.00	-0.136 -0.057	***
ROA	-0.002307	0.013	-0.17	0.864	-0.029 0.024	
BIG4	-3.134686	1.656	-1.89	0.058	-6.38 0.11	*
EPS	0.0000297	0	0.37	0.71	0 0	
DPS	0.0099911	0.004	2.31	0.021	0.002 0.018	**
ROCE	0.276711	0.079	3.50	0.00	0.122 0.431	***
Liquidity	0.1901757	0.094	2.03	0.042	0.007 0.374	**
WebReport	-4.673841	2.77	-1.69	0.091	-10.102 0.754	*
AgenCost1	-0.0054446	0.012	-0.47	0.64	-0.028 0.017	
AgenCost2	0.0482422	0.024	1.97	0.049	0 0.096	**
FinDistress	-0.036729	0.015	-2.39	0.017	-0.067 -0.007	**
BoardSize	0.0004687	0.135	0.00	0.997	-0.263 0.264	
Firm Size	2.164576	1.053	2.05	0.04	0.1 4.229	**
Firm Age	-0.0338024	0.016	-2.18	0.029	-0.064 -0.003	**
Constant	-42.17144	21.232	-1.99	0.047	-83.785 -0.558	**

Random-effects GLS regression

Mean dependent var	2.385	SD dependent var	22.254
Overall r-squared	0.801	Number of obs	683
Chi-square	196.596	Prob > chi2	0.000
R-squared within	0.828	R-squared between	0.321

*** $p < .01$, ** $p < .05$, * $p < .1$

Consistent with regression model 4.3, the nexus between EVA and MVA was still negative. Significant at 1%, the nexus between MVA and ROE was negative, indicating a decrease in MVA when there was an increase in ROE. This implied that an increase in ROE does not increase MVA. There is also a negative nexus between MVA and ROA but the relationship was not significant. Significant at 10%, the nexus between MVA and BIG4 was negative. This is an indication that, just like EVA and BIG4, firms audited by any of the BIG4 accounting firms generate a lower MVA. The positive coefficient for EPS was an indication that an increase in EPS led to an increase in MVA. The implication was that a disclosure of higher EPS in financial statement led to an increase in MVA. This is consistent with market behaviour because MVA is information-driven, hence, a firm's disclosure of an increased EPS would be incorporated in the trading decisions by market participants, which will then increase MVA. The coefficient for DPS was also positive and significant at 5% indicating that an increase in DPS led to an increase in MVA. This implies that when firms pay dividend, it sends a signal to investor about good financial performance, hence, demand for their shares will be higher, thereby, driving up the share price and increasing market value added (MVA). Significant at 1%, the positive nexus between ROCE and

MVA was an indication that an increase in a firm's return on capital employed (ROCE) led to an increase in its MVA. Significant at 5%, the positive nexus between liquidity and MVA is an indication that an increase in a firm's liquidity (current ratio) leads to an increase in its market value added (MVA). The negative nexus between MVA and webreport is an indication that an increase in a firm's website reporting (online disclosure) does not increase MVA.

The negative relationship between agency cost1 and MVA was an indication that an increase in a firm's expense ratio leads to a decrease in its market value added, however, this relationship was not significant. Consistent with expected sign, the relationship between agency cost2 and MVA was positive and significant at 5%, indicating that an increase in a firm's asset turnover led to an increase in its market value added. The negative nexus between FinDistress and MVA indicated that firms in financial distress record lower MVA. The positive relationship between board size and MVA was an indication that firms with large board size produced higher market value added. The positive relationship between firm size and MVA was an indication that larger firms produce higher market value added. The negative relationship between firm age and MVA was an indication that older firms produced lower MVA and younger firms produced higher MVA.

5.5.4: Test of Nexus between EVA and other Variables

The objective here was to test whether there is a significant relationship between EVA and the multivariate independent variables.

Multivariate Regression Results (Model 5.4)

Normalized EVA	Coefficient	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
BIG4	-0.0065198	0	-16.28	0.00	-0.007	-0.006	***
Liquidity	0.0004241	0	20.17	0.00	0	0	***
WebReport	-0.0321531	0.001	-32.69	0.00	-0.034	-0.03	***
WDI _{scale}	-0.0096562	0.005	-1.99	0.047	-0.019	0	**
WDI _{dummy}	0.0082974	0.003	2.73	0.006	0.002	0.014	***
PUDI	0.0513376	0.002	23.77	0.00	0.047	0.056	***
AgenCost1	-0.0000432	0	-19.75	0.00	0	0	***
AgenCost2	0.0001167	0	10.85	0.00	0	0	***
FinDistress	-0.0000677	0	-9.42	0.00	0	0	***
BoardSize	0.0001729	0	2.44	0.015	0	0	**
FirmSize	0.0029401	0	34.52	0.00	0.003	0.003	***
FirmAge	-0.0000461	0	-11.87	0.00	0	0	***
Constant	-0.0621597	0.002	-34.79	0.00	-0.066	-0.059	***
Random-effects GLS regression							
Mean dependent var		-0.001	SD dependent var			0.040	
Overall r-squared		0.988	Number of obs			681	
Chi-square		7967.994	Prob > chi2			0.000	
R-squared within		0.987	R-squared between			0.995	

*** $p < .01$, ** $p < .05$, * $p < .1$

Significant at 1%, the nexus between normalized EVA and BIG4 was negative, indicating that JSE-listed firms audited by any of the BIG4 accounting firms record a marginal decrease (-0.0065198) in EVA. With a positive coefficient and significant at 1%, the relationship between liquidity and EVA was positive, indicating that liquid firms generate higher EVA. Significant at 1%, the negative nexus between website financial reporting (WebReport) and EVA was an indication that an increase in website reporting did not lead to an increase in EVA. Consistent with webReport, the negative nexus between WDI_{scale} and EVA indicated that an increase WDI_{scale} did not lead to an increase in EVA, but the significant positive coefficient for WDI_{dummy} indicated that an increase in WDI_{dummy} score was an indication of a marginal increase (0.0082974) in EVA. Consistent with WDI_{dummy} was PUDI which also had a positive coefficient and was significant at 1% indicating that an increase in PUDI score was an indication of a marginal increase (0.0513376) in EVA.

Consistent with expected sign and the agency theory, agency cost1 was negatively related with EVA and significant at 1%. This strong relationship indicated that an increase in agency cost1, that is an increase in expense ratio, negatively affected EVA and caused a decrease in economic value added to shareholders' wealth. This implied that managers who incur higher expense ratio tend to destroy shareholders' wealth. Consistent with the agency theory, the regression results showed a significant positive relationship between agency cost2 and EVA. This indicated that an increase in agency cost2, that is, asset turnover, led to an increase in EVA. This implied that managers of JSE firms who generate higher asset turnover tend to generate higher economic value added, as well.

The financial distress variable (FinDistress) had a negative coefficient with EVA and was significant at 1%, indicating that firms in financial distress generate negative EVA. Board size was positively related with EVA giving an indication that firms with large board size tend to generate higher EVA. Firm size was also positively related with EVA giving indication that large firms tend to generate higher EVA. Firm age, on the other hand, was negatively related with EVA, giving an indication that older firms generate lower EVA.

5.5.5: Test of Nexus between Agency Cost1 and other Variables

The objective was to test whether there was a significant relationship between agency cost and multivariate independent variables.

Multivariate Regression Results (Model 5.5)

AgenCost1	Coefficient	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Normalized EVA	-15623.334	1473.368	-10.60	0	-18569.515	-12677.153	***
MVA	-3.591	0.278	-12.92	0	-4.147	-3.035	***
Spread	-0.082	0.071	-1.15	0.254	-0.225	0.06	
ROE	-0.545	0.039	-14.09	0	-0.623	-0.468	***
ROA	0.321	0.016	19.90	0	0.289	0.353	***
BIG4	-96.349	9.396	-10.25	0	-115.138	-77.56	***
EPS	-0.001	0.001	-0.81	0.42	-0.002	0.001	
DPS	0.29	0.032	9.13	0	0.227	0.354	***
Leverage	4.214	0.48	8.78	0	3.254	5.174	***
ROCE	1.866	0.205	9.10	0	1.456	2.276	***
Liquidity	6.436	0.603	10.68	0	5.231	7.642	***
WebReport	-522.196	50.12	-10.42	0	-622.418	-421.975	***
WDI _{dummy}	7.567	15.376	0.49	0.624	-23.179	38.312	
PUDI	850.718	82.919	10.26	0	684.911	1016.525	***
FinDistress	-1.15	0.112	-10.25	0	-1.375	-0.926	***
Board Size	1.885	0.3	6.28	0	1.285	2.485	***
Firm Size	44.699	4.146	10.78	0	36.408	52.99	***
Firm Age	-0.659	0.06	-10.93	0	-0.78	-0.539	***
Constant	-937.97	87.126	-10.77	0	-1112.189	-763.751	***
Between-effects Regression (Between regression; regression on group means)							
Mean dependent var		-1.497	SD dependent var			26.675	
R-squared		0.979	Number of obs			634	
F-test		149.925	Prob > F			0.000	
Akaike crit. (AIC)		465.308	Bayesian crit. (BIC)			554.349	

*** $p < .01$, ** $p < .05$, * $p < .1$

Multivariate Regression results (Model 5.6)

AgenCost1	Coefficient	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Normalized EVA	-21173.759	6154.809	-3.44	0.001	-33236.963	-9110.556	***
MVA	-4.61	1.33	-3.47	0.001	-7.217	-2.003	***
Spread	-0.038	0.017	-2.27	0.023	-.071	-.005	**
ROE	-0.665	0.191	-3.48	0.001	-1.039	-.29	***
ROA	0.172	0.054	3.16	0.002	.065	.278	***
BIG4	-132.385	38.694	-3.42	0.001	-208.225	-56.546	***
EPS	0	0	1.11	0.265	0	0	
DPS	0.379	0.122	3.10	0.002	.14	.619	***
Leverage	5.821	1.702	3.42	0.001	2.486	9.156	***
ROCE	2.523	0.733	3.44	0.001	1.087	3.959	***
Liquidity	8.597	2.484	3.46	0.001	3.728	13.466	***
WebReport	-703.187	204.621	-3.44	0.001	-1104.236	-302.137	***
WDI _{scale}	-8.011	8.603	-0.93	0.352	-24.872	8.849	
WDI _{dummy}	40.589	23.111	1.76	0.079	-4.707	85.885	*
PUDI	1143.13	341.061	3.35	0.001	474.663	1811.596	***
FinDistress	-1.524	0.442	-3.45	0.001	-2.39	-.658	***
BoardSize	2.673	0.771	3.47	0.001	1.162	4.184	***
Firm Size	60.464	17.503	3.45	0.001	26.159	94.769	***
Firm Age	-0.87	0.249	-3.50	0	-1.358	-.383	***
Constant	-1279.702	367.428	-3.48	0	-1999.848	-559.555	***
Random-effects GLS regression							
Mean dependent var		-1.497	SD dependent var			26.675	
Overall r-squared		0.784	Number of obs			634	
Chi-square		804.988	Prob > chi2			0.000	
R-squared within		0.687	R-squared between			0.946	

*** $p < .01$, ** $p < .05$, * $p < .1$

Consistent with model 4.4, in model 4.5 and 4.6, normalized EVA was negatively related with agency cost1 indicating that lower agency cost, that is, lower expense ratio, causes an increase in EVA, whereas higher agency cost reduces EVA. Consistent with the result of EVA, MVA was also negatively correlated with agency cost1 giving an indication that a lower agency cost1 increased MVA and higher agency cost1 reduced MVA. Spread was also negatively related with agency cost1, indicating that firms with higher agency cost1 records a decrease in spread. The negative relationship between ROE and agency cost1 was an indication that an increase in agency cost1 caused a decrease in return on equity. ROA, however, was positively related with agency cost1 and significant at 1%, giving an indication that ROA could still increase even when there was an increase in agency cost1. This implied that a firm can disclose an increase in return of asset (ROA) and still have agency cost1 problems. That meant that the mere disclosure of an increase in ROA did not signify the absence of agency cost1.

BIG4 was however negatively related with agency cost1, giving an indication that JSE firms audited by any of the BIG4 accounting firms tend to have lower agency cost1. This happened because of the financial discipline brought on board by these BIG4. The implication was that, to minimize agency cost1, one mitigation mechanism was to engage any of the BIG4 for auditing. EPS was also negatively related

with agency cost₁ indicating that it negatively affected EPS however, this relationship was not significant. DPS, however, was negatively related with agency cost₁ indicating that an increase in dividend payment could still have a corresponding increase in agency cost₁. The implication is that payment of dividend did not mean absence of agency cost₁. This is possible, especially, when there is free cash flow and dividend smoothing.

Leverage on the other hand was positively related with agency cost₁ and significant at 1% giving indication that an increase in debt financing increased agency cost₁. The implication is that high leverage deteriorated shareholders' wealth. Return on capital employed (ROCE) was also positively related with agency cost₁ indicating that an increase in ROCE could still have a corresponding increase in agency cost₁. It basically implied that an increase in ROCE did not signify an absence of agency cost₁. Liquidity was also positively related with agency cost₁ indicating that an increase in liquidity led to an increased agency cost₁. This implied liquid firms experience higher agency cost₁, meaning that when firms generate higher ROCE and became liquid, managers tend to increase expenses; increased expense ratio, thereby, increased agency cost₁.

The positive nexus between webreport and agency cost₁ was an indication that lower agency cost₁ led to an increase in website reporting. WDI_{dummy} was positively related with agency cost₁ but the relationship was not significant. The positive relationship between PUDI and agency cost₁ was an indication that an increase in PUDI score had a corresponding increase in agency cost₁. The negative nexus between FinDistress and agency cost₁ was an indication that lower agency cost₁ led to an increase in z-score. This implied that higher agency cost₁ led to higher financial distress, therefore, to avoid falling into financial distress, managers should avoid or reduce agency cost₁.

The positive relationship between board size and agency cost₁ indicated that large board size increased agency cost₁. This could be caused by the expenses incurred on board members. Firm size also had a positive relationship with agency cost₁, indicating that big companies incurred higher agency cost₁. Firm age, however, was negatively related with agency cost₁; an indication that older firms tended to incur lower agency cost₁.

5.5.6: Test of Nexus between Agency Cost2 and other Variables

The objective in this section was to test whether there existed any significant linear relationship between agency cost2 and multivariate independent variables.

Multivariate Regression Results (Model 5.7)

AgenCost2	Coefficient	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Normalized EVA	3417.192	425.28	8.04	0	2566.793	4267.591	***
MVA	0.678	0.08	8.45	0	.518	0.839	***
Spread	-0.024	0.021	-1.15	.254	-.065	0.017	
ROE	0.09	0.011	8.10	0	.068	0.113	***
ROA	0.028	0.005	6.12	0	.019	0.038	***
BIG4	21.811	2.712	8.04	0	16.388	27.234	***
EPS	0	0	-1.29	.201	-.001	0	
DPS	-0.064	0.009	-6.96	0	-.082	-0.046	***
Leverage	1.216	0.139	8.78	0	.939	1.493	***
ROCE	-0.405	0.059	-6.84	0	-.523	-0.286	***
Liquidity	-1.349	0.174	-7.75	0	-1.697	-1.001	***
WebReport	112.519	14.467	7.78	0	83.59	141.447	***
WDI _{dummy}	2.184	4.438	0.49	.624	-6.69	11.059	
PUDI	-190.294	23.934	-7.95	0	-238.153	-142.435	***
FinDistress	0.239	0.032	7.37	0	.174	0.303	***
Board Size	-0.5	0.087	-5.77	0	-.673	-0.327	***
Firm Size	-9.734	1.197	-8.13	0	-12.127	-7.341	***
Firm Age	0.134	0.017	7.69	0	.099	0.169	***
Constant	206.277	25.148	8.20	0	155.99	256.565	***
Between-effects Regression (regression on group means)							
Mean dependent var		1.221	SD dependent var			9.458	
R-squared		0.949	Number of obs			634	
F-test		59.823	Prob > F			0.000	
Akaike crit. (AIC)		264.013	Bayesian crit. (BIC)			353.054	

*** $p < .01$, ** $p < .05$, * $p < .1$

The regression results showed a positive significant relationship between EVA and agency cost2, indicating that an increase in asset turnover led to an increase in EVA. Consistent with expected sign, this result implies that, lower agency cost2 (higher asset turnover) led to higher EVA. The implication was that if managers reduce agency cost2 by increasing asset turnover, they would succeed in increasing the economic value added to shareholders wealth. Consistent with EVA, MVA was also positively related with agency cost2, giving indication that an increase in asset turnover or a reduction of agency cost2 led to higher market value added.

Spread was, however, negatively related with agency cost2 but was not significant, while ROE was positively related with agency cost2 and significant at 1%. This indicated that an increase in asset turnover (lower agency cost2) led to an increase in return on equity. Similarly, ROA was positively related with agency cost2 indicating that lower agency cost (higher asset turnover) caused an increase in return on asset. The positive nexus between BIG4 and agency cost2 was an indication that firms

audited by any of the BIG4 accounting firms tended to experience lower agency cost² by generating higher asset turnover. Consistent with expected sign, DPS was negatively related with agency cost² giving indication that an increase in dividend per share corresponds to a reduction in asset turnover. The positive nexus between leverage and agency cost² was an indication that an increase in debt financing led to an increase in asset turnover (lower agency cost²). This lower agency cost² was achieved because managers were compelled by debt covenants to work harder to repay the principal plus interest. ROCE was negatively related with agency cost² indicating that an increase in return on asset could have a corresponding increase in agency cost² (reduction in asset turnover). The negative relationship between liquidity and agency cost² indicated that an increase in liquidity can be caused by a lower asset turnover.

WebReport was positively related with agency cost² indicating that higher asset turnover or lower agency led to higher website disclosure. WDI_{dummy} was also positively related with agency cost², indicating that firms with lower agency cost² (higher asset turnover) tend to score higher WDI_{dummy} , but the relationship was not significant. The positive nexus between PUDI and agency cost² was an indication that firms with higher agency cost² (lower asset turnover) tended to have higher PUDI score. The positive relationship between FinDistress and agency cost² is an indication that an increase in asset turnover (lower agency cost²) led to an increase in z-score (decrease in financial distress). The implication is that higher agency cost² caused firms to experience financial distress. The negative relationship between board size and agency cost² was an indication that an increase in board size led to a decrease in asset turnover (higher agency cost²). That meant firms with large board size experienced higher agency cost². Significant at 1%, firm size also had a negative relationship with agency cost². This gave an indication that large firms had lower asset turnover, therefore, higher agency cost². The positive relationship between firm age and agency cost² gave an indication that older firms had higher asset turnover, therefore, lower agency cost².

5.5.7. Discussion of Results

The results from the descriptive statistics showed an average EVA of -2918326 units, a minimum of -2.65408 and a maximum of 80486445 units, indicating that on average JSE-listed firms generated negative Economic Value Added (EVA) for the period covered by this study (2011 to 2020). The results imply that, during this study period, JSE-listed firms generated a maximum EVA of 80,486,445 units. This is a very good performance result, however, some firms generated negative EVA figures, making the combine effects result in a negative average EVA of -2,918,326 units. The results of the raw EVA figures are consistent with their normalized figures of negative average (-0.002), negative minimum (-0.762) and positive maximum (0.448). The firms' results on Market Value Added (MVA), however,

showed a positive average MVA of 2.187 units, with negative minimum of -119.13 units and a positive maximum of 560.49 units. This indicates that on average, JSE-listed firms generated positive MVA.

The results from the descriptive statistics also showed that the average score for website reporting was an impressive 80.1% (0.801), indicating that JSE listed firms disclose substantial information on their website as well as on the website of the JSE. Furthermore, the average score for weighted disclosure index (WDI) using scale scoring (WDI_{scale}) was 26% with a maximum score of 52%. The 26% average score can be categorized as low disclosure, which was below expectation. This implies that even though substantial information was disclosed online, content analysis of accounting information disclosed, when examined using the WDI_{scale} test, the average score was only 26%, far below expectation. The low average score can be attributed to the fact that this research studied total disclosure. The firms average WDI_{scale} score on mandatory disclosure, with a lower denominator will be much higher than 26%. These findings can also be attributed to excessive focus on the signaling theory, where managers dedicated substantial part of the report to issues, such as advertising, report of good performance from other jurisdictions, awards received, corporate social responsibilities, among others. Another cause could be that, the low score could be a strategy by managers to purposely avoid or suppress full disclosure because they may not want to disclose too much information since their competitors also read their reports, not just investors. The maximum score of these same firms, however, was 52% which falls within the high disclosure zone, implying that, although, average disclosure was low, some firms disclosed high, performed above the average and disclosed quite high financial information in their financial statements. The average test score for the weighted- disclosure index using binary scoring method (WDI_{dummy}) was 40%. This falls within the average disclosure zone, which is good. Further, the maximum score for WDI_{dummy} was 75% which falls within the substantial disclosure zone. This was a very good performance which implied that JSE listed firms comply with IFRSs and IASs and disclose substantial financial information in their financial statements, thereby, enabling investors to have substantial information to make economic decisions. When measured using the partially unweighted disclosure index (PUDI), the average disclosure score increased marginally to 43.3% which still falls within average disclosure, however, the maximum score was 69% which can be categorized as high disclosure, also an indication of good performance score.

The average score, however, was astronomically 173% when measured using unweighted- disclosure index (UDI). This confirmed the assertion by prior studies that UDI produces unjustifiably high results due to its flaws. The deviation from the mean was just 11% for WDI_{scale} , 16% for WDI_{dummy} , and 20% for PUDI. These are indications of very low probability of departure from the average, however, the standard deviation was a substantial 80% for UDI indicating a very high probability of departure from the mean. Clearly, the results show that UDI was an outlier which excessively overestimated disclosure

results with very high variability and inconsistencies. The findings here, therefore, were that WDI_{scale} , WDI_{dummy} , and PUDI were consistent methods for measuring corporate disclosure. In addition, the findings were that, consistently, the results for WDI_{scale} , WDI_{dummy} , and PUDI indicated that JSE-listed firms' disclosure level could be categorized as - low disclosure, high disclosure and substantial disclosure.

The results on agency costs showed that the average expense ratio (agency cost1) was 1.359 which was an indication of the presence of moderate agency cost among JSE-listed firms. This implied that managers of JSE-listed firms spend moderately high on operating expenses, compared to total sales made. The expense ratio measures how effectively managers controls operating costs and captures managers' excessive expenses, including perk consumption. A low expense ratio indicates that management is controlling the operating expenses and vice versa (Ang et al. 2000, p.82; Rashid, 2015, p.187; Florakis, 2008, p.47). A reasonable expense ratio expected is between 0.5% and 0.75% while an expense ratio greater than 1.5% is typically considered high, therefore, the average expense ratio of 1.359 recorded by JSE is considered moderately high, not too high, which is good news for South African investors. The second measure of agency cost is the asset turnover (agency cost2). The results showed that JSE-listed firms recorded an average asset turnover of 1.144, indicating that for every ZAR invested, managers were able to generate ZAR1.144. A higher asset turnover is an indication of lower agency cost whereas a lower asset turnover is an indication of a high agency cost. The asset turnover of ZAR1.144 recorded by JSE-listed firms was an indication of moderately high agency cost because it was just above the threshold of one (1) which is consistent with the expense ratio.

The maximum z-score was 760.69 which was far above the threshold of 2.99, indicating that these firms listed on the JSE are certain to succeed. The minimum was -135.836 indicating that some JSE-listed firms are likely to fail, however, the average z-score of JSE-listed firms was 2.81, which falls within the safe zone. According to Altman (1968), a score between 1.81 to 2.99 cannot be classified as certain to fail or certain to succeed, hence, falls within a 'zone of ignorance'. Correia et al., (2015) classifies the z-score barriers as; $Z > 2.60 = Safe Zone$, $1.10 < Z < 2.60 = Grey or Danger Zone$, and $Z < 1.10 Distress or Fail Zone$. This, therefore, imply that on average, JSE-listed firms were within the safe zone, and they are most likely to succeed.

The pairwise correlation results show that there was a significant positive correlation between website reporting and weighted disclosure index scale score. This implied that when firms increase the amount of financial accounting information they disclose on their website and on the website of JSE, they tend to score higher in WDI_{scale} . There was also a positive significant correlation between website reporting and weighted disclosure index dummy score. This implied that even when weighted disclosure index is computed using the binary scores, an increase in a firm's website reporting leads to an increase in their

score for WDI_{dummy} . There was also positive correlation between website reporting and UDI and PUDI. The implication is that, an increase in website reporting leads to higher score in both unweighted-disclosure index (UDI) and partially-unweighted disclosure index (PUDI). The correlation between WDI_{scale} and WDI_{dummy} was positive and significant indicating that, although, WDI_{dummy} uses binary scoring, they are both consistent with each, hence, an increase in WDI_{scale} leads to a corresponding increase in WDI_{dummy} .

The results from the correlation matrix (Table 4.3) showed a positive correlation between normalized EVA and MVA indicating that an increase in a firm's EVA leads to an increase in its MVA, and vice versa. This result confirmed that EVA and MVA are consistent with each as postulated by the EVA/MAV theory - that MVA represents the present value of future EVA.

The correlation results showed that when JSE firms generate positive EVA, its multiplier effect leads to - an increase in the company's Spread, an increase in its ROE, an increase in its ROA, an increase in its EPS, an increase in its DPS, an increase in its ROCE, and finally, an increase in its liquidity. The implication is that when focus is on EVA and firms succeed in generating positive EVA, they tend to achieve all other desired objectives.

The negative correlation between EVA and agency cost1 was an indication that for JSE-listed firms, an increase in agency cost1 (expense ratio) led to a reduction in economic value added. This result implies that agency cost causes wastage of a firm's resources and destroys economic value added. The correlation between EVA and financial distress (Z-score) was negative, indicating that an increase in financial distress is caused by a reduction in EVA. The implication is that JSE firms that produce lower EVA tend to experience financial distress.

The coefficient for WDI_{scale} was positive and its p-value was significant at 1% indicating a positive nexus between liquidity and WDI_{scale} . This implied that an increase in WDI_{scale} score led to 12% increase in these firms' liquidity. The coefficient for website reporting and liquidity was positive and statistically significant at 5% indicating a positive linear nexus between webReport and liquidity. This implied that liquid firms disclosed much more information on their websites and on the website of JSE. This is consistent with the signaling theory which posit that managers generally signal to the market when they have positive information to increase their reputation.

Significant at 1%, the coefficient for ROE showed a negative relationship between EVA and ROE. This indicated that an increase in ROE led to a marginal decrease (-0.0000267 units) in EVA. This implied that an increase in this conventional accounting measure did not mean an increase economic value added to shareholders wealth, rather, an increase in ROE led to a marginal increase in EVA. Significant at 1%, the results showed that JSE firms, audited by any of the BIG4 recorded a marginal decrease in EVA. This implied that because the BIG4 ensure compliance to the international accounting standards,

firms they audit do not make excess profit.

Significant at 5% the coefficient for EPS showed a negative nexus between EVA and EPS. This indicated that an increase in EPS did not lead to an increase in EVA. This implied that showing an increase in EPS on a firm's income statement does not mean there is an increase in economic value added. The coefficient for DPS showed a positive nexus between DPS and EVA, implying that an increase in dividend per share was an indication of an increase in EVA. There was also a positive nexus between ROCE and EVA, implying that, unlike EPS, an increase return on capital employed was an indication of an increase in EVA.

The coefficient for liquidity was positive and significant at 1% indicating a positive nexus with EVA. This implied that JSE-listed firms that generate positive EVA were generally liquid firms, hence, an increase in a firm's liquidity (current ratio) led to an increase in its EVA. This is consistent with expected sign because EVA uses WACC in its computation, therefore, the net effect is that a positive EVA firm is truly profitable and liquid. In other words, financially healthy firms generate positive EVA.

The negative nexus between EVA and agency cost1 was an indication that an increase in agency cost1 (expense ratio) leads to a decrease in economic value added (EVA). This implied that an increase in agency cost1 caused dissipation of resources available for shareholders, hence, agency cost1 should be controlled, otherwise, it exacerbates the agency problem. The positive significant nexus between EVA and agency cost2 was an indication that, consistent with expected sign, an increase in asset turnover (agency cost2) led to an increase in economic value added (EVA). Since higher asset turnover is an indication of management efficiency, managers should, therefore, work efficiently to increase their asset turnover if they want to achieve positive EVA.

The positive nexus between webreport and agency cost1 was an indication that lower agency cost1 led to an increase in website reporting. The regression results show a positive significant relationship between EVA and agency cost2, indicating that an increase in asset turnover led to an increase in EVA. Consistent with expected sign, this result implies that lower agency cost2 (higher asset turnover) led to higher EVA. The implication is that if managers reduce agency cost2 by increasing asset turnover, they will succeed in increasing economic value added to shareholders' wealth. Consistent with EVA, MVA was also positively related with agency cost2, giving an indication that an increase in asset turnover or a reduction of agency cost2 led to higher market value added.

5.6 Chapter Conclusion

This study found in this chapter that there was a moderate agency cost among JSE-listed firms. This implies that managers of JSE listed firms spend moderately high on operating expenses compared to total sales made. The average expense ratio of 1.359 recorded by JSE is considered moderately high, not too high, which is good news for South African investors. Consistent with the expense ratio, the asset turnover of ZAR1.144 recorded by JSE-listed firms is an indication of moderately high agency cost. The results also showed that an increase in WDI_{scale} score led to 12% increase in a firm's liquidity. There was also a positive linear nexus between webReport and liquidity. The results also showed that an increase in EPS did not lead to an increase in EVA. This implies that showing an increase in EPS on a firm's income statement does not mean there is an increase in economic value added, however, an increase in dividend per share is an indication of an increase in EVA. There was also a positive nexus between ROCE and EVA, implying that, unlike EPS, an increase in return on capital employed is an indication of an increase in EVA. In addition, an increase in a firm's liquidity (current ratio) leads to an increase in its EVA while an increase in agency cost¹ (expense ratio) leads to a decrease in economic value added (EVA), therefore, agency costs have a negative effect on EVA. The next chapter presents empirical results from GSE-listed firms.

CHAPTER SIX

EMPIRICAL RESULTS FROM GSE LISTED FIRMS

6.1. INTRODUCTION

This chapter presents the results from data analysis of firms listed on the Ghana Stock Exchange (GSE). The data were obtained from the financial statements of 27 firms listed on the GSE. Apart from what was obtained from Bank of Ghana and Ghana Revenue Authority, extra data were obtained mainly from the statement of financial position (balance sheet) and the statement of financial performance (income statement) of these listed firms. The data comprised of - net operating profit after tax, total assets, profit after tax, finance cost, total equity, total liabilities, operating expense, total revenue, earnings per share, net income, current assets, current liabilities, earnings before interest and tax, board size, retained earnings, book value of equity and others. The average commercial banks' lending rates obtained from the Bank of Ghana were used as a proxy for cost of debt. Total number of shares outstanding and share prices were obtained from the GSE. The data were substituted into the various equations and were then computed using the formulae provided in the methodology to obtain the desired variables such as WDI_{scale} , WDI_{dummy} , PUDI, UDI, EVA, MVA, EPS, ROA, ROE, expense ratio, asset turnover, spread, leverage, ROCE, liquidity, Z-score, WACC, market return, beta and others. These variables were then used in the statistical models to generate results. The chapter is organized as follows - Section 5.2 presents the descriptive statistics of dependent, independent and control variables, while Section 5.3 focuses on correlation analysis of all variables. This is followed by presentation of the results of the multivariate regression analysis and the chapter concludes with a summary of findings.

To be certain of the validity of the results, diagnostic checks were performed to ensure that the assumptions of multiple regression analysis were not violated. The diagnostic test results include - linearity in parameters, multicollinearity among the predictor variables, homoscedasticity or constant variance of residuals, and endogeneity or no covariance between the error term and the independent variables and issues of outliers were also checked. Certain assumptions were satisfied to ensure that the OLS and GLS regressions' results turned out to be BLUE - best linear unbiased estimators - otherwise the estimates may be biased (Alnaas & Rashid, 2019, p.329 and Gujarati, 2004, p.348) (See Appendices for results). EVA is an absolute indicator, hence, it reflects the size of the firm as a whole. This means the absolute figure would produce a larger EVA value which will be prone to heteroscedasticity. It is therefore, appropriate to normalize the absolute EVA figure by using the economic value-added rate of return, which divides the EVA by the TCI (Zhang and Aboud, 2019,

p.604). To reduce the heteroscedasticity in the data, all the EVA figures have been deflated, by converting the absolute values into ratios (Makhija & Trivedi, 2020).

Similar to Zhang and Aboud (2019), the method of ordinary least squares (OLS) regressions was employed to estimate coefficients (β_0 and β_1), such that the sum of squares of the differences between the observations y_i and the straight line was at its minimum. OLS can be used to estimate the parameters in a linear regression model, regardless of the form of the distribution of the error term (ϵ), and least squares produce best linear unbiased estimators of β_0 and β_1 (Montgomery, Peck & Vining, 2012).

The regression analysis in the Stata Software was commenced by first setting Stata to recognize the data as panel. This enabled Stata to show whether the panel variable was balanced or unbalanced. The results generated indicated that the variables were strongly balanced - meaning that all firms had the required data for all years. The command used was 'xtset FirmCode Year', yearly, where 'FirmCode' represented the panels (i) and Year represented the time variant (t).

The data analysed in this chapter comprised of accounting and financial data of these listed firms obtained from the financial statements of these listed firms and tax figure obtained from the Ghana Revenue Authority (GRA). The financial data comprised of figures obtained from Bank of Ghana (BoG), the Ministry of Finance and Economic Planning (MoFEP), and the Ghana Stock Exchange (GSE).

Data Structure

The data analytic software used was Stata. When the data was declared as panel dataset in Stata, the data structure test run produced the following data output:

Xtset FirmCode Year - yearly

Panel variable: FirmCode (strongly balanced)

Time variable: Year, 1 to 10

Delta: 1 year

Table 6.1 Variance inflation factor

	VIF	1/VIF
PUDI	617.243	.002
UDI	392.533	.003
WDI _{dummy}	45.676	.022
Spread	11.419	.088
NormMVA	5.686	.176
ROA	5.235	.191
FirmSize	4.42	.226
WDI _{scale}	2.678	.373
ROCE	2.522	.397
WebReport	2.198	.455
BoardSize	2.039	.49
BIG4	1.788	.559
NormEVA	1.582	.632
AgenCost2	1.538	.65
Leverage	1.262	.792
EPS	1.197	.836
ROE	1.181	.847
Age	1.151	.869
Liquidity	1.062	.942
AgenCost1	1.032	.969
Mean VIF	55.172	.

6.2 DESCRIPTIVE STATISTICS

This section presents the descriptive statistics of dependent and independent variables of the data from GSE listed firms.

Table 6.2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EVA	265	-3.891	8.857	-5.946	7.728
MVA	270	6.891	5.559	-1.131	7.692
Spread	256	0.025	0.19	-0.916	2.12
ROE	256	0.193	1.735	-11.179	16.283
ROA	265	0.035	0.173	-0.916	1.229
BIG4	270	0.77	0.421	0	1
EPS	269	1.159	20.687	-170.9	81
Leverage	267	0.807	0.575	-0.552	6.171
ROCE	267	0.041	0.133	-0.954	0.58
Liquidity	270	1.775	6.396	0.018	94.283
WebReport	270	0.741	0.439	0	1
WDI _{scale}	270	0.338	0.056	0.174	0.569
WDI _{dummy}	270	0.469	0.065	0.226	0.691
PUDI	270	0.535	0.057	0.339	0.646
UDI	270	1.95	0.213	1.258	2.371
AgenCost1 (Expense ratio)	266	1.619	26.405	15.222	430.114
AgenCost2 (Asset turnover)	266	0.866	1.178	-0.098	5.813
FinDistress (Z-score)	268	212.525	2177.504	-4.183	31002.36
Board Size	270	8.963	2.296	3	15
Firm Size	269	20.179	2.401	13.451	23.979
Firm Age	270	40.456	25.619	2	124

Table 6.3 Country Comparative Descriptive Statistics

Variables	Country					
	South Africa			Ghana		
	Minimum	Average	Maximum	Minimum	Average	Maximum
WDI _{scale}	0	0.258	0.521	0.174	0.338	0.569
WDI _{dummy}	0	0.4	0.75	0.226	0.469	0.691
UDI	0	1.731	2.761	1.258	1.95	2.371
PUDI	0	0.433	0.69	0.339	0.535	0.646
AgenCost1(expense ratio)	-482.325	1.359	28.058	15.222	1.619	430.114
AgenCost2 (asset turnover)	-0.64	1.144	218.519	-0.098	0.866	5.813
NormEVA	-0.762	-0.002	0.448	-5.946	-3.891	7.728
MVA	-119.13	2.187	560.49	-1.131	6.891	7.692
Spread	-3061.46	-6.908	555.71	-0.916	0.025	2.12
ROE	-6903.87	-4.32	1217.14	-11.179	0.193	16.283
ROA	-1777.88	-3.03	343.73	-0.916	0.035	1.229
EPS	-9322.73	59.617	41572.73	-170.9	1.159	81
Leverage	0	0.76	97.098	-0.552	0.807	6.171
ROCE	-1813.73	4.065	654.8	-0.954	0.041	0.58
Liquidity (Current ratio)	0	3.15	209.78	0.018	1.775	94.283
WebReport	0	0.801	1	0	0.741	1
FinDistress (Z-score)	-135.836	2.813	760.698	-4.183	212.525	31002.36
Board Size	4	10.485	26	3	8.963	15
Firm Size	13.832	22.527	28.864	13.451	20.179	23.979
Firm Age	3	39.458	172	2	40.456	124

The descriptive statistics (6.2) shows that the minimum EVA was -5.946 units, maximum was 7.728 units and on average, listed firms on the Ghana stock Exchange (GSE) generated a negative EVA (-3.891 units). This implied that on average, listed firms on the GSE did not create value to its shareholders, but rather destroyed value; meaning, return on capital employed has been lower than the cost of capital employed by these firms. The implication is that even though these firms may look profitable when measured with the conventional accounting performance measures, they actually generate negative returns when measured with EVA. These findings are consistent with Wilson (2008) and Durant (1999) and this was confirmed by - the positive mean of ROE (19.3%), positive mean of ROA (3.5%) and positive mean of EPS (1.59 cedis). The positive 19.3% of ROE, 3.5% of ROA and the positive mean of 1.59 cedis EPS actually showed that these firms are profitable. However, Durant (1999) particularly argued that under the generally-accepted accounting principles, most firms appear to be profitable, yet, many actually destroy shareholder wealth because they earn less than the full costs of capital and EVA overcomes this problem by explicitly recognizing that when capital is employed it must be paid in full. To confirm this further, a careful look at the GSE firms minimum results showed that they

all actually generated negative minimum returns. For instance, the firms generated minimum negative ROE of -1,117.9%, minimum negative ROA of -91.6% and a minimum negative EPS of -170.9 GHS.

Consistent with De Wet (2005) who found that EVA did not show the strongest correlation with MVA, the average MVA in this present study were, rather, positive (6.891 units). This is consistent with expectation because MVA represents performance at the market level and is influenced by a country's information, news and announcements. Positive information or news will generate positive MVA and negative information or news will generate negative MVA. Since information on ROE, ROA and EPS are readily available and they were positive and investors trade on available information, it is, therefore, understandable that the average MVA was positive just as the average ROE, ROA and EPS. The minimum MVA was -1.131 unit, the maximum was 7.692 units and the average was 6.891. This implied that, on average, GSE firms generated positive MVA.

Contrary to expectation, the firms recorded an average spread of 2.5% with a minimum spread of negative -92% and a standard deviation of 19%. The negative minimum spread was consistent with EVA and the positive average spread was consistent with MVA. The firms recorded average 81% leverage indicating that GSE listed firms are highly levered and operate with high levels of debt-financing, exposing them to higher risks of financial distress. The firms also recorded a positive 4% return on capital employed and average liquidity (current ratio) of 1.8 times. This indicates that even though highly levered, GSE-listed firms are capable of settling their current liabilities as they fall due.

On average, the firms scored 74% on website reporting indicating that majority of GSE-listed firms disclosed substantial financial statements online, however, their average score on weighted disclosure index, WDI_{scale} was 34%, that of WDI_{dummy} was 47%, and that of PUDI was 54% but, the average score for UDI was 195%. (Generated from Appendix 6). This confirms the earlier findings from the South African data (in Chapter Five) that WDI_{scale} and WDI_{dummy} are consistent measures of accounting disclosures, whereas UDI overestimate disclosures. Since WDI_{scale} measures the level of clarity or vagueness of a financial report, this 34% score gives an indication that there was a high level of vagueness in the financial report of GSE-listed firms (Generated from Appendix 6).

On the issue of agency costs, the GSE-listed firms recorded average agency cost1 (expense ratio) of 1.619, which indicated that the average total expenses incurred by GES-listed firms represent 162% of sales. This implied that there is a high presence of agency cost1 among GSE-listed firms during the period of study. This means agency cost1 is a real corporate governance problem in Ghana which needs attention from board of directors, shareholders and regulators. The average agency cost2 (asset turnover) recorded by GSE listed firms, on the other hand was 0.866, indicating that the average asset turnover produced by GSE-listed firms was 0.87 cedis (87 pesewas). This implies that for every 1 cedi

invested in the assets, a GSE-listed firm produces 87 pesewas of sales, which was less than what was invested, therefore, not an efficient use of asset.

On the issue of financial distress, the maximum Z-score for the GSE-listed firms was 31002.36 which was far above the threshold of 2.99, indicating that these firms listed on the GSE fall within the safe zone and are certain to succeed. The minimum Z-score, however, was -4.183, which was below the 2.99 threshold and therefore indicate that some GSE -listed firms are in financial distress, they fall within the danger zone and are likely to fail. This minimum -4.183 explains the cause of the failed Ghanaian firms between the period of 2017 and 2018 and those that are currently in financial distress. The regulators, Bank of Ghana, the Ghana Stock Exchange and the Securities and Exchange Commission should keep a watchful eye on these firms; notwithstanding this, the average Z-score of the GSE-listed firms was 212.525, which was above the 2.99 threshold. According to Altman (1968), a score between 1.81 to 2.99 cannot be classified as - certain to fail or certain to succeed - hence, it falls within a zone of ignorance. Correia, Flynn, Uliana, Wormald and Dillon (2015) classify the Z-score barriers as; $Z > 2.60 = \text{Safe Zone}$, $1.10 < Z < 2.60 = \text{Grey or Danger Zone}$, and $Z < 1.10 = \text{Distress or Fail Zone}$. This result, therefore, imply that on average, GSE-listed firms fall within the 'safe zone', and they are most likely to succeed.

The results showed an average board size of 9, the minimum was 3 and maximum 15. This indicates that on average board members of listed firms on the GSE are 9 members. The average firm age was 40, minimum time of existence was 2 and maximum 124, indicating that on average listed firms on the GSE were 40 years.

6.3. CORRELATION ANALYSIS

This section presents the correlation matrix which shows a bi-causal correlation between the variables calculated from GSE-listed firms. Table 6.4 presents the correlation coefficient matrix for all the variables that were used in the regression model.

Table 6.4: Pairwise Correlations of dependent, independent and control variables.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) NormEVA	1.000										
(2) NormMVA	0.143*	1.000									
(3) Spread	0.446*	0.692*	1.000								
(4) ROE	0.104	0.003	0.195*	1.000							
(5) ROA	0.519*	0.118*	0.685*	0.200*	1.000						
(6) BIG4	0.087	0.055	0.086	-0.048	0.126*	1.000					
(7) EPS	0.083	-0.005	0.113*	0.003	0.119*	-0.219*	1.000				
(8) Leverage	-0.035	-0.093	-0.168*	0.013	-0.095	-0.118*	-0.023	1.000			
(9) ROCE	0.511*	0.211*	0.572*	0.220*	0.680*	0.056	0.179*	0.102*	1.000		
(10) Liquidity	0.097	-0.003	0.072	-0.004	0.103*	0.076	-0.014	-0.083	0.085	1.000	
(11) WebReport	0.018	-0.169*	-0.106*	-0.180*	-0.077	0.119*	0.015	-0.003	-0.122*	0.046	1.000
(12) AgenCost1	0.009	-0.006	-0.013	-0.007	-0.018	0.028	-0.002	-0.042	-0.020	-0.001	0.042
(13) AgenCost2	0.080	0.047	0.086	-0.071	0.067	-0.381*	-0.035	0.113*	0.162*	-0.022	-0.063
(14) FinDistress	0.137*	0.990*	0.692*	0.003	0.111*	0.053	-0.005	-0.091	0.199*	-0.001	-0.163*

Pairwise Correlations Matrix 6.1

The pairwise correlation results in Pairwise Correlations Matrix 6.1 shows a positive significant correlation between normalized EVA and MVA. This indicates a bi-causal positive correlation between EVA and MVA, that is, an increase in a firm's EVA will cause an increase in MVA, however, an increase in MVA can cause an increase in MVA, but not always. There was also a positive significant correlation between EVA and spread. This means a bi-causal correlation between EVA and spread, where an increase in a firm's EVA causes an increase in spread and vice versa. The correlation between EVA and ROE, BIG4 and EPS were positive indicating that an increase in EVA positively affect ROE and EPS, and firms audited by the BIG4 accounting firms have high propensity to generate positive EVA. The correlation between EVA and leverage was negative indicating that the use of high level of debt financing negatively reduced EVA. The correlation between EVA and ROA was positive and significant, which means an increase in EVA caused an increase in ROA and vice versa. The correlation between EVA and ROCE was positive and significant implying that an increase in EVA caused an increase in return on capital employed. The positive correlation between EVA and agency cost1 was an indication that GSE firms who increased their expense ratio also increased their EVA. A negative correlation was expected, although, this result could mean that since expense ratio measures operating expenses (selling, general and administrative expenses, excluding financing expenses and any non-recurring expenses, such as losses on the sale of assets) as a ratio to total annual sales, an increase in operating expense devoid of high perks consumption will increase economic value added. The positive correlation between EVA and agency cost2 (asset turnover) was an indication that lower agency cost (higher assert

turnover) increased economic value added. This implies that GSE listed firms that reduce agency cost², produced higher EVA. The results also showed a positive correlation between EVA and financial distress variable (z-score). This indicated that GSE-listed firms which record higher z-score and therefore moved from danger to safe zone with certainty to succeed, tend to produce positive EVA.

There was also a significant positive correlation between MVA and spread, MVA and ROA and MVA and ROCE. This meant that an increase in MVA also increased spread, ROA and ROCE. There was also a positive significant correlation between BIG4 and website reporting indicating that firms audited by any of the BIG4 accounting firms tend to disclose more accounting information on their website or on the website of the regulator. The correlation between BIG4 and board size indicated that GSE firms audited by any of the big four accounting firms tend to have large board size. This is caused by the fact that firms audited by BIG4 firms are usually compelled to have diversified board which should include non-executive directors, women and other stakeholders. The results also showed a negative significant correlation between BIG4 and EPS, BIG4 and Leverage, and BIG4 and Agency Cost². The negative significant correlation between BIG4 and Leverage implied that GSE firms audited by any of the BIG4 accounting firms tend to incur less debt exposing them to minimal risk of failure due to high level of liabilities. The negative correlation between BIG4 and EPS implied that firms audited by any of the BIG4 accounting firms tend to produce smaller EPS. This is because BIG4-audited firms are compelled to engage in fair play trading and will, therefore, make normal profit as compared to other firms not audited by BIG4 who can engage in all kinds of business dealings and make super normal profit and produce higher EPS.

Table 6.4: Pairwise correlations of dependent, independent and control variables

Table 6.4 shows that a positive correlation existed between normalized EVA and BIG4, EVA and EPS, EVA and Liquidity, EVA and Website Reporting, EVA and WDI_{dummy} , EVA and PUDI, EVA and UDI, EVA and Agency Cost 1&2, and between EVA and Z-score. This indicates that an increase in a firm's EVA (positive EVA) leads to an increase in all these variables. It follows that GSE firms audited by BIG4 tend to generate positive EVA. In addition, GSE firms which generate positive EVA tend to generate positive EPS, increase their liquidity, tend to increase their website reporting, and score higher in WDI_{scale} , PUDI and UDI. In addition, GSE firms which increased their asset turnover (agency cost²) tend to generate positive EVA, which meant management efficiency generates or increases EVA. The positive correlation between EVA and agency cost² (expense ratio) implied that probably management expenses motivate employees and serve as incentive for them to work harder and generate positive EVA. The significant correlation between EVA and Z-score implied that listed firms that generate positive EVA fall within the safe zone and are certain to succeed.

The results also showed a positive correlation between MVA and ROE, MVA and ROA, MVA and BIG4, MVA and Website Reporting, MVA and Agency Cost2, and MVA and Z-score. The significant positive correlation between MVA and ROA indicated that an increase in a GSE-listed firms' MVA leads to an increase in its ROA, and the one between MVA and Z-score indicated that firms that generate positive MVA fall within the safe zone and are certain to succeed. The correlation between ROE and ROA was significant positive indicating that when a GSE-listed firm generates a positive ROE, it positively affects its ROA and vice versa. There was, however, a negative significant correlation between ROE and Webreport, ROE and WDI_{scale} , ROE and WDI_{dummy} , ROE and PUDI, and ROE and UDI. These implied that an increase in firms' ROE does not necessarily lead to - an increase in their financial disclosure on their website or website of the regulator, an increase in firms' ROE does not lead to an increase in their weighted disclosure index score (both WDI_{scale} and WDI_{dummy}) and an increase in ROE does not lead to an increase its score in PUDI and UDI and vice versa. There was also a positive significant correlation between ROA and BIG4, EPS, Liquidity and Z-score, implying that GSE-listed firms audited by any of the BIG4 firms generate positive ROA; firms that generate positive ROA are able to also generate positive EPS and firms that generate positive ROA are able to maintain liquidity. The positive correlation between ROA and Z-score indicated that an increase in ROA leads to an increase in a firm's Z-score, implying that when firms increase their return on assets, they are not likely to fail.

The correlation results also showed a negative significant correlation between BIG4 and EPS and BIG4 and agency cost2, indicating that GSE firms audited by any of the BIG4 accounting firms usually produced lower EPS. This could be due to the fact that these firms are compelled to strictly adhere to international best accounting practices, therefore, leading to them making normal profits rather than super normal profit. The negative correlation between BIG4 and agency cost2 (asset turnover) was consistent with the results of the EPS because lower asset turnover generates lower profit, hence, will lead to lower EPS. There was, however, a positive significant correlation between BIG4 and Webreport, WDI_{scale} , WDI_{dummy} , PUDI and UDI. This indicated that GSE firms who engage any of the BIG4 accounting firms usually increased their website reporting, which led to higher scores in WDI, PUDI and UDI. This higher performance was caused by the corporate governance discipline brought about by the BIG4 firms, by them ensuring adherence to international accounting best practice.

The correlation results showed a positive significant correlation between website reporting (WebReport) and WDI_{scale} , WebReport and WDI_{dummy} , WebReport and PUDI and UDI. This confirmed the consistency in the measurement of these variables, where an increase in a firm's website reporting led to an increase in its score in WDI_{scale} , WDI_{dummy} , PUDI and UDI. There was also a positive significant correlation between WDI_{scale} and WDI_{dummy} , WDI_{scale} and PUDI and WDI_{scale} and UDI. This indicated that an increase in a firm's score for WDI_{scale} leads to a higher score in WDI_{dummy} , higher score in PUDI and

higher score in UDI. There was also a positive significant correlation between WDI_{dummy} and PUDI and WDI_{dummy} and UDI, and then a positive correlation between PUDI and UDI. These implied that these disclosure indices are positively correlated.

Table 6.5: Pairwise Correlations of dependent, independent and control variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) WDI_{scale}	1.000										
(2) WDI_{dummy}	0.541*	1.000									
(3) PUDI	0.689*	0.885*	1.000								
(4) UDI	0.716*	0.805*	0.987*	1.000							
(5) Spread	-0.040	-0.007	-0.037	-0.042	1.000						
(6) Leverage	-0.068	-0.111*	-0.076	-0.062	-0.168*	1.000					
(7) ROCE	-0.094	-0.004	-0.014	-0.016	0.572*	0.102*	1.000				
(8) Liquidity	-0.015	0.080	0.050	0.038	0.072	-0.083	0.085	1.000			
(9) Z-score	-0.039	-0.052	-0.047	-0.041	0.692*	-0.091	0.199*	-0.001	1.000		
(10) BoDSize	0.217*	0.082	0.118*	0.132*	0.094	-0.073	0.044	-0.029	-0.059	1.000	
(11) FirmSize	0.467*	0.402*	0.442*	0.444*	-0.001	-0.084	-0.020	-0.018	-0.073	0.645*	1.000
(12) Age	0.060	0.090	0.143*	0.150*	0.118*	-0.112*	0.146*	0.143*	0.037	-0.056	-0.062

Correlations Matrix 6.2

The pairwise correlation results in Table 6.5 showed a positive significant correlation between WDI_{scale} and WDI_{dummy} , WDI_{scale} and Board size and WDI_{scale} and Firm size, implying that WDI_{scale} and WDI_{dummy} were consistent with each other. Further, GSE firms with large board size tends to score higher in WDI_{scale} and big firms tend to score high in WDI_{scale} . There was also a negative significant correlation between Spread and Leverage indicating that GSE firms that generate spread tend to employ less leverage, probably due to the risk that come with debt financing. In other words, debt financing tends to reduce spread, due to the interest that must be paid for the use of debt, especially when the interest rate is high. There was, however, a significant positive correlation between Spread and ROCE, Spread and Z-score, and Spread and Firm Age. These results implied that an increase in a firm`s spread led to an increase in its return on capital employed; an increase in a firm`s spread led to an increase in its Z-score moving it to a safe zone, and matured firms tend to produce positive spread. Leverage had a positive correlation with ROCE, implying that when firms employ debt financing, they tend to increase their return on capital employed. Leverage, however, had a negative correlation with firm age, implying that matured firms tend to employ less debt financing because they might have accumulated adequate earnings for reinvestment. The negative correlation between Leverage and Liquidity was due to the interest payment that came with debt financing, therefore, an increase in leverage leads to a reduction in a firm`s liquidity. The negative correlation between leverage and Z-score was an indication that high levels of leverage lead to lower z-score, therefore, possible financial distress. ROCE had a positive correlation with z-score indicating that an increase in a firm`s return on capital employed led to a higher z-score and will move such a firm to a safe zone. Finally, liquidity had a positive correlation with firm age and board size had a positive correlation with firm size. These findings implied that matured firms

tend to be more liquid, due to larger market share and prudent financial management, and that big firms tend to have larger board size, due to larger stakeholders' numbers.

Table 6.6: Pairwise Correlations of dependent and independent variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) NormEVA	1.000										
(2) NormMVA	0.143*	1.000									
(3) BIG4	0.087	0.055	1.000								
(4) Liquidity	0.097	-0.003	0.076	1.000							
(5) WebReport	0.018	-0.169*	0.119*	0.046	1.000						
(6) WDI _{scale}	-0.014	-0.041	0.196*	-0.015	0.390*	1.000					
(7) WDI _{dummy}	0.040	-0.054	0.266*	0.080	0.386*	0.541*	1.000				
(8) PUDI	0.049	-0.051	0.256*	0.050	0.396*	0.689*	0.885*	1.000			
(9) UDI	0.045	-0.045	0.246*	0.038	0.386*	0.716*	0.805*	0.987*	1.000		
(10) AgenCost1	0.009	-0.006	0.028	-0.001	0.042	0.012	0.013	-0.019	-0.028	1.000	
(11) AgenCost2	0.080	0.047	-0.381*	-0.022	-0.063	-0.025	-0.031	-0.007	0.007	-0.003	1.000
(12) Z-score	0.137*	0.990*	0.053	-0.001	-0.163*	-0.039	-0.052	-0.047	-0.041	-0.006	0.044

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Pairwise Correlations Matrix 6.3

The results from correlations matrix3 show a negative correlation between EVA and WDI_{scale} but a positive correlation between EVA and WDI_{dummy}. The results also show a positive correlation between EVA and PUDI as well as a positive correlation between EVA and UDI. MVA on the other hand has a negative correlation with WDI_{scale} as well as negative correlation with WDI_{dummy}. MVA also has a negative correlation with PUDI and UDI.

6.4. MULTIVARIATE REGRESSION ANALYSIS

To further establish and to confirm the relationship between the dependent variables and the independent variables, panel data regression estimation procedures of Fixed Effect (FE) and Random Effect (RE) were conducted. Robustness checks of the regression models showed a very strong overall R^2 which represent an impressive result of goodness-of-fit measure. R^2 is the percentage of variance explained by the independent variables, therefore, it means that the variances explained by the predictor variables in the models were very high in each model. This represented a significant and well fit regression lines, hence, a very strong relationship between the dependent and the independent variables in each model. Overall, it indicated how well the regression models fits the data. The overall model significance tests showed a good overall significant level of $\text{Prob} > \chi^2 = 0.000$ and $\text{Prob} > F = 0.000$. This indicated that, overall, the models were significant at 1%. It confirmed the idea that a model that fits the data well will have this high p-value; other model checks included low p-values and standard errors.

Multivariate Regression Results on Website Reporting and dependent variable (Model 6.1)

WebReport	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NormEVA	14.735	0.166	88.62	0	14.409	15.061	***
NormMVA	0.336	0.005	68.33	0	0.326	0.345	***
Spread	-6.066	0.086	-70.70	0	-6.234	-5.898	***
ROE	0.004	0.002	2.38	0.017	0.001	0.008	**
ROA	-2.152	0.048	-44.65	0	-2.246	-2.057	***
BIG4	-0.238	0.014	-16.87	0	-0.266	-0.211	***
EPS	-0.01	0	-47.90	0	-0.01	-0.009	***
Leverage	-0.531	0.009	-57.68	0	-0.549	-0.513	***
ROCE	-2.722	0.045	-60.20	0	-2.81	-2.633	***
AgenCost1	-0.007	0	-49.23	0	-0.007	-0.006	***
AgenCost2	0.206	0.005	38.19	0	0.196	0.217	***
FinDistress	-0.082	0.001	-68.21	0	-0.084	-0.08	***
Board Size	-0.195	0.003	-64.86	0	-0.201	-0.189	***
Firm Size	0.537	0.005	103.23	0	0.527	0.547	***
Firm Age	-0.025	0	-61.33	0	-0.026	-0.024	***
Constant	-5.039	0.065	-77.84	0	-5.166	-4.912	***
Mean dependent var		0.743	SD dependent var				0.438
Overall r-squared		0.988	Number of obs				245
Chi-square		11553.905	Prob > chi2				0.000
R-squared within		0.977	R-squared between				0.993

*** $p < .01$, ** $p < .05$, * $p < .1$

The dependent variable in this regression was Website Reporting. The regression results showed a positive relationship between EVA and website reporting (website disclosure) as well as positive relationship between MVA and website disclosure, and both were significant at 1%. This indicated that an increase in a firm's EVA leads to an increase in its website disclosure by 15%. When GSE-

listed firms recorded an increase in their MVA, they increased their website disclosure by 4%. This was consistent with the signaling theory where positive news are signaled to the financial market. There was, however, a negative relationship between spread and website reporting with 1% significant level. This indicated that, contrary to expectation, when Ghanaian-listed firms record positive return on their investment (spread), they tend to reduce their website disclosure, instead of increasing it. The reason could be avoidance of dividend payment, for disclosing good spread from investment could make shareholders have higher expectation of dividend payment.

There was also a positive significant relationship between return on equity (ROE) and webreport but a negative significant relationship between return on assets (ROA) and website reporting (webreport). ROE had 5% significant level, whereas, ROA had 1% significant level. This indicated that when Ghanaian listed firms record an increase in their return on equity, they tend to increase disclosure on their website, however, when they record an increase in ROA, they reduced their website disclosure.

The results also showed a negative coefficient relationship between website disclosure and BIG4, EPS, Leverage and ROCE, with 1% p-value significant level. This indicated that firms audited by PricewaterhouseCoopers, Deloitte and Touche, Ernst and Young, or KPMG tend to disclose less on their website. This could be because being audited by any of these BIG4 accounting firms gives firms positive reputation in the eyes of their shareholders, therefore, these firms see no need to disclose much on their websites, for acceptance. The negative relationship between EPS and website reporting was an indication that when firms record positive EPS, they tend to disclose less on their website. This is because EPS is usually reported as part of the income statement, and almost all shareholders and investors receive copies of the annual report. This will positively affect share price and shareholder wealth, therefore, disclosing more on website may not be necessary.

The negative relationship between leverage and webreport indicated that an increase in debt level led to a reduction in website disclosure. This was consistent with expected, because generally, firms tend to economize debt disclosure because it might send negative signals to the market which can negatively affect share price.

The regression results also showed a negative significant relationship between AgenCost1 and webreport. This indicated that an increase in a firm's expense ratio led to a decrease in its website disclosure. This was consistent with practice because when managers spend more on expenses, they tend to manage their disclosure just to avoid the displeasure shareholders may feel about agency costs. The results, however, showed a positive significant relationship between agency cost2 (Asset turnover) and website reporting, indicating that an increase in asset turnover led to an increase in website disclosure because high asset turnover indicates efficient use of a firm's assets.

This was consistent with expected sign because good results are usually disclosed to investors to send positive signal to the market and thereby increase share price, as well as firm value.

The relationship between financial distress (z-score) and website reporting was negative and significant at 1% indicating that firms that fall into financial distress tend to disclose less on their website. Measured using z-score, this result implied that investors should be wary of firms disclosing minimal financial information on their website because consistent with z-score, it may be a sign of liquidity challenges or early warning signs of firm failure.

The nexus between website financial reporting and board size was negative and significant at 1%, indicating that firms with large board size tend to disclose less on their website. This could imply that large board may have adequate representation of stakeholders who may have access to this information at the board level, therefore, website disclosure may not be seen to be necessary. Contrary to the result for board size, firm size had a positive and significant relationship with website reporting, indicating that big firms tend to disclose more financial information on their website. This implied that as firms become bigger, their shareholders and stakeholders also become larger, therefore, they disclose more financial information on their website to have a wider reach. Firm age also had a negative and significant relationship with website reporting, indicating that as firms grow older, they tend to disclose less financial information on their website. This implied that these matured firms usually have secured market shares and established a reputation, therefore they tend to be less concerned about website reporting.

Multivariate Regression Results (Model 6.2)

The objective here was to test the relationship between EVA as dependent variable and the independent variables. The results from this model (6.2) showed an overall R² of 95% and overall model significance of 1% (Prob > chi2=0.00).

Multivariate Regression Results with EVA as dependent variable (Model 6.2)

NormEVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NormMVA	-0.023	0	-90.07	0	-0.023	-0.022	***
Spread	0.411	0.004	101.49	0	0.403	0.419	***
ROE	0	0	-3.28	0.001	-0.001	0	***
ROA	0.144	0.003	45.67	0	0.138	0.15	***
BIG4	0.013	0.002	7.81	0	0.01	0.016	***
EPS	0.001	0	46.47	0	0.001	0.001	***
Leverage	0.039	0.001	68.86	0	0.038	0.04	***
ROCE	0.186	0.003	66.23	0	0.18	0.191	***
Liquidity	0.001	0	12.72	0	0	0.001	***
WebReport	0.067	0.001	74.66	0	0.066	0.069	***
AgenCost1	0	0	50.10	0	0	0	***
AgenCost2	-0.014	0.001	-24.61	0	-0.015	-0.013	***
Z-score	0.006	0	89.65	0	0.005	0.006	***
BoardSize	0.013	0	60.04	0	0.012	0.013	***
FirmSize	-0.029	0	-59.30	0	-0.03	-0.028	***
Constant	0.269	0.012	23.20	0	0.247	0.292	***
Mean dependent var			-0.105	SD dependent var			0.202
Overall r-squared			0.948	Number of obs			245
Chi-square		695065.619		Prob > chi2			0.000
R-squared within			1.000	R-squared between			0.767

*** $p < .01$, ** $p < .05$, * $p < .1$

The regression results showed a negative relationship between normalize EVA and normalized MVA (significant at 1%), indicating that for the Ghanaian-listed firms, an increase in MVA led to a decrease in EVA and although contrary to expected sign, this was consistent with the results from the South African data. Theoretically, an increase in EVA should lead to corresponding increase in MVA because MVA is the present value of future EVA, but these results showed the contrary. Consistent with the South African results, a more careful analysis showed that the relationship between MVA and EVA was not bi-causal. This implied that in practice, an increase in EVA will lead to an increase in MVA, however, an increase in MVA does not necessarily lead to an increase in EVA. This is practical because EVA is based on internal productivity whereas MVA is based market trading driven by information regarding internal productivity. An increase in internal productivity and real value added (EVA) will be well understood by investors to mean good financial performance and therefore it will lead to an increase in MVA. An increase in MVA, however, will not necessarily increase internal productivity (EVA), rather, since MVA is the present value of future EVA, a present increase in MVA will have a corresponding decrease in present EVA (lower EVA) if investors believe

that future EVA will be higher.

There was also a 1% significant positive relationship between normalized EVA and spread, EVA and ROA, EVA and BIG4, EVA and EPS, EVA and Leverage, EVA and ROCE, and EVA & Liquidity. The implication was that an increase in a firm's spread led to - an increase in its EVA, an increase in its ROA will increase EVA, an increase in its EPS will increase EVA, an increase in its return on capital employed (ROCE) will increase EVA and an increase in its liquidity will increase EVA. This means EVA has a general positive effect on all these performance indicators. The nexus between EVA and BIG4 implied that GSE-listed firms audited by any of the BIG4 accounting firms tend to generate positive EVA. This could be because stringent application of IFRS and IAS standards leads to value creation for investors, therefore, when the BIG4 ensured application of IFRS and IAS, they helped these firms to achieve a positive EVA.

There was a positive nexus between EVA and website reporting, EVA and Z-score, and EVA & Board size. The implication was that when GSE-listed firms generate positive EVA, they tend to increase their website reporting; when they generate positive EVA, they tend to increase their z-score, avoid failure, move to a safe zone and become certain to succeed. In addition, GSE firms with large board size tend to generate positive EVA and this could be caused by the diverse experience and knowledge of the board members. There was a significant negative relationship between EVA and agency cost and EVA and firm size. The implication of these was that GSE-listed with high agency cost tend to generate less EVA, and big firms generate less EVA. That means high agency cost dissipates value created.

Multivariate Regression results (Model 6.3)

The objective here was to test the relationship between Liquidity as dependent variable and the independent variables. The results from this model (6.3) showed an overall R² of 100% and overall model significance of 1% (Prob > F =0.00).

Multivariate Regression Results with Liquidity as the dependent variable (Model 6.3)

Liquidity	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NormEVA	1966.318	0	11003822.36	0	1966.318	1966.319	***
NormMVA	44.524	0	10823457.07	0	44.524	44.524	***
Spread	-809.893	0	-10929467.77	0	-809.893	-809.893	***
ROE	0.609	0	1852313.62	0	0.609	0.609	***
ROA	-286.474	0	-10564079.81	0	-286.474	-286.474	***
BIG4	-29.47	0	-6393486.85	0	-29.47	-29.47	***
EPS	-1.307	0	-10624326.20	0	-1.307	-1.307	***
Leverage	-71.403	0	-10750483.38	0	-71.403	-71.403	***
ROCE	-361.504	0	-10823890.59	0	-361.504	-361.504	***
WebReport	-128.857	0	-10826871.68	0	-128.857	-128.857	***
AgenCost1	-0.871	0	-10686810.95	0	-0.871	-0.871	***
AgenCost2	27.306	0	9735548.25	0	27.306	27.306	***
Z-score	-10.865	0	-10822129.02	0	-10.865	-10.865	***
BoardSize	-25.892	0	-10805459.09	0	-25.892	-25.892	***
FirmSize	70.759	0	10673326.11	0	70.759	70.759	***
Firm Age	-3.279	0	-7867213.37	0	-3.279	-3.279	***
Constant	-659.655	0	-10073681.37	0	-659.655	-659.655	***

Mean dependent var	1.707	SD dependent var	6.605
R-squared	1.000	Number of obs	245
F-test	7147530710410.818	Prob > F	0.000
Akaike crit. (AIC)	-5090.688	Bayesian crit. (BIC)	-5031.166

*** $p < .01$, ** $p < .05$, * $p < .1$

The regression result showed a 1% significant positive relationship between liquidity and EVA and liquidity and MVA, indicating that positive EVA firms tend to be generally liquid firms, and positive MVA firms also tend to be liquid firms. There was a positive nexus between liquidity and ROE, liquidity and agency cost2 as well as liquidity and firm size. These indicated that GSE firms which generated positive ROE tend to be liquid, and GSE-listed firms which increased their asset turnover (agency cost2) used their assets efficiently and therefore tend to be liquid and that big firms generally tend to be liquid firms.

Liquidity, however, tend to have a significant negative relationship with spread, ROA, BIG4, EPS, leverage, ROCE, webreport, agency cost¹, z-score, board size, and firm age. The implication of this is that, spread is the difference between the rate funds are obtained and the returns generated from these funds. A positive spread is supposed to lead to increase liquidity, however, if the profit is dissipated or the firm incurs high expense ratio, then the relationship between spread and liquidity will be negative. Liquidity can also reduce because of investment in less profitable projects due to complacency; this then leads to lower return on assets, lower earnings per share and lower return on capital employed. The results showed that firms audited by the BIG4 tend to be less liquid because they must ensure fair play and make normal profit. The negative nexus between liquidity and leverage was due to the fact that debt financing comes with the obligation to pay interest which reduces liquidity. Higher webreport increases transparency, which will include disclosure of both good and bad news; disclosure of bad news generally reduces liquidity. Agency cost¹(expense ratio) reduces liquidity because funds that are supposed to be available for shareholders or for investments are being dissipated or spent, therefore, firms can have lower z-score and gradually fall into the financial distress zone. Finally, firms with smaller board size tend to be liquid and younger firms tend to have more potential to be liquid.

Multivariate Regression results (Model 6.4)

The objective here was to test the relationship between Agency Cost1 as dependent variable and the independent variables. The results from this model (6.4) showed an overall R² of 100% and overall model significance of 1% (Prob > F =0.00).

Multivariate Regression Results with Agency Cost1 as the dependent variable (Model 6.4)

AgenCost1	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NormEVA	2257.486	0	44656624.40	0	2257.486	2257.486	***
NormMVA	51.117	0	37304803.36	0	51.117	51.117	***
Spread	-929.82	0	-39461868.78	0	-929.82	-929.82	***
ROE	0.699	0	1877440.94	0	0.699	0.699	***
ROA	-328.894	0	-29610398.35	0	-328.894	-328.894	***
BIG4	-33.833	0	-7756480.68	0	-33.833	-33.833	***
EPS	-1.5	0	-30977050.20	0	-1.5	-1.5	***
Leverage	-81.976	0	-33511187.40	0	-81.976	-81.976	***
ROCE	-415.035	0	-34626599.60	0	-415.035	-415.035	***
Liquidity	-1.148	0	-10686978.04	0	-1.148	-1.148	***
WebReport	-147.938	0	-36303075.22	0	-147.938	-147.938	***
AgenCost2	31.349	0	19075405.29	0	31.349	31.349	***
Z-score	-12.474	0	-37260866.15	0	-12.474	-12.474	***
Board Size	-29.726	0	-34869152.60	0	-29.726	-29.726	***
Firm Size	81.236	0	33779922.35	0	81.236	81.236	***
Firm Age	-3.764	0	-11346257.09	0	-3.764	-3.764	***
Constant	-757.335	0	-23147093.54	0	-757.335	-757.335	***
Mean dependent var		1.741	SD dependent var				27.514
R-squared		1.000	Number of obs				245
F-test		126534842674564.	Prob > F				0.000
		910					
Akaike crit. (AIC)		-5023.032	Bayesian crit. (BIC)				-4963.511

*** $p < .01$, ** $p < .05$, * $p < .1$

The regression results showed a 1% significant positive relationship between agency cost1 (expense ratio) and EVA, MVA, ROE, agency cost2 and firm size. This indicated that an increase in EVA was caused by a 51% increase in agency cost1 (expense ratio). This implied that to increase EVA, managers have to increase expenses (agency cost1); these expenses could be in the form of incentives or administrative expense. Agency cost1 is, therefore, a two-edged sword, such that high expenses may be an indication of good incentives to employees and which motivate managers to work harder and generate positive EVA. When these expenses are channeled into productive use, they will also generate positive EVA, positive MVA and positive ROE but they will produce negative results otherwise. The positive relationship between agency cost1 and agency cost2 was an indication that managers who incur higher expenses also tend to use their assets less efficiently and finally, as firm size increases, agency cost also increases, but matured firms tend to incur lower agency cost.

There was, however a negative nexus between - agency cost1 and spread, agency cost1 and ROA, agency cost1 and BIG4, agency cost1 and EPS, agency cost1 and leverage, agency cost1 and ROCE, agency cost1 and liquidity, agency cost1 and webreport, agency cost1 and z-score, agency cost1 and board size and agency cost1 and firm age. The implications of all these results were that - an increase in a firm`s spread led to a reduction in its agency cost (expense ratio), an increase in its ROA led to a reduction in its agency cost, and an increase in EPS and ROCE led to a reduction in its agency cost. Agency cost, therefore, had a negative implication on all these financial performance indicators. The results showed that GSE-listed firms audited by any of the BIG4 accounting firms, tend to experience lower agency cost, therefore, to reduce agency cost, shareholders should ensure their firms are audited by any of the BIG4 accounting firms. Leverage also reduces agency cost in the sense that when firms contract loans, their covenants restrict them from certain expenses, therefore, help reduce agency cost. The negative nexus between agency cost and liquidity was an indication that the agency cost reduced the money available to shareholders or investors, therefore, reduced liquidity. The negative nexus with webreport was an indication that agency cost reduced website reporting, and the nexus with z-score indicated that agency cost reduced a firm`s z-score and pushed it to a danger zone or distress zone.

Multivariate Regression results (Model 6.5)

The objective here was to test the relationship between Agency Cost2 as dependent variable and the independent variables. The results from this model (6.5) showed an overall R² of 69% and overall model significance of 1% (Prob > chi2=0.000).

Multivariate Regression Results with Agency Cost2 as the dependent variable (Model 6.5)

AgenCost2	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NormEVA	-42.115	2.454	-17.16	0	-46.924	-37.306	***
NormMVA	-0.971	0.064	-15.12	0	-1.097	-.845	***
Spread	17.847	1.235	14.45	0	15.427	20.267	***
ROE	-0.055	0.027	-2.00	0.046	-0.109	-0.001	**
ROA	5.807	0.716	8.11	0	4.403	7.21	***
BIG4	0.29	0.147	1.97	0.049	0.001	0.579	**
EPS	0.025	0.003	8.50	0	0.019	0.03	***
Leverage	1.542	0.117	13.20	0	1.313	1.771	***
ROCE	8.438	0.654	12.90	0	7.157	9.72	***
Liquidity	0.018	0.007	2.58	0.01	0.004	0.032	***
WebReport	2.98	0.214	13.93	0	2.561	3.399	***
Z-score	0.237	0.016	15.10	0	0.206	0.268	***
BoardSize	0.569	0.037	15.21	0	0.496	0.643	***
FirmSize	-1.581	0.089	-17.73	0	-1.756	-1.406	***
Age	0.071	0.004	16.83	0	0.063	0.079	***
Constant	15.749	0.885	17.79	0	14.014	17.484	***
Mean dependent var		0.891	SD dependent var				1.216
Overall r-squared		0.692	Number of obs				245
Chi-square		511.452	Prob > chi2				0.000
R-squared within		0.311	R-squared between				0.902

*** $p < .01$, ** $p < .05$, * $p < .1$

In this regression model, the dependent variable was Agency Cost2 (Asset Turnover). The regression results showed - a negative nexus between agency cost2 (dependent variable) and EVA, between agency cost2 and MVA, between agency cost2 and ROE, as well as between agency cost2 and firm size. These indicated that an increase in agency cost2 (lower asset turnover) had a negative effect on these variables and caused lower EVA, lower MVA, and lower ROE. This implied that managers who use their assets less efficiently (low asset turnover) tend to generate lower EVA, lower MVA and lower ROE; meaning that an increase in MVA decreased agency cost and an increase in ROE decreased agency cost. Agency cost2, however, tend to have positive relationship with spread, ROA, BIG4, EPS, Leverage, ROCE, Liquidity, Webreport, Z-score, Board size and Firm age. These findings indicated that - an increase in a firm's spread led to a decrease in agency cost (high asset turnover), an increase in ROA caused a decrease in agency cost, an increase in EPS caused a decrease in agency cost, an increase in leverage caused a decrease in agency cost, an increase in ROCE led to a decrease in agency cost, an increase in liquidity caused a decrease

in agency cost, an increase in website reporting led to a decrease in agency cost, an increase in z-score caused a decrease in agency cost, large board size caused a decrease in agency cost and matured firms tends to have lower agency cost. The implications were that managers who use the firm's asset efficiently tend to generate positive spread, increase return on assets, increase earnings per share, increase return on capital employed and eventually increase liquidity. Firms that employ high leverage tend to increase their asset turnover, thereby, decreasing their agency cost. Firms audited by any of the BIG4 tend to use their assets efficiently, and higher asset turnover tend to increase website reporting. An increase in a firm's z-score also increases their asset turnover thereby lowering agency cost. Higher asset turnover, which shows efficient use of assets then increases Z-score, thereby, moving firms to the safe zone and shielding them from failure. The GSE-listed firms, with large board size, tend to increase their asset turnover and decrease agency cost and finally, matured firms tend to produce higher asset turnover, thereby, decrease their agency cost.

6.5. Discussion of Results

The preceding results show that on average, listed firms on the Ghana Stock Exchange (GSE) generated a negative EVA (-3.891 units). This implied that on average, listed firms on the GSE did not create value for its shareholders, but rather destroyed value. Another implication was that, even though these firms may look profitable when measured with the conventional accounting performance measures, they generated negative returns when measured with EVA, although, these firms recorded positive mean of ROE (19.3%), positive mean of ROA (3.5%) and a positive mean of EPS (GHS 1.59). The positive 19.3% of ROE, 3.5% of ROA and GHS 1.59 EPS showed that these firms appear profitable but generated minimum negative ROE of -1,117.9%, minimum negative ROA of -91.6% and a minimum negative EPS of -170.9 cedis. The average MVA was rather found to be positive (6.891 units).

On average, the firms scored 74% on website reporting indicating that majority of GSE-listed firms disclose substantial financial statements online, however, their average score on weighted disclosure index, WDI_{scale} was 34%, that of WDI_{dummy} was 47%, and that of PUDI was 54% but, the average score for UDI was 195%. This confirmed the earlier findings from the South African data (in Chapter Four) that WDI_{scale} and WDI_{dummy} were consistent measures of accounting disclosures, whereas UDI overestimate disclosures.

On the issue of agency costs, the GSE-listed firms recorded average agency cost₁ (expense ratio) of 1.619, which indicated that the average total expenses incurred by GES listed firms represent 162% of sales. This implied that there was a high presence of agency cost₁ among GSE-listed firms during the period of study. This means agency cost₁ is a real corporate governance problem

in Ghana which needs attention from board of directors, shareholders, and regulators. The average agency cost² (asset turnover) recorded by GSE-listed firms, on the other hand, was 0.866, indicating that the average asset turnover produced by GSE listed firms was 0.87 cedis (87 pesewas). This implied that for every 1 cedi invested in the assets, a GSE-listed firm produced 87 pesewas of sales, which was less than what was invested, therefore, not an efficient use of asset.

On the issue of financial distress, the maximum Z-score for the GSE-listed firms was 31002.36 which is far above the threshold of 2.99, indicating that these firms listed on the GSE fall within the safe zone and are certain to succeed. The minimum Z-score, however, was -4.183 which was below the 2.99 threshold, indicating that some GSE listed firms are in financial distress as they fall within the danger zone and are likely to fail. This minimum, -4.183, explained the cause of the failed Ghanaian firms between the period of 2017 and 2018 and those that were currently in financial distress. The regulators, Bank of Ghana, the Ghana Stock Exchange and the Securities and Exchange Commission should keep a watchful eye on these firms, despite, the average Z-score of the GSE listed firms being 212.525, which was above the 2.99 threshold.

The pairwise correlation results in Table 5.2 showed a positive significant correlation between normalized EVA and MVA. This indicated a bi-causal correlation between EVA and MVA - an increase in a firm's EVA will cause an increase in MVA, however, an increase in MVA can cause an increase in EVA but not always. There was also a positive significant correlation between EVA and spread. This means a bi-causal correlation between EVA and spread where an increase in a firm's EVA causes an increase in spread and vice versa. Firms audited by the BIG4 accounting firms have high propensity to generate positive EVA. The correlation between EVA and leverage was negative indicating that the use of high level of debt, negatively reduced EVA. The correlation between EVA and ROA was positive and significant, which meant an increase in EVA caused an increase in ROA and vice versa, in the GSE.

GSE firms audited by BIG4 tend to generate positive EVA; they also tend to generate positive EPS, increase their liquidity, tend to increase their website reporting, and score higher in WDI_{scale} , PUDI and UDI. GSE firms which increased their asset turnover (lower agency cost²) tend to generate positive EVA, which meant management efficiency generated or increased EVA. The positive correlation between EVA and agency cost² (expense ratio) implied that probably management expenses motivate employees and serve as incentive for them to work harder and generate positive EVA. The significant correlation between EVA and Z-score implied that the listed firms that generated positive EVA fall within the safe zone and are certain to succeed.

There was also a positive significant correlation between ROA and BIG4, EPS, Liquidity and Z-score, implying that GSE listed firms audited by any of the BIG4 firms generated positive ROA, in

turn, firms that generated positive ROA could also generate positive EPS and firms who generate positive ROA were able to maintain liquidity.

The correlation results showed a positive significant correlation between website reporting (WebReport) and WDI_{scale} , WbeReport and WDI_{dummy} , WebReport and PUDI and UDI. This confirmed the consistency in the measurement of these variables, where an increase in a firm's website reporting leads to an increase in its score in WDI_{scale} , WDI_{dummy} , PUDI and UDI. WDI_{scale} and WDI_{dummy} had significant positive correlation with each other and were consistent with each other.

The regression results showed a positive relationship between EVA and website reporting (website disclosure) as well as positive relationship between MVA and website disclosure. This indicates that an increase in a firm's EVA leads to an increase in its website disclosure by 15%. When the GSE-listed firms recorded an increase in their MVA, they increased their website disclosure by 4%. The regression results also showed a negative significant relationship between AgenCost1 and webreport. This indicated that an increase in a firm's expense ratio led to a decrease in its website disclosure.

An increase in a GSE firm's spread led to - an increase in its EVA, an increase in its ROA increased EVA, an increase in its EPS increased EVA, an increase in its return on capital employed (ROCE) increased EVA and an increase in its liquidity increased EVA. This means that EVA has a general positive effect on all these performance indicators. The nexus between EVA and BIG4 implied that GSE-listed firms, audited by any of the BIG4 accounting firms tend to generate a positive EVA. This could be because stringent application of IFRS and IAS standards leads to value creation for investors, therefore, when the BIG4 ensured application of IFRS and IAS, they helped these firms to achieve positive EVA. In addition, there was a positive nexus between EVA and website reporting, EVA and Z-score, and EVA and Board size. The implication is that when GSE-listed firms generate positive EVA, they tend to increase their website reporting and when they generate positive EVA, they tend to increase their z-score, avoid failure, move to a safe zone and become certain to succeed. GSE-listed firms with high agency cost tend to generate less EVA, meaning that high agency cost dissipated value created.

The regression result showed a 1% significant positive relationship between liquidity and EVA and liquidity and MVA, indicating that positive EVA firms tend to be generally liquid firms, and positive MVA firms also tend to be liquid firms.

An increase in EVA was caused by a 51% increase in agency cost1 (expense ratio); this implied that to increase EVA, managers must increase expenses (agency cost1). These expenses could be in the form of incentives or administrative expense. Agency cost1 is, therefore, a two-edged sword, such that high expenses may be an indication of good incentives to employees which in turn motivate managers to work harder and generate positive EVA. In addition, when these expenses

are channeled into productive use, they will generate positive EVA, positive MVA and positive ROE but will produce negative results, otherwise.

6.6 Chapter Conclusion

GSE firms audited by BIG4 tend to generate positive EVA, which in turn generated positive EPS, increase their liquidity, tend to increase their website reporting, and score higher in WDI_{scale} , PUDI and UDI. In addition, GSE firms that increase their asset turnover (lower agency cost²) tend to generate positive EVA, which meant that management efficiency generated or increased EVA. EVA had a general positive effect on all performance indicators. On average, GSE firms scored 74% on website reporting indicating that majority of GSE-listed firms disclosed substantial financial statements online.

CHAPTER SEVEN

FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter presents a summary of the empirical findings deduced from the results in chapters four and five. Prior to these results, was the formulation of two novel weighted-disclosure indices in the methodology section which are discussed in this chapter. The key findings in this study relate to weighted-disclosure indices, agency costs, and economic value added and liquidity. In the introduction to this study, it was stated that the dominant agency theory moderates the relationship between managers and shareholders. This agency relationship, however, is rife with problems, which in turn cause agency costs which affect shareholders' wealth. By measuring agency costs using two variables, this study investigated the - level of agency costs, their relationship with liquidity, economic value added to shareholders' wealth and other variables - using data from two stock exchanges, the JSE in South Africa and the GSE in Ghana. Investors make economic decisions using accounting information disclosed by firms in their financial statements, hence, the clarity (vagueness) and the extent of disclosure were measured using two newly-developed weighted-disclosure indices. These novel weighted disclosure indices were proposed for future research. To account for cost of equity, in addition to cost of debt in business finance, economic valued added (EVA) was used as a comprehensive measure of performance instead of the conventional accounting performance measures. The relationship among these variables were tested, and their findings are presented in this chapter. This chapter is organized as follows - Section 6.2.1 focuses on findings on formulation of two novel weighted-disclosure indices; Section 6.2.2 discusses findings on country comparative analysis of descriptive statistics; Section 6.2.3 summarizes the findings on these two novel weighted disclosure indices, the partially unweighted disclosure indices and unweighted disclosure indices; Section 6.2.4 summarizes the findings on website reporting; Section 6.2.5 summarizes the findings on agency costs, Section 6.2.6 summarizes the findings on economic value added; Section 6.2.7 summarizes findings on market value added; Section 6.3 presents contributions of the study and their implications for researchers, managers, shareholders/investors and policy makers; Section 6.4 presents policy implications; Section 6.5 presents limitations of the study, and Section 6.6 makes recommendations for future research.

7.2 FINDINGS

The findings emanate from three analytical techniques used. These techniques were - descriptive techniques using summary statistics, correlational and finally, the multivariate regressions analysis. Financial modeling techniques were used to model the various regression models and the same concepts were used to formulate the weighted-disclosure indices.

7.2.1 Findings from the Formulation of Two Novel Weighted Disclosure Indices

The concept of the formulation of the Weighted Disclosure Indices (WDI) was derived from the Portfolio Return theory in finance. As presented in the methodology (section 3.9.10), the conceptualization started with the calculation of weights for each accounting standard of interest. From the portfolio theory, a portfolio return is the weighted average of the returns on individual securities from which they are formed (Gitman and Zutter, 2013, p.373). Further, Ross, Westerfield, Jaffe and Jordan (2016, p.338) and Brealey, Myers and Allen (2017, p.176) posit that the expected return of a portfolio is the weighted average of the expected returns on the individual assets.

Based on the portfolio return concept, novel empirical equations were formulated which is posited to be used to calculate weighted disclosure indices. Findings from the indices formulation, as presented in equations 6.1 to 6.6, researchers, managers and investors can use these methods to estimate firms' financial disclosure clarity or opaqueness level.

From the indices formulation, the Weighted Disclosure Index scale score (WDI_{scale}) was derived as presented in equation 7.1.

$$WDI_{scale} = \sum_{sds=1}^n WS_{SDS} \quad (eq.7.1)$$

This was found to be expandable and can be restated as:

$$WDI_{scale} = WS1_{SDS1} + WS2_{SDS2} + WS3_{SDS3} + WS4_{SDS4} + \dots \dots \dots WS_{SDS-N} \quad (eq. 7.2)$$

where WS_{SDS} was proposed to be a proxy for weighted score for each standard.
and SDS represented each standard's disclosure score

The weight (W) for the four selected standards were found to be: IAS 1 = 0.5526, IAS 7 = 0.0813, IFRS 7 = 0.2368 and IFRS 9 = 0.1292.

Similar to the calculation of portfolio return, to obtain the WS (weighted score), the weight for each standard was multiplied by the SDS (standard disclosure score) as follows:

$$WS = \sum_{s=1}^n w_s \times SDS \quad (\text{eq. 7.3})$$

where WS represented weighted score, w_s represented weight of a standard, $s = 1$ represented standard 1 to n and SDS represented sum of standard disclosure score.

The equation for SDS was propounded as follows:

$$\text{Standard Disclosure score: } SDS_j = \frac{\sum_{i=1}^n SNID_j}{TIR_j} \quad (\text{eq. 7.4})$$

where $SNID$ = score for number of items disclosed within a standard

and TIR = total items required to be disclosed

It was found that there were five stages required for the calculation of the derived WDI in this study.

In stage one, the weight for each standard were computed as shown in equations 3.9 to 3.12, in stage two, the firms' disclosure level were scored using the scoring scale and the checklist (all items disclosed are scored based on their degree of disclosure), in stage three, SDS were computed as shown in equation 3.14. In stage four, WS were computed as shown in equation 3.13 and finally, in stage 5, WDI_{scale} were computed as shown in equations 7.1 and 7.2.

Even though this WDI_{scale} technique may involve some minimal subjective scoring (using the scale scoring), it captures enormous amounts of detailed micro information which is grossly overlooked when using UDI and $PUDI$ approach. The researcher posits that, contrary to assertion by prior studies, WDI minimizes the level of subjectivity in scoring compared to dummy scoring. This method also accurately captures the true level of disclosure and eliminates subjectivity or reduces it to the lowest minimum.

This notwithstanding, to overcome the criticism of subjective scale scoring, a second approach was formulated and proposed as WDI_{dummy} . This was postulated to still be a weighted-disclosure index, however, it uses dummy scoring and goes through the same process as WDI_{scale} , using each standard's weight. Thus, instead of scoring using a scale, the researcher scores using dummy or binary as (1 or 0) and followed the rest of the steps of WDI_{scale} to obtain WDI_{dummy} as presented in equation 7.5:

$$WDI_{dummy} = \sum_{sds=1}^n WS_{SDS} \quad (\text{eq.7.5})$$

This was also found to be expandable as presented in equation 6.6.

$$WDI_{dummy} = WS1_{SDS1} + WS2_{SDS2} + WS3_{SDS3} + WS4_{SDS4} + \dots + WS_{SDS-N} \quad (\text{eq.7.6})$$

These novel indices were applied to study firms listed on the JSE in chapter four and firms listed on the GSE in chapter five. These procedures produced quite intriguing findings which have been presented from Section 7.2.2 to Section 7.2.7 in this chapter. The application of these newly-developed weighted disclosure indices (WDI_{scale} and WDI_{dummy}) are now being proposed to be used for further studies in the field of accounting and finance.

7.2.2 Findings from Country Comparative Analysis of Descriptive Statistics

This section presents the findings derived from the descriptive statistics generated from the data obtained from JSE-listed firms and GSE-listed firms. The findings presented in this section focuses mainly on four thematic areas, namely, weighted disclosure indices, agency costs, liquidity and economic value added. The variables analysed in this section, hence, concentrate on these focused areas only.

Contrary to expectation, the mean weighted disclosure index scale score (WDI_{scale}) was found to be 26% with 52% maximum score for JSE-listed firms and 34% mean for GSE-listed firms with 57% maximum score. The implication is that disclosure clarity is about 52% whereas vagueness constitutes 48% for JSE firms. This implies that information asymmetry account for about 48%. This means certainty represent 52% but the 48% information asymmetry represent uncertainty to investors. For GSE-listed firms, the 57% clarity represent certainty in decision making for investors

whereas the remaining 43% represent uncertainty and therefore information asymmetry (Appendix 5 & 6). Comparatively, these implies that GSE-listed firms disclosed their financials with marginal clarity than JSE-listed firms. Inversely, it implies that JSE-listed firms have marginal vague accounting disclosure than GSE-listed firms. Conclusions can be drawn from these findings that the JSE-48% and the GSE-43% vagueness indicate a reduced understandability of the financial statements and potentially, material information were obscured with immaterial information. This low disclosure clarity makes it difficult for investors to make optimal investment decisions due to information asymmetry. This is consistent with Hooks, Coy and Davey (2002) who studied transparent accountability in annual reports of 33 New Zealand electricity firms and found that many disclosure requirement items were not adequately disclosed, resulting in an information asymmetry.

Comparative analysis of the mean weighted disclosure index dummy score (WDI_{dummy}) found that JSE-listed firms scored 40% mean with 75% maximum score whereas GSE-listed firms score 47% average with 70% maximum (Appendix 5 & 6). The implication is that although GSE-firms recorded marginally higher average scale score, total compliance to reporting standards was higher (75%) among JSE-listed firms than GSE-listed firms (70%). Compliance level is therefore high in both contexts but clarity is not as high as compliance level.

Content analysis of their financial statements found that disclosure compliance to IFRS and IAS requirements for the four selected standards were between 57% to 75% maximum. The implication is that while some firms' disclosure levels were very high, 75%, others disclosed very low levels, thereby, pulling down the average scores to between 26% to 40% for WDI_{scale} and WDI_{dummy} respectively. The average score for WDI_{scale} gives an indication of the level of vagueness associated with the disclosure. A high WDI_{scale} gives an indication of a high level of clarity associated with the financial disclosure and a low WDI_{scale} gives an indication of a high level of vagueness associated with the financial statements. WDI_{dummy} disclosure score, however does not indicate vagueness or clarity, it just indicates the weighted level of financial disclosure. With an average score of 34%, it means there is also a high level of vagueness in disclosure terms among GSE listed firms as well, however, the level of vagueness is found to be marginally lower among GSE-listed firms. This finding is consistent with findings of Lev (2018, p.465) who contend that there is a wide-spread and growing dissatisfaction with the relevance and usefulness of information in financial reports, particularly among investors, and this dissatisfaction is due to the scantiness of information disclosed in firms' financial statements. This confirms the notion that information asymmetry still persists between listed firms and investors. These findings are consistent with Rajhi (2014) who after

analysing annual reports of 118 French firms listed on the NYSE Euronext after 2005, found that firms do not totally comply with the disclosure requirements of IFRS, and that none of the French firms listed on NYSE Euronext was in full compliance with IFRSs mandatory disclosure requirements. This low disclosure score also corroborates Al-Shiab (2003) who found from the Jordanian study that overall, the extent of disclosure was quite low.

The findings also indicate that the average PUDI for JSE listed firms was 43% with a maximum of 69%, whereas for GSE listed firms, their average was 54% with a maximum of 65%. The findings on UDI indicate that the average UDI generated by JSE listed firms was 173% whereas the average generated by GSE listed firms was 195%. This was not consistent with the other three indices, namely; WDI_{scale} , WDI_{dummy} , and PUDI, hence, it can be concluded that UDI inflates disclosure results, when more than one standard is studied at a time, thus, UDI is not appropriate for multi-standards' studies. This is consistent with Rajhi (2014) who found that the dichotomous approach (UDI) provided a higher compliance score than the PC approach (PUDI). It noticed that the UDI approach may include a margin of error due to the considerable variation in the number of items from one standard to another.

These findings are consistent with ACCA (2012) stating that *corporate reports are growing ever more complex. They are becoming longer, and richer in content. However, with the need to address various standards, the resulting reports are not always harmonious and often fail to communicate clearly. Even for technical experts they can be hard to use. And the primary audience is increasingly unclear.* This is succinctly stated by James Madison, President and primary author of the US Constitution, as quoted by ACCA (2012) that *"It will be of little avail to the people that the laws are made by men of their own choice if the laws be so voluminous that they cannot be read, or so incoherent that they cannot be understood."*

A possible cause of this low disclosure scores could also be that it is a strategic financial reporting, as posited by Bhattacharya and Ritter (1983) and Imhof, Seavey and Watanabe (2018), where full disclosure may not be necessarily socially or economically optimal due to competition.

The findings on liquidity indicate that JSE-listed firms recorded an average liquidity ratio of 3.15 whereas GSE-listed firms recorded average liquidity ratio of 1.78. This indicate that JSE-listed firms were found to be more liquid than GSE-listed firms. This is consistent with the finding on EVA where JSE-listed firms generated a higher EVA than GSE -listed firms.

The findings on agency cost₁ (expense ratio) indicate that the average agency cost₁ for JSE-listed firms was 1.4% with a maximum of 28%. An agency cost₁ or expense ratio of up to 1.5 being a reasonable range, the 1.4 score by JSE-listed firms is within the reasonable range. A low expense ratio indicates that management is controlling the operating expenses and a high expense ratio is an indication that management is overspending the firm's resource. A reasonable expense ratio is between 0.5% and 0.75% while an expense ratio greater than 1.5% is typically considered high (Ang et al., 2000, p.82; Rashid, 2015, p.187; Florakis, 2008, p.47). The maximum expense ratio of 28% gives an indication that some JSE-listed firms spent beyond the reasonable range, therefore, incurred an unreasonable agency cost₁ to the disadvantage of shareholders. For the GSE-listed firms, the average agency cost₁ recorded was 1.62% with a maximum of 430%. These indicate a high average expense ratio and a very unreasonably high maximum expense ratio. The implication is that there is a very serious agency cost₁ problem among GSE-listed firms as compared to JSE listed firms. That means managers of GSE firms do not economically control operating expenses but their counterparts in the JSE do manage operating expenses economically. This explains why the maximum EVA and MVA results are far higher for JSE-listed firms as compared to GSE-listed firms. This dissipation of resources is even reflected in conventional accounting performance measures where maximum results for spread, ROE, ROA, EPS and ROCE are all far higher for JSE listed firms than GSE listed firms. The findings from the liquidity analysis provide conclusive findings on the negative effect of agency cost₁ on financial status of a firm. Thus, because of low agency cost₁ (low expense ratio), average liquidity for JSE listed firms was 3.15 compared to 1.78 for GSE-listed firms. The maximum liquidity recorded was 209.78 for JSE firms compared to 94.28 for GSE firms. Due to high agency cost₁, that is uncontrollable, GSE recorded low average liquidity ratio and low maximum liquidity ratio. The conclusion is that, agency cost₁ has severe negative consequences on financial performance, liquidity and shareholders' wealth. This is consistent with prior studies, such as those by Ang et al., (2000), Rashid (2015), and Florakis (2008) who found that low expense ratio indicates that management is controlling the operating expenses and high expense ratio is an indication of high agency cost and inefficiency in managing the assets of the firms.

The findings on agency cost₂ (asset turnover) are consistent with the findings on agency cost₁ (expense ratio), thus, the average asset turnover for JSE listed firms was 1.14 compared to 0.87 for GSE-listed firms. The maximum asset turnover was 218.52 for JSE-listed firms compared to just 5.81 for GSE-listed firms. Consistent with agency cost₁, the results for agency cost₂ confirmed that GSE firms with higher expense ratio tend to generate lower asset turnover, whereas JSE firms with lower expense ratio generate higher asset turnover. The implication is that manager who control

operating expenses tend to be efficient in managing the assets of the firm. This is consistent with the findings of Melville (2019, p.365) who posited that the higher the asset turnover, the better.

The findings on EVA indicate that firms from both exchanges - JSE and GSE - generated negative average EVA but positive maximum EVA. The average normalized EVA for JSE-listed firms was -0.002, almost a break-even, with a maximum normalized EVA of 0.448. The implication is that while some firms added value to shareholders' wealth by generating positive EVA, others dissipated shareholders' wealth. The negative average EVA recorded by both markets gives an indication that many firms in both markets actually did not generate positive EVA, therefore did not add real economic value to shareholders' wealth. That means, although, these firms may look profitable when their performance is measured using other conventional measures, their negative EVA gives indication that they were not profitable. Market value added (MVA), however, was found to have positive average MVA and positive maximum MVA. The average MVA was found to be positive 2.19 with maximum being 560.49 unit. The implication is that trading in both markets resulted in positive market value added to investors' assets.

The findings on investment spread depicted a negative average and a positive maximum for JSE-listed firms, whereas for GSE-listed firms the average spread was found to be positive average and positive maximum. This implies that for JSE-listed firms, the spread trend is consistent with their EVA findings, thus, both have negative average and positive maximum. For GSE-listed firms, average spread was likewise its maximum spread. This is not consistent with its EVA figures which have negative average and positive maximum figures. For ROE, JSE-listed firms produced a negative average ROE but a positive maximum ROE, which is also consistent with their EVA results. For GSE-listed firms, they produced positive results for both average and maximum ROE, which is also not consistent with their EVA results. Just like ROE, ROA also had a negative average but positive maximum for JSE-listed firms, whereas for GSE-listed firms, ROA was found to be positive for both average and maximum. For JSE firms, their results were consistent with EVA but the results for GSE firms were not consistent with EVA.

The average website financial reporting was found to be 80% for JSE firms and 74% for GSE firms. This represents a very high level of website financial reporting from both JSE and GSE firms although, the former disclosed more financial information on their websites than GSE-listed firms.

Financial distress (z-score) measures the level of financial distress against a bench mark. For JSE-listed firms, the maximum Z-score was 760.69 which was far above the threshold of 2.99, indicating

that firms listed on the JSE are certain to succeed. The minimum was -135.836 indicating that some JSE listed firms fall within the danger zone and are likely to fail, however, the average Z-score of JSE-listed firms was 2.81, which falls within the safe zone, implying that on average, JSE firms are mostly certain to succeed. According to Altman (1968), a score between 1.81 to 2.99 cannot be classified as 'certain to fail' or 'certain to succeed', hence, it falls within the zone of 'ignorance'. Correia et al., (2015) classify the Z-score barriers as; $Z > 2.60 = \text{Safe Zone}$, $1.10 < Z < 2.60 = \text{Grey or Danger Zone}$, and $Z < 1.10 = \text{Distress or Fail Zone}$. It can, therefore, be concluded that on average, JSE-listed firms fall within the safe zone, and are most likely to succeed.

The maximum Z-score for GSE listed firms was 31002.36 which was far above the threshold of 2.99, indicating that these firms listed on the GSE fall within the safe zone and are certain to succeed. The minimum Z-score, however was -4.183, which is below the 2.99 threshold, therefore, indicates that some GSE-listed firms are in financial distress, for they fall within the danger zone and are likely to fail. The minimum of -4.183 explains the cause of the failed Ghanaian firms, between the period of 2017 and 2018 and those that are currently in financial distress. This is a precaution that the regulators, Bank of Ghana, the Ghana Stock Exchange and the Securities and Exchange Commission should keep a watchful eye on these firms. These notwithstanding, the average Z-score of the GSE listed firms was 212.525, which was above the 2.99 threshold. This therefore imply that on average, GSE-listed firms fall within the safe zone, and they are, therefore, most likely to succeed.

The findings on board size concluded that the minimum board size for JSE listed firms was 4 compared to 3 for GSE-listed firms, the average board size for JSE was 11 compared to 9 for GSE and the maximum was 26 for JSE compared to 15 for GSE. The average JSE board size of 11 (10.485) was consistent with the findings of Tsipa (2017) who reported JSE average board size of (10.65). Comparatively, the findings on firm size showed a minimum firm size for JSE listed firms to be 13.832 compared to 13.451 for GSE, an average of 22.527 for JSE compared to 20.179 for GSE and the maximum to be 28.864 for JSE compared to 23.979 for GSE firms. These give a picture that board size increases in direct proportion with firm size, thus, larger firms have larger board size and smaller firms have smaller board size. Another finding was that JSE have larger firms than GSE, hence, JSE have larger board size, 26 maximum, compared to 15 maximum of GSE. Finally, the finding on firm age concluded that minimum firm age for JSE-listed firms was 3 years compared to 2 years for GSE-listed firms, the average firm age was 40 for JSE listed firms compared to 41 for GSE-listed firms and the maximum age was 172 for JSE listed firms compared to 124 for GSE-listed firms.

7.2.3 Findings from Weighted Disclosure Indices Analysis (WDI_{scale} and WDI_{dummy})

One main objective of this study was to formulate new financial disclosure indices and apply these indices in correlation and regression analyses of listed firms. These newly-formulated indices are - weighted disclosure index scale score (WDI_{scale}), and weighted disclosure index dummy score (WDI_{dummy}). Their application yielded the following findings. Findings from the JSE correlation matrix 5.1 (Table 5.3) indicate a very strong positive significant correlation of 97% between WDI_{scale} and WDI_{dummy} . It also found a very strong positive significant 92% correlation between WDI_{scale} and UDI as well as 92% correlation between WDI_{scale} and PUDI. Further analysis found a positive significant 94% correlation between WDI_{dummy} and UDI as well as positive significant 94% correlation between WDI_{dummy} and PUDI. These are consistent with *H2* which hypothesized that there is statistically significant positive relationship between disclosure clarity (WDI_{scale}) and compliance level (WDI_{dummy} , PUDI, UDI). The implication is that firms that increase their disclosure clarity also increase their compliance levels and vice versa.

There was a high positive significant correlation of 76% between WDI_{scale} and website reporting. Again, there was a high significant positive correlation of 79% between WDI_{dummy} and website reporting. This is consistent with *H3* which hypothesized that there is statistically significant positive relationship between website reporting and disclosure clarity. The JSE correlation between UDI and website reporting was 81% significant positive, and the JSE correlation between PUDI and website reporting was also significant positive 81%. Consistent with *H3*, these imply that when firms increase their disclosure clarity and level, they tend to increase their website reporting as well.

Findings from the GSE correlation matrix 6.2 (Table 6.5) indicate a correlation of 54.1% between WDI_{scale} and WDI_{dummy} , a correlation of 69% between WDI_{scale} and PUDI and a correlation of 72% between WDI_{scale} and WDI_{dummy} . Analysis of GSE data found a correlation of 89% between WDI_{dummy} and PUDI and found 81% correlation between WDI_{dummy} and UDI. Consistent with *H3*, the implications of these findings are that these newly formulated indices correlate very well with the existing indices and with each other, and are therefore consistent with the prior indices.

Further analysis of JSE correlation matrix 5.4 (Table 5.6) found a positive correlation between WDI_{scale} and EVA, implying that an increase in WDI_{scale} leads to an increase in financial performance and vice versa. Investors can therefore use WDI_{scale} score to estimate the direction of firms' financial performance. The JSE analysis found a positive correlation between WDI_{scale} and MVA implying that an increase in WDI_{scale} leads to an increase in market value. It however found a negative JSE correlation between WDI_{scale} and liquidity. It also found a negative correlation between WDI_{dummy}

and liquidity. Analysis of GSE data on the other hand also found a negative correlation between WDI_{scale} and liquidity but then found a positive correlation between WDI_{dummy} and liquidity. The implication is that during the study period JSE-listed firm which increased their WDI_{scale} disclosure were less liquid compared to their counterparts which decreased their WDI_{scale} disclosure. However, for the Ghanaian context, it was found that, just as JSE-listed firms, entities which increased their WDI_{scale} disclosure were less liquid but those that increased their WDI_{dummy} disclosure were more liquid. According to *H4*, there is a statistically significant positive relationship between audit firm and level of corporate disclosure. The findings from correlation matrix 5.4 corroborate this as it indicates a positive significant correlation between WDI_{scale} and BIG4 as well as a positive significant correlation between WDI_{dummy} and BIG4. The implication is that firms audited by any of the big four global accounting firms tend to disclose with higher clarity and with higher compliance level. This is consistent with the findings of Appiah, Awunyo-Vitor, Mireku & Ahiagbah (2016), Bepari and Mollik (2015), Bokpin (2013), Agyei-Ansah (2013) and Kamel and Awadallah, (2017).

7.2.4. Findings from Agency Costs Analysis

Two formulae were employed for measuring agency costs. The formulae were segregated into agency cost1 measured using the expense ratio and agency cost2 measured using asset turnover. *H5* hypothesized a statistically significant negative relationship between agency costs and disclosure indices. Contrary to *H1* but consistent with *H5*, the findings from regression model 5.6 indicate an inverse but statistically insignificant relationship between agency cost1 and WDI_{scale} . The GSE analysis from correlation matrix 3 found no significant relationship between agency costs and disclosure indices. But the analysis from correlation matrix 5.3 found a statistically significant positive relationship between agency cost1 (expense ratio) and disclosure clarity (WDI_{scale}), implying that an increase in agency cost1 leads to an increase in disclosure clarity. That means when firms experience higher agency cost1 they tend to increase their disclosure clarity. Then again, analysis from the same correlation matrix 5.3 found a statistically significant positive relationship between agency cost1 and WDI_{dummy} , which is corroborated by findings from regression model 5.6 where a statistically significant positive relation was found between agency cost1 and WDI_{dummy} as well as significant positive relationship between agency cost1 and PUDI. The implication is that an increase in agency cost1 leads to an increase in disclosure compliance level, implying that firms tend to increase their disclosure compliance level when they experience increase in agency cost1. The analysis also found a significant positive relationship between agency cost1 and PUDI as well as positive relationship between agency cost1 and UDI.

This finding is contrary to the findings by Luo, Li and Chen (2018) who studied Chinese A-Share listed firms and found that firms with better annual report readability experienced lower agency costs, however, they did not use weighted disclosure index in their study. This finding is consistent with *H5*, hence, the implication is that expense ratio (agency cost1) has positive association with disclosure clarity (WDI_{scale}). The findings from regression model 5.6 on WDI_{dummy} also indicate a 10% significant positive relationship with agency cost1, and the findings on PUDI also indicate a 1% significant positive relationship with agency cost1. That means an increase in expense ratio / agency cost1 leads to an increase in weighted disclosure compliance level (WDI_{dummy}), and an increase in agency cost1 leads to an increase in partially unweighted disclosure level (PUDI). The positive nexus found between JSE agency cost1 and WDI_{dummy} implies that as agency cost increases firms continue to increase their financial disclosure compliance. This is consistent with Luo, Li and Chen (2018). Although consistent with *H5*, this is contrary to *H1* which hypothesized that there is statistically significant positive relationship between higher information asymmetry (lower WDI) and higher agency costs. Agency cost2 was found to be statistically insignificant with both WDI_{scale} and WDI_{dummy} .

Further analysis in model 5.6 found an inverse relationship between JSE agency cost1 and financial distress implying that as firms` agency cost increases, their z-score falls thereby plunging them into financial distress. The analysis from model 5.7 found a positive significant relationship between agency cost2 and financial distress, implying that an increase in z-score (lower financial distress) is caused by an increase in asset turnover (lower agency cost).

Findings from GSE correlation analysis (Matrix 5, Table 4.7) indicate a negative correlation between agency cost1 and EVA. The implication is that an increase in agency cost1 led to a decrease in economic value and dissipation of the firms` resources. The findings on JSE agency costs also indicated a negative correlation between EVA and agency cost1. These imply that an increase in agency cost1 led to a decrease in economic value of investors` wealth. The analysis found that in both contexts, and consistent with agency theory, an increase in agency cost1 led a decrease in financial performance. But the analysis found a positive correlation between agency cost1 and MVA. The positive correlation found with MVA implies that although agency cost1 decreased economic value, it increased market value.

The JSE analysis (Regression model 5.5) also found a positive relationship between agency cost1 and liquidity. The analysis from regression model 5.7) also found a significant negative relation between agency cost2 (asset turnover) and liquidity. These imply that an increase in agency cost1 was caused by an increase in liquidity which is consistent with the free cash flow theory. That means as more cash becomes available, managers begin to increase their expenses. Finding from model 5.7 indicate that lower agency cost2 did not eradicate liquidity although it diminishes it.

Consistent with *H7*, the findings from regression model 5.5 indicate a significant negative relationship between agency cost1 (expense ratio) and website disclosure (webreport). The implication is that an increase in agency cost leads to a decrease in website disclosure. Again, consistent with *H7* which hypothesized that there is a statistically significant negative relationship between webreport and agency costs, finding from regression model 5.7 indicate a significant positive relationship between agency cost2 and website disclosure (webreport). The implication is that an increase in asset turnover (lower agency cost2) leads to an increase in website disclosure.

The GSE analysis also found an inverse relationship between webreport and agency cost1, and found a positive nexus between webreport and agency cost2, which corroborate *H7*. These imply that for the Ghanaian context, firms which increased agency cost1 reduced their website disclosure. This means agency cost1 exacerbate information asymmetry. The positive nexus with agency cost2 implies that firms which increased their asset turnover (lowered agency cost) also increased their website disclosure. That means lower agency cost increased website disclosure. The GSE analysis found an inverse relationship between agency cost1 and agency cost2, implying that an increase in expense ratio led to a decrease in asset turnover. This finding is consistent with the agency theory. The GSE analysis also found an inverse relationship between agency cost1 and z-score, implying that an increase in agency cost1 leads to an increase in financial distress.

The negative correlation between EVA and agency cost2 is contrary to expectation but it implies that, for JSE-listed firms, agency cost1 affected asset turnover (agency cost2) which then decreased economic value added (EVA). Findings on JSE agency costs indicate an inverse relationship between MVA and agency cost1 but a positive relationship between MVA and agency cost2. The implication is that an increase in agency cost leads to a decrease in market value added to firm value. The positive relationship between agency cost2 and MVA implies that lower agency cost leads to higher market value added to firm value. The JSE analysis also found an inverse relationship between MVA and financial distress implying that an increase in market value added leads to lower possibility of plunging into financial distress.

The findings on JSE agency costs also indicate a positive nexus between agency cost₂ and EVA, but an inverse relationship between agency cost₁ and EVA. The implication is that in the JSE context lower agency cost leads to higher economic value added to firm value. It found an inverse relationship between JSE EVA and financial distress implying that as JSE-listed firms increase economic value added to firm value, they lower the likelihood of plunging into financial distress. Findings from GSE regression model 5.5 on the other hand indicate an inverse relationship between agency cost₂ and EVA. It also found an inverse relationship between GSE agency cost₂ and MVA. Just as findings from correlation matrix 5, findings from JSE regression model 4.5 and 4.6 also indicate an inverse relationship between agency cost₁ and EVA as well as an inverse relationship between agency cost₁ and MVA. This affirms the finding in this study that an increase in agency cost₁ leads to a decrease in economic value added and dissipated firms' resources. This is consistent with the agency theory.

Contrary to findings from South African data, the GSE analysis (Model 6.4) found a significant positive relationship between agency cost₁ (expense ratio) and EVA as well as MVA. These imply that an increase in EVA and MVA were caused by an increase in agency cost₁ (expense ratio). These imply that managers were able to increase EVA and MVA although they increased expenses (agency cost₁) which could be in the form of advertisement, incentives or administrative expenses. Agency cost₁ can, therefore, act as a two-edged sword, such that high expenses may act as investments which generate positive EVA and MVA. It means when expenses are channeled into productive use, they generate positive EVA and positive MVA but they produce negative results, otherwise as found from JSE analysis. The GSE analysis further found a negative nexus between EVA and agency cost₂ implying that an increase in asset turnover (lower agency cost) led to a decrease in EVA. Consistent with the findings on agency cost₁ and EVA, this means for the Ghanaian context, lower agency cost led to lower EVA and higher agency cost led to higher EVA. Analysis from regression model 4.7 found a positive nexus between JSE agency cost₂ and EVA, as well as a positive nexus between JSE agency cost₂ and MVA. These imply that an increase in asset turnover (lower agency cost) leads to an increase in economic value added and market value added to firm value.

The analysis also found an inverse relationship between JSE agency cost₁ and BIG4 implying that firms audited by the global big four accounting firms tend to have lower agency cost. Similarly, GSE agency cost₁ was also found to have inverse relationship with BIG4. The analysis further found a positive nexus between JSE agency cost₂ and BIG4, as well a positive nexus between GSE agency cost₂ and BIG4. These imply that for both JSE and GSE, firms audited by any of the global big four

accounting firms generated lower expense ratio and higher asset turnover and therefore had lower agency cost. This finding is consistent with *H6* which hypothesized that there is a statistically significant negative relationship between audit firm and agency costs. The analysis from model 6.1 also found an inverse relationship between JSE agency cost1 and webreport implying that when firms' agency cost increase they tend to decrease their website financial disclosure.

Then again, the analysis found a positive nexus between JSE agency cost2 and webreport. Then also the GSE analysis found a positive nexus between agency cost2 and webreport. These imply that for both JSE and GSE, an increase in asset turnover (lower agency cost) leads to an increase in website financial disclosure. That means lower agency cost2 leads to higher website disclosure. The GSE analysis as well as the JSE analysis found a positive nexus between agency cost2 and z-score implying that an increase in asset turnover (lower agency cost) leads to an increase in z-score. This means when firms increase their asset turnover, they are able to increase their z-score which moves them from danger zone of financial distress to safer zone.

7.2.5. Findings from EVA and MVA Analysis

Findings from regression model 5.4 indicate a significant negative relationship between financial performance (EVA) and disclosure clarity (WDI_{scale}). Similarly, findings from GSE correlation matrix3 (Table 6.6) also indicate a negative correlation between EVA and WDI_{scale} . This is contrary to *H8* which hypothesized a statistically significant positive relationship between EVA/MVA and weighted disclosure indices. This finding actually means that an increase in financial performance (EVA) leads to a decrease in disclosure clarity (WDI_{scale}). The implication is that managers who dissipate financial resources, conceal it via vague financial performance disclosure. But consistent with *H8*, the findings on WDI_{dummy} indicate a significant positive relationship with EVA as well as a positive correlation between EVA and WDI_{dummy} . This means an increase in disclosure compliance level was caused by an increase in financial performance (EVA). The implication is that although firms increase their disclosure level when financial performance increase, they do not increase disclosure clarity. Also, consistent with *H8*, the relationship between partially unweighted disclosure index (PUDI) and EVA was found to be positive and significant at 1%. Just like WDI_{dummy} , this implies that an increase in financial performance leads to an increase in corporate disclosure compliance level, but not disclosure clarity.

Consistent with $H9$ and the agency theory, the regression analysis on JSE agency costs found an inverse nexus between EVA and agency cost1. This implies that an increase in expense ratio (agency cost1) decreases EVA. Although the analysis found a positive nexus between EVA and agency cost2, it is also consistent with $H9$ and the agency cost2, which implies that an increase in asset turnover leads to an increase in EVA. Their implication is that increase in agency costs diminished economic value of these firms which is consistent with the agency theory and the free cash flow theory.

Analysis from JSE regression model 4.4 found an inverse relationship between EVA and BIG4 as well as an inverse nexus between MVA and BIG4, implying that firms audited by any of the global big four accounting firms did not generate additional economic valued and market value to firm value. This could mean that these accounting firms restrict these firms from taking higher risks for higher returns.

Findings from JSE correlation matrix2 (Table 5.4) indicate a positive correlation between EVA and liquidity and findings from GSE correlation matrix1 (Table 6.3) also found a positive correlation between EVA and liquidity. Then the regression analysis from JSE analysis found a positive nexus between EVA and liquidity, and the regression analysis of GSE data also found a positive nexus between EVA and liquidity ((model 6.2 and 6.3). The implication is that liquid firms increased their economic value. That is, an increase in liquidity leads to an increase in economic value of listed firms.

Analysis from regression model 5.5 found a negative relationship between agency costs1 and MVA, indicating that an increase in expense ratio leads to a decrease in market value of firms. This corroborate $H9$ and is consistent with the agency theory. Findings on agency cost2 indicate a significant positive relationship between asset turnover and MVA. Also consistent with $H9$ and the agency theory, this implies that an increase in asset turnover leads (lower agency cost) to an increase in market value of firms. These findings here also corroborate that increase in agency costs diminishes financial performance (MVA).

Findings from JSE correlation matrix3 on MVA indicate its positive correlation with EVA, webreport, WDI_{scale} , WDI_{dummy} , and agency cost1. These indicate that JSE-listed firms that increased their economic value also increased their market value. Again, and consistent with the signaling theory, JSE-listed firm which increased their market value also increased their website reporting. Then again, the findings imply that JSE-listed firms which increased their market value also increased their financial disclosure clarity (WDI_{scale}) as well as their financial disclosure

compliance level (WDI_{dummy}). This finding is consistent with $H8$ which hypothesized a statistically significant positive relationship between EVA/MVA and weighted disclosure indices.

Findings from GSE correlation matrix³ (Table 6.6) however indicate a negative correlation between MVA and WDI_{scale} as well as negative correlation between MVA and WDI_{dummy} . The implication is that unlike JSE findings, GSE-listed firms which increased their market value rather decreased their disclosure clarity (WDI_{scale}) and decrease their financial disclosure compliance level (WDI_{dummy}) as well; this is contrary to $H8$.

GSE correlation analysis also found a positive correlation between EVA and webreport and GSE regression analysis (model 6.1) found a positive nexus between EVA and webreport, but the JSE regression analysis found an inverse relationship between EVA and webreport. The implication is that, for GSE firms, as the firms become profitable, they increase their website financial disclosure. This is consistent with the signaling theory. JSE-listed firms on the other hand reduced their website financial disclosure as they became profitable. Although this increases information asymmetry, it may be influenced by an unwillingness to pay dividends.

The analysis then found a positive correlation between EVA and financial distress implying that an increase in z-score lowers agency costs and increases financial performance. It GSE analysis also found a positive correlation between EVA and BIG4 implying that firms audited by any of the global big four accounting firms generate positive EVA.

Again, analysis of JSE regression model 5.3 found a positive nexus between MVA and liquidity, implying that liquid firms increased their MVA. The GSE regression analysis however found a significant positive nexus between MVA and webreport as well as a positive nexus between EVA and webreport. The implication is that an increase in market value added led to an increase in website financial disclosure. This finding is consistent with the signaling theory.

The GSE analysis found a negative correlation between MVA and BIG4 implying that firms audited by the big four generate positive MVA. Also, the correlation between MVA and agency cost₁ was found to be negative implying that higher agency cost diminishes market value. The correlation between MVA and agency cost₂ was found to be positive implying that an increase in asset turnover, decreases agency cost and increase market value. Finally, the positive correlation found between MVA and financial distress imply that an increase in z-score decreases financial distress and increases market value.

7.2.6 Findings from Liquidity Analysis

Analysis of the JSE regression model 5.1 found a positive nexus between liquidity and WDI_{scale} . This finding implies that an increase in a firm's weighted disclosure scale score (WDI_{scale} score) leads to 12% increase in its liquidity. This implies that there is a positive relationship between a firm's WDI_{scale} score and its solvency. With coefficient of 11.558 and p-value of 0.00, this is consistent with *H10* which hypothesized that the association between weighted disclosure indices and conventional financial performance variables could be positive or negative. This finding is also consistent with Modugu (2017) who studied Nigerian listed firms and found a significant positive relationship with mandatory and total disclosure. But this finding is contrary to the findings of Kamel and Awadallah (2017) who studied firms on the Egyptian Stock Exchange but did not find a significant relationship between liquidity and corporate disclosure. The implication is that liquid firms disclosed with higher clarity.

However, the regression analysis found an inverse relationship between a firm's weighted disclosure dummy score (WDI_{dummy}) and its liquidity. With a coefficient of -17.666 and p-value of 0.00, this is also consistent with *H10* which hypothesized that the association between weighted disclosure indices and conventional financial performance variables could be positive or negative. This is consistent with Modugu (2017) who found that improved performance of companies does not necessarily induce them to disclose more information as widely reported by previous researchers. The implication is that a mere high compliance to accounting reporting standards, without corresponding disclosure clarity, does not mean a firm is liquid.

Similar to the scale score weighted disclosure index (WDI_{Scale}), the partially unweighted disclosure index (PUDI) also had a significant positive relationship liquidity with coefficient of 4.828 and p-value of 0.000. This is also consistent with *H10* which hypothesized that the association between weighted disclosure indices and conventional financial performance variables could be positive or negative. This implies that an increase in a firm's partially unweighted disclosure score positively affect its liquidity.

Then it further found a positive nexus between liquidity and website report (Coefficient of 0.218 and p-value of 0.001) implying that liquid firms increased their website financial disclosure. This is contrary to Abdi et. al. (2017) who found no association between the online disclosure and the firm profitability, and Boubaker, Lakhali and Nekhili (2012) also found that the extent of web-based disclosures is not associated with firm performance measured.

Then again, it found no association between liquidity and financial distress (coefficient of 0.000 and p-value of 0.205) implying that short term liquidity does not determine financial distress. This is consistent with Abdi et. al. (2017) who found no association between the disclosure and the firm profitability.

Further analysis from JSE regression model 5.2 found a positive nexus between EVA and liquidity, but found an inverse relationship between EVA and webreport. The implication is that liquid firms generate positive EVA but positive EVA firms reduced their website disclosure. It also found an inverse relationship between JSE agency cost2 and liquidity, implying that higher agency cost2 (lower asset turnover) did not necessarily wipe out liquidity although it diminishes liquidity.

These notwithstanding, the GSE analysis found an inverse relationship between GSE agency cost1 and liquidity but found a positive nexus between agency cost2 and liquidity. This is consistent with the agency theory and *H11* which hypothesize that the association between conventional financial performance variables and agency costs can be positive or negative. The implication is that, consistent with the agency theory, an increase in expense ratio (higher agency cost1) diminishes liquidity and then a decrease in asset turnover (higher agency cost2) also diminishes liquidity. Consistent with each other and with earlier findings, these findings imply that lower agency costs spur liquidity. Again, consistent with the JSE findings, the analysis from GSE regression model 6.3 found a positive nexus between liquidity and EVA as well as a positive nexus between liquidity and MVA. The implication is that liquid firms increased their EVA and MVA. That means liquidity increases economic value and market value added. It further found an inverse relationship between liquidity and BIG4 implying that GSE-listed firms audited by the any of the big four accounting firms were generally liquid. It however found an inverse relationship between liquidity and webreport implying that liquid firms reduced their website financial disclosure. This is contrary to Abdi et. al. (2017) and Al-Sartawi and Reyad (2019) who found no association between online disclosure and firm profitability. Finally, the GSE analysis also found an inverse relationship between liquidity and agency cost1 but found a positive nexus between liquidity and agency cost2. Consistent with the agency theory, the implication is that increase in agency costs diminished liquidity.

7.2.7 Findings from Conventional Financial Performance Variables Analysis (ROA, ROE, EPS and ROCE)

Analysis of correlation matrix 5.4 indicate a statistically significant positive correlation between WDI_{scale} and ROA as well as significant positive correlation between WDI_{dummy} and ROA. The implication is that, consistent with *H10*, an increase in return on asset leads to an increase in disclosure clarity and disclosure compliance level. This is consistent with Kolsi (2017) who studied firms listed on the Abu Dhabi Securities Exchange and found that profitability (ROA) positively affects the level of voluntary disclosure, but it is contrary to Conway (2019) who found in South African study that the production of higher quality reports is associated with decreased financial performance.

However, the findings on ROE, although positive, it is not statistically significant, giving indication that there is no association between ROE and disclosure clarity (WDI_{scale}) as well as disclosure compliance level (WDI_{dummy}). The analysis further found a negative but insignificant relationship between WDI_{scale} and EPS which is contrary to *H10*, but corroborate the insignificant findings by Appiah, Awunyo-Vitor, Mireku and Ahiagbah (2016).

Further analysis found a statistically significant negative relationship between WDI_{dummy} and EPS, which is consistent with *H10*. The implication is that there is no association between disclosure clarity and EPS, but there is a significant negative association between disclosure compliance level and EPS. These imply that an increase in EPS does not increase disclosure clarity but it reduces disclosure compliance level. This could be induced by the free cash flow problem where managers exacerbate the information asymmetry in order to enhance their private benefit. This is contrary to earlier finding by Barros, Boubaker and Hamrouni (2013) who found that more profitable firms have greater voluntary disclosure. Contrary to *H10*, findings from correlation matrix 5.4 indicate a positive but statistically insignificant relationship between WDI_{scale} and ROCE as well as between WDI_{dummy} and ROCE. *H10* hypothesized a significant positive or negative association between conventional financial performance variables and weighted disclosure indices.

According to *H11*, the association between conventional financial performance variables and agency costs can be significant positive or negative. Regression analysis from model 5.5 found a significant positive relationship between agency cost1(expense ratio) and ROA; which is consistent with *H11*, but inconsistent with the agency theory. This means an increase in ROA leads to an increase in agency cost1, managers spend more. The implication is that even in the midst of agency cost1(expense ratio), firms still report an increase in ROA, therefore if financial performance is

measured using ROA, firms will still look profitable in the midst of higher agency cost₁. But findings from GSE regression model 6.4 indicate a significant negative relationship between agency cost₁ and ROA. This is consistent with *H11* and the agency theory and it implies that an increase in agency cost₁ leads to a decrease in ROA. That means an increase in agency cost₁ leads to an increase in ROA from JSE context but an increase in agency cost₁ leads to a decrease in ROA from GSE context.

The relationship between agency cost₁(expense ratio) and ROE was however found to be significant negative; which is also consistent with *H1*. This means an increase in agency cost₁(expense ratio) leads to a decrease in ROE, which is consistent with the agency theory. But the GSE finding indicate a positive relationship between agency cost₁ and ROE. Although consistent with *H11*, it is contrary to the agency theory, and it implies that an increase in agency cost₁ leads to an increase in ROE.

The analysis also found a positive relationship between agency cost₁ and EPS but it was statistically insignificant. This implies that there is no association between agency cost₁ and EPS. But the GSE analysis found a significant negative relationship between agency cost₁ and EPS, implying that an increase in agency cost₁ leads to a decrease in EPS. Further, the regression analysis found a statistically significant positive relationship between agency cost₁ and ROCE. This is consistent with *H11* but inconsistent with the agency theory. The implication is that, just like ROA, in the midst of increasing agency cost₁, firms can still report an increase in ROCE. But the analysis from GSE-listed firms indicate a significant negative relationship between agency cost₁ and ROCE. This is consistent with *H11* and the agency theory, and it implies that an increase in agency cost₁ leads to a decrease in ROCE.

Further analysis from regression model 5.7 found a statistically significant positive relationship between agency cost₂ (asset turnover) and ROE. Consistent with the agency theory, this means lower agency cost₂ (an increase in asset turnover) leads to an increase in ROE. But the GSE analysis found a statistically significant negative relationship between agency cost₂ and ROE. This means, contrary to the agency theory, a decrease in asset turnover (an increase in agency cost₂) leads to an increase in ROE. This could be due to be due to a free cash flow theory case where managers work less when they successfully increase ROE.

The analysis also found a significant positive relationship between agency cost₂ and ROA, implying that lower agency cost₂ leads to higher ROA. The GSE analysis also found a significant positive relationship between agency cost₂ and ROA, consistent with the agency theory. The analysis however found no relationship between agency cost₂ and EPS. But it found a statistically significant negative relationship between agency cost₂ and ROCE, implying that an increase in agency cost₂

(lower asset turnover) leads to higher ROCE. The GSE analysis found a significant positive relationship between agency cost² and EPS as well as a significant positive relationship between agency cost² and ROCE. These are consistent with *H11* and the agency theory, and the implication is that lower agency cost leads to higher EPS and higher ROCE.

Findings from JSE regression model 5.2 indicate a statistically significant negative relationship between EVA and ROE as well as between EVA and EPS. These implies a decrease in EVA due to an increase in ROE and EPS. But the same model found a statistically significant positive relationship between EVA and ROA as well as positive nexus between EVA and ROCE. These implies an increase in EVA due to an increase in ROA and ROCE. But findings from GSE regression model 6.2 indicate a positive relationship between EVA and ROA as well as positive relationship between EVA and ROE. It also found a positive relationship between EVA and EPS as well as a positive relationship between EVA and ROCE. The implication is that an increase in a firm's EVA leads to an increase in its ROA, ROE, EPS and its ROCE.

7.3 CONTRIBUTION OF THE STUDY: IMPLICATIONS FOR RESEARCHERS, MANAGERS, SHAREHOLDERS/INVESTORS AND POLICY MAKERS

The contribution of this study to the body of knowledge is in three strands. The first section contributes to the body of knowledge in the field of weighted-disclosure indices. In this regard, this study fills a method gap in literature by formulating two robust weighted-disclosure indices which accounting researchers can use to measure disclosure clarity and the extent of disclosure. Due to globalization, investors in contemporary business settings can invest across borders. To make this economic decision requires reliable financial accounting data from firms' financial statements. The quality of the content of firms' financial statements depends on their compliance to IFRS and IAS. The requirement in IAS1 is that when preparing financial statements, management should not reduce the understandability of its financial statements by obscuring material information with immaterial information or by aggregating material items that have different natures or functions.

The IFRS Foundation explains that, information is considered material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general-purpose financial statements make on the basis of them, since they provide essential information about a specific reporting entity. Challenges regarding a material item, transaction or other event are detected, if for instance, the language used is vague or unclear, or/and information regarding a material item, transaction or other event is scattered throughout the financial statements, or/and the understandability of the financial statements is reduced as a result of material information being

hidden by immaterial information to the extent that a primary user is unable to determine what information is material.

7.3.1. Contribution to knowledge by Formulating WDI_{scale} and WDI_{dummy}

Strategies for measuring the level of clarity was lacking in literature and measuring the level of compliance to IFRS and IAS hitherto was done with limited disclosure indices, that is, unweighted-disclosure index and partially-unweighted disclosure index. This study has now contributed two additional weighted disclosure methods, WDI_{scale} and WDI_{dummy} , and expanded the indices to four. A correlation analysis of these novel indices together with the existing indices found a very strong positive correlation of 97% between WDI_{scale} and WDI_{dummy} . It also found a 92% correlation between WDI_{scale} and UDI as well as 92% correlation between WDI_{scale} and PUDI. Further analysis found 94% correlation between WDI_{dummy} and UDI as well as 94% correlation between WDI_{dummy} and PUDI. There was a high correlation of 76% between WDI_{scale} and website reporting. Again, there was a high correlation of 79% between WDI_{dummy} and website reporting. The JSE correlation between UDI and website reporting was 81%, and the JSE correlation between PUDI and website reporting was found to be also 81%. These confirms their consistency with the existing indices.

The implications of the findings from this study are multifaceted. By successfully developing these two robust novel disclosure indices (WDI_{scale} and WDI_{dummy}), this study enlightens and provides investors, managers, researchers and policymakers available alternative accounting disclosure methods which can be used to measure financial statements disclosure clarity or vagueness (WDI_{scale}) and the extent of disclosure compliance level (WDI_{dummy}). Specifically, WDI_{scale} has been formulated to be used to measure financial disclosure clarity or vagueness (information asymmetry), and WDI_{dummy} has been formulated to estimate the level of compliance to the IFRS and IAS or disclosure compliance level. The formulated indices for measuring disclosure clarity (WDI_{scale}) and disclosure compliance level (WDI_{dummy}) are proposed for adoption by policymakers, in addition to measuring disclosure using PUDI. These disclosure indices, WDI_{scale} and WDI_{dummy} , are particularly suitable when measuring multiple standards at the same time. Measuring disclosure clarity has particularly been a challenge for investors and it was virtually nonexistent in accounting research. This study went further to practically apply these indices in the study of listed firms on Johannesburg Stock Exchange and Ghana Stock Exchange and had some intriguing findings which have been presented in the next sections.

7.3.2. Contribution to knowledge from the application of WDI_{scale} and WDI_{dummy}

Contribution to knowledge from the application of WDI_{scale} and WDI_{dummy} to JSE and GSE-listed firms is quite intriguing. The findings indicate a very strong positive significant correlation of 97% (GSE-54.1%) between WDI_{scale} and WDI_{dummy} . It also found a very strong positive significant 92% correlation between WDI_{scale} and UDI as well as 92% (GSE-72%) correlation between WDI_{scale} and PUDI. Further analysis found a positive significant 94% (GSE-81%) correlation between WDI_{dummy} and UDI as well as positive significant 94% (GSE-81%) correlation between WDI_{dummy} and PUDI. These are consistent with $H2$ which hypothesized a statistically significant positive relationship between disclosure clarity (WDI_{scale}) and disclosure compliance level (WDI_{dummy} , PUDI, UDI). The implication is that firms that increased their disclosure clarity also increased their compliance levels.

The average WDI_{scale} was found to be 26% with a maximum of 52% for JSE-listed firms whereas an average of 34% with a maximum of 57% was found for GSE-listed firms. Contribution to knowledge from these findings is that the extent of clarity in listed firms' financial statements constitute maximum 52% and 57% for JSE and GSE-listed firms respectively. That means the extent of vagueness is about 48% among JSE-listed firms and 43% among GSE-listed firms. This is consistent with paragraph 7.2 of the Conceptual Framework of IFRS which states that effective communication of information in financial statements makes that information more relevant and contributes to a faithful representation of an entity's assets, liabilities, equity, income and expenses. It also enhances the understandability and comparability of information in financial statements. The average WDI_{dummy} however was found to be 40% with 75% maximum for JSE firms, whereas 57% average with 69% maximum was found for GSE-listed firms. This means the extent of disclosure compliance to IFRS and IAS constitute 75% for JSE-listed firms and 69% for GSE-listed firms.

The analysis from correlation matrix 5.3 found a statistically significant positive relationship between agency cost1 (expense ratio) and disclosure clarity (WDI_{scale}), implying that an increase in agency cost1 leads to an increase in disclosure clarity. That means when firms experience higher agency cost1 they tend to increase their disclosure clarity. Then again, analysis from the same correlation matrix 5.3 found a statistically significant positive relationship between agency cost1 and WDI_{dummy} , which is corroborated by findings from regression model 5.6 where a statistically significant positive relationship was found between agency cost1 WDI_{dummy} as well as significant positive relationship between agency cost1 and PUDI. The implication is that an increase in agency

cost1 leads to an increase in disclosure compliance level, implying that firms tend to increase their disclosure compliance level when they experience increase in agency cost1. The analysis also found a significant positive relationship between agency cost1 and PUDI as well as positive relationship between agency cost1 and UDI. The conclusion drawn from these findings is that agency cost1 does not reduce disclosure clarity nor disclosure compliance level.

For agency cost2, the analysis from regression model 5.7 found a statistically significant negative relationship between agency cost2 and PUDI, implying that managers reduce their disclosure compliance when asset turnover increases. Therefore, lower agency cost2 increases disclosure compliance, implying that as managers work harder and increase asset turnover, they tend to disclose more, which is consistent with the signaling theory. Agency cost2 was found to be statistically insignificant with WDI_{scale} and WDI_{dummy} .

The study found that JSE-listed firm which increased their WDI_{scale} were less liquid. However, for the Ghanaian context, it was found that, just as JSE-listed firms, entities which increased their WDI_{scale} were less liquid but those that increased their WDI_{dummy} disclosure were more liquid. The study therefore found that an increase in WDI_{scale} and WDI_{dummy} leads to an increase in liquidity. The implication to investors is that when firms disclose with high levels of clarity and low levels of vagueness, such firms are most likely liquid firms.

Analysis from correlation matrix 6.3 found a statistically significant positive relationship between BIG4 and WDI_{scale} as well as between BIG4 and WDI_{dummy} . It also found a statistically significant positive relationship between BIG4 and PUDI as well as UDI. The implication is that firms audited by any of the global big four global accounting firms disclosed with higher clarity and their compliance level in terms of WDI_{dummy} , PUDI and UDI were also higher. Therefore, audit firms are able to induce managers to increase their disclosure compliance level and to increase their disclosure clarity.

7.3.3. Contributes to scientific knowledge on agency costs.

Agency costs has been viewed from two perspectives - agency cost1 and agency cost2. By consuming too much of shareholders` resources or expropriating shareholders` resources, managers cause higher agency cost1 (higher expense ratio), and by not working hard enough and generating lower asset turnover (shirking) is another form of agency cost where shareholders lose money because managers may be unwilling to work hard to generate additional money for shareholders. Each of these agency costs were found in this study to have different effects on disclosure indices

(as presented in section 7.3.2), liquidity, economic value added, market value added and on return on capital employed. This study found that both agency cost1 and agency cost2 diminishes liquidity. That is, an increase in agency cost1 was caused by an increase in liquidity which is consistent with the free cash flow theory. That means as more cash becomes available, managers begin to increase their expenses, but lower agency cost2 did not eradicate liquidity although it diminished it. These should be seen as agency problems when dealing with corporate governance issues.

This study also found that higher agency costs (higher expense ratio and lower asset turnover) diminish EVA, it diminishes liquidity and causes financial distress. The analysis also found that agency costs exist at moderate level among JSE-listed firms but exist at a little higher among GSE-listed firms. Policymakers in these markets should, therefore, demand an improvement in disclosure clarity as mitigating measures, and institute mandatory EVA disclosure in financial statements to curb it.

Consistent with the agency theory, an increase in expense ratio led to a decrease in asset turnover and an increase in agency cost1 led to an increase in financial distress. An increase in agency cost1 led to a decrease in economic value added to investors` wealth. For JSE-listed firms, agency cost1 affected asset turnover (agency cost2) which then decreased economic value added (EVA). An increase in agency costs led to a decrease in market value added to firm value. Lower agency cost led to higher market value added to firm value. An increase in market value added led to lower possibility of plunging into financial distress. In the JSE context, lower agency cost led to higher economic value added to firm value. It was also found that as JSE-listed firms increased economic value added to firm value, they lowered the likelihood of plunging into financial distress. This affirms the agency theory that an increase in agency cost1 leads to a decrease in economic value added and dissipates firms` resources.

However, for the Ghanaian context, lower agency cost led to lower EVA and higher agency cost led to higher EVA. The implication is that agency cost1 can have a positive effect. The findings indicate that agency costs do not automatically impede financial performance. Another contribution is that firms audited by the global big four accounting firms tend to have lower agency cost. It found an inverse relationship between JSE agency cost1 and webreport implying that when firms` agency cost increase they tend to decrease their website financial disclosure.

Another contribution is that as firms` agency cost increases, their z-score falls thereby plunging them into financial distress. Then, an increase in asset turnover (lower agency cost) leads to an increase in economic value added and market value added to firm value. For both JSE and GSE, firms audited

by any of the global big four accounting firms generated higher asset turnover and therefore had lower agency cost. Firms with lower agency cost (higher asset turnover) tend to increase their level of financial disclosure. Finally, an increase in asset turnover (lower agency cost) leads to an increase in z-score. This means when firms increase their asset turnover, they are able to increase their z-score which moves them from danger zone of financial distress to safer zone.

7.3.4 Contributes to scientific knowledge on EVA and MVA.

The findings derived from the descriptive statistics showed that firms from both exchanges - JSE and GSE - generated negative average EVA, but a positive maximum EVA. The implication is that while some firms added value to shareholders' wealth by generating positive EVA, others dissipated shareholders' wealth. From these findings, EVA was found to increase liquidity, increase return on capital employed and reduce the possibility of financial distress, therefore, policymakers should include EVA as a required disclosure item in the financial statements to better inform investors in their decision-making.

Specific contributions to knowledge are that there is a statistically significant positive relationship between EVA and liquidity (model 5.4). That means liquid firms increased their economic value added, hence, an increase in liquidity leads to an increase in economic value added. The analysis found a statistically significant inverse relationship between EVA and WDI_{scale} (model 5.4), implying that an increase in disclosure clarity leads to a decrease in EVA. Therefore, higher disclosure clarity diminishes economic value added to shareholder wealth at the firm level since EVA is an internal performance measure. However, the analysis found a statistically significant positive relationship between EVA and WDI_{dummy} , implying that an increase in disclosure compliance leads to an increase in EVA. The implication is that although an increase in disclosure clarity does not increase EVA, an increase in compliance to IFRS and IAS leads to an increase in EVA.

Another key contribution to knowledge is the fact that the analysis (model 5.4) found a statistically significant negative relationship between EVA and agency cost1, implying that an increase in agency cost1 leads to a decrease in EVA. That means managers dissipate the firms' resources through higher expenses thereby reducing economic value of shareholders. The analysis also found a statistically significant positive relationship between EVA and agency cost2, implying that an increase in asset turnover (lower agency cost) leads to an increase in EVA. That means when managers work harder and increase the asset turnover, they are able to increase the economic value added to shareholders' wealth.

The analysis from regression model 5.3 found a statistically significant positive relationship between MVA and liquidity, implying that an increase in liquidity leads to an increase in market value added to shareholders' wealth. The analysis also found a statistically significant positive relationship between EVA and agency cost², implying that an increase in asset turnover leads to an increase in market value added to shareholders' wealth. Analysis from correlation matrix 6.1 and 6.3 found statistically significant positive relationship between EVA and financial distress (FinDistress) as well as a positive relationship between MVA and FinDistress. The implication is that when managers increase the firms' z-score, they are able to increase EVA as well as MVA. An increase in z-score means moving away from the financial distress zone to a safe zone which then increase both EVA and MVA. The crux of the contribution is that an increase in disclosure clarity (WDI_{scale}) is associated with an increase in financial performance (EVA). Investors can therefore use WDI_{scale} score to estimate the direction of firms' financial performance.

Firms audited by any of the global big four accounting firms (BIG4) generate positive EVA but firms audited by any of the BIG4 did not generate additional economic value and market value to firm value. This could mean that these accounting firms restrict these firms from taking higher risks for higher returns. Then again, it was found that higher agency costs diminished economic value and market value added to firm value. Liquid firms increased their MVA. Firms audited by the big four generate positive MVA. An increase in asset turnover, decreases agency cost and increase market value and an increase in z-score decreases financial distress and increases market value.

7.3.5 Contributes to scientific knowledge on firm liquidity.

Liquidity is the ease with which firms can settle their financial obligations as they fall due. The analysis from regression model 5.1 found a statistically significant positive relationship between liquidity and WDI_{scale} , implying that an increase in liquidity leads to an increase in disclosure clarity. This is consistent with the signaling theory where firms with good financial health signal to the financial market how liquid they are. This increase in disclosure clarity reduces information asymmetry, hence, liquid firms have lower information asymmetry. The analysis however found a significant inverse relationship between liquidity and WDI_{dummy} , implying that an increase in liquidity leads to a decrease in disclosure compliance level. Although contrary to the signaling theory, it could be because liquid firms become complacent hence, they resort to brevity where they focus more on disclosure clarity rather than comprehensive technical disclosure compliance.

The analysis also found a statistically significant positive relationship between liquidity and PUDI as well as positive relationship between liquidity and webreport. The implication is that liquid firms still increased their disclosure score even when measured using the partially unweighted disclosure index. The finding indicate that liquid firms also increased their online disclosure thereby reducing information asymmetry.

Again, the analysis from model 5.2 and 6.2 found a statistically significant positive relationship between liquidity and EVA, implying that an increase in EVA leads to an increase in liquidity. That means firms that generate positive EVA tend to increase their liquidity level. MVA was also found to have a significant positive relationship with liquidity (model 5.3), implying that an increase in firms` liquidity leads to an increase in their market value added to shareholders` wealth.

Analysis from regression model 5.5 found a statistically significant positive relationship between agency cost1 and liquidity and a significant negative relationship between agency cost2 and liquidity (model 5.7). The implication is that for JSE firms, an increase in liquidity leads to an increase in agency cost1 (expense ratio). This means when managers generate more liquidity, they also incur more expenses thereby increasing the expense ratio (agency cost1). Similarly, an increase in liquidity led to a decrease in asset turnover (lower agency cost2), implying that when managers generate more liquidity, they tend to relax and work less thereafter. This is consistent with the free cash flow theory where managers spend more inefficiently because more money becomes available to spend.

The analysis from regression model 6.3 found a statistically significant negative relationship between liquidity and agency cost1, implying that an increase in agency cost1 (expense ratio) diminishes liquidity. Again, the analysis found a statistically significant positive relationship between liquidity and agency cost2, implying that an increase in asset turnover (lower agency costs) leads to an increase in liquidity. This study therefore found that managers of firms listed on the Johannesburg Stock Exchange and the Ghana Stock Exchange operationalized the agency theory. The conclusion drawn from the findings is that an increase in agency costs diminish liquidity, but lower agency costs increase liquidity, however, and consistent with the free cash flow theory, an increase in liquidity induces an increase in agency costs.

7.3.6 Contribution to Scientific Knowledge on Conventional Financial Performance Variables Analysis (ROA, ROE, EPS and ROCE)

The analysis found that an increase in return on asset leads to an increase in disclosure clarity and disclosure compliance level, but there is no association between ROE and disclosure clarity (WDI_{scale}) as well as disclosure compliance level (WDI_{dummy}). There is also no association between disclosure clarity and EPS. And an increase in EPS does not increase disclosure clarity but it reduces disclosure compliance level. This could be induced by the free cash flow problem where managers exacerbate the information asymmetry in order to enhance their private benefit. The analysis further found that an increase in ROA leads to an increase in agency cost1. The implication is that even in the midst of agency cost1 (expense ratio), firms still report a positive ROA, therefore if financial performance is measured using ROA, firms will still look profitable. Then again, the analysis found that an increase in agency cost1 leads to a decrease in ROA, and an increase in agency cost1 leads to an increase in ROA from JSE context but an increase in agency cost1 leads to a decrease in ROA from GSE context. But no association was found between agency cost1 and EPS, however, the GSE analysis found a significant negative relationship between agency cost1 and EPS, implying that an increase in agency cost1 leads to a decrease in EPS.

7.4. POLICY IMPLICATIONS

There are many policy implications from the findings from this study. First implication is that, the findings strongly recommend to policy makers that accounting disclosure should be measured from two perspectives; the first measure should estimate the level of disclosure clarity using WDI_{scale} and the second measure should estimate disclosure compliance level using WDI_{dummy} . Investors can now adopt these novel indices to measure accounting disclosure clarity and compliance levels with IFRS and IAS when measuring multiple standards at the same time. This is a signal to policymakers that compliance to disclosure standards should be accompanied with clarity to mitigate information asymmetry. The ACCA (2012) recommendations that regulators, standard-setters and companies themselves should go about the task of simplifying, clarifying and adding more value to corporate disclosures should be revisited and applied. By successfully developing these two robust novel disclosure indices (WDI_{scale} and WDI_{dummy}), this study enlightens and provides investors, managers, researchers and policymakers novel alternative accounting disclosure methods which can be used to measure financial statements disclosure clarity or vagueness (WDI_{scale}) and the extent of disclosure compliance level (WDI_{dummy}).

The application of these disclosure indices found that disclosure clarity is low among listed firms; hence, policy makers and investors should demand more disclosure clarity from their managers because firms that increased their disclosure clarity also increased their compliance levels. The extent of disclosure compliance to IFRS and IAS constitute 75% for JSE-listed firms and 69% for GSE-listed firms which can be enhanced. Liquid firms disclose with higher levels of clarity and low levels of vagueness and firms audited by any of the global big four global accounting firms disclosed with higher clarity and their compliance level in terms of WDI_{dummy} , PUDI and UDI were also higher. Therefore, audit firms are able to induce managers to increase their disclosure compliance level and to increase their disclosure clarity. Finally, firms with lower agency cost (higher asset turnover) tend to increase their level of financial disclosure.

Second implication is that, agency costs ought to be viewed from two perspectives - agency cost1 and agency cost2. Agency costs continue to persist among firms because an increase in agency costs diminish liquidity, lower agency costs increase liquidity and but an increase in liquidity induces an increase in agency costs. Agency cost1 does not reduce disclosure clarity nor disclosure compliance level, but liquid firms disclose with higher levels of clarity and low levels of vagueness in conformance to the signaling theory. Consistent with the agency theory, an increase in expense ratio (increase in agency cost1) leads to a decrease in asset turnover (an increase in agency cost2) and an increase in agency cost1 leads to an increase in financial distress. An increase in agency cost1 leads to a decrease in economic value added to investors' wealth. An increase in agency costs led to a decrease in market value added to firm value. But agency costs do not automatically impede financial performance. Firms audited by the global big four accounting firms tend to have lower agency cost. This means when firms increase their asset turnover, they are able to increase their z-score which moves them from danger zone of financial distress to safer zone.

Third implication is that, EVA was found to increase liquidity, increase return on capital employed and reduce the possibility of financial distress, therefore, policymakers should include EVA as a required disclosure item in the financial statements to better inform investors in their decision-making. Liquid firms increased their economic value added, hence, an increase in liquidity leads to an increase in economic value added. An increase in disclosure compliance leads to an increase in EVA. Although an increase in disclosure clarity does not increase EVA, an increase in compliance to IFRS and IAS leads to an increase in EVA. When managers increase the firms' z-score, they are able to increase EVA as well as MVA, and an increase in disclosure clarity (WDI_{scale}) is associated with an increase in financial performance (EVA). Investors can therefore use WDI_{scale} score to estimate the direction of firms' financial performance.

7.5 LIMITATIONS OF THE STUDY

Like any other advanced research work, there were some limitations which may have influenced the results. First, this study investigated four accounting standards only, two IFRS (7 and 9) and two IAS (1 and 7), hence, it does not cover much of the accounting standards; including and studying many more standards may influence the findings differently. Secondly, the study focused on listed firms only, and although other influential firms may not be listed on the stock exchanges, yet they may have higher disclosure clarity and have higher compliance levels which can influence the findings. Obtaining their financial statements and studying them will also contribute to existing body of knowledge. Thirdly, the study focused on two countries only, South Africa and Ghana, thus, Johannesburg Stock Exchange and the Ghana Stock Exchange - including many countries may produce other interesting findings. Fourth, the study adopted the total compliance checklist, not mandatory disclosure checklist, hence, this is likely to have reduced the mean score on the descriptive statistics. Fifth, time constraint may have had an effect on some part of this study. Sixth, the interpretation of agency cost1 variable, expense ratio can be a limitation because an increase expense may not necessarily mean wasteful expenses.

7.6 RECOMMENDATIONS FOR FUTURE RESEARCH

In the light of the findings, and the conclusions made, future research can consider including many more international accounting standards and international financial reporting standards, and expand the scope to include many more countries so as to have a wider scope of the indices. The newly formulated WDI_{scale} and WDI_{dummy} should be applied to study other firms in other countries, to provide more information about the dynamics of applications of these novel metrics in other contexts. Particular attention should be paid to the distinction between measuring disclosure clarity using WDI_{scale} and measuring disclosure compliance level using WDI_{dummy} , during its application. Finally, the interaction between WDI_{scale} and WDI_{dummy} as well as agency cost1 and agency cost2 can be studied in other contexts to enlighten investors.

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APPENDIX 1: INTERNATIONAL ACCOUNTING STANDARDS (IAS) COMPLIANCE CHECKLIST

Table 3.1: INTERNATIONAL ACCOUNTING STANDARD 1 (IAS 1)

No.	Standard: IAS 1 Reference	Presentation of Financial Statements	Disclosure Made Yes / No / N/A		
		Presentation / Disclosure Requirement	Y	N	N/A
		IAS 1 prescribes the basis for presentation of general-purpose financial statements to ensure comparability both with the entity's financial statements of previous periods and with the financial statements of other entities.			
		Complete set of financial statements			
		Does a complete set of financial statements comprise:			
1	IAS 1:10(a)	a) a statement of financial position as at the end of the period;			
2	IAS 1:10(b)	b) a statement of profit or loss and other comprehensive income for the period;			
3	IAS 1:10(c)	c) a statement of changes in equity for the period:			
4	IAS 1:10(d)	d) a statement of cash flows for the period;			
5	IAS 1:10(e)	e) notes, comprising significant accounting policies and other explanatory information;			
6	IAS 1:10(ea)	ea) comparative information in respect of the preceding period as specified in paragraphs 38 and 38A; and			
7	IAS 1:10(f)	f) when an entity applies an accounting policy retrospectively or makes a retrospective restatement of items in its financial statements, or when it reclassifies items in its financial statements in accordance with paragraphs 40A-40D of IAS 1, a statement of financial position as at the beginning of the preceding period?			
8	IAS 1:11	Are all of the financial statements in a complete set of financial statements presented with equal prominence?			
		Fair presentation and compliance with IFRSs			
9	IAS 1:15	Do the financial statements present fairly the financial position, financial performance and cash flows of the entity?			
10	IAS 1:16	Did the entity whose financial statements comply with IFRSs, make an explicit and unreserved statement of such compliance in the notes?			
11	IAS 1:19	Does management, in extremely rare circumstances, conclude that compliance with a requirement in an IFRS would be so misleading that it would conflict with the objective of financial statements set out in the Conceptual Framework for Financial Reporting, as issued in 2018?			
12		Has the entity departed from a requirement of an IFRS in a prior period, and does that departure affect the amounts recognised in the financial statements for the current period?			
		Going concern			
13	IAS 1:25	When preparing financial statements, has the management made an assessment of an entity's ability to continue as a going concern?			

14	IAS 1:25	Has the entity prepared financial statements on a going concern basis, unless management either intends to liquidate the entity or to cease trading, or has no realistic alternative but to do so?	
15		Is management aware, in making its assessment of the entity's ability to continue as a going concern, of material uncertainties related to events or conditions that may cast significant doubt upon the entity's ability to continue as a going concern?	
		Accrual basis of accounting	
16	IAS 1:27	Has the entity prepared its financial statements, except for cash flow information, using the accrual basis of accounting?	
		Materiality and aggregation	
17	IAS 1:29	Has the entity presented each material class of similar items separately in the financial statements?	
18	IAS 1:29	Has the entity presented separately items of a dissimilar nature or function unless they are immaterial?	
		Offsetting	
19	IAS 1:32	Has the entity not offset assets and liabilities or income and expenses, unless required or permitted by an IFRS?	
	IAS 1:34	Did the entity undertake in the course of its ordinary activities, other transactions that do not generate revenue but are incidental to the main revenue-generating activities?	
20	IAS 1:35	Has the entity presented gains and losses arising from a group of similar transactions (e.g. foreign exchange gains and losses, or gains and losses arising on financial instruments held for trading) on a net basis, unless the gains and losses are material, in which case the entity should present such gains and losses separately?	
		Frequency of reporting	
20		Did the entity change the end of its reporting period and are the financial statements presented for a period longer or shorter than one year?	
		Comparative information	
21	IAS 1:38	Except when IFRSs permit or require otherwise, has the entity presented comparative information in respect of the preceding period for all amounts reported in the current period's financial statements?	
22	IAS 1:38	Has the entity included comparative information for narrative and descriptive information if it is relevant to understanding the current period's financial statements?	
23		Has the entity applied an accounting policy retrospectively, made a retrospective restatement of items in its financial statements, reclassified items in its financial statements or otherwise changed the presentation of items in its financial statements?	
		Consistency of presentation	
24	IAS 1:45	Has the entity retained the presentation and classification of items in the financial statements from one period to the next, unless:	

25	IAS 1:45(a)	a) it is apparent, following a significant change in the nature of the entity's operations or a review of its financial statements, that another presentation or classification would be more appropriate having regard to the criteria for the selection and application of accounting policies in IAS 8; or	
26	IAS 1:45(b)	b) an IFRS requires a change in presentation?	
		Identification of the financial statements	
27	IAS 1:49	Has the entity clearly identified the financial statements and distinguished them from other information in the same published document?	
28	IAS 1:51	Has the entity clearly identified each financial statement and the notes?	
29	IAS 1:51	Has the entity displayed the following information prominently, and repeated it when it is necessary for the information presented to be understandable:	
30	IAS 1:51(a)	a) the name of the reporting entity or other means of identification, and any change in that information from the end of the preceding reporting period;	
31	IAS 1:51(b)	b) whether the financial statements are of the individual entity or a group of entities;	
32	IAS 1:51(c)	c) the date of the end of the reporting period or the period covered by the set of financial statements or notes;	
33	IAS 1:51(d)	d) the presentation currency, as defined in IAS 21 The Effects of Foreign Exchange Rates; and	
34	IAS 1:51(e)	e) the level of rounding used in presenting amounts in the financial statements?	
		Statement of financial position	
		Information to be presented in the statement of financial position	
35	IAS 1:54	Does the statement of financial position include line items that present the following amounts:	
36	IAS 1:54(a)	a) property, plant and equipment;	
37	IAS 1:54(b)	b) investment property;	
38	IAS 1:54(c)	c) intangible assets;	
39	IAS 1:54(d)	d) financial assets (excluding amounts shown under (e), (h) and (i) below);	
40	IAS 1:54(da)	da) groups of contracts within the scope of IFRS 17 that are assets, disaggregated as required by paragraph 78 of IFRS 17;	
41	IAS 1:54(e)	e) investments accounted for using the equity method;	
42	IAS 1:54(f)	f) biological assets within the scope of IAS 41 Agriculture;	
43	IAS 1:54(g)	g) inventories;	
44	IAS 1:54(h)	h) trade and other receivables;	
45	IAS 1:54(i)	i) cash and cash equivalents;	
46	IAS 1:54(j)	j) the total of assets classified as held for sale and assets included in disposal groups classified as held for sale in accordance with IFRS 5 Non-current Assets Held for Sale and Discontinued Operations;	
47	IAS 1:54(k)	k) trade and other payables;	
48	IAS 1:54(l)	l) provisions;	
49	IAS 1:54(m)	m) financial liabilities (excluding amounts shown under (k) and (l) above);	

50	IAS 1:54(ma)	ma) groups of contracts within the scope of IFRS 17 that are liabilities, disaggregated as required by paragraph 78 of IFRS 17;	
51	IAS 1:54(n)	n) liabilities and assets for current tax, as defined in IAS 12 Income Taxes;	
52	IAS 1:54(o)	o) deferred tax liabilities and deferred tax assets, as defined in IAS 12;	
53	IAS 1:54(p)	p) liabilities included in disposal groups classified as held for sale in accordance with IFRS 5;	
54	IAS 1:54(q)	q) non-controlling interest, presented within equity; and	
55	IAS 1:54(r)	r) issued capital and reserves attributable to owners of the parent?	
56	IAS 1:55	Has the entity presented additional line items (including by disaggregating the line items listed in paragraph 54), headings and subtotals in the statement of financial position if such presentation is relevant to an understanding of the entity's financial position?	
57	IAS 1:56	If the entity presented current and non-current assets, and current and non-current liabilities, as separate classifications in its statement of financial position, has it not classified deferred tax assets (liabilities) as current assets (liabilities)?	
		Current/non-current distinction	
58	IAS 1:60	Has the entity presented current and non-current assets, and current and non-current liabilities, as separate classifications in its statement of financial position except when a presentation based on liquidity provides information that is reliable and more relevant?	
59		Does a presentation based on liquidity provide information that is reliable and more relevant than presentation on a current/non-current basis?	
60	IAS 1:61	Whichever of the methods of presentation allowed for under paragraph 60 of IAS 1 (see above) is adopted, for each asset and liability line item that combines amounts expected to be recovered or settled (i) no more than twelve months after the reporting period, and (ii) more than twelve months after the reporting period, has the entity disclosed the amount expected to be recovered or settled after more than twelve months?	
		Current assets	
61		If any of the following criteria are met, has the entity classified an asset as current:	
62	IAS 1:66(a)	a) it expects to realise the asset, or intends to sell or consume it, in its normal operating cycle;	
63	IAS 1:66(b)	b) it holds the asset primarily for the purpose of trading;	
64	IAS 1:66(c)	c) it expects to realise the asset within twelve months after the reporting period; or	
65	IAS 1:66(d)	d) the asset is cash or a cash equivalent (as defined in IAS 7 Statement of Cash Flows), unless the asset is restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period?	

66	IAS 1:66	Has the entity classified all assets, other than those meeting one of the criteria set out in paragraph 66 of IAS 1 (see above), as non-current?	
		Current liabilities	
67		Has the entity applied Classification of Liabilities as Current or Non-current (Amendments to IAS 1), issued in January 2020?	
68		Information to be presented either in the statement of financial position or in the notes	
69	IAS 1:77	Has the entity disclosed, either in the statement of financial position or in the notes, further sub-classifications of the line items presented, classified in a manner appropriate to the entity's operations?	
70		Has the entity disclosed the following, either in the statement of financial position or the statement of changes in equity, or in the notes:	
71	IAS 1:79(a)	a) for each class of share capital:	
72		i) the number of shares authorised;	
73		ii) the number of shares issued and fully paid, and issued but not fully paid;	
74		iii) par value per share, or that the shares have no par value;	
75		iv) a reconciliation of the number of shares outstanding at the beginning and at the end of the period;	
76		v) the rights, preferences and restrictions attaching to that class, including restrictions on the distribution of dividends and the repayment of capital;	
77		vi) shares in the entity held by the entity or by its subsidiaries or associates; and	
78		vii) shares reserved for issue under options and contracts for the sale of shares, including the terms and amounts; and	
79	IAS 1:79(b)	b) a description of the nature and purpose of each reserve within equity?	
80	IAS 1:80	If an entity is without share capital (e.g. a partnership or trust), has the entity disclosed information equivalent to that required by paragraph 79(a) of IAS 1 (see above), showing changes during the period in each category of equity interest and the rights, preferences and restrictions attaching to each category of equity interest?	
81		Did the entity hold a puttable financial instrument or an instrument that imposes on the entity some obligations arising on liquidation?	
		Statement of comprehensive income	
		Statement(s) of profit or loss and other comprehensive income	
82	IAS 1:81A	Does the statement of profit or loss and other comprehensive income present, in addition to the profit or loss and other comprehensive income sections:	
83	IAS 1:81A (a)	a) profit or loss;	
84	IAS 1:81A (b)	b) total other comprehensive income;	
85	IAS 1:81A (c)	c) comprehensive income for the period, being the total of profit or loss and other comprehensive income?	

86	IAS 1:81B	Has the entity presented the following items, in addition to the profit or loss and other comprehensive income sections, as allocation of profit or loss and other comprehensive income for the period:	
87	IAS 1:81B (a)	a) profit or loss for the period attributable to: (i) non-controlling interests, and (ii) owners of the parent;	
88	IAS 1:81B (b)	b) comprehensive income for the period attributable to: (i) non-controlling interests, and (ii) owners of the parent?	
	-	<i>Information to be presented in the profit or loss section or the statement of profit or loss</i>	
89	IAS 1:82	In addition to items required by other IFRSs, does the profit or loss section or the statement of profit or loss include line items that present the following amounts for the period:	
90	IAS 1:82(a)	a) revenue, presenting separately interest revenue calculated using the effective interest method;	
91	IAS 1:82(a)	a) revenue, presenting separately: (i) interest revenue calculated using the effective interest method; and (ii) insurance revenue (see IFRS 17);	
92	IAS 1:82(aa)	aa) gains and losses arising from the derecognition of financial assets measured at amortised cost;	
93	IAS 1:82(ab)	ab) insurance service expenses from contracts issued within the scope of IFRS 17 (see IFRS 17);	
94	IAS 1:82(ac)	ac) income or expenses from reinsurance contracts held (see IFRS 17);	
95	IAS 1:82(b)	b) finance costs;	
96	IAS 1:82(ba)	ba) impairment losses (including reversals of impairment losses or impairment gains) determined in accordance with Section 5.5 of IFRS 9;	
97	IAS 1:82(bb)	bb) insurance finance income or expenses from contracts issued within the scope of IFRS 17 (see IFRS 17);	
98	IAS 1:82(bc)	bc) finance income or expenses from reinsurance contracts held (see IFRS 17);	
99	IAS 1:82(c)	c) share of profit or loss of associates and joint ventures accounted for using the equity method;	
100	IAS 1:82(ca)	ca) if a financial asset is reclassified out of the amortised cost measurement category so that it is measured at fair value through profit or loss, any gain or loss arising from a difference between the previous amortised cost of the financial asset and its fair value at the reclassification date (as defined in IFRS 9);	
101	IAS 1:82(cb)	cb) if a financial asset is reclassified out of the fair value through other comprehensive income measurement category so that it is measured at fair value through profit or loss, any cumulative gain or loss previously recognised in other comprehensive income that is reclassified to profit or loss;	
102	IAS 1:82(d)	d) tax expense;	
103	IAS 1:82(ea)	ea) a single amount for the total of discontinued operations (see IFRS 5)?	

		Information to be presented in the other comprehensive income section	
104	IAS 1:82A	Does the other comprehensive income section present line items for the amounts for the period of:	
105	IAS 1:82A a)	(a) items of other comprehensive income (excluding amounts in paragraph (b)), classified by nature and grouped into those that, in accordance with other IFRSs: (i) will not be reclassified subsequently to profit or loss; and (ii) will be reclassified subsequently to profit or loss when specific conditions are met;	
106	IAS 1:82A b)	(b) the share of the other comprehensive income of associates and joint ventures accounted for using the equity method, separated into the share of items that, in accordance with other IFRSs: (i) will not be reclassified subsequently to profit or loss; and (ii) will be reclassified subsequently to profit or loss when specific conditions are met?	
107	IAS 1:85	Has the entity presented additional line items (including by disaggregating the line items listed in paragraph 82), headings and subtotals in the statement(s) presenting profit or loss and other comprehensive income when such presentation is relevant to an understanding of the entity's financial performance?	
108	IAS 1:87	Has the entity not presented any items of income or expense as extraordinary items, in the statement(s) presenting profit or loss and other comprehensive income, or in the notes?	
		<i>Profit or loss for the period</i>	
109	IAS 1:88	Has the entity recognised all items of income and expense in a period in profit or loss unless an IFRS requires or permits otherwise?	
		<i>Other comprehensive income for the period</i>	
110	IAS 1:90	Has the entity disclosed the amount of income tax relating to each item of other comprehensive income, including reclassification adjustments, either in the statement of profit or loss and other comprehensive income or in the notes?	
111	IAS 1:92	Has the entity disclosed reclassification adjustments relating to components of other comprehensive income?	
112	IAS 1:94	Has the entity elected to present reclassification adjustments in the statement(s) of profit or loss and other comprehensive income or in the notes?	
113	IAS 1:94	If an entity is presenting reclassification adjustments in the notes, has the entity presented the items of other comprehensive income after any related reclassification adjustments?	
		<i>Information to be presented in the statement(s) of profit or loss and other comprehensive income or in the notes</i>	
114	IAS 1:97	If items of income and expense are material, has the entity disclosed their nature and amount separately?	

115	IAS 1:99	Has the entity presented an analysis of expenses recognised in profit or loss using a classification based on either the nature of expenses or their function within the entity, whichever provides information that is reliable and more relevant?	
116	IAS 1:104	If the entity is classifying expenses by function, has it disclosed additional information on the nature of expenses, including depreciation and amortisation expense and employee benefits expense?	
		Statement of changes in equity	
		Information to be presented in the statement of changes in equity	
117	-	Has the entity presented a statement of changes in equity as required by paragraph 10 of IAS 1? The statement of changes in equity includes the following information:	
118	IAS 1:106(a)	a) total comprehensive income for the period, showing separately the total amounts attributable to owners of the parent and to non-controlling interests;	
119	IAS 1:106(b)	b) for each component of equity, the effects of retrospective application or retrospective restatement recognised in accordance with IAS 8; and	
120	IAS 1:106(c)	c) [deleted]	
121	IAS 1:106(d)	d) for each component of equity, a reconciliation between the carrying amount at the beginning and the end of the period, separately (as a minimum) disclosing changes resulting from:	
122	-	i) profit or loss;	
123	-	ii) other comprehensive income; and	
124	-	iii) transactions with owners in their capacity as owners, showing separately contributions by and distributions to owners and changes in ownership interests in subsidiaries that do not result in a loss of control.	
		Information to be presented in the statement of changes in equity or in the notes	
125	IAS 1:106A	For each component of equity has the entity presented, either in the statement of changes in equity or in the notes, an analysis of other comprehensive income by item (see paragraphs 106(d)(ii)(above)?	
126	IAS 1:107	Has the entity presented, either in the statement of changes in equity or in the notes:	
127	-	a) the amount of dividends recognised as distributions to owners during the period, and	
128	-	b) the related amount of dividends per share?	
		Notes	
		<i>Structure of notes</i>	
		In the notes has the entity:	
129	IAS 1:112(a)	a) presented information about the basis of preparation of the financial statements and the specific accounting policies used in accordance with paragraphs 117-124 of IAS 1 (see below);	
130	IAS 1:112(b)	b) disclosed the information required by IFRSs that is not presented elsewhere in the financial statements; and	

131	IAS 1:112(c)	c) provided information that is not presented elsewhere in the financial statements, but is relevant to an understanding of any of them.	
132	IAS 1:113	Has the entity (as far as practicable) presented the notes in a systematic manner?	
		<i>Disclosure of accounting policies</i>	
133	IAS 1:117	Has the entity disclosed its significant accounting policies comprising:	
134	IAS 1:117(a)	a) the measurement basis (or bases) used in preparing the financial statements; and	
135	IAS 1:117(b)	b) the other accounting policies used that are relevant to an understanding of the financial statements?	
136	IAS 1:121	Has the entity disclosed each significant accounting policy that is not specifically required by IFRSs, but the entity selects and applies in accordance with IAS 8?	
		<i>Judgements made in the process of applying accounting policies</i>	
137	IAS 1:122	Has the entity disclosed along with its significant accounting policies or other notes, the judgements, apart from those involving estimations (see paragraph 125), that management has made in the process of applying the entity's accounting policies and that have the most significant effect on the amounts recognised in the financial statements?	
		<i>Sources of estimation uncertainty</i>	
138	IAS 1:125	Has the entity disclosed information about the assumptions it makes about the future, and other major sources of estimation uncertainty at the end of the reporting period, that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year?	
139	-	In respect of such assets and liabilities, do the notes include details of:	
140	IAS 1:125(a)	a) their nature; and	
141	IAS 1:125(b)	b) their carrying amount as at the end of the reporting period?	
142	IAS 1:129	Does the entity present the disclosures in paragraph 125 of IAS 1 (see above) in a manner that helps users of financial statements to understand the judgements management makes about the future and about other sources of estimation uncertainty?	
143	IAS 1:131	When it is impracticable to disclose the extent of the possible effects of an assumption or another source of estimation uncertainty at the end of the reporting period, has the entity disclosed that it is reasonably possible, on the basis of existing knowledge, that outcomes within the next financial year that are different from assumptions could require a material adjustment to the carrying amount of the asset or liability affected? In all cases, has the entity disclosed the nature and carrying amount of the specific asset or liability (or class of assets or liabilities) affected by the assumption?	
		<i>Capital</i>	

144	IAS 1:134	Has the entity disclosed information that enables users of its financial statements to evaluate the entity's objectives, policies and processes for managing capital?	
145	-	To comply with paragraph 134 of IAS 1 (see above), has the entity disclosed the following:	
146	IAS 1:135(a)	a) qualitative information about its objectives, policies and processes for managing capital, including:	
147	-	i) a description of what it manages as capital;	
148	-	ii) when an entity is subject to externally imposed capital requirements, the nature of those requirements and how those requirements are incorporated into the management of capital; and	
149	-	iii) how it is meeting its objectives for managing capital;	
150	IAS 1:135(b)	b) summary quantitative data about what it manages as capital;	
151	IAS 1:135(c)	c) any changes in 135(a) and 135(b) (see above) from the previous period;	
152	IAS 1:135(d)	d) whether during the period it complied with any externally imposed capital requirements to which it is subject; and	
153	IAS 1:135(e)	e) when the entity has not complied with such externally imposed capital requirements, the consequences of such non-compliance?	
154	IAS 1:136	When an aggregate disclosure of capital requirements and how capital is managed would not provide useful information or distorts a financial statement user's understanding of an entity's capital resources, has the entity disclosed separate information for each capital requirement to which the entity is subject?	
		<i>Puttable financial instruments classified as equity</i>	
		<i>Other disclosures</i>	
	-	Has the entity disclosed in the notes:	
155	IAS 1:137(a)	a) the amount of dividends proposed or declared before the financial statements were authorised for issue but not recognised as a distribution to owners during the period, and the related amount per share; and	
156	IAS 1:137(b)	b) the amount of any cumulative preference dividends not recognised?	
157	-	Has the entity disclosed the following, if not disclosed elsewhere in information published with the financial statements:	
158	IAS 1:138(a)	a) the domicile and legal form of the entity, its country of incorporation and the address of its registered office (or principal place of business, if different from the registered office);	
159	IAS 1:138(b)	b) a description of the nature of the entity's operations and its principal activities;	
160	IAS 1:138(c)	c) the name of the parent entity and the ultimate parent of the group; and	
161	IAS 1:138(d)	d) if it is a limited life entity, information regarding the length of its life?	

Source: Checklist adopted from Deloitte IFRS Checklist 2020

APPENDIX 2: INTERNATIONAL ACCOUNTING STANDARD 7 (IAS 7) COMPLIANCE CHECKLIST

No.	Standard: IAS 7 Reference	Statement of Cash Flows	Disclosure Made Yes / No / N/A		
		Presentation / Disclosure Requirement	Y	N	N/A
		IAS 7 prescribes the manner in which statement of cash flows should be prepared. In particular, it specifies the treatment in the statement of cash flows of items such as interest, dividends, taxes and the acquisition or disposal of businesses. Under IAS 7, all entities are required to prepare a statement of cash flows as part of their IFRS financial statements.			
		Requirement to present a statement of cash flows			
1	IAS 7:1	An entity shall prepare a statement of cash flows in accordance with the requirements of IAS 7 and shall present it as an integral part of its financial statements for each period for which financial statements are presented.			
2		Classification of cash flows			
3	IAS 7:10	The statement of cash flows shall report cash flows during the period classified by operating, investing and financing activities.			
		Reporting cash flows from operating activities			
	-	An entity shall report cash flows from operating activities using either:			
4	IAS 7:18(a)	a) the direct method, whereby major classes of gross cash receipts and gross cash payments are disclosed; or			
5	IAS 7:18(b)	b) the indirect method, whereby profit or loss is adjusted for the effects of transactions of a non-cash nature, any deferrals or accruals of past or future operating cash receipts or payments, and items of income or expense associated with investing or financing cash flows.			
		Reporting cash flows from investing and financing activities			
6	IAS 7:21	An entity shall report separately major classes of gross cash receipts and gross cash payments arising from investing and financing activities, except to the extent that the cash flows described in paragraphs 22 and 24 of IAS 7 (see guidance) are reported on a net basis.			
7	IAS 7:16	Only expenditures that result in a recognised asset in the statement of financial position are eligible for classification as investing activities.			

		Reporting cash flows on a net basis	
8	IAS 7:22	Cash flows arising from the following operating, investing or financing activities may be reported on a net basis:	
9	IAS 7:22(a)	a) cash receipts and payments on behalf of customers when the cash flows reflect the activities of the customer rather than those of the entity; and	
10	IAS 7:22(b)	b) cash receipts and payments for items in which the turnover is quick, the amounts are large, and the maturities are short.	
11	IAS 7:24	Cash flows arising from each of the following activities of a financial institution may be reported on a net basis:	
12	-	a) cash receipts and payments for the acceptance and repayment of deposits with a fixed maturity date;	
13	-	b) the placement of deposits with and withdrawal of deposits from other financial institutions; and	
14	-	c) cash advances and loans made to customers and the repayment of those advances and loans.	
		Foreign currency cash flows	
15	IAS 7:28	The effect of exchange rate changes on cash and cash equivalents held or due in a foreign currency is reported in the statement of cash flows in order to reconcile cash and cash equivalents at the beginning and the end of the period.	
		Interest and dividends	
16	IAS 7:31	Cash flows arising from interest and dividends received and paid shall each be disclosed separately.	
17	IAS 7:31	Cash flows from interest and dividends received and paid shall each be classified in a consistent manner from period to period as either operating, investing or financing activities.	
		Taxes on income	
18	IAS 7:35	Cash flows arising from taxes on income shall be separately disclosed.	
19	IAS 7:35	Cash flows arising from taxes on income shall be classified as cash flows from operating activities unless they can be specifically identified with financing and investing activities.	
		Investments in subsidiaries, associates and joint ventures	
20		Did the entity have any cash flows arising from an investment in an associate or a subsidiary accounted by the use of the equity or cost method (e.g. dividends or advances)?	
		Changes in ownership interests in subsidiaries and other businesses	

21		Did the entity have any cash flows arising from changes in ownership interests in subsidiaries and other businesses?	
		Non-cash transactions	
22	IAS 7:43	Investing and financing transactions that do not require the use of cash or cash equivalents shall be excluded from the statement of cash flows.	
23	IAS 7:43	Investing and financing transactions that do not require the use of cash or cash equivalents shall be disclosed elsewhere in the financial statements in a way that provides all the relevant information about these investing and financing activities.	
		Changes in liabilities arising from financing activities	
24	IAS 7:44A	Has the entity provided disclosures that enable users of financial statements to evaluate changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash changes?	
25	IAS 7:44B	Has the entity disclosed the following changes in liabilities arising from financing activities? (a) changes from financing cash flows; (b) changes arising from obtaining or losing control of subsidiaries or other businesses; (c) the effect of changes in foreign exchange rates; (d) changes in fair values; and (e) other changes.	
26	IAS 7:44C	Has the entity disclosed changes in financial assets (for example, assets that hedge liabilities arising from financing activities) if cash flows from those financial assets were, or future cash flows will be, included in cash flows from financing activities?	
27	IAS 7:44E	Has the entity provided the disclosure required by paragraph 44A in combination with disclosures of changes in other assets and liabilities?	
28	IAS 7:44E	Has the entity disclosed the changes in liabilities arising from financing activities separately from changes in those other assets and liabilities?	
		Components of cash and cash equivalents	
29	IAS 7:45	An entity shall disclose the components of cash and cash equivalents.	
30	IAS 7:45	An entity shall present a reconciliation of the amounts for cash and cash equivalents in its statement of cash flows with the equivalent items reported in the statement of financial position.	
31	IAS 7:46	In order to comply with IAS 1 <i>Presentation of Financial Statements</i> , an entity discloses the policy that it adopts in determining the composition of cash and cash equivalents.	
32	IAS 7:47	The effect of any change in the policy for determining components of cash and cash equivalents (e.g. a change in the classification of	

		financial instruments previously considered to be part of an entity's investment portfolio), is reported in accordance with IAS 8 <i>Accounting Policies, Changes in Accounting Estimates and Errors</i> .	
		Other disclosures	
33	IAS 7:48	An entity shall disclose, together with a commentary by management, the amount of significant cash and cash equivalent balances held by the entity that are not available for use by the group.	
34	IAS 7:50	The entity is encouraged to disclose additional information that may be relevant to users in understanding the financial position and liquidity of the entity, together with a commentary by management.	

Source: Checklist adopted from Deloitte IFRS Checklist 2020

APPENDIX 3: INTERNATIONAL FINANCIAL REPORTING 7 STANDARD COMPLIANCE CHECKLIST

No.	Standard: IFRS 7 Reference	Financial Instruments: Disclosures (Firm has not yet adopted IFRS 9)	Disclosure Made Yes / No / N/A		
		Presentation / Disclosure Requirement	Y	N	N/A
		IFRS 7 prescribes the disclosure requirements for financial instruments, both recognised and unrecognised.			
		Classes of financial instruments and level of disclosure			
1		Does the entity have any financial instruments?			
2	IFRS 7:6	When IFRS 7 requires disclosures by class of financial instrument, the entity shall group financial instruments into classes that are appropriate to the nature of the information disclosed and that take into account the characteristics of those financial instruments.			
		Significance of financial instruments for financial position and performance			
3	IFRS 7:7	An entity shall disclose information that enables users of its financial statements to evaluate the significance of financial instruments for its financial position and performance.			
		Statement of financial position			
		Categories of financial assets and financial liabilities			
4	-	The carrying amounts of each of the following categories, as defined in IAS 39 <i>Financial Instruments: Recognition and Measurement</i> , shall			

		be disclosed either in the statement of financial position or in the notes:	
5	IFRS 7:8(a)	a) financial assets at fair value through profit or loss, showing separately:	
6	-	i) those designated as such upon initial recognition; and	
7	-	ii) those classified as held for trading in accordance with IAS 39;	
8	IFRS 7:8(b)	b) held-to-maturity investments;	
9	IFRS 7:8(c)	c) loans and receivables;	
10	IFRS 7:8(d)	d) available-for-sale financial assets;	
11	IFRS 7:8(e)	e) financial liabilities at fair value through profit or loss, showing separately:	
12	-	i) those designated as such upon initial recognition; and	
13	-	ii) those classified as held for trading in accordance with IAS 39; and	
14	IFRS 7:8(f)	f) financial liabilities measured at amortised cost.	
15		Financial assets or financial liabilities at fair value through profit or loss	
16	-	Has the entity designated a loan or receivable (or group of loans or receivables) as at fair value through profit or loss?	
17	-	Has the entity designated a financial liability as at fair value through profit or loss in accordance with paragraph 9 of IAS 39?	
		Reclassification	
18	-	Did the entity reclassify a financial asset from one category to another during the reporting period?	
19		Offsetting financial assets and financial liabilities	
20	IFRS 7:13A	Does the entity have any recognised financial instruments which are set off in accordance with paragraph 42 of IAS 32 (see IAS 32P)?	
21	-	Irrespective of whether the instruments are offset in the statement of financial position, does the entity have any recognised financial instruments that are	
22	IFRS 7:B41	subject to an enforceable master netting arrangement or similar agreement (e.g. derivative clearing agreements, global master purchase agreements, global master securities lending agreements and any related rights to financial collateral)?	
		Collateral	
23		Does the entity hold any financial assets at the reporting date that has been pledged as collateral for liabilities or contingent liabilities?	
24	IFRS 7:15	Does the entity hold collateral (of financial or non-financial assets) and is the entity permitted to sell or repledge the collateral in the absence of default by the owner of the collateral?	
25		Allowance account for credit losses	

26		Does the entity hold any financial assets impaired by credit losses?	
27		Compound financial instruments with multiple embedded derivatives	
28		Has the entity issued any compound financial instruments with multiple embedded derivatives?	
29		Defaults and breaches	
30		Did the entity incur any defaults or breaches on loans payable?	
		Statement of comprehensive income	
31		Items of income, expense, gains or losses	
32		The entity shall disclose the following items of income, expense, gains or losses either in the statement of comprehensive income or in the notes:	
33	IFRS 7:20(a)	a) net gains or net losses on:	
34		i) financial assets or financial liabilities at fair value through profit or loss, showing separately those on financial assets or financial liabilities designated as such upon initial recognition, and those on financial assets or financial liabilities that are classified as held for trading;	
35		ii) available-for-sale financial assets, showing separately the amount of gain or loss recognised in other comprehensive income during the period and the amount reclassified from equity to profit or loss for the period;	
36		iii) held-to-maturity investments;	
37		iv) loans and receivables; and	
38		v) financial liabilities measured at amortised cost;	
39	IFRS 7:20(b)	b) total interest income and total interest expense (calculated using the effective interest method) for financial assets or financial liabilities that are not at fair value through profit or loss;	
40	IFRS 7:20(c)	c) fee income and expense (other than amounts included in determining the effective interest rate) arising from:	
41		i) financial assets or financial liabilities that are not at fair value through profit or loss; and	
42		ii) trust and other fiduciary activities that result in the holding or investing of assets on behalf of individuals, trusts, retirement benefit plans, and other institutions;	
43	IFRS 7:20(d)	d) interest income on impaired financial assets accrued in accordance with paragraph AG93 of IAS 39; and	
44	IFRS 7:20(e)	e) the amount of any impairment loss for each class of financial asset.	
		Other disclosures	
		<u>Accounting policies</u>	

45	IFRS 7:21	In accordance with paragraph 117 of IAS 1 <i>Presentation of Financial Statements</i> , an entity discloses, in its significant accounting policies, the measurement basis (or bases) used in preparing the financial statements and the other accounting policies used that are relevant to an understanding of the financial statements.	
		Hedge accounting	
46	-	Has the entity applied hedge accounting in accordance with IAS 39?	
		Fair value	
47	IFRS 7:25	Except as set out in paragraph 29 of IFRS 7 (see below), for each class of financial assets and financial liabilities, the entity shall disclose the fair value of that class of assets and liabilities in a way that permits it to be compared with its carrying amount.	
48	IFRS 7:28	When fair value of a financial asset or financial liability at initial recognition is neither evidenced by a quoted price in an active market for an identical asset or liability nor based on a valuation technique that uses only data from observable markets, has the entity not recognised a gain or loss on initial recognition?	
49	IFRS 7:29(a)	Disclosures of fair value are not required: a) when the carrying amount is a reasonable approximation of fair value (e.g. for financial instruments such as short-term trade receivables and payables);	
50	-	b) for an investment in equity instruments that do not have a quoted price in an active market for an identical instrument (i.e. a Level 1 input), or derivatives linked to such equity instruments, that is measured at cost because its fair value cannot otherwise be measured reliably; or	
51	IFRS 7:29(c)	c) for a contract containing a discretionary participation feature (as described in IFRS 4 <i>Insurance Contracts</i>) if the fair value of that feature cannot be measured reliably.	
52	IFRS 7:29(d)	d) or for lease liabilities.	
53	IFRS 7:30	Do the cases described in paragraphs 29(b) and (c) of IFRS 7 (see above) apply to the entity?	
		Nature and extent of risks arising from financial instruments	
54	IFRS 7:31	The entity shall disclose information that enables users of its financial statements to evaluate the nature and extent of risks arising from financial instruments to which the entity is exposed at the end of the reporting period.	
		Qualitative disclosures	
55	-	For each type of risk arising from financial instruments, the entity shall disclose:	

56	IFRS 7:33(a)	a) the exposures to that risk and how they arise;	
57	IFRS 7:33(b)	b) its objectives, policies and processes for managing the risk and the methods used to measure the risk; and	
58	IFRS 7:33(c)	c) any changes in 33(a) or (b) (see above) from the previous period.	
		Quantitative disclosures	
59	-	For each type of risk arising from financial instruments, the entity shall disclose:	
60	IFRS 7:34(a)	a) summary quantitative data about its exposure to that risk at the end of the reporting period. This disclosure shall be based on the information provided internally to key management personnel of the entity (as defined in IAS 24 <i>Related Party Disclosures</i>) (e.g. the entity's board of directors or chief executive officer);	
61	IFRS 7:34(b)	b) the disclosures required by paragraphs 36 to 42 of IFRS 7 (see below), to the extent not provided in paragraph 34(a) (see above),	
62	IFRS 7:34(c)	c) concentrations of risk if not apparent from 34(a) and (b) (see above).	
	-	Disclosures of concentrations of risk shall include:	
63	IFRS 7:B8(a)	a) a description of how management determines concentrations;	
64	IFRS 7:B8(b)	b) a description of the shared characteristics that identifies each concentration (e.g. counterparty, geographical area, currency or market); and	
65	IFRS 7:B8(c)	c) the amount of the risk exposure associated with all financial instruments sharing that characteristic.	
66	IFRS 7:35	If the quantitative data disclosed as at the end of the reporting period are unrepresentative of an entity's exposure to risk during the period, an entity shall provide further information that is representative.	
		Credit risk	
67	-	The entity shall disclose by class of financial instrument:	
68	IFRS 7:36(a)	a) the amount that best represents its maximum exposure to credit risk at the end of the reporting period without taking account of any collateral held or other credit enhancements (e.g. netting agreements that do not qualify for offset in accordance with IAS 32 <i>Financial Instruments: Presentation</i>) (see also IFRS 7:B9 and B10);	
69	IFRS 7:36(b)	b) a description of collateral held as security and of other credit enhancements, and their financial effect (e.g. a quantification of the extent to which collateral and other credit enhancements mitigate credit risk) in respect of the amount that	

		best represents the maximum exposure to credit risk (whether disclosed in accordance with IFRS 7:36(a) (see above) or represented by the carrying amount of a financial instrument)	
70	IFRS 7:36(c)	c) information about the credit quality of financial assets that are neither past due nor impaired.	
	-	An entity shall disclose by class of financial asset:	
71	IFRS 7:37(a)	a) an analysis of the age of financial assets that are past due as at the end of the reporting period but not impaired;	
72	IFRS 7:37(b)	b) an analysis of financial assets that are individually determined to be impaired as at the end of the reporting period, including the factors the entity considered in determining that they are impaired; and	
73	IFRS 7:38	Did the entity obtain financial or non-financial assets during the period by taking possession of collateral it held as security or calling on other credit enhancements (e.g. guarantees), and did such assets meet the recognition criteria in other IFRSs?	
		Liquidity risk	
		The entity shall disclose:	
74	IFRS 7:39(a)	a) a maturity analysis for non-derivative financial liabilities (including issued financial guarantee contracts) that shows the remaining contractual maturities;	
75	IFRS 7:39(b)	b) a maturity analysis for derivative financial liabilities. The maturity analysis shall include the remaining contractual maturities for those derivative financial liabilities for which contractual maturities are essential for an understanding of the timing of the cash flows (see paragraph B11B);	
76	IFRS 7:39(c)	c) a description of how it manages the liquidity risk inherent in 39(a) and 39 (b) (see above).	
77	IFRS 7:B10A	The entity shall explain how the summary quantitative data about its exposure to liquidity risk are determined.	
	IFRS 7:B10A	If the outflows of cash (or another financial asset) included in those data could either:	
78	-	a) occur significantly earlier than indicated in the data, or	
79	-	b) be for significantly different amounts from those indicated in the data (e.g. for a derivative that is included in the data on a net settlement basis but for which the counterparty has the option to require gross settlement),	
80	-	the entity shall state that fact and provide quantitative information that enables users of its	

		financial statements to evaluate the extent of this risk unless that information is included in the contractual maturity analyses required by paragraph 39(a) or (b).	
81	IFRS 7:B11E	In describing how an entity manages the liquidity risk inherent in the items disclosed in the quantitative disclosures required in paragraph 39(a) and 39(b) of IFRS 7 (as required by paragraph 39(c) of IFRS 7), an entity shall disclose a maturity analysis of financial assets it holds for managing liquidity risk (e.g. financial assets that are readily saleable or expected to generate cash inflows to meet cash outflows on financial liabilities), if that information is necessary to enable users of its financial statements to evaluate the nature and extent of liquidity risk.	
	IFRS 7:B11F	Other factors that an entity might consider in providing the disclosure required in paragraph 39(c) include, but are not limited to, whether the entity:	
82	-	a) has committed borrowing facilities (e.g. commercial paper facilities) or other lines of credit (e.g. stand-by credit facilities) that it can access to meet liquidity needs;	
83	-	b) holds deposits at central banks to meet liquidity needs;	
84	-	c) has very diverse funding sources;	
85	-	d) has significant concentrations of liquidity risk in either its assets or its funding sources;	
86	-	e) has internal control processes and contingency plans for managing liquidity risk;	
87	-	f) has instruments that include accelerated repayment terms (e.g. on the downgrade of the entity's credit rating);	
88	-	g) has instruments that could require the posting of collateral (e.g. margin calls for derivatives);	
89	-	h) has instruments that allows the entity to choose whether it settles its financial liabilities by delivering cash (or another financial asset) or by delivering its own shares; or	
90	-	i) has instruments that are subject to master netting agreements.	
		Market risk	
	-	Unless the entity complies with paragraph 41 of IFRS 7 (see below), it shall disclose:	
91	IFRS 7:40(a)	a) a sensitivity analysis for each type of market risk to which the entity is exposed at the end of the reporting period, showing how profit or loss and equity would have been affected by	

		changes in the relevant risk variable that were reasonably possible at that date;	
92	IFRS 7:40(b)	b) the methods and assumptions used in preparing the sensitivity analysis; and	
93	IFRS 7:40(c)	c) changes from the previous period in the methods and assumptions used, and the reasons for such changes.	
94	IFRS 7:41	Did the entity prepare a sensitivity analysis, such as value-at-risk, in accordance with IFRS 7.41?	
95	IFRS 7:42	When the sensitivity analyses disclosed in accordance with paragraphs 40 or 41 of IFRS 7 (see above) are unrepresentative of a risk inherent in a financial instrument (for example, because the year-end exposure does not reflect the exposure during the year), the entity shall disclose that fact and the reason it believes the sensitivity analyses are unrepresentative.	
		<u>Transfers of Financial Assets</u>	
	-	Has the entity transferred all or a part of a financial asset (the transferred financial asset) by any of the following ways:	
96	IFRS 7:42A(a)	a) transferring the contractual rights to receive the cash flows of that financial asset; or	
97	IFRS 7:42A(b)	b) retaining the contractual rights to receive the cash flows of that financial asset, but assuming a contractual obligation to pay the cash flows to one or more recipients in an arrangement.	
		<u>Transferred Financial Assets That Are Not Derecognised in Their Entirety</u>	
98	IFRS 7:42D	Has the entity transferred financial assets in such a way that part or all of the transferred financial assets do not qualify for derecognition?	
		<u>Transferred Financial Assets That Are Derecognised in Their Entirety</u>	
99	IFRS 7:42E	Has the entity derecognised transferred financial assets in their entirety (see paragraph 20(a) and (c)(i) of IAS 39) but has continuing involvement in them?	

Source: Checklist adopted from Deloitte IFRS Checklist 2020

APPENDIX 4: INTERNATIONAL FINANCIAL REPORTING 9 STANDARD COMPLIANCE CHECKLIST

No.	Standard: IFRS 9 Reference	Financial Instruments	Disclosure Made Yes / No / N/A		
		Presentation / Disclosure Requirement	Y	N	N/A
		IFRS 9 Financial Instruments sets out the requirements for recognising and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. This Standard replaces IAS 39 Financial Instruments: Recognition and Measurement.			
	IFRS 9.1.1	The objective of this Standard is to establish principles for the financial reporting of financial assets and financial liabilities that will present relevant and useful information to users of financial statements for their assessment of the amounts, timing and uncertainty of an entity's future cash flows.			
	IFRS 9.7.1.1	An entity shall apply this Standard for annual periods beginning on or after 1 January 2018.			
		Hedge Accounting			
1	IFRS 9: 6.6.4	For a hedge of a group of items with offsetting risk positions (i.e. in a hedge of a net position) whose hedged risk affects different line items in the statement of profit or loss and other comprehensive income, any hedging gains or losses in that statement shall be presented in a separate line from those affected by the hedged items. Hence, in that statement the amount in the line item that relates to the hedged item itself (for example, revenue or cost of sales) remains unaffected.			
2	IFRS 9: 6.6.5	For assets and liabilities that are hedged together as a group in a fair value hedge, the gain or loss in the statement of financial position on the individual assets and liabilities shall be recognised as an adjustment of the carrying amount of the respective individual items comprising the group in accordance with paragraph 6.5.8(b).			
		Adoption of Standard in advance of effective date			
3		Has the entity applied IFRS 9?			
4	IFRS 9:7.1.1	It shall disclose that fact.			
5	IFRS 9:7.1.2	Has the entity elected to apply the requirements for the presentation of gains and losses on financial liabilities designated as at fair value through profit or loss in paragraphs 5.7.1(c), 5.7.7–5.7.9, 7.2.12 and B5.7.5–B5.7.20 without applying the other requirements in this Standard?			
6	IFRS 9:7.1.2	It shall disclose that fact and provide on an ongoing basis the related disclosures set out in paragraphs 10–11 of IFRS 7 (as amended by IFRS 9, issued in October 2010).			

Source: Checklist adopted from Deloitte IFRS Checklist 2020

APPENDIX 5: INDIVIDUAL FIRM DISCLOSURE SCORES, JSE-LISTED FIRMS

FirmCode	YR	Year	WDI _{scale}	WDI _{dummy}	UDI	PUDI	Age
1	2011	1	36%	64%	276%	69%	31
1	2012	2	38%	56%	247%	62%	30
1	2013	3	34%	56%	254%	64%	29
1	2014	4	37%	57%	266%	67%	28
1	2015	5	32%	54%	245%	61%	27
1	2016	6	38%	52%	234%	58%	26
1	2017	7	36%	56%	252%	63%	25
1	2018	8	39%	57%	270%	67%	24
1	2019	9	33%	53%	239%	60%	23
1	2020	10	41%	57%	271%	68%	22
2	2011	1	8%	12%	52%	13%	26
2	2012	2	0%	0%	0%	0%	25
2	2013	3	0%	0%	0%	0%	24
2	2014	4	32%	51%	222%	56%	23
2	2015	5	0%	0%	0%	0%	22
2	2016	6	36%	48%	210%	53%	21
2	2017	7	36%	54%	245%	61%	20
2	2018	8	38%	50%	199%	50%	19
2	2019	9	35%	54%	233%	58%	18
2	2020	10	39%	52%	229%	57%	17
3	2011	1	0%	0%	0%	0%	27
3	2012	2	0%	0%	0%	0%	26
3	2013	3	0%	0%	0%	0%	25
3	2014	4	0%	0%	0%	0%	24
3	2015	5	30%	51%	232%	58%	23
3	2016	6	35%	48%	207%	52%	22
3	2017	7	17%	26%	47%	12%	21
3	2018	8	35%	47%	185%	46%	20
3	2019	9	32%	52%	227%	57%	19
3	2020	10	38%	50%	224%	56%	18
4	2011	1	0%	0%	0%	0%	46
4	2012	2	0%	0%	0%	0%	45
4	2013	3	0%	0%	0%	0%	44
4	2014	4	0%	0%	0%	0%	43
4	2015	5	0%	0%	0%	0%	42
4	2016	6	36%	48%	207%	52%	41
4	2017	7	15%	25%	45%	11%	40
4	2018	8	35%	47%	196%	49%	39
4	2019	9	0%	.	0%	0%	38

4	2020	10	37%	48%	235%	59%	37
5	2011	1	0%	0%	0%	0%	27
5	2012	2	0%	0%	0%	0%	26
5	2013	3	3%	7%	91%	23%	25
5	2014	4	0%	0%	0%	0%	24
5	2015	5	31%	48%	213%	53%	23
5	2016	6	33%	49%	212%	53%	22
5	2017	7	16%	23%	42%	11%	21
5	2018	8	33%	47%	194%	49%	20
5	2019	9	33%	49%	228%	57%	19
5	2020	10	35%	50%	232%	58%	18
6	2011	1	31%	49%	206%	51%	23
6	2012	2	34%	51%	220%	55%	22
6	2013	3	33%	50%	219%	55%	21
6	2014	4	31%	49%	222%	56%	20
6	2015	5	30%	50%	227%	57%	19
6	2016	6	29%	46%	204%	51%	18
6	2017	7	30%	47%	213%	53%	17
6	2018	8	25%	43%	201%	50%	16
6	2019	9	31%	49%	224%	56%	15
6	2020	10	31%	46%	211%	53%	14
7	2011	1	31%	48%	201%	50%	15
7	2012	2	32%	51%	221%	55%	14
7	2013	3	32%	50%	221%	55%	13
7	2014	4	32%	51%	228%	57%	12
7	2015	5	33%	53%	240%	60%	11
7	2016	6	36%	49%	218%	55%	10
7	2017	7	31%	50%	219%	55%	9
7	2018	8	36%	51%	227%	57%	8
7	2019	9	33%	52%	236%	59%	7
7	2020	10	38%	50%	225%	56%	6
8	2011	1	46%	59%	224%	56%	24
8	2012	2	44%	48%	212%	53%	23
8	2013	3	45%	51%	228%	57%	22
8	2014	4	43%	46%	210%	53%	21
8	2015	5	47%	52%	242%	61%	20
8	2016	6	37%	49%	215%	54%	19
8	2017	7	29%	46%	208%	52%	18
8	2018	8	36%	48%	220%	55%	17
8	2019	9	31%	50%	232%	58%	16
8	2020	10	37%	47%	214%	54%	15
9	2011	1	42%	58%	224%	56%	29
9	2012	2	44%	44%	202%	50%	28
9	2013	3	42%	45%	211%	53%	27
9	2014	4	44%	45%	210%	53%	26
9	2015	5	32%	52%	241%	60%	25

9	2016	6	40%	43%	205%	51%	24
9	2017	7	39%	37%	191%	48%	23
9	2018	8	36%	50%	225%	56%	22
9	2019	9	31%	50%	231%	58%	21
9	2020	10	37%	49%	224%	56%	20
10	2011	1	32%	52%	229%	57%	23
10	2012	2	30%	47%	204%	51%	22
10	2013	3	33%	50%	226%	57%	21
10	2014	4	31%	48%	214%	53%	20
10	2015	5	37%	55%	254%	64%	19
10	2016	6	29%	46%	202%	51%	18
10	2017	7	29%	46%	202%	50%	17
10	2018	8	25%	40%	182%	45%	16
10	2019	9	35%	53%	241%	60%	15
10	2020	10	30%	45%	202%	50%	14
11	2011	1	18%	33%	132%	33%	21
11	2012	2	16%	26%	48%	12%	20
11	2013	3	31%	50%	215%	54%	19
11	2014	4	28%	49%	214%	54%	18
11	2015	5	31%	52%	238%	59%	17
11	2016	6	31%	50%	218%	55%	16
11	2017	7	30%	50%	231%	58%	15
11	2018	8	31%	53%	238%	60%	14
11	2019	9	31%	52%	237%	59%	13
11	2020	10	31%	51%	231%	58%	12
12	2011	1	29%	45%	198%	50%	93
12	2012	2	31%	46%	203%	51%	92
12	2013	3	35%	50%	222%	55%	91
12	2014	4	35%	50%	226%	56%	90
12	2015	5	38%	54%	261%	65%	89
12	2016	6	29%	45%	202%	50%	88
12	2017	7	34%	49%	217%	54%	87
12	2018	8	30%	47%	217%	54%	86
12	2019	9	38%	54%	264%	66%	85
12	2020	10	31%	47%	219%	55%	84
13	2011	1	17%	25%	46%	11%	25
13	2012	2	17%	25%	46%	12%	24
13	2013	3	27%	44%	193%	48%	23
13	2014	4	30%	49%	214%	53%	22
13	2015	5	32%	51%	237%	59%	21
13	2016	6	32%	49%	211%	53%	20
13	2017	7	32%	51%	232%	58%	19
13	2018	8	33%	52%	234%	58%	18
13	2019	9	33%	50%	235%	59%	17
13	2020	10	33%	50%	224%	56%	16
14	2011	1	19%	28%	51%	13%	49

14	2012	2	19%	28%	51%	13%	48
14	2013	3	19%	28%	52%	13%	47
14	2014	4	33%	53%	220%	55%	46
14	2015	5	34%	53%	234%	58%	45
14	2016	6	34%	54%	228%	57%	44
14	2017	7	36%	54%	235%	59%	43
14	2018	8	36%	55%	240%	60%	42
14	2019	9	34%	52%	231%	58%	41
14	2020	10	35%	54%	236%	59%	40
15	2011	1	34%	51%	222%	55%	48
15	2012	2	24%	40%	173%	43%	47
15	2013	3	33%	52%	233%	58%	46
15	2014	4	36%	55%	249%	62%	45
15	2015	5	31%	54%	235%	59%	44
15	2016	6	32%	51%	224%	56%	43
15	2017	7	34%	53%	230%	58%	42
15	2018	8	33%	53%	236%	59%	41
15	2019	9	32%	52%	237%	59%	40
15	2020	10	34%	53%	242%	60%	39
16	2011	1	13%	23%	41%	10%	65
16	2012	2	13%	23%	41%	10%	64
16	2013	3	13%	23%	42%	10%	63
16	2014	4	13%	23%	41%	10%	62
16	2015	5	13%	24%	44%	11%	61
16	2016	6	25%	44%	200%	50%	60
16	2017	7	13%	23%	42%	10%	59
16	2018	8	29%	45%	186%	47%	58
16	2019	9	32%	51%	238%	60%	57
16	2020	10	28%	46%	211%	53%	56
17	2011	1	17%	28%	50%	13%	53
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17	2013	3	17%	27%	50%	12%	51
17	2014	4	27%	45%	194%	49%	50
17	2015	5	17%	27%	49%	12%	49
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17	2017	7	32%	50%	233%	58%	47
17	2018	8	19%	33%	122%	31%	46
17	2019	9	17%	27%	50%	12%	45
17	2020	10	32%	52%	226%	56%	44
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19	2016	6	30%	48%	208%	52%	19
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20	2015	5	31%	52%	228%	57%	8
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21	2015	5	0%	0%	0%	0%	39
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22	2014	4	34%	55%	242%	60%	51
22	2015	5	34%	54%	238%	60%	50
22	2016	6	35%	54%	237%	59%	49
22	2017	7	34%	55%	239%	60%	48
22	2018	8	35%	54%	240%	60%	47
22	2019	9	35%	54%	240%	60%	46
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23	2017	7	31%	48%	236%	59%	6
23	2018	8	32%	48%	225%	56%	5
23	2019	9	14%	21%	41%	10%	4
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24	2018	8	33%	49%	227%	57%	97
24	2019	9	34%	51%	230%	57%	96
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25	2018	8	31%	49%	222%	56%	64
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27	2018	8	31%	49%	227%	57%	13
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40	2013	3	32%	49%	213%	53%	46
40	2014	4	32%	49%	213%	53%	45
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41	2015	5	32%	50%	241%	60%	78
41	2016	6	30%	51%	231%	58%	77
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41	2020	10	32%	52%	241%	60%	73
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42	2017	7	33%	52%	225%	56%	50
42	2018	8	35%	54%	239%	60%	49
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43	2018	8	32%	52%	241%	60%	45
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45	2016	6	23%	40%	179%	45%	31
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45	2018	8	30%	48%	217%	54%	29
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46	2016	6	31%	49%	211%	53%	30
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46	2018	8	32%	49%	217%	54%	28
46	2019	9	31%	49%	218%	54%	27
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50	2018	8	32%	52%	223%	56%	79
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51	2012	2	17%	26%	47%	12%	71
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51	2014	4	35%	52%	223%	56%	69
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51	2018	8	33%	50%	215%	54%	65
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54	2015	5	32%	48%	224%	56%	15
54	2016	6	35%	52%	223%	56%	14
54	2017	7	29%	46%	195%	49%	13
54	2018	8	35%	54%	234%	58%	12
54	2019	9	36%	54%	249%	62%	11
54	2020	10	36%	54%	237%	59%	10
55	2011	1	24%	42%	186%	47%	106
55	2012	2	15%	24%	43%	11%	105
55	2013	3	15%	24%	43%	11%	104
55	2014	4	31%	49%	218%	55%	103
55	2015	5	27%	46%	216%	54%	102

55	2016	6	27%	47%	206%	51%	101
55	2017	7	29%	47%	205%	51%	100
55	2018	8	32%	50%	226%	57%	99
55	2019	9	28%	47%	223%	56%	98
55	2020	10	29%	49%	225%	56%	97
56	2011	1	32%	52%	214%	53%	25
56	2012	2	32%	52%	210%	53%	24
56	2013	3	30%	51%	209%	52%	23
56	2014	4	31%	49%	203%	51%	22
56	2015	5	35%	57%	250%	63%	21
56	2016	6	33%	51%	210%	52%	20
56	2017	7	14%	22%	154%	39%	19
56	2018	8	17%	25%	174%	43%	18
56	2019	9	17%	27%	191%	48%	17
56	2020	10	15%	25%	173%	43%	16
57	2011	1	30%	47%	201%	50%	43
57	2012	2	33%	51%	219%	55%	42
57	2013	3	31%	49%	211%	53%	41
57	2014	4	31%	49%	209%	52%	40
57	2015	5	34%	50%	230%	58%	39
57	2016	6	27%	42%	184%	46%	38
57	2017	7	34%	50%	218%	54%	37
57	2018	8	29%	44%	199%	50%	36
57	2019	9	38%	49%	223%	56%	35
57	2020	10	28%	43%	193%	48%	34
58	2011	1	0%	0%	0%	0%	66
58	2012	2	0%	0%	0%	0%	65
58	2013	3	14%	24%	161%	40%	64
58	2014	4	0%	0%	0%	0%	63
58	2015	5	0%	0%	1%	0%	62
58	2016	6	0%	0%	0%	0%	61
58	2017	7	28%	46%	203%	51%	60
58	2018	8	24%	37%	143%	36%	59
58	2019	9	23%	25%	187%	47%	58
58	2020	10	6%	11%	120%	30%	57
59	2011	1	14%	21%	39%	10%	26
59	2012	2	22%	37%	169%	42%	25
59	2013	3	27%	45%	202%	51%	24
59	2014	4	28%	45%	204%	51%	23
59	2015	5	33%	50%	243%	61%	22
59	2016	6	27%	44%	195%	49%	21
59	2017	7	28%	44%	181%	45%	20
59	2018	8	30%	47%	216%	54%	19
59	2019	9	33%	48%	237%	59%	18
59	2020	10	29%	46%	214%	54%	17
60	2011	1	38%	48%	201%	50%	15

60	2012	2	34%	46%	191%	48%	14
60	2013	3	36%	47%	198%	50%	13
60	2014	4	27%	45%	190%	47%	12
60	2015	5	41%	52%	231%	58%	11
60	2016	6	27%	45%	190%	48%	10
60	2017	7	26%	43%	184%	46%	9
60	2018	8	33%	50%	221%	55%	8
60	2019	9	30%	46%	210%	53%	7
60	2020	10	29%	47%	206%	52%	6
61	2011	1	26%	45%	198%	50%	14
61	2012	2	26%	44%	193%	48%	13
61	2013	3	26%	46%	202%	50%	12
61	2014	4	26%	45%	196%	49%	11
61	2015	5	32%	51%	233%	58%	10
61	2016	6	26%	44%	196%	49%	9
61	2017	7	32%	50%	221%	55%	8
61	2018	8	33%	50%	231%	58%	7
61	2019	9	37%	47%	228%	57%	6
61	2020	10	27%	44%	185%	46%	5
62	2011	1	29%	48%	208%	52%	172
62	2012	2	29%	48%	214%	53%	172
62	2013	3	29%	49%	219%	55%	172
62	2014	4	30%	49%	220%	55%	172
62	2015	5	33%	52%	240%	60%	172
62	2016	6	29%	48%	211%	53%	172
62	2017	7	30%	47%	212%	53%	172
62	2018	8	32%	51%	231%	58%	172
62	2019	9	18%	31%	129%	32%	172
62	2020	10	30%	47%	216%	54%	172
63	2011	1	15%	22%	41%	10%	39
63	2012	2	15%	22%	40%	10%	38
63	2013	3	15%	22%	40%	10%	37
63	2014	4	34%	51%	233%	58%	36
63	2015	5	28%	43%	206%	52%	35
63	2016	6	29%	45%	202%	50%	34
63	2017	7	31%	49%	220%	55%	33
63	2018	8	27%	43%	198%	50%	32
63	2019	9	37%	48%	229%	57%	31
63	2020	10	29%	46%	213%	53%	30
64	2011	1	31%	53%	234%	58%	26
64	2012	2	36%	48%	206%	51%	25
64	2013	3	28%	46%	198%	50%	24
64	2014	4	31%	52%	228%	57%	23
64	2015	5	29%	46%	202%	50%	22
64	2016	6	32%	49%	213%	53%	21
64	2017	7	30%	50%	212%	53%	20

64	2018	8	32%	50%	216%	54%	19
64	2019	9	30%	46%	207%	52%	18
64	2020	10	32%	49%	214%	53%	17
65	2011	1	29%	46%	213%	53%	25
65	2012	2	30%	41%	189%	47%	24
65	2013	3	28%	44%	204%	51%	23
65	2014	4	28%	46%	209%	52%	22
65	2015	5	29%	44%	214%	53%	21
65	2016	6	32%	47%	219%	55%	20
65	2017	7	24%	39%	183%	46%	19
65	2018	8	27%	45%	214%	54%	18
65	2019	9	29%	46%	221%	55%	17
65	2020	10	33%	50%	233%	58%	16
66	2011	1	29%	47%	198%	49%	75
66	2012	2	32%	47%	196%	49%	74
66	2013	3	27%	46%	196%	49%	73
66	2014	4	27%	44%	189%	47%	72
66	2015	5	35%	56%	254%	63%	71
66	2016	6	32%	52%	218%	54%	70
66	2017	7	27%	42%	183%	46%	69
66	2018	8	33%	51%	226%	57%	68
66	2019	9	32%	52%	242%	60%	67
66	2020	10	33%	52%	232%	58%	66
67	2011	1	40%	49%	204%	51%	65
67	2012	2	32%	49%	210%	52%	64
67	2013	3	0%	0%	0%	0%	63
67	2014	4	14%	23%	168%	42%	62
67	2015	5	31%	48%	226%	56%	61
67	2016	6	29%	46%	207%	52%	60
67	2017	7	24%	39%	181%	45%	59
67	2018	8	31%	48%	224%	56%	58
67	2019	9	32%	50%	235%	59%	57
67	2020	10	31%	47%	222%	55%	56
68	2011	1	0%	0%	0%	0%	26
68	2012	2	0%	0%	0%	0%	25
68	2013	3	0%	0%	0%	0%	24
68	2014	4	0%	0%	0%	0%	23
68	2015	5	0%	0%	1%	0%	22
68	2016	6	26%	44%	189%	47%	21
68	2017	7	33%	50%	226%	56%	20
68	2018	8	33%	51%	227%	57%	19
68	2019	9	33%	51%	226%	56%	18
68	2020	10	29%	46%	206%	51%	17
69	2011	1	0%	0%	0%	0%	57
69	2012	2	0%	0%	0%	0%	56
69	2013	3	0%	0%	0%	0%	55

69	2014	4	28%	49%	214%	54%	54
69	2015	5	31%	50%	220%	55%	53
69	2016	6	32%	54%	232%	58%	52
69	2017	7	31%	46%	216%	54%	51
69	2018	8	30%	49%	223%	56%	50
69	2019	9	31%	48%	221%	55%	49
69	2020	10	33%	52%	240%	60%	48
70	2011	1	0%	0%	0%	0%	36
70	2012	2	25%	45%	191%	48%	35
70	2013	3	16%	27%	48%	12%	34
70	2014	4	27%	47%	210%	53%	33
70	2015	5	31%	47%	218%	54%	32
70	2016	6	28%	43%	195%	49%	31
70	2017	7	27%	43%	192%	48%	30
70	2018	8	27%	46%	213%	53%	29
70	2019	9	34%	51%	234%	59%	28
70	2020	10	30%	47%	221%	55%	27
71	2011	1	28%	46%	194%	49%	25
71	2012	2	28%	46%	197%	49%	24
71	2013	3	28%	75%	148%	37%	23
71	2014	4	28%	46%	193%	48%	22
71	2015	5	47%	44%	207%	52%	21
71	2016	6	32%	52%	219%	55%	20
71	2017	7	31%	46%	198%	49%	19
71	2018	8	32%	50%	222%	55%	18
71	2019	9	32%	48%	216%	54%	17
71	2020	10	35%	53%	235%	59%	16
72	2011	1	28%	44%	191%	48%	35
72	2012	2	28%	46%	201%	50%	34
72	2013	3	28%	45%	194%	49%	33
72	2014	4	29%	47%	210%	53%	32
72	2015	5	32%	51%	230%	58%	31
72	2016	6	28%	49%	215%	54%	30
72	2017	7	28%	44%	199%	50%	29
72	2018	8	32%	51%	232%	58%	28
72	2019	9	33%	51%	230%	58%	27
72	2020	10	28%	48%	223%	56%	26
73	2011	1	30%	47%	198%	50%	24
73	2012	2	31%	48%	207%	52%	23
73	2013	3	30%	46%	195%	49%	22
73	2014	4	32%	49%	208%	52%	21
73	2015	5	35%	53%	237%	59%	20
73	2016	6	34%	50%	211%	53%	19
73	2017	7	31%	48%	207%	52%	18
73	2018	8	31%	50%	223%	56%	17
73	2019	9	33%	51%	234%	58%	16

73	2020	10	34%	50%	224%	56%	15
74	2011	1	14%	22%	39%	10%	46
74	2012	2	14%	21%	39%	10%	45
74	2013	3	14%	21%	38%	10%	44
74	2014	4	31%	49%	219%	55%	43
74	2015	5	29%	47%	219%	55%	42
74	2016	6	31%	46%	210%	53%	41
74	2017	7	33%	49%	238%	59%	40
74	2018	8	25%	42%	197%	49%	39
74	2019	9	25%	41%	195%	49%	38
74	2020	10	31%	47%	220%	55%	37
75	2011	1	14%	22%	39%	10%	26
75	2012	2	14%	22%	40%	10%	25
75	2013	3	28%	45%	206%	51%	24
75	2014	4	28%	47%	210%	53%	23
75	2015	5	28%	48%	228%	57%	22
75	2016	6	30%	44%	203%	51%	21
75	2017	7	32%	48%	229%	57%	20
75	2018	8	31%	48%	227%	57%	19
75	2019	9	30%	50%	235%	59%	18
75	2020	10	31%	46%	215%	54%	17
76	2011	1	26%	43%	192%	48%	35
76	2012	2	28%	47%	210%	53%	34
76	2013	3	28%	45%	205%	51%	33
76	2014	4	29%	47%	211%	53%	32
76	2015	5	29%	48%	226%	57%	31
76	2016	6	28%	46%	204%	51%	30
76	2017	7	30%	45%	207%	52%	29
76	2018	8	31%	48%	225%	56%	28
76	2019	9	31%	48%	224%	56%	27
76	2020	10	30%	47%	217%	54%	26
77	2011	1	29%	45%	201%	50%	107
77	2012	2	24%	41%	185%	46%	106
77	2013	3	28%	46%	206%	52%	105
77	2014	4	25%	41%	185%	46%	104
77	2015	5	32%	52%	244%	61%	103
77	2016	6	28%	44%	200%	50%	102
77	2017	7	32%	49%	217%	54%	101
77	2018	8	30%	48%	221%	55%	100
77	2019	9	32%	50%	238%	60%	99
77	2020	10	29%	46%	211%	53%	98
78	2011	1	17%	25%	45%	11%	24
78	2012	2	21%	34%	152%	38%	23
78	2013	3	32%	49%	215%	54%	22
78	2014	4	34%	53%	231%	58%	21
78	2015	5	34%	51%	233%	58%	20

78	2016	6	29%	45%	193%	48%	19
78	2017	7	30%	45%	196%	49%	18
78	2018	8	34%	51%	227%	57%	17
78	2019	9	36%	52%	238%	60%	16
78	2020	10	30%	46%	208%	52%	15
79	2011	1	29%	45%	204%	51%	16
79	2012	2	28%	45%	202%	51%	15
79	2013	3	15%	22%	40%	10%	14
79	2014	4	28%	45%	203%	51%	13
79	2015	5	29%	44%	208%	52%	12
79	2016	6	29%	45%	197%	49%	11
79	2017	7	30%	45%	202%	50%	10
79	2018	8	33%	52%	241%	60%	9
79	2019	9	32%	47%	215%	54%	8
79	2020	10	31%	47%	219%	55%	7
80	2011	1	0%	0%	.	.	36
80	2012	2	17%	27%	49%	12%	35
80	2013	3	17%	26%	48%	12%	34
80	2014	4	34%	55%	226%	56%	33
80	2015	5	52%	52%	222%	56%	32
80	2016	6	36%	55%	254%	63%	31
80	2017	7	31%	49%	210%	53%	30
80	2018	8	30%	47%	209%	52%	29
80	2019	9	50%	49%	221%	55%	28
80	2020	10	33%	52%	229%	57%	27
81	2011	1	.	7%	.	.	48
81	2012	2	16%	25%	46%	11%	47
81	2013	3	16%	25%	46%	12%	46
81	2014	4	29%	51%	222%	55%	45
81	2015	5	33%	51%	224%	56%	44
81	2016	6	33%	53%	239%	60%	43
81	2017	7	30%	48%	214%	53%	42
81	2018	8	33%	53%	238%	60%	41
81	2019	9	19%	33%	132%	33%	40
81	2020	10	33%	52%	234%	58%	39
82	2011	1	17%	25%	45%	11%	55
82	2012	2	17%	25%	45%	11%	54
82	2013	3	32%	49%	209%	52%	53
82	2014	4	17%	25%	45%	11%	52
82	2015	5	33%	52%	231%	58%	51
82	2016	6	36%	53%	240%	60%	50
82	2017	7	32%	48%	216%	54%	49
82	2018	8	35%	52%	234%	58%	48
82	2019	9	20%	32%	132%	33%	47
82	2020	10	35%	52%	233%	58%	46
83	2011	1	0%	0%	0%	0%	55

83	2012	2	6%	11%	20%	5%	54
83	2013	3	0%	0%	0%	0%	53
83	2014	4	0%	0%	0%	0%	52
83	2015	5	0%	0%	1%	0%	51
83	2016	6	20%	28%	196%	49%	50
83	2017	7	17%	26%	47%	12%	49
83	2018	8	0%	0%	0%	0%	48
83	2019	9	19%	28%	196%	49%	47
83	2020	10	18%	26%	186%	46%	46
84	2011	1	0%	0%	0%	0%	53
84	2012	2	0%	0%	0%	0%	52
84	2013	3	0%	0%	0%	0%	51
84	2014	4	0%	0%	0%	0%	50
84	2015	5	0%	0%	1%	0%	49
84	2016	6	16%	23%	164%	41%	48
84	2017	7	0%	0%	0%	0%	47
84	2018	8	0%	0%	0%	0%	46
84	2019	9	14%	26%	179%	45%	45
84	2020	10	17%	25%	182%	46%	44

APPENDIX 6: INDIVIDUAL FIRM DISCLOSURE SCORES, GSE-LISTED FIRMS

FirmCode	YR	Year	WDI _{scale}	WDI _{dummy}	PUDI	UDI	Age
1	2011	1	23%	57%	51%	169%	2
1	2012	2	30%	68%	61%	207%	3
1	2013	3	32%	69%	63%	219%	4
1	2014	4	29%	64%	59%	202%	5
1	2015	5	30%	57%	55%	194%	6
1	2016	6	38%	46%	51%	187%	7
1	2017	7	38%	48%	56%	206%	8
1	2018	8	37%	49%	57%	209%	9
1	2019	9	41%	51%	62%	229%	10
1	2020	10	32%	50%	56%	206%	11
2	2011	1	28%	66%	61%	210%	46
2	2012	2	33%	69%	62%	213%	47
2	2013	3	34%	67%	61%	209%	48
2	2014	4	33%	68%	62%	211%	49
2	2015	5	30%	36%	45%	168%	50
2	2016	6	34%	49%	53%	191%	51
2	2017	7	30%	42%	48%	177%	52
2	2018	8	35%	51%	61%	223%	53
2	2019	9	36%	50%	55%	200%	54
2	2020	10	36%	47%	52%	188%	55
3	2011	1	27%	51%	54%	195%	7
3	2012	2	33%	45%	51%	186%	8
3	2013	3	35%	46%	53%	193%	9
3	2014	4	30%	39%	48%	179%	10
3	2015	5	39%	45%	51%	188%	11
3	2016	6	31%	46%	58%	214%	12
3	2017	7	28%	42%	50%	187%	13
3	2018	8	36%	47%	58%	218%	14
3	2019	9	35%	47%	58%	216%	15
3	2020	10	32%	47%	59%	221%	16
4	2011	1	29%	50%	53%	192%	33
4	2012	2	33%	46%	51%	183%	34
4	2013	3	33%	43%	51%	187%	35
4	2014	4	53%	45%	50%	182%	36
4	2015	5	38%	43%	51%	188%	37
4	2016	6	34%	48%	53%	194%	38
4	2017	7	34%	44%	51%	189%	39
4	2018	8	39%	52%	60%	220%	40
4	2019	9	41%	49%	59%	217%	41
4	2020	10	37%	48%	58%	213%	42
5	2011	1	21%	46%	50%	177%	33
5	2012	2	28%	46%	50%	178%	34
5	2013	3	29%	40%	49%	181%	35

5	2014	4	34%	45%	51%	183%	36
5	2015	5	33%	43%	50%	182%	37
5	2016	6	30%	46%	52%	188%	38
5	2017	7	31%	45%	51%	186%	39
5	2018	8	37%	48%	57%	208%	40
5	2019	9	38%	51%	58%	213%	41
5	2020	10	34%	48%	56%	205%	42
6	2011	1	22%	52%	54%	194%	21
6	2012	2	31%	44%	51%	187%	22
6	2013	3	32%	44%	52%	191%	23
6	2014	4	36%	41%	48%	178%	24
6	2015	5	35%	42%	50%	186%	25
6	2016	6	33%	48%	53%	193%	26
6	2017	7	33%	48%	53%	193%	27
6	2018	8	37%	51%	60%	221%	28
6	2019	9	38%	48%	57%	209%	29
6	2020	10	36%	51%	58%	213%	30
7	2011	1	25%	40%	43%	154%	22
7	2012	2	18%	28%	38%	141%	23
7	2013	3	18%	23%	34%	127%	24
7	2014	4	31%	41%	49%	181%	25
7	2015	5	31%	43%	50%	182%	26
7	2016	6	22%	29%	39%	142%	27
7	2017	7	29%	41%	47%	171%	28
7	2018	8	32%	44%	52%	191%	29
7	2019	9	35%	44%	58%	217%	30
7	2020	10	30%	40%	51%	189%	31
8	2011	1	27%	42%	46%	164%	48
8	2012	2	26%	44%	51%	186%	49
8	2013	3	20%	24%	35%	130%	50
8	2014	4	22%	27%	39%	147%	51
8	2015	5	26%	44%	48%	171%	52
8	2016	6	25%	38%	43%	152%	53
8	2017	7	30%	43%	48%	173%	54
8	2018	8	31%	46%	54%	196%	55
8	2019	9	31%	46%	55%	199%	56
8	2020	10	29%	43%	51%	183%	57
9	2011	1	25%	39%	46%	169%	46
9	2012	2	33%	48%	53%	193%	47
9	2013	3	35%	44%	51%	187%	48
9	2014	4	38%	44%	51%	187%	49
9	2015	5	30%	35%	47%	180%	50
9	2016	6	34%	48%	54%	197%	51
9	2017	7	34%	48%	53%	193%	52
9	2018	8	39%	54%	63%	230%	53
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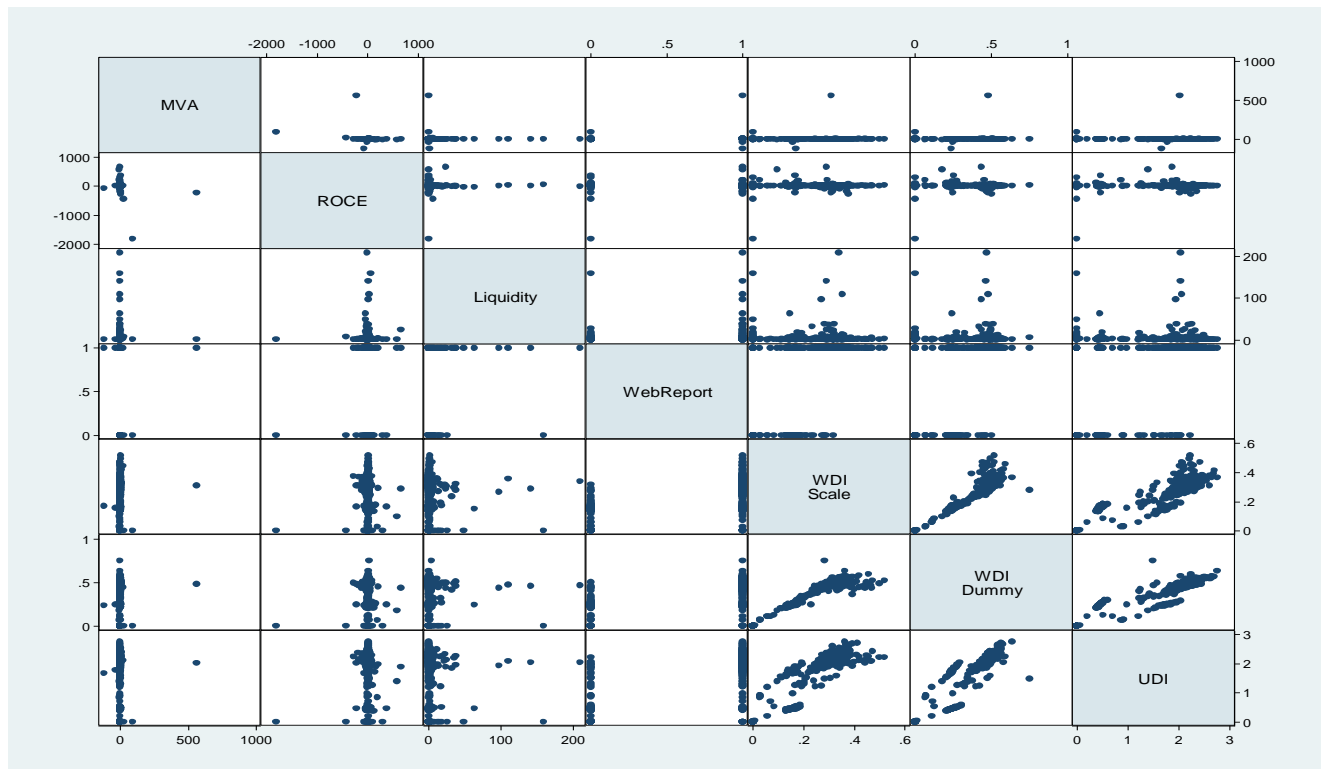
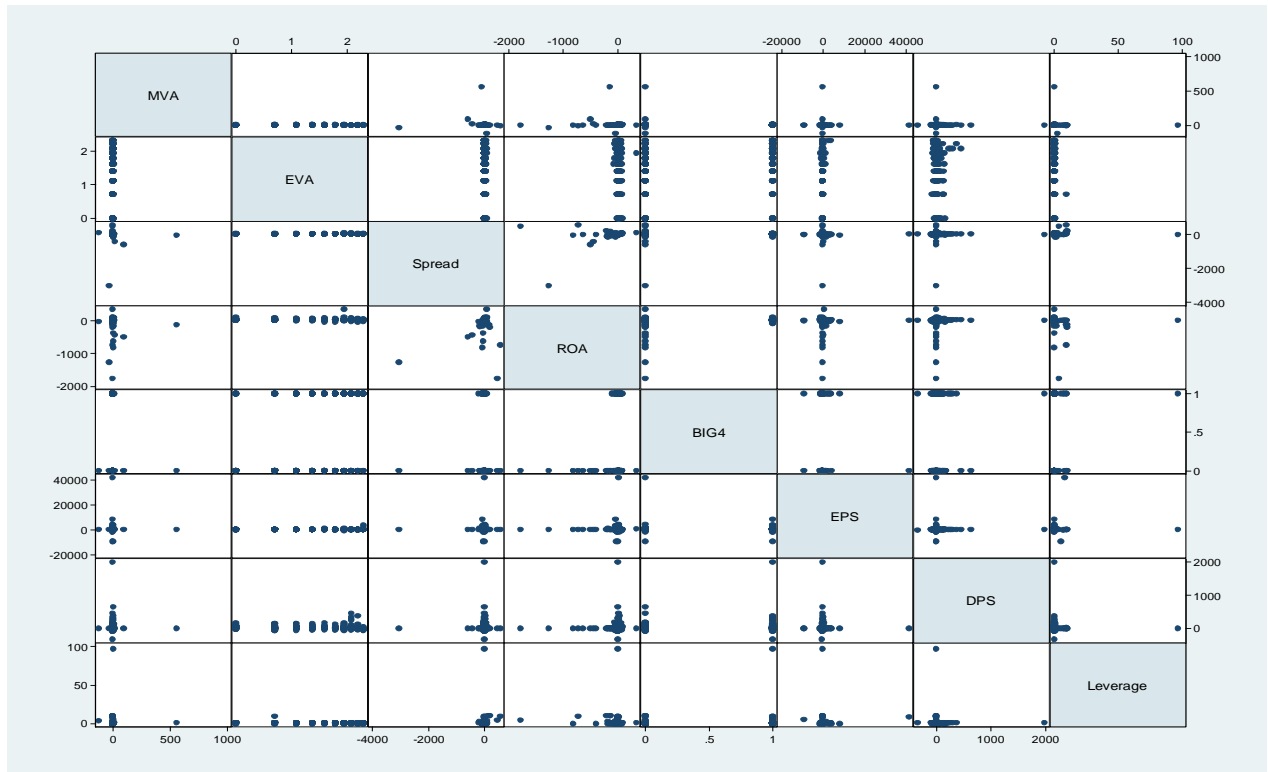
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11	2015	5	37%	48%	53%	191%	91
11	2016	6	35%	47%	53%	196%	92
11	2017	7	34%	49%	54%	196%	93
11	2018	8	43%	52%	62%	231%	94
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11	2020	10	37%	52%	62%	231%	96
12	2011	1	37%	49%	56%	209%	26
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12	2014	4	28%	38%	43%	155%	29
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12	2016	6	28%	39%	44%	159%	31
12	2017	7	32%	45%	50%	178%	32
12	2018	8	35%	49%	58%	212%	33
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13	2013	3	32%	43%	51%	186%	51
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13	2020	10	39%	52%	59%	216%	58
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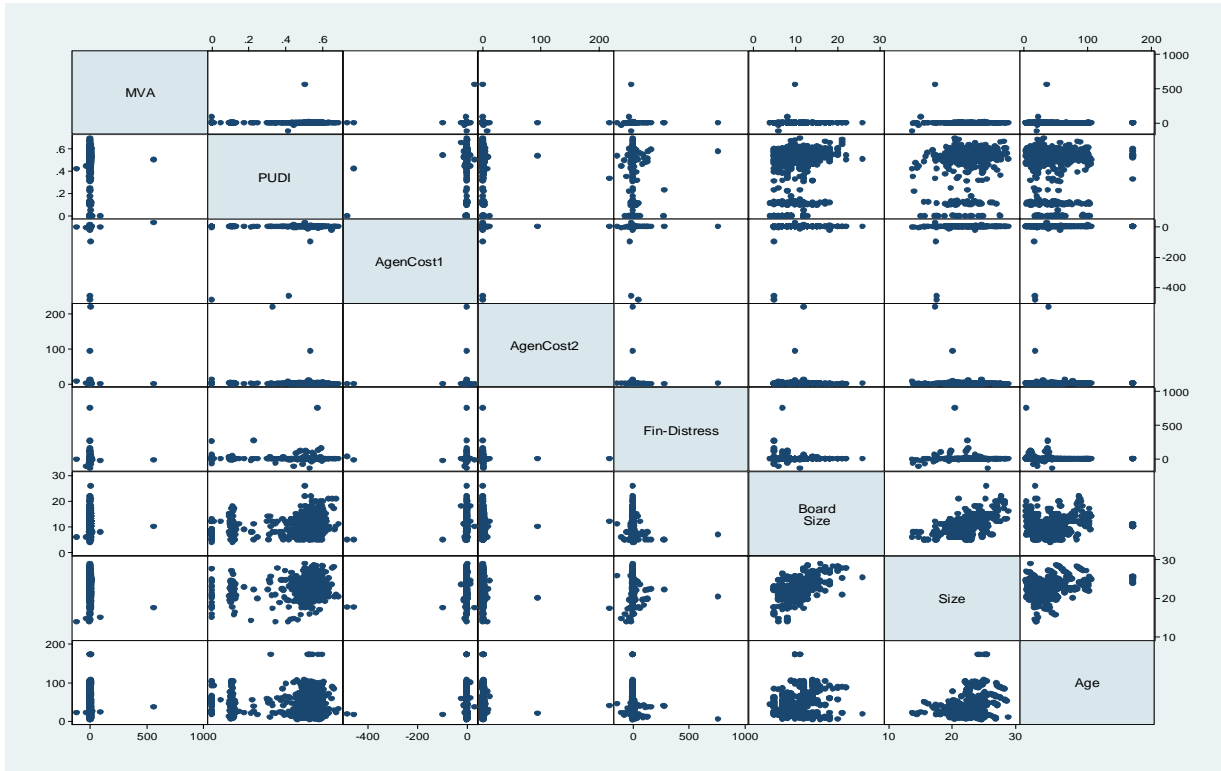
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15	2014	4	36%	49%	55%	201%	54
15	2015	5	34%	48%	53%	193%	55
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23	2015	5	25%	38%	45%	163%	31
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23	2017	7	25%	39%	46%	167%	33

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27	2019	9	40%	51%	59%	215%	27
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APPENDIX 7: DIAGNOSTIC MATRIX





APPENDIX 8: SCATTERPLOTS

