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The Relationship Between Capital Structure Practices and Financial Distress in West Africa

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Abstract

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by

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MBA, University of Ghana, 2012

BCOM, University of Cape Coast, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Many scholars have concluded that the relationship between capital structure in a business and its financial health is not clearly defined. When making decisions, managers may lack understanding of the relationship between the capital structure practice and financial distress. The purpose of this study was to test the relationship between capital structure practice and financial distress in West African companies. The capital irrelevance theory, pecking order theory, and the trade-off theory guided the research question to ascertain the relationship between capital structure practice and financial distress. The study design was a quantitative correlational design. The population was all public nonfinancial firms in Ghana and Nigeria and stratified sampling was adopted. Data for the study were from 85 sampled firms' published financial statements. A total of 425 firm-years were analyzed. Regression and correlation were the analytical tools employed in answering the research question. The results suggested that firms in West Africa follow the pecking order theory. Increases in debts lead to improvements in businesses' financial health. Increases in the leverage ratio and asset tangibility lead to a deterioration of the business's financial health. Governments should develop the capital markets to help firms access debt and equity capital quickly to improve their businesses' financial health. This study may lead to positive social change in employees' socioeconomic lives, as financially healthy firms can pay their employees on time. As such, employees will experience job security and the likelihood of increased salary as the business's financial health improves.

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Dedication

I dedicate this work to my parents, who encouraged me to pursue the highest level of education. To my wife, Lucy, for her patience, support, and encouragement. To my children – Akosua, Adepa, Afriyie, and Obrempong.

Acknowledgments

I like to thank God Almighty for the gift of life and strength to pursue and complete this academic work. A big thank you to my doctoral committee chair, Dr. Mohammad Sharifzadeh. I appreciate your support, guidance, and timely feedback. My second committee member, Dr. Michael Neubert, and my URR, Dr. Nijunja Swan, thank you for your support, notable suggestion, and timely feedback. The passion for accuracy by my committee members gives me great pride that you supported this work.

To my family, you have been very instrumental in my journey to my doctoral degree. To my wife, Lucy, thank you for your patience, support, and encouragement. To my girls, Akosua, Adepa, and Afriyie thank you for understanding the moments that I was not available. To my sister Jennifer, thank you for your support during these years. I appreciate you so much.

I am eternally grateful to everyone else who contributed in diverse ways to the successful completion of this doctoral study.

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Chapter 1: Introduction to the Study

This study examined the relationship between capital structure practices by firms operating within West Africa and financial distress. This study will help business managers understand the effect of their financing decisions on the risk of financial distress that their business may experience. When managers know the relationship between capital structure theories and financial distress, this information can guide their project financing decisions to avoid the risk of experiencing future financial distress. Quality financing decisions can improve their employees' immediate financial situation through a stable income and potential for higher income, leading to a positive social change in employees' living conditions. This chapter describes the management problems that this study sought to address as well as the purpose of the research. This chapter indicates the study research questions, the theoretical foundation of the study, the conceptual framework, the significance of the study findings, and the assumptions and limitations of the study.

Background of the Study

Every business requires funding to run their operations. The sources of funds that businesses use come from internally generated funds as well as from external sources. External sources include those contributed by the owners of the business as well as the funds of creditors that would be repaid at a later period. Every finance manager needs to decide on the sources and use of the various forms of funds the business uses to meet its objectives. The combination of different debt and equity to form the business's total capital is referred to as the capital structure. The capital structure decision is critical to the success of the business as it influences the profitability of the business (Velnampy & Niresh, 2012). Equally, capital structure

choices can lead to the failure of the business or result in financial distress. Some empirical studies have examined this relationship between capital structure practice or choices and businesses' financial health.

Mukherjee and Mahakud (2012) studied two theories of capital structure influencing the capital structure practices in India. They aimed to determine if the pecking order and the trade-off theories were mutually exclusive in determining India's capital structure practices. They found that the pecking order theory and the trade-off theory both influenced capital structure decisions. Both theories are complementary to each other in determining the capital structure of businesses in India

Muigai (2016) investigated the effect of capital structure elements on the level of financial distress of nonfinancial firms operating in Kenya. He studied the effect of the capital structure elements of debt-to-maturity, assets structure, financial leverage, and equity structure on the financial distress of nonfinancial firms in Kenya. Muigai (2016) found a significant negative relationship between leverage, external equity, asset tangibility, and financial distress of the business. Also, they discovered that the firm and the industrial characteristics played a moderating role in the relationship between capital structure and financial distress.

Turaboğlu et al. (2017) studied the relationship between capital structure elements and financial distress among nonfinancial firms in Turkey. Capital structure was expressed as the debt maturity structure of external debt and the equity ratio. They measured financial distress by the Altman's Z-Score and the Springate S-Score. Employing correlational analysis, the researchers found a significant inverse relationship between financial stress and capital structure decisions represented by the

debt to equity ratios of total debts, short term debts, and equity ratio. They also found a significant negative relationship between external equity ratio and financial distress, providing support for the pecking order theory of capital structure.

Abdioğlu (2019) also studied the effect of firm-specific factors on the relationship between capital structure and financial distress of manufacturing firms in Turkey. He found that financial distress levels increase as the leverage ratio increases and also as the short-term debt to maturity increases. He also found that firm characteristics such as firm size, return on equity, and assets' tangibility affect the relationship between leverage and financial distress.

The studies undertaken on the relationship between capital structure and financial distress have mostly been broken into two aspects. The first aspect examines the effect of capital structure determinants in determining the capital structure practices at play (Kajola et al., 2019; Khémiri & Noubbigh, 2018; Sibindi & Makina, 2018). The other aspect examines the relationship between capital structure elements and financial performance (Charles-Anyaogu et al., 2018; Ganiyu et al., 2019; Kareem, 2019; Maina et al., 2018; Muigai & Muriithi, 2017). There is no knowledge of the relationship between capital structure practice and the financial distress level of firms. The trend and pattern between capital structure practice, capital structure elements, and financial distress is currently unknown. There has been no study for firms operating in West Africa to identify such a trend of firm characteristics on capital structure practice and its effect on financial distress. As Weill (2008) provided, there are efficiencies of the country factor in the relationship between capital structure and financial performance. However, there is no knowledge of the country-specific

factors that might influence the relationship between capital structure theory and financial distress in West Africa.

The lack of understanding of this relationship can lead managers to make financing decisions that can place their business into financial distress. That can lead to firms experience avoidable financial stress and face the possibility of bankruptcy. We need to investigate this relationship between capital structure practices and financial distress to help managers make improved financing decisions.

<div align="center">**Problem Statement**</div>

A study by Xero (2015) indicated that most failed business results from poor financing decisions. Ganiyu et al. (2019) observed that leverage could impinge on financial performance as the relationship between capital structure and performance is not monotonous. Li et al. (2019) have argued that although the capital structure is significantly related to business failure, such a relationship has been inconclusive. The general management problem is that lack of understanding of the relationship between capital structure practice and financial distress leads managers to make erroneous financing decisions that could lead their businesses into economic difficulties. The specific management problem is the poor financing decisions by managers of firms operating in the West African region resulting from the lack of understanding of the relationship between capital structure practices and financial distress.

An understanding of the relationship between the prevailing capital structure practice and financial distress could assist managers of businesses in avoiding their firm falling into financial distress through improved financing decisions. There is a lack of research regarding the relationship that may exist between capital structure practice and financial distress among firms in West Africa.

Theoretical Foundation

This study was guided by the Modigliani and Miller (1958) irrelevance propositions of capital structure (MM model) and the capital structure theories of the pecking order, and trade-off. Capital structure theories are the choices that affect how businesses decide on their capital structure. There is no universally accepted theory influencing the capital structure choices of companies (Myers & Majluf, 1984).

Modigliani and Miller (1958), during their seminal work, proposed that the capital structure of a business is irrelevant under a perfect market condition. The MM model suggested that capital structure does not affect corporate financial distress. Under this theory, financial distress is affected by the mixture of business risk resulting from the cost of capital and earning opportunities based on the return on assets, not how the business is financed. The capital irrelevant theory indicated that the value of a business and the cost of capital are not related to the business's source of funding. The MM model proponents expect all firms within a market to have similar market value irrespective of how they are financed. The importance of the MM theorem to this study and finance literature cannot be underestimated. This theory was not only original, but is simple, sound, neat, and controversial (Al-Kahtani, & Al-Eraij, 2018). This theory has been the gateway to several empirical studies and theoretical research. The Modigliani and Miller theorem was critical to this study as this theory provides a relationship between financial distress and capital structure factors that is neutral and unbiased.

Kraus and Litzenberger (1973) first introduced the trade-off theory of capital structure, building from the works of Modigliani and Miller (1958). The trade-off theory originated from Modigliani and Miller (1958) theorem by considering the

effects of taxes and bankruptcy cost on the MM theorem. The trade-off theory is based on the concept that businesses have a target debt to equity ratio, referred to as the optimum capital, which they strive to achieve. The proponents of this theory argued that companies' capital structure behavior is influenced by a defined target capital, which is a trade-off between the cost of debts and the associated benefits (Qureshi et al., 2015). The trade-off theory provides for an optimal capital structure that a firm should achieve or maintain if the company wants to increase shareholders' wealth (Brounen et al., 2006). Nunkoo and Boateng (2010) predicted that firms with a higher cost of bankruptcy or low net tax advantages would use debt to fund their activities. Comparing the trade-off theory to the MM theorem, the trade-off theory places a limit on the level of debt that a business can incur to the target debt ratio level. This theory placed moderations on the debt level compared to the MM theory. The MM theorem places no such restriction on the level of debts a business can acquire.

The pecking order theory was introduced by Donaldson (1961) but was made popular by Myers and Majluf (1984) by introducing information asymmetry to the theory. The pecking order theory is premised on the idea that the company would prefer to finance its operations from internally generated sources before looking for external funding. The pecking order theory states that business prefers to employ the lowest cost source of funding in their capital structure decisions. Myers (1984) proposed a hierarchy of financing, with the first source being from internal cash flows, followed by debt, and last, equity. The pecking order theory is grounded in information asymmetry among internal stakeholders and external stakeholders of the firm. Due to information asymmetry where managers are knowledgeable about the

earning potentials of their business and external investors are ignorant of this knowledge, investors perceive any issue of new equity to mean that managers see the company as overvalued. Because of this perception, share prices fall faster than would have occurred in the market. Myers (1999) suggested that the pecking order theory in itself cannot be the sole theory responsible for explaining all financial decisions.

Tests of these theories of capital structure are empirically determined using econometric calculations based on quantitative correlational models. The correlational models help answer the research question of the relationship between capital structure practice and financial distress. Details of these theories with empirical research on them are provided in Chapter 2.

Purpose of the Study

The purpose of this quantitative correlational study was to test the relationship between capital structure practice and financial distress in West African companies. The independent variables of the pecking order and trade-off theories were generally defined as the systematic methodology to funding business operations from a combination of debts and equity sources. The dependent variable of financial distress was generally defined as a situation where a business is unable to pay or experience difficulties in meeting its financial obligations to its creditors. In this study, I related the capital structure elements of profitability, size, growth, assets structure, equity structure, debt maturity, and dividend payout ratio to the level of financial distress. I specifically examined the relationship that exists between the capital structure theory at play within distressed companies operating in West Africa and financial distress.

Research Question(s) and Hypotheses

In this study, I sought to answer the following research question:

What is the relationship between capital structure practice and financial distress for companies operating in the West African region?

Null Hypotheses ($H_0 1$): There is no relationship between the capital structure practice and financial distress for companies operating in the West African region.

Alternative Hypotheses ($H_a 1$): There is a relationship between the capital structure practice and financial distress for companies operating in the West African region.

Capital structure practice was measured by the direction of the determinants of capital structure correlated to leverage. The capital structure determinants included in this study were the tangibility of assets, profitability, size, dividend payout ratio, and growth. The assets tangibility was measured as the ratio of fixed assets to total assets. Return on assets ratio and return on equity ratio were the measures of profitability. I measured the size of a business as the natural logarithm of the sales revenue, while growth was measured as the annual percentage change in total assets.

I examined the capital structure elements of assets structure, debt to maturity, and equity structure. The asset structure is the components of both noncurrent and current assets to its total assets. Debt maturity refers to the time frame between when a company secures debt security and making payment. Debt maturity is either long-term or short-term. I tested debt maturity using the long-term debt ratio, short-term debt ratio, and total debt ratio. The equity structure refers to the internal and external equity. Internal equity is the business's capital originating from the retained earnings of the business over a period. External equity was measured as the cash injections from equity holders of the business.

Financial distress was measured using the Altman Z-Score (Altman, 1983). The Z" – Score model overcomes most of the criticism of the traditional Altman's model in predicting financial distress. The Z"- Score model is suitable for both private and public firms as well as manufacturing and nonmanufacturing firms. The Z"-Score model is suitable for use in both developed and developing economies. As the study was on firms operating in developing economies, the Z"-Score model was an appropriate model in determining financial distress.

Conceptual Framework

As shown by Burkholder et al. (2016), the conceptual framework provides orientation for the study, showing how the study contributes to the body of knowledge. The conceptual framework enables both the researcher and reader to align the study elements to the study design and methodology. The conceptual framework guiding this study was developed from Jarallah et al. (2019). In their study, Jarallah et al. showed the linear relationship between the determinants of capital structure and the capital structure practices of listed firms on the Tokyo Stock Exchange. The conceptual framework was also influenced by the study of Muigai and Muriithi (2017), who studied the relationship between capital structure elements and financial distress.

Jarallah et al. (2019) utilized capital structure determinants to ascertain the capital structure practice. They did not provide the effect of the practice on the financial health or performance of the business. Muigai and Muriithi (2017) utilized the elements of the capital structure relative to the business's financial health measured as the business' Z-Score. Muigai and Muriithi (2017) did not indicate the companies' capital structure practice to the companies' financial health. This study

sought to bridge the gap by determining the capital structure practice of West African

firms and how the practice relates to the business's financial health.

The conceptual framework for the study is presented graphically, as shown in

Figure 1. Details about the conceptual framework is provided in Chapter 2.

Figure 1

Conceptual Framework
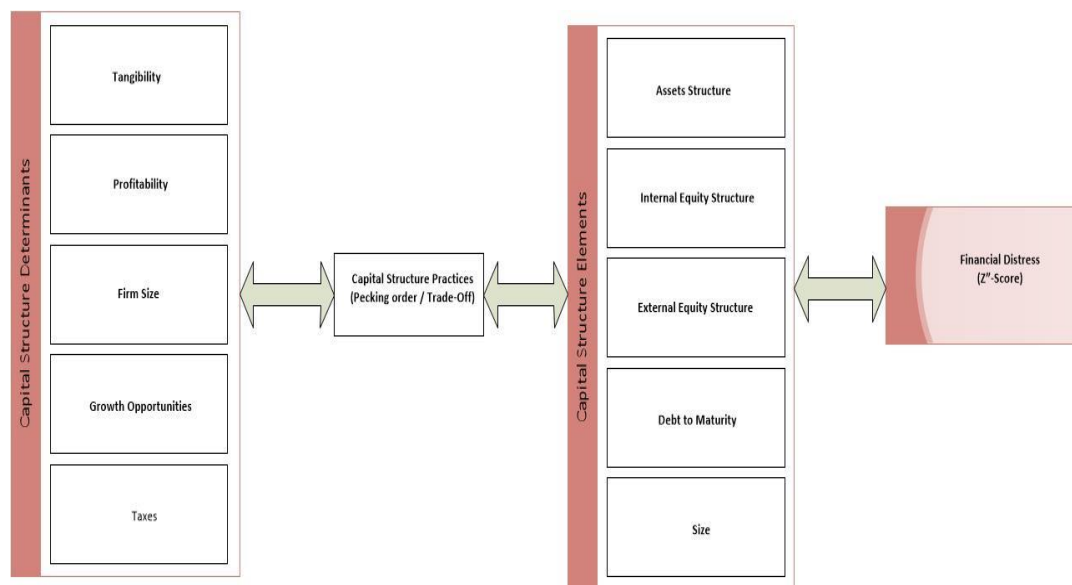
The determinants of capital structure, tangibility, profitability, firm size,

growth opportunities, taxes are linearly related to capital structure practice. That

enabled the use of quantitative correlational statistical techniques in determining any

relationship that may exist between the determinants of capital structure and capital

structure practice. There exists a linear relationship between the capital structure

elements resulting from the capital structure practice and financial distress. A

correlational study design was suitable for determining the nature of the relationship

that exists between capital structure elements and financial distress. The nature of the

study variables had already occurred and were recorded in the financial statements of

the firms. I had no influence and could not manipulate the values in the published financial statements. A correlational study design was most appropriate in answering the research question of the relationship that exists between capital structure practices and financial distress in companies operating in West Africa.

Nature of the Study

I employed a quantitative research methodology. The research design was a correlational study. The study population was all nonfinancial firms listed on the various capital markets in the West African region. I employed the stratified sampling method to select companies that were involved in the study. Using the Altman's Z"-Score, I determined financially distressed firms and grouped them according to country and industry. Companies whose Z"- Score was below 4.35 were considered as financially distressed. I collected financial information on the study sample firms over five years to judge the trend in their financial performance and to use such data to examine the relationship between their capital structure practice and financial distress.

I tested the pecking order theory and the trade-off theory using econometric models. I tested the pecking order theory and the trade-off theory using the model proposed by Jarallah et al. (2019). The relationship between capital structure elements and the level of financial distress was determined using the model proposed by Muigai and Muriithi (2017). Both models involved using correlational techniques to determine the direction and nature of the relationship between the study variables. I adopted a correlational study design to identify the trend and pattern between capital structure practice, capital structure elements, and financial distress but not the cause. This design was also appropriate, as I could not influence the values of this study's variables. This study design helped identify the direction of a causal relationship

between the study variables but not the cause (Burkholder et al., 2016). Correlational study design enables the prediction of the study variables through statistical tests.

Data for the study was obtained from the companies' published financial statements and publications of the various stock exchanges operating in West Africa. I collected financial information about listed firms in the capital markets of West Africa. The financial statements needed for testing the capital structure theories included the income statements, the cash flow statements, and the statements of financial position. As all the capital markets insist that financial statements be prepared per International Financial Reporting Standards, I quickly analyzed and compared the various financial statements. These public companies' financial statements are published on the individual firms' websites and the site of their listed capital market. The data collected excluded banking and financial service institutions, as their capital structures are heavily regulated and might affect the study's findings. The study excluded companies that have merged and those that have been delisted or undergone bankruptcy over the study period. The study included firms that have been in operation for a minimum of five consecutive years, from 2014 to 2018. I developed a data collection sheet in Excel to collect the relevant details needed in answering the research question. The collected data were analyzed using Statistical Product and Service Solution (SPSS) software.

Definitions

Assets structure: Asset structure refers to the way the company prefers to save its assets investments (Pouraghajan et al., 2012).

Asset Tangibility: Asset tangibility is the collateralized value of the company (Zurigat, 2009).

Business Failure: A situation where the actual returns on investments are significantly below what is prevailing for similar investments (Berger & Di Patti, 2006).

Capital structure: Capital structure is the contribution of debt, equity, and other securities that a business has as its capital (Berk & DeMarzo, 2017).

Debt default: The occasion when the business is unable to meet the conditions of the debt covenants with regards to repayments (Berger & Di Patti, 2006).

Debt Financing: A financing source that is obtained from outside a business that has to be repaid at a specific time in the future (Salawu & Ile-Ife, 2007)

Debts to Maturity: Debt maturity include the time frame between when a company secures debt security and time to make payment (Baum et al., 2006).

Equity Financing: The source of business funding supplied by the owners of the business (Pandey, 2009).

Equity structure: The combination of externally contributed equity by owners of the business and internally generated funds of the business that forms the total shareholders' fund of the business (Bender, 2013).

Financial distress: Financial distress is a situation where a business is unable to pay or experience difficulties in meeting its obligations to its creditor (Kansal & Sharma, 2019).

Financial leverage: Financial leverage refers to the proportion of fixed income sources of funds such as debts and preference shares that a business uses in its capital structure (Kazemian et al., 2017).

Firm size: The size of a business describes, among other things, the production capacity and the variety and amount of services and products that a business can simultaneously provide to its customers (Mule et al., 2015).

Growth opportunities: Growth is investment opportunities that have the potential to increase the value of the business (Goh et al., 2018).

Long-term debt: A loan or debt of a business with a maturity of greater than one year (Berk & DeMarzo, 2017).

Optimal capital: The combination of debt and equity capital that maximized the value of a business (Peura & Keppo, 2006).

Profitability: Profitability is the ability of a firm to generate net income consistently (Velnampy & Niresh, 2012).

Short-term debt: Short-term debt is a debt with a maturity of less than one year (Berk & DeMarzo, 2017).

Assumptions

The assumptions bring to the fore facts that a researcher considers accurate but have not yet been verified (Allwood, 2012). Foss and Hallberg (2014) indicated that assumptions are those factors with little significance on the study findings that the researcher can safely disregard without affecting the results of the study. As Donaldson et al. (2013) put it, the assumptions could be about the research methods, design, the target population, and the nature of the data for the study. I assumed that there would be no earnings management in the financial statements submitted by the various businesses to the exchange. Earning management has the potential to disguise the financial health of the business. That could lead to wrong conclusions about the relationship between capital structure practice and financial distress. I assumed that

the various financial statements of the different companies in different countries are all prepared based on the requirement of International Financial Reporting Standards for ease of comparison. The financial statements are prepared based on the base currency of the home country of the listed firm. As the analysis is based on ratios and econometric models, I assumed that the different currencies' effect would not affect the model results. Because the study utilized correlational analysis, I assumed further that the data collected would be linear to allow the determination of the relationship between capital structure practice and financial distress. I assumed that there would be no significant outliers in the collected data Outliners are observed data that is very different from the value resulting from the regression model. Outliners have the potential of a negative effect on the correlational analysis by reducing the line accuracy of the predictive model.

Scope and Delimitations

This study sought to address the specific problem of the consequences of the lack of understanding of the relationship between capital structure practices in business operating in West Africa and financial distress. Currently, no research has been undertaken in the West African region to understand the relationship that may exist between the capital structure practices and the financial distress position of these firms. As such, managers make decisions on projects and investment financing without considering the implications of such decisions on their business's financial health. The study would concentrate on listed firms trading on the Ghana Stock Exchange and the Nigerian Stock Exchange. The study excluded firms listed on the Bourse Régionale des Valeurs Mobilières (BRVM), the regional stock exchange for all the French-speaking countries in West Africa. I excluded these firms because their

financial statements are prepared in French and not in English. I concentrated on the capital structure theories of pecking order and trade-off, excluding the other capital structure theories, in analyzing the financial statements of the selected businesses.

Delimitations are the constraints that are self-imposed by the researcher to determine the boundaries of the research (Halstead & Lare, 2018). Marshall and Rossman (2016) described delimitation as the researcher's choice to determine the parameters of the study. The first delimitation applied to the model for determining the financial health of a business. New and more sophisticated models have been developed since the development of the Altman's Z"- Score. As the study is not about models of determining financial distress, I concentrated on the most basic and accepted model for both developed and developing economies in the analysis. Firms for which a complete set of 5 years of financial data could not be obtained within the study period were excluded from the analysis. The third delimitation regards the geographical location of the study. I concentrated on firms operating and listed on the capital market within West Africa, specifically Nigeria and Ghana.

Limitations

Limitations include anything that is beyond the control of the researcher and has the potential of compromising the validity of the study's findings (Leedy & Ormrod, 2015). Limitations are events outside the researcher's control with the potential to affect the study methodology and conclusions (Simon, 2011). According to Tabachnick and Fidell (2013), the limitations are shortcomings that cannot be avoided and within which the researcher derives the conclusions of the study. The financial distress model (Altman Z"-Score) adopted as a measure of financial distress presented some limitations to the study findings. The model was based on accounting

information, which was prepared based on the historical cost concept. For this reason, there is always a time lapse between when the financial statements are prepared and the current state of the business. A business may be classified as financially distressed as at the date of the financial statement, but that may not necessarily be so at the time of analyzing the business's financial health. The capital structure practices may also be subjected to the same limitations as they were also determined based on the accounting financial statements. In avoiding this limitation, I adopted the currently available financial data to reduce the time lapse between the date the financial statements were prepared and the business's current reality.

The study employed the stratified sampling method. A limitation that might result from this sampling method was the exclusion of financial distress firms from the analysis. Another significant limitation resulted from the study design. Correlational study design only suggests a relationship between the studied elements but does not indicate whether the independent variable caused the dependent variable. The study would not be able to determine whether the capital structure practices within businesses are the cause of financial distress or not.

Significance of the Study

This study's findings would contribute to the knowledge of researchers, regulators, corporate and finance executives, and corporate and individual investors who are interested in knowing or promoting a sound capital structure for their business. It would also help governments and governmental organizations understand the effects of their policy decisions on businesses operating within the country or industry.

Significance to Theory

This study may contribute to the body of knowledge about financially distressed companies and their relationship with operating capital structure practice and the capital structure elements. Researchers may expand their current understanding of predicting financially distressed businesses by examining the capital structure practices employed within the business from an understanding of the study findings. The study may contribute to knowledge about the relationship between capital structure determinants and financial distress. The study findings may contribute to knowledge about how businesses' financial health is determined from the business's financial statements. At the core of determining a business's financial performance is a list of statistical and accounting methods. Outside the conventional accounting means of determining a business's financial health, an examination of the capital structure practices, as deduced from the financial statements, could also assist in determining the possible financial status of businesses.

Significance to Practice

Managers of companies would benefit from the study finding and recommendations by appreciating the relationship contributing to the business financial distress state and the steps that could be taken to improve the business's financial health. Investors and managers of investment firms would benefit from the study findings through an improved investing decision. An understanding of the capital structure practice within an organization can be an indicator of the level of financial distress that the business might be facing. Business analysts would also benefit from the possible new means of determining the business's financial status emanating from the study findings. An analysis of the business's capital structure

practice, as indicated in the business's financial statements, would assist in determining the business's financial health. As I considered industrial and country-specific characteristics, the study findings could result in policy and strategic implications. Policymakers would also benefit from the study findings regarding the effect of their policy decision on distressed businesses' financial situation. This study's findings and recommendations might be immensely influential in functional areas such as credit risk analysis, mergers and acquisitions, turnaround management, and distress investing.

Significance to Social Change

Knowledge about the relationship between capital structure practices and financial distress could help managers of such distressed companies and other healthy firms know the practices that should guide their decisions when making capital structure decisions. The avoidance of a financial distress situation could improve the social structure of their employees' immediate economy through the stability of family income with the potential for increased income resulting in a positive social change. Financially healthy firms can meet their tax obligations, leading to positive social changes through the provision of social goods and services for all citizenry. As businesses meet their debt obligations, they contribute to positive social change through the improvement of the financial system, allowing other companies and people access to a larger pool of funds for expansion and improvement in the quality of life.

Managers of investment houses and pension funds can benefit from a better evaluation of businesses' financial health through an analysis of the capital structure practices employed within businesses. That could help these managers make

improved investment decisions that would safeguard the monies and pensions of individual investors. The improved decision could also help such managers invest in viable businesses with reasonable returns on the investments. The avoidance of loss with the possibility of an increase through investment return would lead to positive social change in individual investors' lives.

Summary and Transition

Capital structure decisions are a critical part of the finance function in any business. A good capital structure can increase the profitability and financial health of a business and avoid a deterioration in the financial health of a business. This study contributes to the body of knowledge on the relationship that may exist between capital structure and financial health. It would also assist managers in making improved financing decisions. A good understanding of the relationship between capital structure and financial distress could lead to positive social change.

The study attempted to answer the research question; What is the relationship between capital structure practice and financial distress in West African companies? I employed a quantitative research method in answering the research question. Using a correlation study design, I examined the financial statement of listed companies in Nigeria and Ghana, determined the firms' capital structure practices and how they relate to financial distress. Data for the study were obtained from the financial statements as published on the Nigerian Stock Exchange and Ghana Stock Exchange website.

In Chapter 2, I provide detailed literature on the sources of funding available to businesses, capital structure, determinants of capital structure, theories of capital structure. Chapter 2 also contains the theoretical framework guiding the study as well

as the conceptual framework of the study. Chapter 2 contains an explanation of financial distress, financial distress models, and how financial distress was measured in this study. I presented empirical studies on the relationship between capital structure and financial distress.

Chapter 2: Literature Review

The finance literature has suggested a strong relationship between capital structure and business failure but this relation has been inconclusive (Li et al., 2019). This lack of understanding of the relationship between capital structure practice and financial distress leads managers to make erroneous financing decisions that could lead their businesses into economic difficulties. Businesses operating in West Africa also face the same problem of not understanding how their financing practices could lead to financial distress. That is because there is a lack of research regarding the relationship that may exist between capital structure practice and financial distress among firms operating in West Africa.

The purpose of this quantitative correlational study was to test the capital structure theories of pecking order theory and trade-off theory as they relate to financial distress for companies operating in West Africa. Capital structure practice was determined through the relationship between the determinants of capital structure and the leverage ratio. Financial distress was determined using the Altman Z"-Score model.

In this chapter, I explored current literature on the sources of finance for business, the determinants of capital structure, the relationship between capital structure and corporate strategy, financial distress, and how financial distress relates to the elements of capital structure. I detailed the theoretical framework and conceptual framework that guided the study. I concluded this chapter by presenting a gap in the literature establishing the need for this study.

Literature Search Strategy

In conducting a review of the literature, I employed the following databases and search engines: ABI/INFORM Collection, Business Source Complete, Emerald Insight, ProQuest Dissertations, and Thesis Global, SAGE Journal, SAGE Knowledge, Science Direct, and Google Scholar. Except for Google Scholar, all the other databases were accessed through Walden University. These databases were employed to access scholarly peer-reviewed journals and dissertation works relevant to this study.

For a thorough review, I used search terms such as *capital structure, capital structure theories, pecking order theory, trade-off theory, capital structure determinants, leverage ratio, debt-structure, equity-structure, capital irrelevance theory, financial distress, financial distress model, bankruptcy, debt to maturity, asset tangibility, profitability, capital structure,* and *corporate strategy*. I did not specify any time range in the search to utilize all available literature relevant to the study. The searches with these search terms through the various databases resulted in numerous peer-reviewed scholarly articles. I narrowed the search results by relevance to my current study and ranked them from the newest publications to older ones. Where possible, I utilized the newest literature on an aspect of the study. I read the oldest dated literature when I was reviewing classical theories.

Using a systematic plan, I discuss the literature review findings related to the theoretical framework, independent variables (capital structure determinants of profitability, size, age, assets tangibility, growth opportunities), the dependent variable of capital structure practice represented by the leverage ratio. I explore the following theories and models in the literature review: capital structure irrelevance

theory, pecking order theory, trade-off theory, Beaver (1966) univariate model,

Altman Z-Score models, and Ohlson (1980) O-Score. In Table 1, I present a summary

of the resources used in reviewing the literature.

Table 1

Resource Frequency

Resources	Number	Percentage
Books	28	13%
Dissertation	4	2%
Peer-reviewed Articles	173	81%
Others	1	0%
Total	213	100%

Most of the articles employed in the study were peer-reviewed articles. There

were occasions that the authors of these articles referenced some dissertation works

and conferences that I found to be relevant to the study. I reviewed the dissertations

and conference work and included them in the literature when I found them to be

relevant.

Theoretical Foundation

Capital structure is the mixture of funding sources, both debt and equity, that a

business utilizes to fund its operations. The finance literature has identified several

causes that can make a business be in financial distress. Most researchers agree that

the business's capital structure is a critical determinant of the business's financial

stability. Current theories on capital structure have resulted in conflicting results about

the relationship between capital structure and financial distress. Myers (2001)

suggested that there is no universally accepted theory of capital structure because of the conflicting positions of the theories. Some theories of capital structure have identified a positive relationship between capital structure and financial distress while others, a negative relationship with some other theories, not finding any relationship between the two.

Capital Structure Irrelevance Hypothesis

Modigliani and Miller (1958) irrelevance propositions of capital structure began the discussions on modern finance theory. Prior to their work, there was no universally accepted theory on capital structure. Modigliani and Miller (1958), during their seminal work, proposed that the capital structure of a business is irrelevant under a perfect market condition. Their argument was based on the assumptions of a perfect market where

1. Business can be grouped into classes of risk.

2. Both the firms and individual investors can all borrow at the same terms and the same amounts.

3. All stakeholders have equal access to information about the value of the firm, returns, and investment opportunities.

4. There are no taxes on transactions, and there are no transaction costs.

Under these assumptions, the MM model suggested that capital structure has no effect on corporate financial distress. Their model suggested that financial distress is affected by the mixture of business risk resulting from the cost of capital and earning opportunities based on the return on assets, not how the business is finance. Modigliani and Miller's (1958) model argued that the value of the business and the

cost of capital are not related to the capital structure of the business. The market value

of the businesses does not rely on its capital structure (Modigliani & Miller, 1958)

As seen in Luigi and Sorin (2009), the MM theorem has been proved under

various circumstances. This theory provided for two different forms of capital

structure irrelevance prepositions. MM model Preposition I stated, In a perfect capital

market, the total value of a firm's stock is equal to the market value of the total cash

flows that the business can generate through the use of its assets, and the choice of

capital structure does not influence this relationship (Berk & DeMarzo, 2017). That is

the classical arbitrage-based irrelevance proposition. Here the value of the firms is

independent of its leverage because of the arbitrage activities of investors. MM

Proposition II stated that the cost of capital of levered equity increases with the

market value of the company's debt-equity ratio (Berk & DeMarzo, 2017). That

preposition indicated that both the capital structure and dividend policy are irrelevant

to the value of the business.

The theory suggested that the capital structure of the business is not essential

in the determination of the market value of the business so long as the firms operate in

a perfect market condition. The model further indicated that what is important is how

the business invests and manages its resources rather than how investment

opportunities are finance and allocated. The MM theorem require firms operating in

the same market to have similar risk structure and earning opportunities.

The proponents of the MM model expect all firms within a market would have

similar market value irrespective of how they are financed. Under the assumption that

there is perfect knowledge and investor can borrow and invest at the same rate and

terms as companies, there would be an arbitrage opportunity should firms have

different market values from others in the same environment. Should such a situation occur, investors sell their interest in the overvalued business and buy more interest in the undervalued firms. That increases the demand for the stock of the undervalued firm while reducing demand for the over-valued business and restoring the market to its equilibrium positions.

Given its assumption of a perfect market, the MM theorem has been challenging to test. This theory has stimulated a lot of research. Luigi and Sorin (2009) argued that as both debts and firm values are endogenous and primarily inspired by profit, collateral, and growth opportunities, testing the irrelevancy theory by regressing firm value on debt is difficult. Because of the assumption of a perfect market, most research has shown that the Modigliani and Miller theorem fails in several situations. These include the consideration of the cost of transactions, taxes, agency conflicts, cost of bankruptcy, varying times of financial market opportunities, and the nonseparation between financing and operations. Stiglitz (1969) disproved the assumption of firms belonging to the same risk class because firms do not operate within the same environment across the globe. Stiglitz (1969) also disputed the homemade leverage assumption as individuals cannot borrow at the same rates as firms. Frank and Goyal (2003) showed that the MM theorem is an abstract mathematical model and did not involve any data collection and analysis before concluding.

The importance of the MM theorem to finance literature cannot be underestimated. This theory is not only an abstract concept, but is simple, sound, neat, and controversial (Al-Kahtani, & Al-Eraij, 2018). This theory has been the gateway to several empirical literature and theoretical research. According to Frank and Goyal

(2003), although this theory does not describe how firms finance their operations, the theory provides a reasoning for the relevance of financing. This theory is widely accepted as relevant and has become a critical portion of modern economic theory and the foundation for most modern finance theories.

The Modigliani and Miller theorem is critical to this study as this theory provides a relationship between financial distress and capital structure factors that is neutral and unbiased, employed in this study. The central point of the MM model suggests that financing decisions are unimportant to the firms. That makes this theory a neutral theory for the analysis of the relationship between financial distress and capital structure theories.

Pecking Order Theory

The pecking order theory states that business prefers to employ the lowest cost source of funding in their capital structure decisions. For this reason, they prefer to utilize internally generated funds when available to finance capital projects. When internal funds are inadequate or not available, they employ other external sources of funding, starting with the source of funds with the lowest cost towards the ones with higher costs. For this reason, businesses choose debt funding over equity funding, choosing first low-risk debt followed by high-risk debt before considering equity funding (Myers, 1984; Myers & Majluf, 1984).

The pecking order theory was introduced by Donaldson (1961) but was made popular by Myers and Majluf (1984) by introducing information asymmetry to the theory. Myers and Majluf (1984) provided that the variance in the cost of financing amounts from the various financing sources is due to the existence of information asymmetry between the business and investors. Internal sources of funds suggest that

the business has greater information than external investors who insist on a higher rate of return because of their lack of information. According to Brown (2018), debt comes with cash outflows such as interest payments and debt repayments, but these costs are relatively low compared with the issuance of new equity. Due to information asymmetry where managers are knowledgeable about the earning potentials of their business and external investors are ignorant of this knowledge, investors perceive any issue of new equity to mean that managers see the company as overvalued. Because of this perception, share prices fall faster than would have occurred in the market.

As investors view any issuance of new equity as a signal of overpricing, businesses prefer to go in for lower-risk debts rather than higher-risk debt when the company needs to take on external funding (Myers & Majluf, 1984). The business will only issue new stock as the last option. For this reason, highly profitable firms would have lower levels of external funding compared to firms with lower earnings. Also, to avoid diluting the value of shareholder equity, and when external debt is needed, the firms will prefer debt funding to new equity issues. The pecking order theory considers as secondary the tax shield and the threat of bankruptcy based on the capital structure. According to Shyam-Sunder and Myers (1999), changes that occur in the leverage ratio results from the imbalances between internally generated cash, net dividend, and real investment opportunities. Pecking order suggests that firms will only go in for external funding when the current investment needs of the business exceed its internally generated funds. The theory indicates that the cumulative effect of the firm's demand for debt funding is summarized in its gearing ratio (Myers, 2001). Similarly, firms with surplus cash flow would use excess cash to repurchase its debt securities than to repurchase its equity shares.

Shen (2014) argued that in situations where the firms are unable to access debts and are unable to comply with the pecking order theory, such a situation does not invalidate the pecking Order theory. Such a situation only shows a systemic limitation on the business's desired capital structure. Shen (2014) continued that in a situation of extremely high information asymmetry, the business might be unable to access the debt market. Le and Phan (2017) suggested that the test of the pecking order theory in underdeveloped markets may prove the nonexistence of the theory. That is because there are underdeveloped or nonexistent debt markets.

The theory provides for a theoretical clear hierarchical means of financing a business without any predefined or targeted debt ratio. The hierarchy provides for a preference for internally generated funds before external debts, and lastly, new equity issues in financing the investment needs of the business. The theory implies that the greater use of external funding negatively influences the value of the company with the resultant risk of financial distress.

The Trade-Off Theory

Kraus and Litzenberger (1973) first introduced the trade-off theory of capital structure, building from the works of Modigliani and Miller (1958). The theory developed from the heavy criticism of the MM theory of a perfect market. Jensen and Meckling (1976) formalized the financial relationship that existed in the trade-off theory. The theory provides for an optimal financing mix based on a trade-off of the mix between the benefits of debts and the cost of debts. This theory recognizes the existence of taxes on transactions. The theory provides that interest on debts, which are tax-deductible, provides the advantage of tax savings in the form of extra cash, increasing the value of the levered firm. This theory provides that where debt is

permanent with a static marginal tax rate and a constant cost of debt, a firm with debt would have a higher market value than a firm without debt resulting from the present value of tax shield associated with debt.

According to Jensen and Meckling (1976), although there are benefits associated with the leverage of a firm, the leverage increases the agency cost associated with the business emanating from the conflicting relationship between the managers, shareholders, and debt holders. The conflicting relationship may originate from the managers serving their personal interest at the expense of maximizing shareholders' wealth, with shareholders engaging in unprofitable investment because they have limited liability. To protect themselves, debt holders may introduce debt covenants and restrictions and engage professional analysts introducing extra agency costs to the business that offsets the tax shield benefits. An impact of the agency theory is that "the probability distribution of future cash flows changes as the probability of the incurrence of the bankruptcy cost changes" (Jensen & Meckling, 1976).

The benefits from the tax shield as a result of debt are not infinite as debts introduce another dimension of cost in the form of bankruptcy cost (Myers, 1977). Outside the agency cost, debt increases the bankruptcy risk through default in repayment. According to Myers (1977), as a firm increases its debt levels, the financial risk also increases, making shareholders unwilling to advance more equity capital to the business or demand higher dividend payments to cater for the high risk they are bearing. Debt holders also will demand higher rates of return on additional capital provided, which increases the rate of cash outflow from the business. Myers (1977) concluded that increases in debts result in increases in firm value

proportionately until a point where any further increment in debt leads to more agency costs and bankruptcy costs, reducing the value of the business. Therefore, the theory proposes an optimum debt level; exceeding the optimum level results in the potential debt defaults exceeding the advantages of the tax shield of debt. Brounen et al. (2006) showed that the trade-off theory provides for an optimal capital structure that a firm should achieve or maintain if the company wants to increase shareholders' wealth.

Several variations to the trade-off theory have been proposed in the literature. The dynamic trade-off model considers the cost of adjustment towards the target debt ratio. The dynamic trade-off model indicates that firms will only adjust their target ratio only when the benefits of adjustment exceed such an adjustment cost. The cost of adjustment places boundaries on the leverage ratio for optimal adjustment of the capital structure (Fischer et al., 1989; Mauer & Triantis, 1994). Fischer et al. (1989) also observed that restrictions in the debt covenants, managers' reputation, and opportunities of takeover also influence the capital structure. Brennan and Schwartz (1984) introduced an investment policy into the trade-off theory. With investment policy, the firms simultaneously determine the debts to be held in cash and how much of the debt to be invested. A study by Childs et al. (2005) on the trade-off theory suggested that firms can avoid the agency cost when they dynamically adjust their levels of debt and maturity of debts. Modern proponents have focused on coming up with a unified model that accommodates and accounts for several factors (Hennessy & Whited, 2005; Ju et al., 2005; Leary & Roberts, 2007; and Strebulaev, 2007). None of these variations has been able to overcome the traditional model, as most studies still refer to the static trade-off theory in their analysis.

Comparing the trade-off theory to the MM theorem, the trade-off theory places a limit on the level of debt that a business can incur to the level of the target debt ratio. This theory place moderations on the debt level compared to the MM theory. The MM theorem places no such restriction on the level of debts a business can acquire. The trade-off theory provides for an optimum debt ratio that the firm must attain or maintain. The theory calls for maximizing debt to the fullest when the firms face a low probability of financial distress (Hovakimian et al., 2004).

Conceptual Framework

Burkholder et al. (2016) defined a conceptual framework as the framework that provides an orientation to the study. The conceptual framework aid in visualizing how the study contributes to the current knowledge on the relationship between capital structure and financial distress. It also indicates how the study elements are aligned, with the methodology and study design meeting all scientific study standards (Burkholder et al., 2016). The conceptual framework provides a diagrammatical representation of how the study variables are related (Myers, 2013). I developed a conceptual framework based on the relationship between capital structure practices based on the pecking order and trade-off and financial distress of nonfinancial public firms in West Africa (see Figure 1).

The conceptual framework guiding this study was influenced by the work of Jarallah et al. (2019). In their study, Jarallah et al. showed the linear relationship that exists between the determinants of capital structure and capital structure practices of listed firms on the Tokyo Stock Exchange. Their model would be employed in determining the capital structure practices within West African businesses. The model by Jarallah et al. was employed in determining the capital structure practice. The

direction of the relationship between the capital structure determinants and capital structure indicates the capital structure practice. The practice could be based on the dictates of either the pecking order theory or the trade-off theory of capital structure. The conceptual framework shows the linear relationship that exists between the determinants of capital structure and the capital structure. The relationship between capital structure and the determinants of capital structure is bidirectional (Abor, 2005; Gill et al., 2011; Rahman et al., 2019). That suggests that the capital structure can also influence the determinants of capital structure.

The capital structure practices influence the components of the capital structure. The resultant components of the capital structure practices also have a linear relationship with the financial health of the business. Muigai (2016) and Muigai and Muriithi (2017) examined the relationship that may exist between the elements of capital structure and financial distress of firms operating in Kenya.

Jarallah et al. (2019) utilized the determinants of capital structure to ascertain the capital structure practice. They did not provide the effect of the practice on the financial health or performance of the business. Muigai and Muriithi (2017) utilized the elements of the capital structure relative to the financial health of the business measured as the business' Z-Score. Muigai and Muriithi (2017) did not indicate the capital structure practice of the companies to the financial health of the businesses. This study aims to identify the capital structure practice within the firms in West Africa and its subsequent relationship with the financial health of the business.

Literature Review

Sources of Funds

Most business uses external funding to generate profit and to propel growth beyond the level that internal resources can enable. In deciding on the sources of funds, the primary elements that the finance manager considers are the cost of the funds and the expected returns that would be made on such funds. There are two primary sources of funding: short term funds and long-term funds. Any source of funds that an entity receives but has to pay back within one year is a short-term source of funding. Examples of such sources of funds include trade credit, short-term bank loans, commercial papers, and bank overdrafts. The sources of long-term funds include retained earnings, preferred stock, bonds, and ordinary stock. Al Abbadi (2019) suggested that the long terms sources of funding can be grouped under internal sources of funds, namely retained earnings, ordinary stock, preferred stock, and external sources, namely long terms loans and corporate bonds.

Al Abbadi (2019) defined common stocks as representing ownership of the company and may have a nominal value, book value, and market value. Preference stocks combine features of both ownership and debts. The difference between common stock and preference shares is in the limited percentage share of profit associated with preference shares. Preference shareholders do not engage in the management of the business. They are the first to be paid before ordinary shareholders with regards to dividend payments and when the business is being distributed on liquidation. Al Abbadi (2019) defined retained earnings as the income that the company has not distributed but kept in the business to meet other operational needs.

The intention of retaining some earnings is to reemploy them at a future date to fund investments.

A corporate bond is one of the long-term external sources of funds available to the business. A corporate bond is a financial instrument that indicates that the company had borrowed a specified amount of money to be repaid at a specified repayment date and with a fixed coupon payment every year (Al Abbadi, 2019). Bonds provide the holder the right to receive the nominal value of the bond at maturity and a fixed income as interest, determined as a percentage of the nominal value of the bond. Bond issues are highly liquid as they can be resold on the capital market before its maturity date.

An external source of funding that is available to business is long-term loans. Long-term loans are funds that a company obtains from banks and other financial institutions that would be repaid over more than one year. Al Abbadi (2019) published that the reasons why a business goes in for long term loans are to finance fixed assets purchases, or permanent investment or to form part of the capital structure. Long-term loans come with several covenants and conditions that the borrower business must satisfy and or agree to before the funds are made available to them. Agarwal (2013) suggested that loan capital is a traditional source of funding for most business and come with various contractual terms which place both financial and nonfinancial obligations on the company.

Capital Structure

Capital structure is one of the most critical issues for companies and has become one of the most contentious issues in finance (Bradley et al., 1984). Berk and DeMarzo (2017) defined capital structure as the contribution of debt, equity, and other

securities that a business has as its capital. Capital structure refers to the volume of business capital that is made up of debt and the amount made up of equity with the object of minimizing the cost of capital to the business (Jami & Koloukhi, 2018). Jaffe and Randolph Westerfield (2004) also defined capital structure as the mix of different debt and equity kept in the business. Capital structure can also be referred to as the composition of different securities used by a company to finance its investment activities. The level of debt and equity that businesses use to fund their operations. The capital structure includes both short-term debts, long-term debts, and equity. Capital structure has also been called the Financial structure of the business (Jaffe & Randolph Westerfield, 2004).

Two types of capital exist in all businesses, that is debt capital and equity capital. Each capital type has its advantages and disadvantages to the company employing it. When a business uses debt to finance its operations, that business is described as leveraged (Pahuja & Sahi, 2012). An unlevered company is one that has no debts on its books (Pahuja & Sahi, 2012). Jami and Koloukhi (2018) provided that the decisions on capital structure involve selecting first the amount of capital required and second considering the financing combination that is available to the business. Capital structure is critical to the management of any business because both the financial risk and cost of capital of the company are affected by the capital structure.

Why Capital Structure Matters

A good capital structure has the advantage of increasing the value of the company by maximizing shareholder wealth and reduces the cost of capital to the barest minimum (Stiglitz, 1988). A proper capital structure assists the business in taking advantage of wealth-creating opportunities that are available on the market. A

good capital structure prevents the company from the risk of solvency as the company would not borrow above its debt capacity. Understanding the relationship between capital structure on other business-related activities is essential to the successful operation of the firm.

Determinants of Capital Structure

All business needs funding, mostly from a variety of sources, to start their operations. Several theoretical and empirical studies have suggested several factors that can influence the choice of capital structure. Kumar et al. (2017) argued that how a business obtains funding for its operations depends on several factors, including firms-specific factors, Industry-specific factors, and country-specific factors.

Firm-Specific Characteristics

Profitability. Kareem (2019) suggested that a critical condition for the long-term survival of any business is its ability to generate profits. Profitability shows management efficiency to convert the resources into profit (Muya & Gathogo, 2016). Whether a business will go in for additional debt funding is influenced by the profitability of the business. The theories on capital structure have presented different views on how profitability affects the capital structure of the business. As professed by Awan and Amin (2014), the test of the trade-off theory shows a positive relationship between profitability and leverage. Zurigat (2009) suggested that profitable businesses should be encouraged to take on more debt because they are not subjected to high bankruptcy risk as they can meet their obligations as they fall due. Also, taking on more debt enables them to take advantage of the tax benefits of debts. Zurigat (2009) continued that the interest burden reduces the amount of cash available to managers, thereby reducing the agency cost. Eriotis et al. (2007), in an empirical

study of 129 Greek companies, found an inverse relationship between interest coverage ratio and capital structure. That is why the static trade-off theory predicts a positive correlation between capital structure and profitability of the business.

The pecking order theory also dictates that there is an inverse relationship between profitability and the firm's debt. That is because profitable firms would generate more internally generated funds to finance its operations and would not need to secure debt funds (Zurigat, 2009). Eriotis et al. (2007) also found an inverse relationship between capital structure and liquidity ratio. Afza and Hussain (2011), in an empirical study of capital structure determinants in Pakistan, also observed a significant inverse relationship between the liquidity of the firm with the leverage. That indicated that highly liquid firms prefer to fund their investments from internally generated funds than debts. Paudyal et al. (2002), in their study of determinants of capital structure among European businesses, found a significant inverse relationship between profitability and leverage

Size. Several empirical studies have linked the business size as one of the elements that determine the capital structure. Al Ani and Al Amri (2015) indicated that because large businesses are diversified, their earnings are relatively stable, and can take on more debts compared to smaller companies. Also, they have easier access to capital markets and can secure debt funding at relatively low cost (Kareem, 2019). Eriotis et al. (2007) found a significant positive relationship between debt ratio and the size of the business, suggesting that large businesses raise more debts compared to smaller-sized firms. Also, the relative cost of issuing debt security is lower for larger firms compared to that of smaller businesses. The trade-off theory predicts a positive linear relationship between the size of the business and the debt ratio (Awan, & Amin,

2014).

       The pecking order theory suggests an inverse relationship between the size of the business and the debt. Awan and Amin (2014) indicated that when a business has adopted the trade-off theory, there is a positive relationship between firm size and leverage. When the firm adopts the pecking order theory, then the size of the business is inversely related to leverage. Al Ani and Al Amri (2015) found an inverse relationship between the size of the business and leverage. They explain that large firms have more diversified sources of income and with lower variations in incomes (Al Ani, & Al Amri, 2015).

       Tangibility. Tangibility is the set of assets that the business use for its operations. According to Zurigat (2009), the tangibility of the assets is the collateralized value of the company. As tangible assets can be used as collateral for debt funding, a business that has substantial tangible assets can take on more debt than those that do not. Firms with high asset tangibility present a low risk to lenders of businesses. As such, lenders are ready to offer debt to them at low-risk premiums, enticing them to take on more loans. There is a positive relationship between the tangible assets of a company and leverage (Bauer, 2004). Firms unable to provide collateral will pay more in terms of interest for the facilities taken (Al Ani & Al Amri, 2015). The cost of issues and interest costs for debt securities is less for secured securities. As such firms, that can collateralize their assets can obtain debt funding at a cheaper cost. Al Ani and Al Amri (2015) also found a positive relationship between asset tangibility and leverage. Baker and Martin (2011) argued that tangibility makes the debts of the business less risky as a higher ratio of fixed assets to debts makes debts more secured as they can liquidate the assets of the business to repay their debts

in bankruptcy.

Tax. Taxes have both a direct and indirect influence on the capital structure decisions of firms. There is a significant positive relationship between the effective tax rate and the debt ratio of the business (Awan & Amin, 2014). Business gets an additional incentive to take on more loans because the interest payment on the debt can be deducted from their profit before paying taxes. That is because the tax shield reduces the effective marginal interest rate on interest deduction of loans (Kareem, 2019). Also, any increment adjustment in the rate of tax would encourage businesses to take on more loans to reduce their profit with the interest payment and hence the tax that they pay. According to Titman and Wessels (1988), the pecking order theory makes no connection between the tax and the leverage. Zurigat (2009) suggested further that firms that have other tax deductibles such as depreciation and investment tax credit might not experience a direct relationship between debt and the tax rate.

Growth Opportunities. Growth is investment opportunities that have the potential to increase the value of the business (Goh et al., 2018). Jami and Koloukhi (2018) found a relationship between the growth of businesses represented by the sales ratio with the leverage level of the business represented by the debt ratio. Huang (2006) also showed that growth opportunities are inversely related to leverage. High growth opportunity businesses are interested in issuing out equity rather than debts. They do that because they do not want the wealth in the high opportunity to be transferred to debt holders rather than equity holders. Huang (2006) provided further that when businesses obtain their growth opportunities from intangible sources, they are unwilling to commit to a regular debt repayment as they are unsure of where their next repayment cash inflow would be realized.

Zurigat (2009) argued that growth opportunities originate from intangible assets of the business, such as managerial skills, competencies, and goodwill. As intangible assets have no collateral value, the ability of the firm to rely on intangible assets for debt is minimal, so such businesses prefer issuing equity rather than debts (Zurigat, 2009). The trade-off theory supports this argument of an inverse relationship between growth opportunities and leverage. That position is contrary to the prediction of the pecking order theory, which postulates a positive relationship between growth opportunities and leverage. As businesses fund new investments from internally generated sources, that may be insufficient to fund all the positive growth opportunities and would, as such, resort to debt funding (Myers & Majluf, 1984).

Marimuthu and Hamzah (2020) provided a summary of the directional relationship between leverage and some firm-specific factors as predicted by the two

Table 2

The Relationship Between Leverage and Firm-Specific Factors

No	Capital Structure Variables	Theoretical Expectation	
		Trade-Off Theory	Pecking Oder Theory
1	Profitability	Positive	Negative
2	Tangibility	Positive	Negative
3	Liquidity	Positive	Negative
4	Dividend Payout Ratio	Positive	Negative
5	Growth	Negative	Positive
6	Size	Positive	Negative
7	Age	Positive	Negative

Note. Adapted from *Determinants of Long-Term Financing Decisions: An Empirical Investigation on The Oil and Gas Firms in Malaysia* by M. Marimuthu and H. H. Hamzah, 2020, A Journal of Management and Humanities, 3(1), p.67

External Determinants of Capital structure

Industrial characteristics also affect the capital structure choices of business as managers in the industry use the industrial average leverage as the benchmark to determine the leverage of their businesses (Baker & Martin, 2011). Venanzi (2017) argued that macroeconomic factors, institutional and financial factors influence the capital structures of businesses that are operating within these conditions. These influences can be grouped into direct and indirect influences on the capital structure of businesses. The indirect role refers to the moderating role of these characteristics that influences capital structure decisions

Countries' Financial Characteristics. Countries' financial characteristics refer to the stage of development of the countries' financial institutions such as banks, capital, and monetary markets as relates to the source of funds at a lower cost. A more developed banking and bond market makes more debt funds and options available to businesses. Also, a developed bond market makes investors more willing and confident in providing funds on the market (Venanzi, 2017). The development of a stable and robust stock market results in an inverse relationship with firms' leverage as stock markets are primarily for equity offers. Venanzi (2017) argued that a developed market decreases the cost of equity, which results in a higher marginal propensity to offer equity than debts. Das and Swain (2018) suggested that one factor that influences the choice of capital structure is the requirement of investors. They argued that because the debt issuing firm must meet the demands of both institutional

and private debt holding before they invest in the business. The business's ability to meet these expectations of debt holders would influence the level of debts that they can acquire. Capital Market conditions also affect the capital structure of the businesses that operate within those conditions (Das & Swain, 2018).

Institutional Characteristics. Several studies have attributed the characteristics of national institutions as influencing the financing decision of most business that operates within those markets. These characteristics include the type of legal system with regards to the quality of laws and the way the laws are implemented and the ways of safeguarding investors' funds. Venanzi (2017) suggested that the institutional system comprises features such as shareholders' rights protection, creditors' rights protection, quality of laws, and speedy enforcement of these laws. Venanzi (2017) argued that in common law countries, there are better protection laws for investors than in civil law countries. A good creditor rights protection system will lead to a reduction in the cost of debts, increasing the incentive for businesses to utilize debt to funds their operations. A good creditor rights protection also encourages long-term borrowing as such funds are secured. Spamann (2010) postulated that the protection of the rights of the shareholder would align their interests with their agents (Managers), which will, in turn, reduce the agency benefits of debts and the capital structure of the business. A country's corruption index is regarded as a significant threat to the enforcement of the protection rights of investors in that country. Venanzi (2017) suggested that when corruption perception is high, firms would prefer to use debt than equity in their capital structure when public officials are corrupt.

Macroeconomic Factors. The country-specific rate of inflation and volatility

in the inflation rate are related to the capital structure of the business that operates

within such macroeconomic environments. Debtholders are unwilling to take on debt

securities when there are uncertainties about the real return they would be making on

such a loan. That increases the inflationary risk of debt investors and may demand

more in terms of interest to compensate for the increased risk. Where the real interest

rate is below that of the inflationary rate, the real repayment of the debts would

decline with time. Because of the high risk, firms would prefer to carry less debt in

the inflationary period (Venanzi, 2017). Demirguç-Kunt and Maksimovic (1999)

showed a relationship between the annual growth rate of a country's GDP with

leverage. An increment in the GDP growth rate could suggest the availability of more

growth opportunities that would require businesses to obtain more external funding.

Also, the growth in GPD could result in more retained earnings, reducing the need to

rely on debt funding. The tax system and how that system is applied to interest on

debts also influence the capital structure decisions of businesses.

Several other factors impact the capital structure of businesses. Swanson et al.

(2003) insisted that there is a lack of a unique model for determining the capital

structure of a business. These several factors influence the decisions of the

management of the company, which in turn also affects the capital structure adopted.

Making capital structure decisions are complex and difficult to study its determinants

because the determinants frequently interact among themselves, resulting in both

explicit and implicit effect on all other factors (Kumar et al., 2017). Swanson et al.

(2003) provided a pictorial analysis of the factors influencing the capital structure

choices, as shown in Figure 2.

Figure 2

Factors Affecting Capital Structure

Corporate Tax

Personal Tax

Bankruptcy

Government and Other Regulations

Agency Costs

Floatation and Other Direct Costs

Capital Structure

Corporate Governance

Macro Economic Variables

Ownership Structure

Signaling
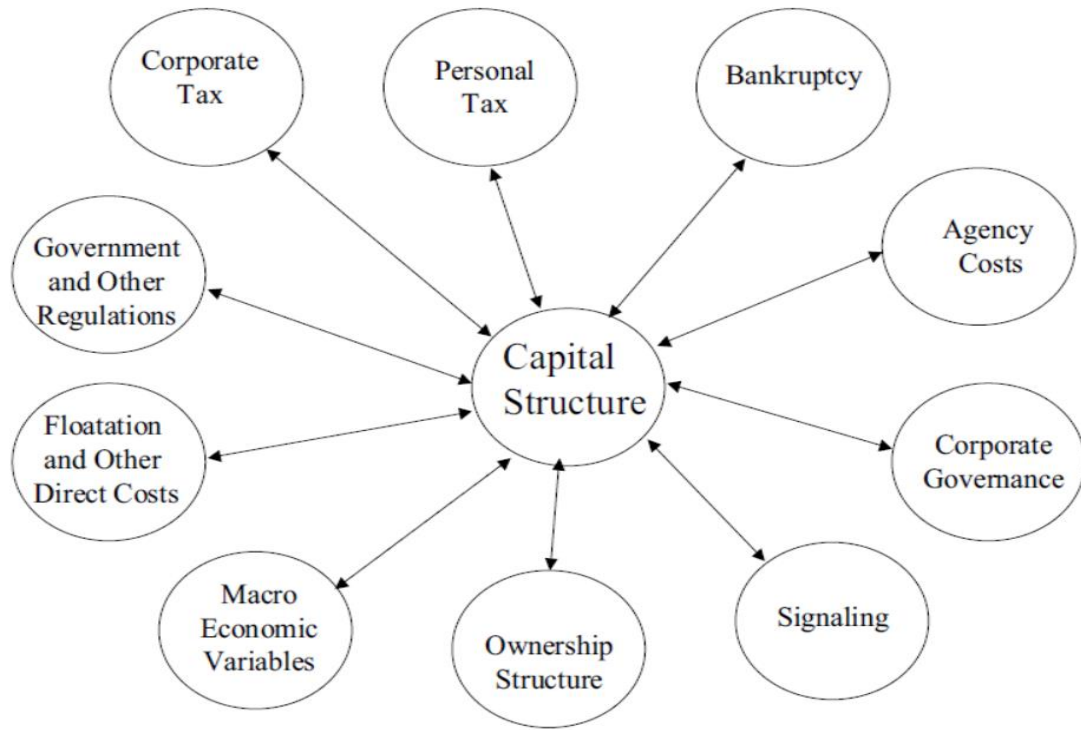
Note. Adapted from *The Capital Structure Paradigm: Evolution of Debt/Equity Choices* by Z. Swanson, B. N. Srinidhi, and A. Seetharaman, 2003. Greenwood Publishing Group. p.10

Capital Structure Planning

The capital structure should be well-planned to meet the current and future planning needs of an organization. Good planning is also essential to determine the capital mix of the company. Capital structure planning should answer the question of how much financial leverage the firm should employ. A good plan should have the objective of maximizing the business profit and shareholders' value and obtaining an optimum capital structure. A good capital structure plan should ensure the maximum usage of leverage, flexibility and prevents the avoidable financial and business risk of

increased debts. Also, the company should be able to meet its debt obligations of interest and principal repayments as they fall due. Consideration should also be given to equity holders, not losing control of the company. Care must be taken not to engage in debts that have unnecessary restrictions on the operations of the business and must ensure that the debt capacity of the firm is never exceeded. The capital structure plan should make sure that debt is only used when the additional debt does not threaten the solvency of the firm. The plan has to be simple and easily understood by investors.

Financial Distress

Kansal and Sharma (2019) defined financial distress as a situation where a business is unable to pay or experience difficulties in meeting its obligations to its creditor. According to Panigrahi (2019), financial distress arises where liabilities exceed assets and is typically caused by undercapitalization, insufficient liquid resources, poor utilization of resources, the decline in sales, inefficient management actions, and poor market conditions. Sun, Li et al. (2014) also defined financial distress as to include the failure of a business to pay its debts or preferred share dividend as they fall due. Financial distress consists of the company having negative bank balances and likely statutory bankruptcy proceedings. Using the Beaver (1966) classification of business as a reservoir of cash, Sun et al. (2014) described business in financial distress as a reservoir with no water in it. When a company experiences difficulty in its inability to meet its obligations to its stakeholders, then the business is in financial distress. Outecheva (2007) provided that financial distress connotes a negative situation where the firm is unable to satisfy its financial obligations. Legally, financial distress is recognized when a company declares bankruptcy based on national laws. Financial distress results in frustrations in operations such as lack of

liquidity in the business, the inadequacy of equity capital, and inadequacy of liquid

capital. From an accounting viewpoint, financial distress is a situation where the

company's net worth is negative. That is, its total assets are less than its total

liabilities. Finance literature provides that when financial distress occurs, that is the

point where the company moves from financial health to financial illness that requires

corrective actions (Andrade & Kaplan, 1998; Baldwin & Mason, 1983; Brown et al.,

1992).

Sayari and Mugan (2017) provided four sequential stages of financial distress,

with the first stage being the incubation stage, where the company becomes aware of

its financial situation. The second stage is the financial embarrassment, where

managers become aware of their financial distress. Insolvency is the third stage of

financial distress. At this stage, the business is cash trapped and does not make

enough money to meet its financial obligations. The final stage is bankruptcy. Sun et

al. (2014) argued for the segregation of financial distress into mild, intermediate, and

severe so that stakeholders can take appropriate recommendations to correct the

distress. Also, Liang et al. (2018) also called for segregation of financial distress into

financial distress, reorganization, and bankruptcy. According to Turetsky and

McEwen (2001), distress starts from a decrease in the payment of dividends and other

debt obligations becoming a technical default.

Financial Distress and Financial Leverage

Financial leverage refers to the proportion of fixed income sources of funds

such as debts and preference shares that a business uses in its capital structure.

Kazemian et al. (2017) argued that firms with more financial leverage in their capital

structure are at a higher risk of financial distress when they struggle to make good on

their debt repayment. The debt ratio is essential when determining financial distress (Chan & Chen, 1991). Several empirical studies have been conducted to identify the relationship between financial leverage and financial distress.

Abdioğlu (2019) studied the relationship between capital structure and financial distress using the firm's characteristics. The study aimed to determine some of the effects firm-level characters had on the relationship between capital structure and financial distress of firms in Turkey. The study targeted manufacturing firms in Turkey between the 10 years of 2007 to 2017. The author adopted the fixed effect panel regression method for the analysis. The study results suggested that as firms increase their level of leverage leads to their financial distress level increases per the prediction of the trade-off theory. Also, the increase in the debt ratio of large firms causes a higher increase in their level of financial distress. The study findings also indicated that when there is an increase in the long-term debt ratio for a firm with higher tangibility, the level of financial distress also increases. The findings suggest a significant positive relationship between financial leverage and financial distress.

Abdullah and Tursoy (2019) empirically ascertained the relationship between the financial performance of nonfinancial firms operating in Germany and their capital structure. The study covered a 25 year period from 1993 to 2016. The authors observed that more than about 60% of all fixed assets of German firms were financed through debt sources. Employing regression analysis, the authors found a significant positive relationship between capital structure and firm financial performance. The authors explained that this relationship results from the tax shield benefit of debt and the lower cost of issuing debt-equity. This finding is consistent with Yat Hung et al.

(2002). They empirically established that financial leverage is positively related to the financial distress of firms in the construction industry in Hong Kong.

Gameel and El-Geziry (2016) undertook research aimed at identifying the best scenario for predicting financial distress on the Egyptian capital market. The study period was 8 years, from 2001 to 2008, with thirty-seven nonfinancial companies sampled for the study. The authors employed the Neural Network Model for the analysis. To identify financial distress, the researchers employed the Altman Z-Score for emerging markets. The authors developed six different scenarios using twenty-two different financial ratios found in the finance literature. The study findings suggest that a business would be distressed when there is an increase in financial leverage, a decrease in liquidity, and a decrease in the cash-generating options.

Vithessonthi and Tongurai (2015) studied the effect the size of a firm has on the relationship between capital structure and leverage of firms in Thailand from 2009 to 2009. They examined 496,430 firm-year observations from 170,013 different companies. They observed that the effect of leverage on the financial performance of a business is dependent on the size of the company. The authors used year on year cross-sectional regression analysis and indicated a significant positive relationship between leverage and financial performance for small firms. They observed a significant negative relationship between leverage and financial performance for large firms. The panel regression analysis for all firms showed a negative effect of leverage on financial performance.

Rouf (2015) examined the relationship between leverage and firm performance of nonfinancial companies trading on the Dhaka Stock Exchange for four years (2008-2011). A total of 106 listed companies were studied over the study

period. The author determined leverage as the debt ratio, debt to equity ratio, current assets to proprietor's funds' ratio, current ratio, proprietary equity ratio. The study utilized the return on assets and the return on sales as a proxy for financial performance. The author employed multiple regression models to ascertain the relationship between leverage and performance. The results indicated a significant negative relationship between leverage and financial performance.

Khaliq et al. (2014) researched finding a relationship between the current ratio and debt ratio and the Altman Z-Score as a proxy for financial distress among 30 publicly traded firms in Malesia. The authors adopted a correlational study design to identify either a positive or a negative relationship among the variable. The study covered five years between 2008 to 2012. The findings suggested a strong positive and significant relationship between the current ratio and financial distress. Also, the findings found a strong significant relationship between leverage or debt ratio and financial distress. The authors concluded that the amount borrowed by firms contributed significantly to their financial distress. Their findings are consistent with that of Sulaiman et al. (2001).

Mujahid and Akhtar (2014) empirically studied the relationship between the capital structure of firms operating in the textile industry in Pakistan and the financial performance and shareholders' wealth. Their study covered six years between 2006 and 2011 involving 155 textile firms. As a proxy for capital structure, the authors used the debt to equity ratio, and return on assets and return on equity, as well as earning per share were used as a proxy for financial performance. The authors employed the regression analysis to establish the relations between the variables of the study. The results indicated a significant positive relationship between capital structure and

financial performance. This finding is similar to the findings of Nerlove (1968), who also identified a positive relationship between debt and return on assets of firms operating in Bangladesh. Similarly, Kodongo et al. (2015) also found a similar positive relationship between capital structure and financial performance when they studied the effect of leverage on the value of firms trading on the Nairobi Stock exchange.

Using a sample of 28 firms over five years from 2006 to 2010, Abu-Rub (2012) aimed at identifying the impact of debt on the financial distress of publicly traded firms in Palestine. The author used total debt to assets and total debt to equity as a proxy for financial leverage. The return on assets, return on equity, earning per share, market equity value, book equity value, and Tobin's Q were used as measures of financial distress. The findings suggested a positive and significant effect of financial leverage on the performance of firms, using both accounting measures and market measures. The findings indicated that the relationship between financial leverage and ROE is due to the tax savings shield in debt that allows the business to build up more shareholders' reserves.

Empirical studies on the relationship between financial leverage and firms' performance have resulted in mixed results. While some studies associated financial leverage with a positive effect on the performance of the firm, others associate financial leverage with a negative effect on the performance of the business, with others finding no association. Weill (2008) provided empirical evidence that suggests that the association between leverage and financial performance varies across countries. Weill (2008) found a positive association between debt and performance in France, Germany, Norway, Belgium, and Spain but found a negative relationship in

Italy and no relationship in Portugal. He concluded that institutional factors also influence the relationship between capital structure and financial performance.

Financial Distress and Debt to Maturity

Baum et al. (2006) defined debt maturity to include the time frame between when a company secures debt security and time to make payment. Debt maturity is how long a company has to pay for procured debt security. Lau et al. (2016) pointed out that current finance literature indicates the importance of maturity decisions in determining the value of a business as well as a firm capital structure. Debt maturity decision is, therefore, a critical finance decision to consider in determining the cost of finance and the risk of repayment (Lau et al., 2016). Borrowed capital is, therefore, segregated into short-term and long-term based on the time to repayment. Berk and DeMarzo (2017) defined short-term debt as those debts that must be repaid within the next year. Short-term debts are also described as current liabilities and include such debts as short term bank loans and overdrafts, accounts payables, accrued expenses, due taxes, and the current portion of long-term debts. Long-term debts refer to any debt with a maturity period of more than one year (Berk & DeMarzo, 2017). According to Vermoesen et al. (2013), long-term debt is the noncurrent liabilities on the balance sheet, includes term loans, bonds, and retirement benefits obligations.

According to Vijayakumaran and Vijayakumaran (2019), short-term loans have incentives that mitigate the agency conflict between managers and shareholders compared to long term debt. Stulz (2001) argued that short-term debts tend to make managers more disciplined as they have to find funds to repay the debts, which transfer the right to control the business from manager to creditors. Therefore, Myers (1977) proposed for firms with greater investment options to opt for short term debts

in financing their investments. That is because businesses with debts maturing before the execution of investment options cannot lead to suboptimal decisions (Myers, 1977). According to Myers (1977), where long term debts are issued, then using the contract cost hypothesis, there would be a conflict between shareholders and bondholders, which can lead to suboptimal investment decisions. This underinvestment would lead to the eventual erosion of profits, resulting in an inverse relationship between long term debts and company performance. This conclusion was supported by Aivazian et al. (2005), observing a relationship between long-term debts and the financial performance of companies in the US for over twenty years. Contrary to these findings, Brick and Ravid (1985) argued that firms could avoid taxes with long term debt, which enhances their profitability, creating a positive relationship between long term debt and financial performance.

Hatem (2017) examined the relationship between debt to maturity and firm performance in Malaysia and Mexico empirically. The study covered seven years from 2005 to 2011. The study sample consisted of 116 companies from Malaysia and 92 Mexican companies. Debt to maturity was tested using the long-term debt ratio, short-term debt ratio, and total debt ratio. The return on asset ratio and the return on Equity ratios were employed as proxies for the financial performance of the business. Their findings suggested that the effect of debt to maturity affects different companies in different industries differently and also in different countries differently. Hatem (2017) found no significant relationship between debts and financial performance for firms operating in the real estate industry in Mexico. He found a significant inverse relationship between short term debts and financial performance for firms in both Mexico and Malaysia. He also found that a higher debt ratio leads to lower

profitability in firms in manufacturing for both Malaysia and Mexico and mining companies for only Mexico.

Lau et al. (2016) investigated the relationship between debt maturity and returned on stock for different sectors of the firms operating in Malaysia. The authors collected data from 1986 to 2012, with 815 companies involved in the study. The authors used panel regression analysis to conclude that the relationship between debt and stock performance is mixed when analyzed on a sectorial basis. They found that the total debt ratio had a significant relationship with stock returns in only three sectors out of the twelve sectors studied. Their results suggest a significant positive relationship between long-term leverage and stock return in the telecommunication, retail, and utility sectors. Short term leverage was positively related to stock return for firms in industrial goods and services and real estate. Both short term and long-term debt were found to be significant for firms in chemical, construction and materials, travel and leisure, basic resources, and automobile industries. The study concludes that the relationship between capital structure and financial performance is an indirect one, which is explained when debt maturities are taken into consideration.

Ogundipe et al. (2012) investigated the relationship between debt structure and liquidity levels of firms operating in Nigeria. The study covered 8 years from 2002-2010. The authors use short-term debt ratio and long-term ratio as a proxy for capital structure. The liquidity was measured as the ratio of cash flow from operations to total assets, as well as the working capital ratio. The study findings indicated a significant relationship between debt and performance. The authors observed a significant negative correlation between short-term debt ratio and liquidity. This observation is in agreement with the dictates of the signaling effect theory developed by Ross (1977).

This conclusion is at variance with that observed by Abdioğlu (2019), who found that increases in short-term borrowing increase the financial distress level of companies in Turkish firms.

When the industrial listing of the business is considered in the relationship between debt to maturity and financial performance, empirical tests have resulted in conflicting conclusions. Salim and Yadav (2012) studied 20,184 public traded companies in Malaysia, grouped according to their industry. The authors wanted to know if the industry had a peculiar effect on the relationship between debt maturity and financial performance. The study covered 10 years between 2001 to 2010. The results suggested a positive correlation between long-term debts and financial distress among businesses operating in the construction, manufacturing, and petroleum industries. This relationship was negative for firms in the commercial and services sectors. Onaolapo and Kajola (2010) also found a different relationship between debt maturity and financial distress for various industries in Nigeria.

Financial Distress and Equity Structure

Finance literature provides two primary sources of equity financing, internal and external equity. Internal equity results from internally generated funds of the business retained in the business and not distributed as dividends to the owners of the business. External equity refers to funds paid in by the owners of the business. The influence of the different sources of capital on financial distress is strengthened by the capital structure theory of the pecking order. Several empirical studies that support the tenets of the pecking order theory demonstrate the preference by most firms for internally generated funds instead of external funding. Muigai and Muriithi (2017) explained that the preference for internal funding is the flexibility that internal funds

offer managers. Managers can easily have access to internal funds to finance their investments need and still maintain the option of external funding. Also, the internal fund is a cheaper source of financing, avoiding the transaction costs such as accounting, legal, flotation, and underwriting fees associated with raising funds externally (Pandey, 2009). Because new equity issues ultimately have the effect of reducing the value of the firm's equity issues as a result of information asymmetry, managers prefer to use internal funding where possible rather than to issue new equity.

Turaboğlu et al. (2017) studied the relationship between capital structure decisions and financial distress. The capital structure variables examined included the firms' size, debt maturity structure, external debt ratio, and equity capital structure. The authors measured financial distress using Altman's Z-Score and Springate S-Score. The authors found a significant inverse relationship between external equity and financial distress. This finding is consistent with the predictions of the pecking order theory

Ekwe and Inyiama (2014) examined the relationship between retained earnings and the financial performance of businesses in the brewery industry in Nigeria. The authors obtained secondary information from the published financials of the companies between 2000 to 2013. The authors employed the least squared method to determine the relationship and the Augmented Dickery-Fuller test to check on the time-series data. Their findings suggested a significant positive relationship between retained earnings and the per value share of assets. They concluded that the proper investment of returned earnings would lead to an increase in growth and expansion of the business. This finding is contrary to the finding of Richardson and Sloan (2003).

They found that new equity issues assisted businesses to grow at a faster rate than when only internally generated funds are used for investments. Richardson and Sloan (2003) were of the view that cash generated from newly issued securities just goes to replay another form of maturing security in the same manner that newly issued bonds replay mature bonds.

Park and Pincus (2001) examined the relationship between the equity structure and earnings response to the coefficient of 195 companies operating in the United States. The authors adopted the cumulative abnormal returns as the dependent variable. The ratio of internal and external funding, unexpected earnings, and leverage were the explanatory factors of the study. The authors found that the ratio of internal equity to external equity was significantly related to the earnings response coefficient. They found this relationship to be a positive relationship. That suggested that companies with higher internally generated sources of capital lead to higher financial performance compared with those with higher external equity funding.

In a study of 977 companies that undertook investment between 1989 to 1999, Elsas et al. (2004) aimed at identifying how internally generated capital and external financing influence performance as measured by the long-run abnormal stock returns. The authors identified each investment within the study period and the predominant type of funding that was applied to that investment. They separated the effect of valuation associated with the investment and the effect of the funding decision on that investment. The authors classified the sources of funding, debts (both long-term and short-term debt), and the issue of equity as external funding sources. The cash from operations was also classified as an internally generated fund. The study findings suggested that returns from internally generated funding outperformed returns from

the external sources. This finding was at variance with Margaritis and Psillaki (2007), who found no significant relationship between the structure of equity and firms' performance using Tobin's Q when they studied 113 Great companies.

Financial Distress and Assets Structure

The international accounting standard board defined an asset as a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity (IASB Framework). Al-Ani (2013) defined assets structure as the group of assets that a company holds to establish and expand the business. Assets structure was defined by Pouraghajan et al. (2012) as the way the company prefers to save its assets investments. According to Al-Ani (2013), assets are generally categorized into tangible and intangible assets. The physical assets that such as properties, plants, and equipment, are the tangible portions of assets (Muigai & Muriithi, 2017). The intangible asset is any nonmonetary asset that does not have a physical nature but is separately identifiable, arises out of a legal or contractual right (IASB 38). They include copyright, patents, and intellectual properties (Babalola, 2013). The components of the tangible assets are Noncurrent assets and current assets. This study refers to assets structure as the components of both noncurrent and current assets to its total assets.

Assets structure is essential as a business cannot begin operation or expand without assets as assets are critical to the production of goods and offering of services. Also, the asset structure influences the capital structure as the tangibility of assets is strongly correlated with debts. Lenders are much more willing to lend to a business that has a strong tangibility of assets (Campello & Giambona, 2010). Also, assets enable a business to survive and to compete with other companies (Reyhani, 2012).

Abdioğlu (2019) found that increases in asset tangibility among Turkish firms increase the financial distress level as the tangibility of assets enables them to secure additional debt securities.

Iqbal and Mati (2012) examined the relationship between the fixed assets and profitability of different firms operating within different industries. The study sample companies listed on the Karachi Stock Exchange and analyzed their financial statements over 10 years. The authors employed regression analysis with profitability as the dependent variable and noncurrent asset as the independent variable. Profitability was measured using the return on asset ratio and return on equity ratio. The results of their study were mixed based on the industry. They found a positive relationship between fixed assets and profitability in the textile sector, Paper and Board sector, cement sector sugar & allied sector. They found an inverse relationship in the other sectors.

Campello and Giambona (2010) studied the relationship between asset tangibility on the capital structure concerning the ease of selling the assets. The researchers studied US firms both active and inactive in COMPUSTAT between 1984 to 1996 except financial, lease, REIT, and real estate companies. They also excluded firms whose total assets value was less than one million dollars. They employed an instrumental variable approach that includes ways of determining the supply and demand for several tangible assets. Their findings suggested that businesses that have a high tangibility of assets are more likely to fall into financial distress relative to other businesses that have higher liquidity in their assets. They disagree with the common belief that tangibility means that firms can more easily repay their debt and argued that creditors are more interested in liquid assets that they can easily repose.

They argue that lenders prefer liquid assets and are more willing to lend to firms with more liquid assets. The difficulty of businesses with tangible assets to access credit will reduce their productivity and, finally, their financial performance.

Financial Distress and Firm Size

The size of business plays a critical role in capital structure decisions as both the pecking order theory, and the trade-off theory both agree on the importance of the size of the business to capital structure (Mohammad & Bujang (2019). The size of a business describes, among other things, the production capacity and the variety and amount of services and products that a business can simultaneously provide to its customers (Mule et al., 2015). The size also indicates how big or small the company's operation and the production and sales capabilities of the business (Surajit & Saxena, 2009). Beck et al. (2008) explained that the firm's size is often measured using total revenue, total assets, and total sales. Several other empirical studies also proposed other methods of measuring the firm's size to include the natural logarithm of total sales, natural logarithm of total assets, and the natural logarithm of the number of employees.

The size of the business influences how the firm relates to the environment. Several arguments have been made for business growth, mostly resulting in economies of scale. Fernández et al. (2019) also argued that the size of the business is critical because of the economies of scale. Muigai and Muriithi (2017) argued that large firms enjoy economies of scale through the ease of access to credits they enjoy. Also, large firms are generally expected to perform better financially than smaller firms as they are less expected to face financial distress. Countries prefer implementing policies to ensure the growth of the firms operating with the economy.

According to Rajan et al. (1999), a greater percentage of the growth in an economy is explained by the growth in firms operating within that economy. Some studies have found a positive relationship between a firm's size and profitability resulting from economies of scale that they enjoy. Other studies, too, have found an inverse relationship between company size and financial performance resulting from managers pursuing their personal interest rather than increasing shareholders' wealth. As such, these businesses tend to be more prone to financial distress when the business grows in size. Also, Muigai and Muriithi (2017) provided that large firms tend to have greater tangibility of assets upon which they may overleverage into financial distress.

Alfaro et al. (2019) studied the relationship between firm size and financial fragility in emerging markets after the global financial crisis. They also examined the increase in corporate leverage and the effect of currency depreciation on the financial distress of firms who borrow in different currencies. They obtained data spanning over two decades for their analysis from Worldscope and Osiris database. Altman's Z-score was used to test the financial distress and regression analysis for the relationship between size and distress. The findings suggested an inverse relationship between leverage and Z-Score, indicating that firms with high leverage are closer to distress. They found that large levered firms have more financial vulnerability than smaller firms. They found that this inverse relationship does not change irrespective of the definition of firm-size. They concluded that large firms are the source of financial distress in emerging markets. This finding is consistent with the findings of Turaboğlu et al. (2017), who also found that an increase in the firm's size increases the risk of financial distress when they examine the relationship between firm

characteristics and financial performance of businesses in Istanbul. Akpinar and Akpinar (2017), who examined financial distress risk among companies in Turkey, also found that increases in company size lead to increases in the risk of financial distress.

Muigai and Muriithi (2017) examined the effect of firm size on the relationship between financial distress and capital structure. The researchers defined size as the natural logarithm of the total assets. Capital structure was defined as the ratio of total debts, short-term debt, and long-term debt ratios. The study involved 40 nonfinancial publicly traded firms in Kenya between 2006 to 2015. The research findings suggested that firms' size, when considered, the observed negative relationship between leverage and financial distress, changes to a significant positive relationship. The authors recommend that firms' size should always be considered in making capital structure decisions. Abdioğlu (2019) observed that increases in the debt portfolio of large firms in Turkey increased their financial distress levels when he studied the impact of a firm's specific feathers on the relationship between financial distress and capital structure. Amato and Burson (2007) also found an inverse relationship between the firm's size and financial distress for companies operating in the financial sector of the UK. They explained this situation results from firms increasing the component of debts in their capital structure as they expand.

Maina and Ishmail (2014) investigated the relationship between capital structure and financial performance among firms operating in Nairobi, Kenya. They obtained data from the financial statements of the listed firms. The authors analyzed the financial statements from 2002 to 2011. They employed regression analysis to ascertain the relationship between the determinants of capital structure, including size

and financial performance. The study concluded, among others, that a significant inverse relationship existed between the size of the business and financial performance measured by the Return on Assets. This finding was consistent with that of Khan (2012), who also found a negative relationship between the size of business and performance measured by the Tobin Q.

Serrasqueiro and Maças Nunes (2008) examined the effect of size on the performance of SME companies in Portugal, found a significant inverse relationship between the financial distress measures and company size. The size was measured by the natural logarithm of total employees, the natural logarithm of total assets, and the natural logarithm of total sales. The authors explained that this relationship resulted from the restructuring of the capital of these companies to include more debts as the company grows in size.

Notwithstanding the inverse relationship between company size and financial distress, Mohammad and Bujang (2019) examined the effect of company size on the relationship between intellectual capital, capital structure, and financial performance of companies operating in the construction sector in Malaysia. The study involved 41 construction firms over five years from 2011 to 2015. The researchers measured size as the natural logarithm of total assets, financial performance as the Return on Equity, and capital structure as the debt ratio. The findings suggestel a positive relationship between the size of the companies and their financial performance. The study found that profit increases as the business size increases. This finding is consistent with the finding of Scafarto et al. (2016). They found that large firms have better wealth creation opportunities and access to better resources through the advantages of economies of scale.

Vijayakumar and Tamizhselvan (2010) found a significant positive relationship between firms' size and profitability. The authors studied 15 firms operating in Southern India. They defined firm size as the natural logarithm of sales and the natural logarithm of total assets. Profitability was measured by the profit margin and the profit to total assets. The researcher explained the fact that the large firms can renegotiate their interest rates down as well as refinance long-term debts making them more liquid. This result was later supported by Babalola (2013), who also found a significant positive relationship be firm size and profitability measured by the Return on Assets.

Jónsson (2008) investigated the relationship between firms' size and financial distress among companies operating in Iceland. The study covered 250 companies operating within the banking sector, fish and fish processing sector, and the civil engineering industry. The study covered five years. The researcher adopted the sales and total assets as a measure of size. The profitability was measured as the Return on Assets. The study findings suggested that larger businesses enjoy bigger profitability when compared to smaller businesses.

Financial Distress and Listing Sector

In analyzing the financial distress of a business, the industry in which the business operates is critical as different industries face different risk factors and growth opportunities (Vo et al., 2019). Muigai and Muriithi (2017) published that because firms experience a different economic, cultural, and structural situation in different industries, the firm's environment is essential in determining its long-term financial health. Sabido and Mulato (2006) empirically provided the need to consider the industry when they studied growth in the profit margins of business in Eastern

African countries. They observed that the increases in profits were similar for firms operating in the same industry relative to those in other industries. Matyjas (2014) suggested that, in theory, the industry strongly influences the strategic decision of managers in all companies. Several other studies have indicated that industry characteristics influence the leverage of firms in that industry (Baker & Martin, 2011; Schmalensee, 1985; Schoubben & Van Hulle, 2004; Venanzi, 2017).

Sayari and Mugan (2017) investigated the risk difference among different industries to determine an industry-specific model for determining financial distress and to identifying specific financial ratios that are more informative in various industries. The authors adopted the entropy concept to determine the risk level in different sectors and to identify the financial ratios that best define the risk in that industry. They also used factor analysis to determine the most informative financial ratios for various industries. They also used the logistic regression analysis to assess the industry-specific financial distress model. Their results indicated, among others, that some ratios provide more information content for different industries. Also, the ratios reflect industrial characteristics. Also, the results suggested that industrial characteristics influence the financial performance of firms operating in that industry. For that reason, there is a need to develop financial distress prediction models specific to different industries.

Vo et al. (2019) investigated the financial distress of publicly traded firms in Vietnam on an industrial basis because of the different risk levels associated with various industries. The authors wanted to know whether the accounting models or market models are better for predicting financial distress among different industries. The study covered a 10-year period, which the authors further classified as the period

during the global economic crunch and the period after. The authors used the logit

regression method in determining accounting and market factor models in estimating

financial distress. Their study findings suggested that accounting models with

macroeconomic factors are better in predicting financial distress among the various

industries compared to the other models. The authors also found that different

industries exhibited different risk levels and called on policymakers to conduct

industrial risk analysis before implementing policies that affect business.

One of the earliest empirical studies that examined the relationship between

firm performance and industrial characteristics was by Schmalensee (1985).

Schmalensee (1985) examined the effect of industrial and firm characteristics on the

financial performance of US firms in the year 1975 using 1,775 firm year-

observations involving 246 manufacturing industries. The authors used ordinary least

square and f statistics to test the effect of the market on the performance of the

business. The results suggested that industrial factors explain about 20% of the

profitability of firms. Also, firm-specific factors accounted for less than 1% of

profitability. This result was rebutted by Rumelt (1991), who found that only 4% of

profitability is attributable to industrial factors, while 44% was attributable to firm-

specific factors. Rumelt (1991) used the same data as Schmalensee (1985) but

extended the study period to 4 years.

Fernández et al. (2019) indicated that for large firms and small firms, there is

no relationship between financial performance and industry factors. For medium-sized

firms, industrial elements primarily explain the financial performance of firms. These

findings partially confirm the works of Chang and Singh (2000), who studied the

relationship between the firm and industry performance on American business

between 1981 to 1989 grouped based on size. Chang and Singh (2000) found that for small and large firms, the influence of industry on profitability relatively low, 4%, and 19.3%, respectively. The influence of industry on the profitability of medium-size businesses was significantly 40.6%.

In an attempt to understand the effect of the firm, industry, and country characteristics on firm performance, Bamiatzi et al. (2016) studied 15,008 businesses in 10 developed countries and 10 developing countries. The authors also introduce the economic conditions as a factor in the analysis by considering the effect of the 2008 global economic meltdown — the research period covered from 2005 to 2011. The researchers obtained data from the Thomson One Banker. As a measure of performance, the authors used the mean of the return on Assets ratio and developed a three-layer model to test the effect of firm, industry, and country factors on profitability. The study findings indicated, among others, that the industry-specific effect accounted for about 8% of the variation in profitability. The authors explained that affect strategic decisions and directions of the firm resulting in income generation. The results also indicated that the effect of industry factors on profitability weakens during periods of economic recession.

Matyjas (2014) also examined the effect of industry and firm characteristics on Polish listed companies. The study covered 387 firms listed on the Warsaw Stock Exchange between 2007 to 2010. The author employed regression analysis to establish the relationship between performance and industry factors and firm factors. The findings of this study indicated no significant influence on the industrial factors on the performance of businesses in Poland. Similarly, research by Sakakibara (2002)

on 312 Japanese companies over 20 years also found no relationship between the industry and financial performance.

Financial Distress Prediction

The literature on financial distress prediction is very rich, with various studies proposing different models for ascertaining the financial health of businesses. These several models have been developed to improve the accuracy of prediction as an inaccurate prediction of the financial health of business has serious implications. Predicting a healthy firm as financial distress and an unhealthy business as healthy can affect the fortunes of many stakeholders who rely on the prediction. With the many financial distress prediction models on the market, there is no one generally accepted predictive model. Farooq et al. (2018) argued that there is no consensus on a predictive method due primarily to the disagreement on the definition and form of financial distress. Having foreknowledge of financial distress is essential so stakeholders can avoid or minimize the economic and social costs associated with default. All stakeholders of businesses must continually assess the going concern status of the company to avoid the challenges related to financial distress.

According to Charalambakis and Garrett (2016), the models of financial distress are classified into those based on accounting values and those based on market value. Outecheva (2007) explained further that accounting models derive their predicting information from the financial statements of the business, while market-based models use information from the capital market where the business securities are traded.

A major advantage of the market-based models is the use of future values of assets and volatility of assets' returns. Also, market-based models are based on the

market hypothesis, which provides a strong appeal for this method. Abdullah (2016) explained further that stock prices are a reflection of all information about security and also reflect information that not available in the financial statements. The market values are not influenced by time and sample selection but reflect every piece of information about the company. Also, accounting policies cannot influence the information that the market provides. Because the further cash flow is reflected in the current market price, market value is a better and more reliable estimate of future events about the company (Abdullah, 2016). Also, the market values are always updated irrespective of the usage frequency being daily, weekly, or monthly (Hillegeist et al., 2004).

The accounting-based models have the advantage of being clear and straightforward, and inherently accurate. (Hillegeist et al., 2004). Also, because accounting statements are readily available and observable, makes them appropriate for predicting financial distress. Several demerits have been associated with accounting-based models. According to Abdullah (2016), accounting models are doubtful to provide conclusive information about the company's future as they are based on financial statements representing the past performance of the company. Also, because financial statements are prepared based on the accounting principles of conservatism and historical cost, this method tends to understate the value of assets. Also, the financial statements may to subjected to manipulations by the firm's management to present a good picture, and any distress prediction based on the same may be inaccurate (Abdullah, 2016). Financial statements are prepared using the assumption of a going concern that, according to Hillegeist et al. (2004), makes the financial statements inappropriate for predicting financial distress. Also, the

accounting models have been described as lacking a theoretical foundation (Abdullah, 2016). The relative simplicity of accounting models has made this model the most used financial distress prediction models for most research works.

In an attempt to determine the financial distress predictive accuracy of accounting models compared to the market models, Abdullah (2016) studied two accounting-based models and a market-based model in predicting financial distress on firms in Malaysia. The accounting models were the logistic regression analysis and multivariate discriminant analysis. The Market model applied was the Merton Model. The researcher determined financial distress probability under the Receiver Operating Characteristics curve. The study findings indicated that the accounting models were more accurate in predicting financial distress compared to the market model. These findings are contradictory to the finding of Hillegeist et al. (2004) and Gharghori et al. (2006), who used the Altman Z-Score as their accounting model. Their findings indicated that the market model outperformed the accounting model in the accuracy of predicting financial distress.

Early researchers into financial distress attempted to predict financial distress using univariate methods based on the financial statements of the company. Univariate methods involved determining a financial ratio for the company of interest, which is then compared to an already determined benchmark of that ratio believed to be able to distinguish between the financially healthy company from a distressed company (Keasey & Watson, 1991). This method utilizes the relationship between the financial ratio and the solvency of the business (Chung et al., 2008). The univariate models are based on the assumption that there is a proportionate relationship between the financial ratios calculated. As cited in Siddiqui (2012), early researchers who

employed univariate models of financial distress included Fitzpatrick (1932), Merwin (1942), Walter (1957), and Beaver (1966).

Beaver (1966) is believed to be one of the pioneers of financial distress prediction using the univariate model. His model applied different financial ratios, one at a time, in determining financial distress. His study selected thirty (30) financial ratios based on the popularity of the ratio in financial literature, the past performance of the ratio in other studies, and how the ratio has been used based on the cash flow theory. His study samples were 79 failed businesses and 79 successful businesses in the United States for over five years between 1954 to 1964. He performed tests of these ratios to determine the ones that best divide the firms into distress and healthy businesses. He made a comparison of the means of the failed businesses with that of the nondistressed firms and realized that the ratios were much smaller for nondistressed firms than for distressed businesses. This was so even for distressed firms 5 years before they applied for bankruptcy. The study findings suggested that cashflow to total debts, net income to total assets, total debts to total assets, current ratio, working capital to total assets, and no-credit interval were the ratios that best identifies a distressed firm. The study found that each of these ratios had a different percentage of accuracy in predicting financial distress.

The univariate method has several limitations. Outecheva (2007) argued that no single ratio could capture the time variation of financial ratios. That indicates that the calculated ratios can predict financial distress at only one point in time and not over a period. Also, the result of a single ratio may give varying results from one period to another. Outecheva (2007) argued further that because financial ratios are related to each other, the use of one ratio in isolation may be inappropriate. That is

because a single ratio cannot present all the different relationships within a business. Also, because univariate models developed their benchmark ratio values from a sample study, the benchmark values may not represent the whole population. That can lead to the misclassification of a healthy company as financially distressed. Because of the above limitations, most researchers see the univariate models as incomplete and require improvements (Altman, 1968; Bellovary et al., 2007; Chung et al., 2008; Outecheva, 2007)

Altman (1968) developed the multivariate discriminant model to predicting financial distress in response to the limitations identified with the univariate model. Altman studied 33 bankrupt firms and 33 healthy firms in the manufacturing sector in the USA. The study covered 5 years between 1946 to 1965. The author selected 22 financial ratios and categorized them into liquidity, leverage, solvency, profitability, and activity ratios. Following a series of statistical tests of relationships, predictive accuracy test, and significance test, Altman developed a linear relationship among five ratios that can best identify distress risk in businesses. The overall score of the linear relationship is the Z-Score. The Z-Score is the result of a linear regression relationship between accounting ratios. A company with a Z-Score value of 2.67 and above were classified as financially healthy. Firms with a Z-Score of 1.81 and below were classified as financially distressed. Altman's Z-Score is calculated using the function;

$$Z = 0.012X1 + 0.014X2 + 0.033X3 + 0.006X4 + 0.999X5$$

Where

X1 = working capital to total assets. This function is used to determine the net liquid assets of the business to the total capitalization of the company.

X2 = retained earnings to total assets. This ratio aims to determine management efficiency in manufacturing, selling and distribution, and other activities of the business.

X3 = earnings before interest and taxes to total assets. This ratio aims to determine the earning ability of the assets employed in the business.

X4 = market value of equity to book value of total liabilities. This ratio aims to determine the extent that the value of the firm's assets may decline and its liabilities would exceed its value before declaring bankrupt.

X5 = sales to total assets. This ratio is used to determine the sale generating abilities of the business using its assets.

Z = overall index or score.

Altman's model has been proven to be a more accurate predictor of financial distress compared to the univariate models, with an accuracy percentage of 95% (Outecheva, 2007). There are some limitations to this Altman's model. The model is industry sensitive as the relevant ratios vary from one industry to the other (Outecheva, 2007). The proponent of the model assumed that the relationship among the variables is linear and normally distributed. Also, they assumed independence among the model's elements. In a situation where these assumptions are incorrect, the validity of the model's Z-Score would be affected.

Following from the criticism that Z-Score model was only applicable to publicly traded firms, Altman (1983) insisted that the use of ad-hoc measure are not scientific as the classical form of the model was intended for use on publicly traded firms. Altman (1983) re-estimated the model by changing the market value of equity to be the book value of equity. This new model was for calculating the bankruptcy

prediction for privately owned firms. The private firm model of the Altman model was stated as;

$$Z'=0.717X1+0.847X2+3.107X3+0.420X4+0.998X5$$

Where X4 is now the book value of equity / Book value of total Liabilities. All other variables remain the same as those in the classical model.

The Z' Score model was able to cater for a private firm but could not avoid the sensitivity of industry as the model still utilized sales and assets turnover in determining financial distress. Also, the model was suitable for only manufacturing firms. The classical and the Z' models were also suitable for a developed market. There was, therefore, a need for a universal model of predicting financial distress irrespective of the industry, the market development stage, and the type of firm activity. In answer, Altman (1983) developed the Z''-Score model that is suitable for both private and public firms as well as manufacturing and nonmanufacturing firms. The Z''-Score model is stated as;

$$Z''=3.25+6.56X1+3.26X2+6.72X3+1.05X4$$

With the following limits.

Z'' > 5.85 - Safe Zone

4.35 < Z'' < 5.85 - Grey Zone

Z'' < 4.35 - Distress Zone

Banerjee and Altman (2017) explained that with the Z''-Score model, most of the discriminatory power of the model can be used in the ratio of Earnings before Interest and Tax to Total Assets ratio with the predictive accuracy being identical to that of the Z'-Score. Banerjee and Altman (2017) tested the Z''-Score model empirically on data from thirty-one (31) countries in both developed and emerging

markets and found out that the Z"-Score model performed satisfactorily in the international context.

Kittur (2019) studied the effectiveness of the Z'-Score and Z"-Score model in predicting the financial health of both public and private banks in India. The study covered 10 years from 2009 to 2018. The study findings suggested that both models of Z-score are capable of predicting the financial health of the banks in India. Also, both models resulted in similar decisions on financial health but with different cut-off limits. Panigrahi (2019) also confirmed the validity of using the Altman model when he tested the model to determine the financial health of pharmaceutical companies for over 5 years. Kulalı (2016) examined the Altman Z"-score on 19 collapsed firms that were listed on the BIST from 2000 to 2013. His test indicated that the model was able to predict the failure of the firms by 95% accuracy in the 1 year to the failure and 90% accuracy in the 2 years to bankruptcy. Kulalı (2016), therefore, suggested that this method provides high success, and that is the reason why its frequently used by most researchers.

The Z-Score models have not always been successful in predicting the financial distress of business. Özdemir (2014) employed the different models of the Z-Score in Turkey with the object of empirically ascertain the accuracy of the models. His study sample included 80 publicly traded and 62 private firms. The sample included small and medium scaled companies as well as large enterprises. The findings of the study suggested that the overall success of the models was low, resulting from the high rates of errors.

Ohlson (1980) developed another model, the O Score, for predicting financial distress that utilizes the probabilistic approach to overcome the challenges associated

with the Multiple Discriminatory Approach methods of financial distress. This

method utilized the cumulative probability function and the logistic regression

technique. The model indicated the probability of a business being classified as

healthy or financial distress based on the characteristics of a prior group with those

characteristics (Ohlson, 1980). Ohlson (1980) studied 105 bankrupt and 2,058 healthy

firms in the USA between 1970 to 1976 and developed a logit model with nine

explanatory variables. This method accesses the effect of four factors, the size of the

business, liquidity, profitability, and growth, and leverage on the probability of

financial distress. Ohlson (1980) used nine financial ratios to represent these four

factors. As seen in Kristianto and Rikumahu (2019), the nine ratios were total assets

to GNP price-level index, total liabilities to total assets, working capital to total assets,

current ratio, OENEG, net income to total assets, funds provided by operations to total

liabilities, $(NI_t - NI_{t-1})/(|NI_t| + |NI_{t-1}|)$, where NI_t is the net income for the most

recent period and measures change in income. Kristianto and Rikumahu (2019)

provided that the O Score formula is

$$O = -1{,}32 - 0{,}407A + 6{,}03\,B - 1{,}43\,X1 + 0{,}0757C - 2{,}37X7 - 1{,}83\,D + 0{,}28$$
$$E - 1{,}72\,F - 0{,}521G$$

Where:

A = Log (Total Assets / Gross National Product price- level index)

B = Total Liabilities / Total Assets

X1 = Working Capital / Total Assets

C = Current Liabilities / Current Assets

X7 = 1 if total liabilities > total assets; 0 if the opposite

D = Net Income / Total Assets E = Cash Flow from Operations / Total Liabilities

F = 1 if Net Income amount is negative; 0 if the opposite

G = (Net Income – Net Income-1) (Net Income + Net Income-1)

The result of this Ohlson model is compared to an established benchmark to determine if the business is financially healthy or financially distressed. Ohlson's (1980) benchmark provided that where the O-Score is below 0.38, then the firm is in distress. When the O-Score is above 0.38, then the business is in the safe zone. The Ohlson (1980) model explicitly identifies the factors that cause financial distress (Muigai & Muriithi, 2017). The model also suggests that firms with higher leverage levels have a higher probability of financial distress. Muigai and Muriithi (2017) suggested that a comparison of the accuracy of prediction of the logistic method with the Z – Score resulted in comparable accuracy when the same sample is used for the analysis.

Critique of Current Literature

Studies on the determinants of capital structure have concentrated on determining the factors that influence the capital structure of companies (Khokher & Alhabshi, 2019; Li & Islam, 2019; Mayuri & Kengatharan, 2019). Research on these determinants has been undertaken in different industries, markets, and countries to ascertain what influence capital in these environments. The majority of these studies proceed to determine the nature of the relationship between the determinants identified and the capital structure. The sign of the relationship, being positive or negative, indicates, and provides an idea as to the capital structure theory that may be influencing the capital structure decision (Baker & Martin, 2011). Very few of these

studies go further to determine the effect that the nature of the relationship between capital structure practice and the determinants of the capital structure have on the financial health of the business.

Studies that have concentrated on the effect of capital structure on the financial health of the business have looked at the capital structure in terms of the debt ratio and its effect on financial performance. Few studies have concentrated on moving beyond the debt ratio to examine the other aspect of capital structure such as the maturity period, the assets structure, the firm's size, and equity structure on the financial health of the business (Bamiatzi et al., 2016; Fernández et al., 2019; Mohammad, & Bujang, 2019; Muigai & Muriithi, 2017; Vo et al., 2019).

Studies that have examined the relationship between the financial health of the business and the capital structure have mostly taken place in the developed capital markets in the US and Europe. Few of these studies have been undertaken on the developing markets in Asia and South American markets and Africa. Minimal studies have been undertaken in African countries. Empirical studies carried out on the developing markets in African have concentrated on determining the factors of capital structure or on ascertaining the existence of one or more capital structure theory in one market or the other (Kajola et al., 2019; Khémiri, & Noubbigh, 2018; Sibindi & Makina, 2018). Very few of these studies on the African markets proceeded to determine the effect of the capital structure on the financial health or financial performance of the business (Kareem, 2019; Muigai & Muriithi, 2017).

Kareem (2019) studied the effect of capital structure determinants such as size, total debt to total equity, short term debt to total assets, long-term debt to total assets on the financial performance of five (5) listed manufacturing businesses in Sub-

Saharan Africa. Kareem's (2019) study did not consider the capital structure practice nor financial distress. He concentrates on the relationship between the components of capital structure and financial performance measured using profitability ratios. As a result, we do not know if the capital structure is related in any way to the financial distress of sampled firms.

Muigai and Muriithi (2017) researched the effect of the elements of capital structure on the financial distress of publicly-traded nonfinancial firms in Kenya. They measured financial distress using the Altman Z-Score, therefore, bringing to light the relationship between the elements of capital structure and financial distress for businesses operating in Kenya. The distress model used by Muigai and Muriithi (2017) is good for only manufacturing firms operating in developed markets. The Z-Score has been proven not to function well in nonmanufacturing businesses and firms operating in developing markets. This study did not examine the capital structure practices at play within the studied firms. Also, the study was limited to firms in Kenya; as such, we are unable to determine if the relationship will hold true when applied to firms in different countries. As Weill (2008) provided, there is the efficiency of the country factor in the relationship between capital structure and financial performance. There is no knowledge of the country-specific factors that might influence the relationship between capital structure theory and financial distress in West Africa.

Summary and Conclusions

The literature has enumerated the importance of capital structure as a good capital structure increases the value of the company by maximizing shareholder wealth and reduces capital cost to the barest minimum. Managers must plan for their

capital structure if they are to obtain the benefit of a sound capital structure. Several factors influence the capital structure choices. These factors may be within the control of the firm, while other factors may be beyond the control of the business. The theories of capital structure include the MM model, pecking order, and trade-off. The MM model indicates that under a perfect market situation, the capital structure is irrelevant in determining the value of the firm. Pecking order theory provides for a hierarchy of financing starting from internal funds, followed by debt, and finally by equity issues. The trade-off theory dictates that there is an optimal debt ratio that every firm must obtain to maximize the benefit of leverage. The literature suggests a linear relationship between capital structure and financial distress. Several models have been developed to determine financial distress based on either the market values or accounting values or a mixture of the two.

On the West African market, there has been no study to understand the relationship that may exist between capital structure practices and financial distress. There is no knowledge of the influence of capital structure practices on the financial distress of business within the West African Sub-Region. In this study, I aim to fill this gap by not only ascertain the capital structure practice within West African countries but find out how these capital structure practices relate to the level of financial distress. I did this by examining how the capital structure element resulting from the capital structure practice relates it to financial distress measured using Altman's Z"-Score.

In Chapter 3, I present the study's population, the sampling method, the research design, and the methodology that I employed in answering the research

question. I will also present the study models and explain how those models aided in achieving the objectives of this study.

Chapter 3: Research Method

The purpose of this quantitative correlational study was to test the relationship between capital structure practice and financial distress in West African companies. The independent variables of the pecking order and trade-off theories were generally defined as the systematic methodology to funding business operations from a combination of debts and equity sources. The dependent variable of financial distress was generally defined as a situation where a business is unable to pay or experiences difficulties in meeting its financial obligations to its creditors. I employed a quantitative research method. According to Borrego et al. (2009), a quantitative method is best for studies where a theory justifies the study variables, the purpose statement, and the direction of the research question. Quantitative methods allow the classification of study features, using statistical models and figures in describing a study and observation (Borrego et al., 2009).

In this chapter, I discuss the research methodology and research design with adequate information on how that will assist me in achieving the objectives of the study. I indicate the study rationale, the population, sample, and the sampling procedure that I employed, the data collection method, and the data collection instrument that I developed. I also discuss the internal and external validity matters in analyzing data and addressing all ethical issues in the study. I provide detailed information to assist in replicating this study in the future or within a different environment.

Research Design and Rationale

I used a quantitative correlational study design to determine the relationship between capital structure practices and financial distress as pertains to firms operating

in West Africa. According to Wilson and Joye (2017), a correlational study design explores the relationship that may exist among variables already in existence. A correlational research design is appropriate when the goal of the research is to understand the nature of the relationship between naturally occurring variables without the researcher manipulating any of the variables (Burkholder et al., 2016). A correlational study design is most appropriate for this study as the variables to be studied already occurred and have been reported in the financial statements of the sampled firms before this study was initiated. As a researcher, I am unable to manipulate or affect any of the variables of the study.

The research question inquired into the nature of the relationship that may exist between capital structure practices and financial distress. The research question did not imply a determination of a cause d effect relationship between capital structure practices and financial distress. A correlational study design provided the best means of answering the research question, as the study did not aim to imply a cause and effect relationship between capital structure practice and financial distress. As noted by Miller and Brewer (2003), a correlational research design has the advantage of collecting data from real people and situations without any manipulation. The research findings from correlational study designs are often practical and reasonably implementable. The findings from a correlational study are less artificial. As such, the findings of correctional research designs are much more generalizable to real-life situations. This study employed multiple regression based on the models adopted for the study to analyze the data that would be collected.

Research Question

What is the relationship between capital structure practice and financial distress in West African companies?

Null Hypotheses (H_0): There is no relationship between the capital structure practice within companies operating in West Africa and financial distress.

Alternative Hypotheses (H_a): There is a relationship between the capital structure practice within companies operating in West Africa and financial distress.

Correlational models

I adopted two econometric models that involved study variables in showing the empirical relationship between the capital structure practices and financial distress. Based on the discussion in the review of the literature, I adopted two models for answering the research questions. The first model was from Jarallah et al. (2019) to determine the capital structure practices at play within the sampled West African companies. The second model was from Muigai and Muriithi (2017) to determine the relationship between the capital structure elements emanating from the capital structure practices with financial distress.

Capital Structure Practice Model

Jarallah et al. (2019) proposed a model for determining whether the pecking order theory or the trade-off theory influenced the capital structure decisions of publicly traded firms on the Tokyo Stock Exchange. They proposed the below model for testing capital structure theory.

$$BL_{It} = \mu + \beta1\ SIZE_{it} + \beta2PROF_{it-1} + \beta3GROW_{it} + \beta4DPR_{it-1} + \alpha_i + \lambda_t + \varepsilon1;it, \text{-----}$$

(1)

Where

BL = Book value of Leverage

SIZE = Size of the business

PROF = Profitability of the company

GROW = Growth opportunities offered to the business.

DPR = Dividend Payout Ratio.

αi = The individual-specific effect

λt = Time-specific effect

Relationship between Capital Structure Elements Financial Distress Model

Muigai and Muriithi (2017) developed a model for determining the relationship between capital structure and financial distress. This study adopted the Muigai and Muriithi (2017) model as expressed as;

$$FD_{it} = \sum_{i=1}^{7} a_i X_{it} + \mu_{it}$$ --

(2)

$$FD_{it} = \sum_{i=1}^{7} a_i X_{it} + \sum_{i-1}^{1} \emptyset_i Z_{it} + \mu_{it}$$ --

(3)

$$FD_{it} = \sum_{i=1}^{7} a_i X_{it} \sum_{i=1}^{7} \beta_i (X_{it} * D_i) + \sum_{i-1}^{1} \emptyset_i Z_{it} + \mu_{it}$$-----------------------------------

(5)

Where

FD_{it} = is financial distressed using the Altman Z"-Score.

a_0 = is the Intercept of the regression equation.

a_i = is the slope of the dependent variables.

β is the slope of the moderating variables.

$\emptyset$ the coefficient of the controlling variable

X_{it} is the vector of the dependent variables.

Z_{it} is the vector of the controlling variables

D_i is the dummy variable for the industrial sector, which represents one (1) for a firm is in the sector; otherwise, zero (0)

μit is the error term.

Unlike Muigai and Muriithi (2017), that used company size as a moderating element, this study considered the size of a firm as a significant capital structure determinant. For this reason, the size of the business was considered as an independent explanatory variable

Study Variables

In establishing the capital structure practice, I used the Jarallah et al. (2019) model, which involved determining the leverage, firm size, profitability, growth opportunities, and dividend payout ratio. The dependent variable for this model was leverage, while the independent variables were firm-size, profitability growth opportunities, and dividend payout ratio.

Leverage

I measured leverage using the book value of debt. Leverage refers to the ratio of the book value of total debt to the sum of the total book value of debt and equity. According to Jarallah et al. (2019), the book value of total debt is appropriate in testing the potency of both the pecking order theory and the trade-off theory. Also, finance managers consider the book value of debt rather than the debt market value in their financing decisions. The leverage was the dependent variable in determining capital structure practices.

Firm-Size

The size of the business indicates the diversity of the company. The size shows the ease of access to capital markets, as well as the rate that will apply to such a company (Kareem, 2019). The trade-off theory predicts a positive relationship between firm size and debt. That is because bigger firms can easily attract debt funding at a lower rate compared to smaller firms. The pecking order predicts that size is inversely related to debt. I measured the size as the natural log of total assets.

Profitability

The capital structure practice influences the relationship between profitability and leverage. The pecking order theory dictates an inverse relationship between capital structure and profitability. The trade-off theory predicts a positive relationship between profitability and debt ratio. I measured profitability as Return on Assets (ROA) and Return on Equity (ROE).

Growth

The pecking order theory predicts a positive relationship between growth and debts. The trade-off theory, however, dictates a negative relationship between growth opportunities and debt. I determined growth as the percentage change in sales. Alipour et al. (2015), Chakrabarti and Chakrabarti (2018), and Simatupang et al. (2019) all used this measure in determining growth opportunities.

Dividend Payout Ratio

The trade-off theory predicts an inverse relationship between leverage and the dividend payout ratio. Alternatively, the pecking order theory dictates a positive correlation between leverage and dividend payout ratio. The dividend payout ratio was calculated as the total dividend paid to shareholders relative to the company's net income.

The Muigai and Muriithi (2017) model was used to determine the relationship between the capital structure elements resulting from the capital structure practices with financial distress. It involved correlating debt to maturity, assets structure, and equity structure and firm size, moderated for by the industrial listing and with financial distress measured using the Altman Z"-Score. Financial distress was the dependent variable, while the debt to maturity, assets structure, equity structure, and firm size were the independent variables.

Financial Distress

Financial distress is a firm's inability to meets its financial obligations as they fall due. In this study, I adopted the Altman's Z"- Score for all industries, both developed and developing markets. As the studied businesses were operating in different countries, a distress-model capable of considering the international factor was relevant to determining the firms' financial distress level. Banerjee and Altman (2017) used this model for determining financial distress.

Assets Structure

The assets structure refers to how the business has saved its assets investments. Assets can be either long term (noncurrent assets) or short term (current assets). In this study, I determined the asset structure as the ratio of fixed assets to total assets. This measure was adopted from previous studies (Abdioğlu, 2019; Iqbal & Mati, 2012; Muigai & Muriithi, 2017).

Equity Structure

The equity of a business is made of internal sources of equity and external sources. Internal equity originates from internally generated funds not paid out as a dividend to shareholders. Internal equity sources are the reserves that companies make

and retained earnings. External equities are funding other than debts that the business obtains from its shareholders. Equity structure was determined as the ratio of each component of equity as a ratio of total equity. Turaboğlu et al. (2017), Ekwe and Inyiama (2014), and Park and Pincus (2001) used this method in their study to determine equity structure.

Debt to Maturity

Debt to maturity refers to the length of time between when a debt is secured and repaid. Debts are either short- term or long-term debts. Current liabilities are short term debt, while noncurrent liabilities are long-term debts. Total debts provide the gearing of the company as a whole. It is equally important to determine the effect of the two primary forms of debt on financial distress. Debt maturity was measured as the proportion of each debt component to total debt.

Methodology

According to Santiago-Delefosse et al. (2016), the research methodology should reflect the study's objective and provide a link between the research problem and the research question. Barnham (2015) enumerated three functions of methodology. The methodology enables communication among researchers. The second function is providing a rule for reasoning that enables a logical means of making inferences from the study findings. The third function is that the methodology provides the means of authenticating the results of the study. This quantitative study employed a methodology aim at determining the relationship that exists between capital structure practices and financial distress among West African companies.

I adopted a quantitative method because, according to Howe (1988), the quantitative method ensures deductive reasoning. I made deductive reasoning about

the relationship between capital structure practices and financial distress. A quantitative method allows for statistical analysis to ascertain a significant relationship that may exist between capital structure practices and financial distress. I did not choose a qualitative methodology because the data used in answering the research question were quantitative in nature. A qualitative method requires the researcher to investigate a social phenomenon from a participants' view (Williams, 2007). The data for this study had already occurred and published as such, a qualitative study would not have been appropriate in answering the research question.

Population

Mugenda and Mugenda (2003) defined a population as the entire set of individuals, objects, or events that share common features of interest to the study. Burkholder et al. (2016) referred to the population as the entire set or collection. This study's population consisted of all nonfinancial firms listed on the various stock exchanges in West Africa as of December 2019. That is the nonfinancial firms listed on the Nigerian stock exchange and Ghana stock exchange. The study excluded nonfinancial firms listed on the capital markets in the French-speaking countries due to the language barrier in translating French-based financial statements. The Ghana and Nigerian stock exchanges are the only English exchanges in West Africa. The analytical units were the individual nonfinancial listed firms. I excluded financial firms such as investment, banking, and insurance companies from the analysis as these firms are highly regulated with regards to their capital requirements, liquidity, and operations. The population for this study was made up of 131 companies. Table 3.1 shows the industrial breakdown of these nonfinancial listed companies on the Ghana stock exchange and the Nigerian stock exchange.

Table 3

Target Population

No.	Industrial Sector	Ghana	Proportion	Nigeria	Proportion
1	Agriculture	2	8%	5	5%
2	Construction / Real Estate	0	0%	8	8%
3	Consumer Goods	8	32%	20	19%
4	Health Care	1	4%	10	9%
5	Industrial Goods	5	20%	13	12%
6	ICT	1	4%	9	8%
7	Natural Resources	2	8%	4	4%
8	Oil and Gas	3	12%	12	11%
9	Services	3	12%	25	24%
	Total	25	100%	106	100%

Sampling and Sampling Procedures

As it is impossible to study every unit within a study population, sampling a reasonable and accepted number is essential in establishing the study's validity (Bettis et al., 2014). Babbie (2016) defined the sampling frame as the list or quasi list of elements, out of which samples are selected for a study. Sampling enables generalizing the study findings to the population from the collection of data from the subset of the population to represent the entire population (Tsang, 2014). Drawing up a sample should be strategically done to ensure that every unit within the population has an equalance of selection (Uprichard, 2013). In this study, I ensured that each company within the population had an equal chance of being selected. Companies that have not been listed for a continuous period of five years were excluded from the sample. I also excluded firms that were delisted during the study period.

Stratified Sampling Strategy

The sampling strategy is essential and should be bias-free and error-free to ensure that the study's objectives are obtained. I used a stratified sampling technique. A stratified sampling technique involves dividing the population into strata based on some commonality and picking the sample from each stratum (Fowler, 2013). I grouped the companies into their industry and extracted the sample from each industry. The industrial strata that were used are specified in Table 3. I performed a simple random sampling from each stratum to obtain the study sample. The stratified sampling method has the advantage of avoiding bias and increasing the precision of generalizing the study findings to the population (Fowler, 2013). The stratified sampling method can be time-consuming as it takes time to group the population into strata.

I used the G*Power statistical software to determine the study sample's appropriate size and avoid an inadequate sample size or excess sample. According to Bettis et al. (2014), the G*Power application has assisted researchers in avoiding either an inadequate sampling size or an oversize sample. The analysis that I performed on the G*Power version 3.1.9.7 using a medium effect size of (p=15), with a probability of an error being 5% ($\alpha = 0.05$) and a power of 80% (1-β =0.80) for an *f*-test resulted in a sampling frame of 85 companies. This result is illustrated in Figure 3

Figure 3

G*Power Sample Calculation
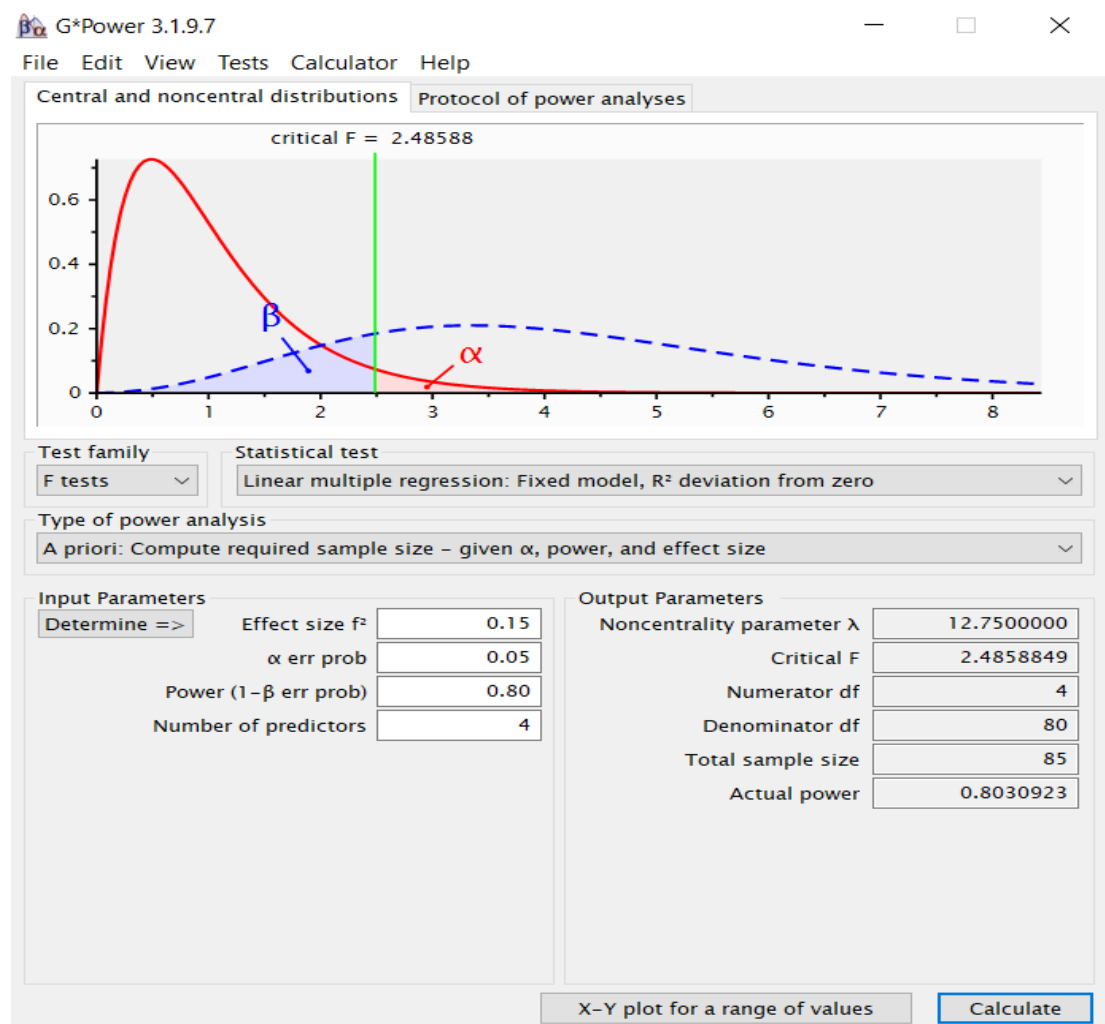
Procedures for Recruitment, Participation, and Data Collection (Primary Data)

This research utilized secondary data from the published financial statements of the listed nonfinancial companies over a five-consecutive period from 2014 to 2018. I considered these 5 years a more extended reference period that helped me establish a stable estimate of the relationship between the study variables. The period is appropriate in establishing stable variances among the study elements. I developed a secondary data collection sheet in Excel for extracting the relevant data from the financial statements. This Excel sheet helped collect relevant data needed to calculate

the Altman's Z" score for each nonfinancial company and determine the capital structure and the associated capital structure practice.

The study data was collected from the published financial reports of the listed nonfinancial firms and the facts book of the two stock exchanges. I sourced the published financial reports from the websites of the stock exchanges for the study period. Relevant data needed for the study were summarized in the excel sheet from the published financial statements. The summarized information in the published statements was crosschecked with the information obtained from the facts book of the stock exchanges to verify the accuracy of the data collected.

The collected data were then converted into needed ratios for the correlational analysis. I convert the financial information into the relevant ratios in Microsoft excel for the study variables over time for each nonfinancial company identified. I adopted Altman's Z"-Score method to determine the financial distress level of each of these nonfinancial institutions. I employed descriptive statistics such as the mean, standard deviation, and skewness to summarized financial leverage, sale growth, size, assets structure, equity structure, debt to maturity of the sampled firms.

I determined the capital structure practice using the model employed by Jarallah et al. (2019). After that, I expressed the capital structure element as a function of the financial distress to determine the relationship existing between the two variables using the model of Muigai and Muriithi (2017). I used SPSS to determine how the relationship between the firms' capital structure variables related to their financial distress levels. I then used other inferential statistics such as the f–test and the t-test to determine the significance of the individual capital structure attributes and

their associated theories predictions and the significance of the overall model. I used

tables to present the results of the study.

Pilot Study

According to Fraser et al. (2018), a pilot study reduces the chance of failure

when conducting the main study. A pilot study can also ensure the feasibility of the

study and assist the researcher in preparing for the extensive study (Thabane et al.,

2010; van Teijlingen & Hundley, 2001). A pilot study requires a smaller data set,

checking errors, testing the data collection instrument, checking on the validity of the

methodology and research design, and applying any correction in the main study. I

performed a pilot study that involved 10 companies out of our sampled companies.

Instrumentation and Operationalization of Constructs

Developing and testing the data collection instrument for validity is critical to

avoid errors in measurement (Carole & Almut, 2008). Reliability involves ensuring

that the measures are stable and internal consistency of the measuring tool. Validity

measures the extent to which the data collection instrument measures what it was

intended to measure (McKenzie et al., 1999).

For this study of the relationship that existed between capital structure

practices and financial distress, no questionnaire was developed. Also, the study did

not involve any interviews or human participants. Data for the study were developed

from analysis of the published financial statements of the sampled firms. I developed

a data collection sheet in excel for extracting and summarizing the relevant data from

the published financial statements of the sampled companies. The relevant data

collected consisted of the values for the dependent and independent variables needed

to determine the capital structure practices and the Altman's Z - Score.

As McKenzie et al. (1999) put it, the first step in ensuring the reliability and validity of a newly constructed data collection tool is to clearly define the variables to be measured and the tool's objectives. The study variable, which included the determinants of capital structure practices and financial distress, was clearly defined to avoid ambiguity. Also, the objective of the data collection tool was to collect the relevant data from the published financial statements of the business needed to determine the relationship between capital structure practices and financial distress. The data collection sheet in excel was developed based on the literature review and other peer-reviewed articles with works similar to my current study. The data collection sheet was developed around the study's models to provide validity and reliability for the study. As a check on the data collection instrument's content validity, the data obtained using the data collection instrument was the same as in the published financial statements of sampled companies. As a test of the data collection instrument's reliability and validity, I employed this tool in collecting data for the pilot study. Any adjustments, corrections, and additions were perfected during the pilot study.

<div align="center">**Data Analysis Plan**</div>

During the data analysis stage, I tested the study's two hypotheses and examined all the dependents and independent variables. Data for the study was collected using the data collection tool that I developed in Microsoft Excel. The collected data were analyzed using SPSS. According to Secchi (2015), SPSS can be used for both descriptive and inferential statistics to ascertain if the Null hypotheses should be accepted or rejected. I uploaded the data collected on the Excel sheet into the SPSS software for the analysis.

The study was a quantitative correlational study design to answer the research question, as stated earlier in this chapter. In answering the research question, I employed correlational analysis and multiple regression to test the relationship that existed between capital structure practices and financial distress among firms operating in the West African region. The models adopted by the study required the use of multiple regression analysis and correlational analysis.

Correlational Analysis

As provided by Salkind (2010), correlation is the term for a group of indices used to describe the nature and magnitude of the relationship between two or more variables. Correlation is just descriptive and does not imply a causal relationship between the variables of the group. The correlation shows the strength and direction of the association between the study variables. According to Miller and Brewer (2003), the best know correlation is the Pearson product-moment correlation coefficient. The letter r represents the correlation coefficient. Pearson's r gives an accurate measurement of the strength and direction of the relationship between the study variables. The correlation r always takes a value between +1 to -1. The value of the r is an indication of the strength of the relation between the study variables and the direction of the association. The strength of the association between the variables increases when the coefficient approaches 1. When the coefficient value approaches zero, the relationship between the variables is weaker. The sign of the coefficient indicates the direction of the association. A positive coefficient suggests a positive relationship between the study variable, while a negative coefficient indicates a negative relationship between the study variables. According to Salkind (2010), the correlational test is often computed with regression analysis.

Regression Analysis

Where there is a correlation between two variables, Salkind (2010) argued that knowing the value of one of the variables can be used to predict the value of the other variable. The regression analysis does not imply a causal relationship between the variables but provides a means of predicting one variable when given the other. The linear regression emanates from the correlation relationship between the variables (Salkind, 2010). According to Reinard (2006), regression is an extension of the correlation method and a tool for analyzing variance. For this reason, multiple correlation is also referred to as multiple regression correlation. Regression requires one variable to be a dependent variable and the other an independent variable. Regression is a statistical methodology that produces an equation that can be employed for prediction. Multiple regression is represented mathematically as $Y = \beta 0 + \beta 1 x 1 + \varepsilon$ where

Y = dependent variable of financial distress.

$\beta 0$ = is the slope

$\beta 1 x 1 + \varepsilon$ = independent variable of Capital structure practices.

According to Steyerberg (2019), the multiple regression model assumes that the study variables are normally distributed, there are linear relationships among them, they are reliable, and they have homoscedasticity.

Interpretation of Results

I interpreted the study results from the analysis generated with the SPSS software. Where the *f*-test for the regression equation of the study hypotheses was statistically significant, that suggested that one or some of the dependent variables of the model was statistically significant. I conducted a *t*-test for the dependent variable

coefficients to ascertain the independent variables that are significantly related to the dependent variable. Where the *f*-test was not significant, suggested that independent variables are not significantly related to the dependent variable.

Threats to Validity

Burkholder et al. (2016) indicated that the research's validity is related to truth and valid findings. A valid study concerns the study design needed to answer the research question. According to Fowler (2013), validity entails the accuracy of the study results. Validity consideration should include the data collection method, the type of data collected, the sample from whom data was collected, and the appropriate sample size (Burkholder et al., 2016). This study adopted a quantitative approach, a scientific approach, with statistical tests and checks that assist the researcher in making statistical inferences from the test results. According to Barnham (2015), a quantitative methodology can improve the validity of the study findings.

External Validity

Westreich et al. (2019) stated that the external validity of a study relates to how the study findings can be generalized to the population. A threat to external validity may originate from an inadequate sample size or nonrandom sample size that does not reflect the population (Bonander et al., 2019). External validity can be improved when the researcher applies random sampling or uses a large sample size (Muralidharan & Niehaus, 2017). Type I and II error are examples of the threat to external validity where the researcher erroneously accepts the null hypotheses or accepting the alternate hypotheses in error. As a check on the study's external validity, I adopted a sampling procedure based on science to select a sample size that was representative of the study population. The sample that was used in this study were 85

companies from the total population of 131 companies. The stratified sampling method that was employed also required that the population was grouped into strata based on the company's industry and a random method applied to select from each industry.

Internal Validity

Internal validity refers to the research procedures, treatment, and experiences of samples that can make the researcher make wrong inferences from the data collected. Siedlecki (2020) stated that the structure of the study impacts on internal validity. Internal validity refers to the minimum standards without which the study is uninterpretable (Campbell & Stanley, 2015). Ferguson (2004) referred to internal validity as getting the highest truth possible from a study with the possibility of applying the study in another setting. A means of combating threats to internal validity is to situate the research in a theoretical framework (Ferguson, 2004). Pretest and posttest of the data collection instrument can also guard against threats to internal validity (Campbell & Stanley, 2015).

As a guard against internal validity threats, I conducted a pilot study to test the study design and data collection tool. This is to ascertain if the data collection tool collected the required data, and the study design was appropriate in answering the research question. The study was situated within a theoretical framework to guide the study in data collection and interpretation of results. The MM theory, pecking order theory, and the trade-off theory of capital structure guided the data collection and the interpretation of results. The study hypotheses indicate a relationship between capital structure practices and financial distress extracted from the research question.

Research cited in this study were related to capital structure and financial

performance.

Construct Validity

Burkholder et al. (2016) referred to construct validity as the extent to which

the study's underlying idea is conceptualized and operationalized. As pointed out by

Hales (2016), in a quantitative study, the researcher has the responsibility of ensuring

reliability and validity of results and to promote trustworthy, credible knowledge and

evidence for improved decision making. Hehman et al. (2019) stated that construct

validity does not relate to the measure itself but the interpretation yielded from the

measure. In determining the relationship between capital structure practices and

financial distress in West Africa, I assessed the multiple correlational analysis

assumptions with the characteristic of the study variables. That was to ensure that the

study variables met the requirement of application of the correlational analysis

appropriate for the study. I accessed the assumptions of a normal distribution,

homoscedasticity, linearity, absence of outliers, and multicollinearity relative to the

study variables and the data collection tool. I ensured that all the multiple

correlational analysis assumptions were met to improve the study's construct validity.

Ethical Procedures

Ethical research should be a critical component of every research work.

Neufeld et al. (2019) proposed that every research should be done ethically without

being disrespectful to the study's community or participants. Osborne (2017)

admonished all researchers to be ethical scholars and present the result of the study

accurately so as not to mislead consumers of the research. Gelling (2016) suggested

that to ensure that ethical considerations are adhered to, all researchers should allow

an independent reviewer to examine the research and ensure compliance. Before conducting the study, the study proposal was subjected to the reviews, rules, and guidance of Walden University's Institutional Review Board (IRB) to ensure that all ethical standards were complied. This ensured that the study adhered to all regulations and standards. According to Jordan (2014), the review by IRB is critical for the protection of subjects or participants in a study. It is also required to provide the privacy of participants. Walden University's Institutional Review Board gave approval for this study with approval number 11-13-20-0558102.

This study did not involve human participants. The research question was answered by analyzing the figures in the sampled firms' published financial statements using multiple correlational analysis. These financial statements are already public information published on the website of the listed capital markets. Fowler (2013) argued that it is essential to ensure anonymity and confidentiality of participants of a study. This study assessed the financial health of firms listed and trading on the capital markets. I made the selected companies anonymous and company names coded to hide the selected firms' identities. I also protected all data collected against any unauthorized access.

Summary

I conducted a quantitative correlational study to ascertain the relationship that existed between capital structure practices and financial distress among firms operating within the West African subregion. The study population was all nonfinancial firms listed on the Ghana stock exchange and Nigerian stock exchange. The study involved a sample of 85 firms drawn from all industries except the financial sector using stratified sampling techniques. I conducted a pilot study of about 10

companies to test the validity of the data that was to be collected. I collected data

from the firms between 2014 to 2018. Data were analyzed using correlational and

multiple regression methods. I employed Jarallah et al. (2019) model to determine the

capital structure practices and Muigai and Muriithi's (2017) model to determine the

relationship between capital structure practice and financial distress. I used SPSS to

analyze the data collected and drew statistical inferences from the data. All company

names were coded to ensure the privacy of the listed companies used in the study. I

ensured that the study design was appropriate in answering the research question. In

Chapter 4, I present the study's findings from the analysis of the collected data.

Chapter 4: Results

The purpose of this quantitative correlational study was to test the capital structure theories of the pecking order and trade-off theory as they relate to financial distress for companies operating in West Africa. This study sought to answer the research question: What is the relationship between capital structure practice and financial distress in companies operating within the West African region.

The Null Hypotheses ($H_0 1$): There is no relationship between the capital structure practice within companies operating in West Africa and financial distress.

Alternative Hypotheses ($H_a 1$): There is a relationship between the capital structure practice within companies operating in West Africa and financial distress.

I used a quantitative correlational study design to determine the relationship between capital structure practices and financial distress among firms operating in West Africa.

I present the study results, including the study's purpose, from the collected data and statistical calculations and analysis in this quantitative correlational study. This study's purpose was developed based on the research question and hypotheses, which I aligned with the study design. I begin by review lessons I learned from the pilot study that I conducted. I discuss the tool I used to collect data and the mode of data collection. I present a general description of the study sample and collected data. I discuss the descriptive and inferential statistics on the data collected, including correlation, linear regression, and hypothesis testing. I also show the study results that answer the research question with the help of tables.

Pilot Study

I conducted a pilot study to ascertain the effectiveness of collecting the right data. The object was to know if the data collection instrument could solicit the relevant data from the study sample firms' financial statements. I collected data from 10 firms in Ghana over the same data collection period as the main study for the pilot study. I made significant changes to the developed data collection instrument from collecting data for the pilot study. I also changed the nature of the data that was exported into SPSS for analysis.

The initial data collection plan required collecting the figures from the financial statement and performing the ratio conversions in SPSS before conducting the analysis. During the pilot study, I realized it was appropriate to modify the data collection plan to perform the econometric ratios calculations from the financial statements in Excel and export the same to SPSS for analysis. That made the analysis much more meaningful and more comfortable to undertake than importing financial values that would not be used in the analysis in SPSS. For this reason, I redesigned the Excel sheet to calculate the econometric ratios as the relevant financial statements' values are entered in the Excel sheet.

I used the descriptive statistics about the pilot study firms to determine if there were any anomalies within the collected data. The statistics indicated that the means, variances, and standard deviations were all within an appropriate statistical range.

Data Collection

In collecting data for the analysis, I complied with the Walden University research policy and met the Institution Review Board approval before collecting the needed data. This study's population was all publicly traded nonfinancial firms trading

on the Nigerian Stock Exchange and the Ghana Stock Exchange. As at the time of conducting the study, 131 nonfinancial firms were listed on both Ghana and Nigeria's stock market operating in different industries. This excluded five conglomerate firms as their operations span beyond industrial boundaries. The study's data were secondary data from the already published and publicly available financial statements of the sampled firms. In this study, I collected financial information as detailed in the published financial statements of the firms. No external contractor was engaged in collecting data for the study. I collected all the relevant data from the financial statements of the selected firms. I obtained the data from the websites of Ghana stock exchange and Nigeria stock exchange.

As it was impossible to collect data from the whole population, I had to select a sample of firms from the population. The result of the analysis were then be generalized for the population. I used the G*Power statistical software to determine the appropriate sample size for the study. I used the G*Power statistical software version 3.1.9.7. This software helps researchers determine a statistically appropriate sample size and avoid the challenges of either an inadequate or oversize sample size. The G*Power application resulted in a sample of 85 firms using a medium effect size of (p =15), probability of error of 5% ($\alpha = 0.05$), and power of 80% (1-β =0.80) for the f-test. As per the study design and to ensure external validity, I employed the stratified sampling strategy in determining the firms that constituted the sample.

I used the industrial breakdown as the basis for creating the strata. I identified 9 different industrial makeup of firms operating in both the Nigerian and the Ghanaian stock exchanges. That excluded the financial industry and the conglomerate, which operates across different industries. The 9 different industries

identified were Agriculture, Construction / Real Estate, Consumer Goods, Health Care, Industrial Goods, ICT, Natural Resources, Oil and Gas, and Services. The 85 firms' samples were selected from across the various industries. The identified sample firms were obtained from different industries of firms listed on either the Ghana stock exchange or the Nigerian stock exchange.

As shown in Table 3, which details the study population, more firms are listed on the Nigerian Stock Exchange relative to the Ghana Stock Exchange. The sample collected reflected this difference in the number of listed firms. Of the 85 sampled firms, 14 were sampled from various Ghana industries, and 71 were sampled from various industries in Nigerian. Table 4 provides the industrial details of the sampled firms by country.

Table 4

Industrial Details of Sample

	Ghana	Nigeria	Total	Percentage
Agriculture	0	5	5	6%
Construction	1	5	6	7%
Consumer Goods	5	16	21	25%
Health Care	1	8	9	11%
ICT	1	7	8	9%
Industrial Goods	3	10	13	15%
Natural Resources	1	4	5	6%
Oil and Gas	2	9	11	13%
Services	0	7	7	8%
Total	14	71	85	100%

In the research designed, I planned to collect 5 years of financial information from each of the sampled firms for the analysis. As a result, I excluded firms that did not have financial statements from 2014 to 2018, the study period. I also excluded firms that have currently been delisted, although they had financial statements covering the study period. All other firms had an equal probability of being selected within their stratum.

I collected 5 years of financial information from all the 85 sampled firms from 2014 to 2018. A total of 425 firm-year financial statements were collected from the sampled firms. This financial information formed the basis for calculating the econometric ratios used in answering the research questions. Table 5 provides details of the firm-year observations on country bases, while Table 6 details the firm-year observations on an industrial basis.

Table 5

Firm Year Observations on Country Bases

	Frequency	Percent	Valid Percent	Cumulative Percent
Ghana	70	16.5	16.5	16.5
Nigeria	355	83.5	83.5	100.0
Total	425	100.0	100.0	

Table 6

Firm-year Observation on Industrial Bases

	Frequency	Percent	Cumulative Percent
Agriculture	25	5.9	5.9
Construction	30	7.1	12.9
Consumer Goods	105	24.7	37.6
Health Care	45	10.6	48.2
ICT	40	9.4	57.6
Industrial Goods	65	15.3	72.9
Natural Resources	25	5.9	78.8
Oil and Gas	55	12.9	91.8
Services	35	8.2	100.0
Total	425	100.0	

I took a month to collect all the 5 years' financial statements of the sampled firms. The relevant data needed in calculating the needed financial ratios for the analysis were inputted into the designed data collection sheet in excel. The calculated financial ratios in excel were then exported into SPSS for analysis.

Study Results

Test of Multiple Regression Assumptions

The study utilized the multiple regression method in answering the research question. Bryman (2016) argued for researchers that employ the regression method in a quantitative study to prove that their data meets the regression model's assumptions. Osborne and Waters (2002) advised that testing the assumptions will assist the

research to avoid type I and Type II errors. In applying this analysis tool, I considered the regressions' assumptions and assessed if the data allowed for the regression technique. According to Tabachnick and Fidell (2013), the regression method's assumptions include having one dependent variable measured continuously. Of the two models adopted for this study, each model had one dependent variable measured at a continuous level. For the first model, the independent variable was leverage. Leverage was measured on a continuous scale. The independent variable for the second model is Financial distress, represented by the Z"-Score.

Another assumption of regression is that there must be two or more independent variables measured at a nominal or continuous level. The Jarallah et al. (2019) model adopted for this study had growth, assets tangibility, profitability, size, and dividend payout ratio as the independent variables. Similarly, the Muigai and Muriithi (2017) model adopted for this study also had size, leverage, profitability, internal equity structure, external equity structure, short-term debt structure, and long-term debt structure as the independent variables.

The regression method assumes a linear relationship between the dependent variables and the independent variable. One way of checking for this assumption is to use the scatter plot (Rouf, 2015). A scatter plot developed from the relationship between the standardized predictive value and standardized residual value showed a linear relationship between the dependent and independent variables.

Figure 4

Linear Relationship - Dependent and Independent Variables

Scatterplot
Dependent Variable: Leverage
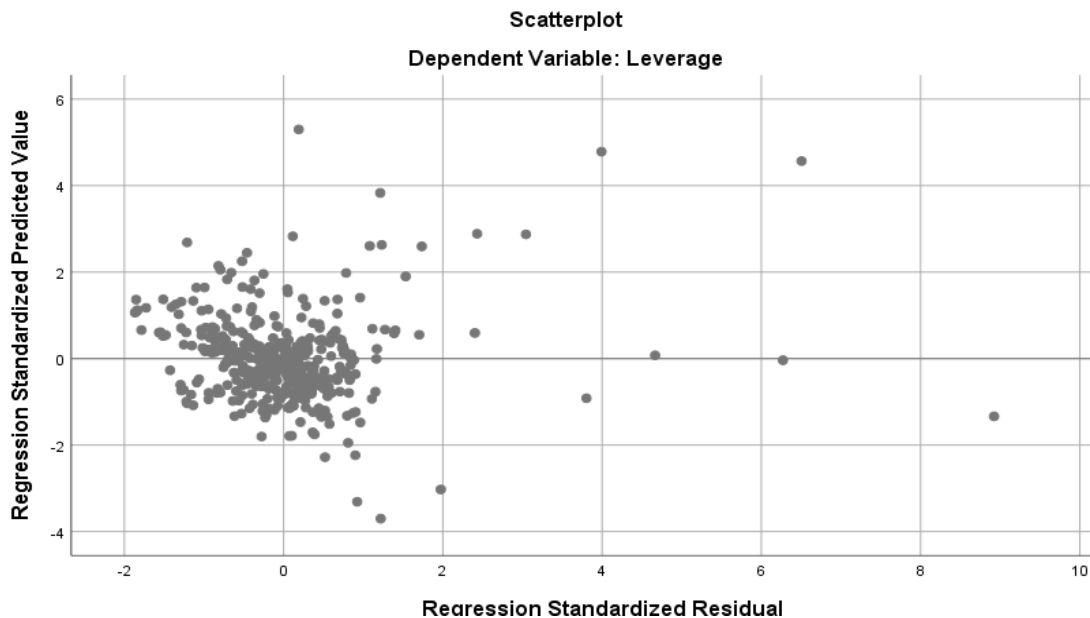
Regression also assumes homoscedasticity of errors. That means that the variance of errors among the independent variables must be similar. The scatter diagram is also used to test for homoscedasticity by inspecting the predicted values against the residual value. A fit line breaks the scatter diagram plots to parallel sides, indicating the homoscedasticity of residuals.

Regression requires the absence of multicollinearity in the data. Multicollinearity occurs when the independent variables are much highly correlated, affecting the ability to separate one dependent variable's effect over the other. To test for the absence of multicollinearity, Mohammadi (2020) suggested that the Tolerance score of each independent variable should be more than 0.2, and the VIF score of predictor variables must be less than 10 (VIF < 10). Table 7 indicates the collinearity test result detailing that all the independent variables have a Tolerance score of more than 0.2 and a VIF score of less than 10. That indicated that there was no multicollinearity among the independent variables.

Table 7

Collinearity Test

	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.090	.119		9.136	.000		
Tangibility	.034	.074	.022	.458	.647	.966	1.035
ROE	.019	.010	.089	1.851	.065	.926	1.080
ROA	-.712	.137	-.253	-5.178	.000	.897	1.115
DPR	-.005	.005	-.040	-.868	.386	.995	1.005
Size	-.026	.007	-.183	-3.801	.000	.923	1.084
Growth	.022	.037	.029	.613	.540	.930	1.076

Regression also assumes the normal distribution of errors. To check if the residuals are normally distributed, I employed SPSS to draw a histogram of the residuals. I then superimposed the normal distribution curve on the histogram to examine the distributions. The shape of the normal distribution curve reflects the mean of the data and the standard deviation. Figure 5 shows the normal distribution of the residuals.

Figure 5 *Normal Distribution Curve*
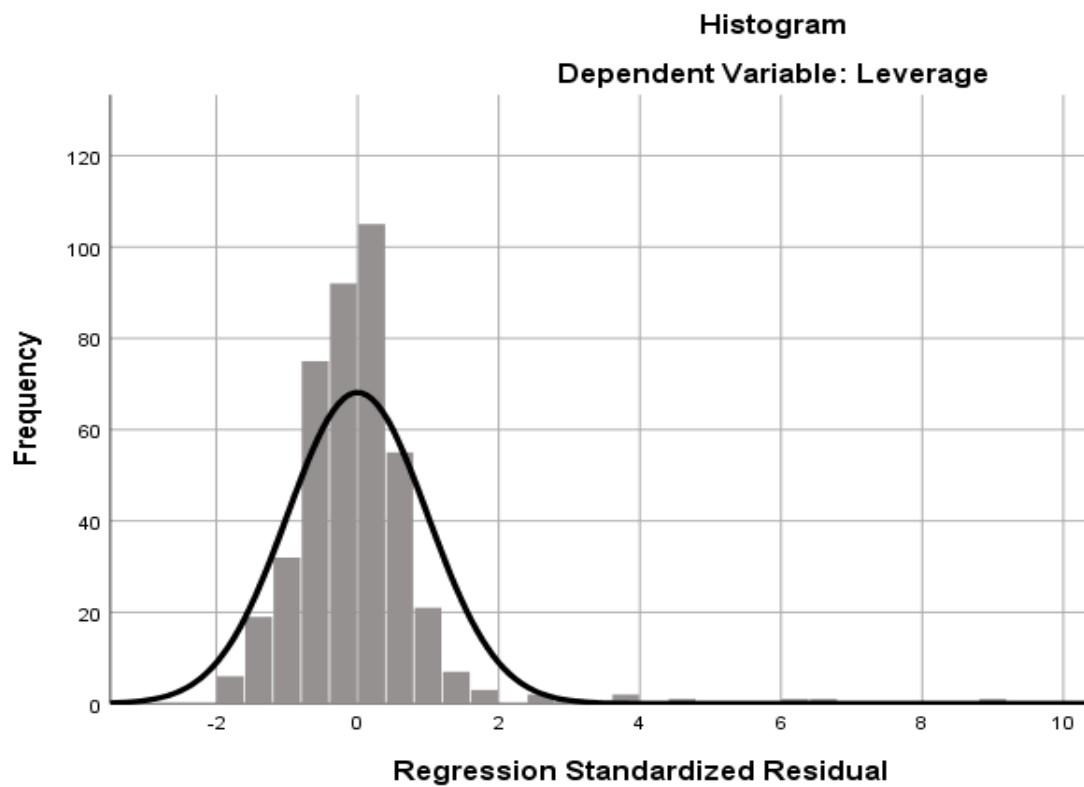
I tested for the assumption of a lack of autocorrelation among the study variables using the Durbin-Waston test. The desired Durbin-Waston test coefficient is required to be closer to 2 to indicate that there is no autocorrelation in the data collected. It is also desired that the Durbin-Watson test coefficient should be greater than 0.5. The test resulted in a Durbin-Watson coefficient of 0.76. That is above the minimum of 0.5 but still far from the desired value. Mertler and Reinhart (2016) advised that moderate violations of the regression model's assumptions do not invalidate the use of regression and can be ignored, especially in bigger sample size, as it does not affect the analysis.

Descriptive Statistics

According to Bryman (2016), descriptive statistics show basic information about the collected data. Data for the analysis were obtained from secondary sources, specifically from the sampled firms' published financial statements. A total of 425 firm-years was engaged in undertaking this study. The study variables were Dividend Payout Ratio (DPR), External Equity structure (EES), Internal Equity Structure (IES), Growth, Leverage (LEV), Long-Term Debt ratio (LTDR), Short-Term Debt Ratio (STDR), Return on Assets (ROE), Return on Equity (ROE), Size, Tangibility, and Altman Z" – Score. These study variables were calculated from the sampled firms' financial statements using the accepted methods described in Chapter 3. Table 8 provides summary details of the values of the study variable.

Table 8

Descriptive Statistics of Study Variables

	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
DPR	.2471766	3.64073952	-8.561	.118	206.315	.236
EES	.2270803	2.95766515	-13.768	.118	266.991	.236
Growth	.0945472	.53877608	5.918	.119	57.709	.237
IES	.5122566	9.55868969	15.270	.118	295.590	.236
Leverage	.6410153	.41133519	3.770	.118	23.310	.236
LTDR	.2576885	.23400402	1.004	.118	.440	.236
ROA	.0535238	.14620057	-.739	.118	9.921	.236
ROE	.1696765	1.92380463	-2.249	.118	118.041	.236
STDR	.7600441	.50017116	13.873	.118	252.992	.236
Size	16.43883	2.85664224	-.588	.118	1.963	.236
Tangibility	.5379774	.26280909	-.262	.118	-1.112	.236
Z" - Score	5.1820658	6.00334416	1.733	.118	15.667	.236

Table 8 shows the summary statistics obtained from all the 85 sampled firms from the various industries over 5 years from 2014 to 2018. The results revealed that

firms operating in the West African region had an Altman Z"-Score of 5.18. As per

the decision rule of the Z"-Score model (Z<4.15, distress zone; 4.15<Z<5.85, grey

zone; Z>5.85, safe zone), a mean value of 5.18 suggested that these firms were

operating within the grey area. On average, these firms are not distressed. A skewness

coefficient value of 1.733 indicated that the distribution is positively skewed. That

showed that most of the firms are not distress. On a country basis, Table 9 showed the

mean Z-Score for Ghanaian business as 4.41, and that of Nigeria is 5.33. The industry

that recorded the least Z-Score was the Services industry, with a mean value of 2.00.

The Health Care industry recorded the highest Z-Score with a value of 7.67.

A mean leverage value of 0.64 also suggested that most of the firms utilized

debt capital in financing their operations. The leverage distribution was also positively

skewed with a skewness coefficient of 3.77. The standard deviation of leverage was

0.41, indicating a low spread and suggested that most firms used debts in their

financing decisions. Further analysis suggested that these firms mostly used more

short-term debts relative to long term debt. The mean short-term debt ratio was 0.76

compared to 0.26 for the long-term debt ratio. That suggested that capital structure

decisions are a critical management function of the businesses. The use of more short-

term debt relative to long-term debt is consistent with Muigai (2016) findings, who

attributed the phenomenon to the high cost of securing long-term debt relative to short

term debt.

The mean return on assets was 0.05, with a standard deviation of 0.15. That

suggested that these firms are profitable, although it had a skewness statistic of -

0.739, indicating that some firms are making losses. The mean return on equity was

0.17, with a standard deviation of 1.92, confirming the firms' profitability. The high

spread of the standard deviation of return on equity indicated that some firms might experience losses. As detailed in Table 9, the mean return on equity for firms in Ghana was 0.23. That was higher than that of firms operating in Nigeria, which was 0.16. Measuring profitability as a return on assets, the mean return by firms in Nigerian ($M = 0.055$, $SD = 0.14$) is higher than that of firms operating in Ghana ($M = 0.044$, $SD = 0.15$).

A comparison of the mean values of internal equity structure ($M = 0.51$, $SD = 9.56$) and external equity structure ($M = 0.23$, $SD = 2.96$) suggested that most of these firms finance their operations from internal sources rather than from external sources. That suggested that these nonfinancial firms practiced the pecking order theory, which requires firms to finance their operations from internal sources first before considering debt and, finally, external equity. The standard deviation of external equity structure and internal equity structure indicated widespread from the mean for each financing type. On a country bases, firms in Ghana utilises more of external equity ($M = 0.58$, $SD = 1.05$) relative to that of Nigerian firms ($M = 0.16$, $SD = 3.20$). That suggested that the firms in Nigeria were practicing the pecking order theory but not those in Ghana.

Tangibility measures the proportion of the firm's assets invested in fixed assets. The tangibility ratio indicated that firms invest 53.8% of their assets in fixed assets. That indicated that the firms invest fairly equally between fixed assets and current assets. This pattern was the same for both Ghanaian firms ($M = 0.54$, $SD = 0.25$) and Nigerian firms ($M = 0.54$, $SD = 0.27$). The mean growth rate was 0.09 ($SD = 0.54$). Growth in Ghanaian firms' revenue averaged 12.4%, while growth in Nigerian firms' revenue averaged 8.9%. In Table 10, the industry that experienced the least

growth in revenue over the study period was the Natural Resource industry. The

natural resources industry revenue declined in growth by 0.21. The consumer goods

industry experienced the highest growth in revenue of 0.126.

Table 9

Descriptive Statistics Based on Country

	Country	
	Ghana Mean	Nigeria Mean
Tangibility	.54396	.53680
Z" – Score	4.41508	5.33330
ROE	.23483	.15683
ROA	.04372	.05546
Growth	.12412	.08870
DPR	.11445	.27335
IES	.04024	.60533
EES	.57898	.15769
STDR	.77154	.75778
LTDR	.21502	.26610
Size	17.66460	16.19713
Leverage	.65922	.63743

Table 10

Descriptive Statistics Based on Industry

	Agric	Constr	Con. Goods	Health Care	ICT	Industrial Goods	Natural Resources	Oil and Gas	Service
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Tangibility	0.72	0.48	0.55	0.57	0.44	0.53	0.79	0.40	0.56
Z" - Score	4.75	6.90	4.91	7.67	3.40	7.36	2.49	4.89	2.00
ROE	-0.37	0.24	0.29	0.11	0.66	-0.19	0.06	0.34	0.13
ROA	0.03	0.02	0.09	0.02	0.00	0.11	0.01	0.06	0.01
Growth	0.55	-0.01	0.13	0.01	0.02	0.08	-0.02	0.11	0.03
DPR	0.19	0.44	-0.33	0.27	0.81	0.29	0.11	0.27	1.16
IES	-2.26	-0.87	0.62	0.25	-1.71	3.84	0.17	0.49	0.35
EES	1.04	0.37	0.16	0.22	1.30	-0.79	0.80	0.11	0.18
STDR	0.47	0.69	0.76	0.78	0.80	0.75	0.60	0.95	0.78
LTDR	0.53	0.31	0.23	0.22	0.20	0.25	0.40	0.20	0.22
Size	17.09	16.25	17.60	16.61	14.67	15.37	15.90	17.53	15.12
Leverage	0.56	0.61	0.61	0.49	0.78	0.50	0.69	0.75	0.91

Research Question

In this study, I sought to answer the following research question:

What is the relationship between capital structure practice and financial distress for companies operating in the West African region?

Null Hypotheses ($H_0 1$): There is no relationship between the capital structure practice and financial distress for companies operating in the West African region.

Alternative Hypotheses ($H_a 1$): There is a relationship between the capital structure practice and financial distress for companies operating in the West African region.

In answering the research questions, I adopted a quantitative correlational study designed that utilized two regression models. The first model was used to ascertain the capital structure practices, and the second model was employed to test

the relationship between the capital structure practices, represented by the elements of capital structure, and financial distress measured with the Altman Z – Score. I adopted a significant level at $p = 0.05$.

Capital Structure Practices

      The Jarallah et al. (2019) model was adopted to determine the firms' capital structure practices in West Africa. The model employs regression analysis with the dependent variable being leverage. The independent variables for the model were profitability measured by the return on assets (ROA), and return on equity (ROE), Size, Tangibility, Growth, Dividend payout Ratio (DPR). According to Tharmilla and Arulvel (2013), the independent variables are the factors that the researcher controls and changes in a scientific test to determine the dependent variable. Leverage was measure as the proportion of debt to total capital. Total capital was defined as the sum of debt capital and equity capital. Using SPSS, I performed the regression analysis with the results summarised in Table 11, Table 12, and Table 13. Table 11 provides the Model summary; Table 12 indicates the Analysis of Variance, and Table 13 shows the model's coefficients.

Table 11

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.329	.108	.095	.39167071

      The model summary table summarised the strength of the relationship between the dependent variable and the model. The summary table indicates the Person's correlation, represented by r. The Person correlation provides the statistical test of the

association between the model and the dependent variable. The *r*-square represents the coefficient of determination. R-square indicates the proportion of changes in the dependent variable resulting from changes in the independent variables. The *r*-square is the result of squaring the correlation coefficient (*r*). According to Stockemer (2018), the *r*-square is the most crucial statistic in the summary data as it indicates how the model fit. The adjusted *r*-square measures the model fit after considering different numbers of the independent variables (Stockemer, 2018). The standard error represents the standard deviation of the error term.

From Table 11, an *r*-value of 0.33 represented a fairly positive association between the leverage and the independent variables of ROE, ROA, Growth, Size, Tangibility, and Dividend Payout Ratio. The *r*-square suggested that 10.8% of all changes in leverage result from changes in the independent variables. As Leon (2013) puts it, in determining the best-fit regression line, the *r*-square provides a percentage of changes in the dependent variable attributable to changes in the independent variable. The adjusted *r*-square resulted in a value of 0.095, with a standard error of 0.39.

Table 12

Analysis of Variance

	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	7.768	6	1.295	8.439	.000[b]
Residual	63.970	417	.153		
Total	71.738	423			

Table 12 details the results of the analysis of variance (ANOVA). According to George and Mallery (2019), the ANOVA technique is used to compare sample

means to obtain evidence if the population's means also differ. The ANOVA

technique divides a dataset into systematic factors and random factors, with the

systematic factors being applied affecting the data set and the random factors being of

no statistical significance (Kock, 2016). Kock (2016) continued that the f value is

used to determine if the regression model is a good fit for the data. The f value is

calculated by dividing the regression mean square by the residual mean square.

Stockemer (2018) argued that the f-test in an ANOVA table testifies the model's

significance to indicate if the model has predictive power. If the f-test is significant,

then at least one of the independent variables influences the dependent variable. If the

f-test is insignificant, then the regression model has no predictive value. The results

indicated that the independent variables significantly influenced predicting leverage (f

$(6, 417) = 8.439$, $p = 0.00$). The independent variables influence the value of leverage.

Table 13

Model Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.090	.119		9.136	.000
Tangibility	.034	.074	.022	.458	.647
ROE	.019	.010	.089	1.851	.065
ROA	-.712	.137	-.253	-5.178	.000
Growth	.022	.037	.029	.613	.540
Dividend Payout Ratio	-.005	.005	-.040	-.868	.386
Size	-.026	.007	-.183	-3.801	.000

Table 13 details the regression coefficients. The regression coefficient table

provides critical information about the effect of the independent variables on the

dependent variable. The value of each coefficient reflects the size of the effect of that

independent variable on the dependent variable (Leon, 2013). The coefficient

indicates how much the dependent variable will change if there is a change in one of

the independent variables while holding all other things constant (Kahuria & Waweru,

2015). The coefficient also indicates the direction of movement in the dependent

variable when there is a change in the independent variables. That is, the coefficient is

either positive or negative (Bryman, 2016).

The results of the regression model specifying the coefficient of each

independent variable of the model are detailed in Table 13. The model had a constant

with a beta of 1.09 with a standard error of 0.02. Assets Tangibility was statistically

insignificant to capital structure decision ($b = 0.02$, $t(418) = 0.46$, $p = 0.65$). ROE also

had no influence on capital structure decisions, ($b = 0.09$, $t(418) = 1.85$, $p = 0.07$).

Growth in revenue had no influence in determining the leverage, ($b = 0.03$, $t(418) =$

0.1, $p = 0.54$). Dividend payout ratio also had no influence in determine capital

structure practice, ($b = -0.04$, $t(418) = -0.87$, $p = 0.39$). The ROA significantly

influenced capital structure practices, ($b = -0.25$, $t(418) = -5.18$, $p < 0.01$). Similar,

company size also significantly influenced capital structure practices, ($b = -0.18$,

$t(418) = -3.80$, $p < 0.01$). The size coefficient indicated an inverse relationship

between capital structure and company size.

I conducted a Pearson correlational analysis of the variables of the regression

model. The results suggested that Leverage and ROA's relationship was significant at

a significance level of 0.01, $r(423) = -0.26$, $p < 0.01$. The correlation between size and

leverage is also significant at the significance level of 0.01, $r(423) = -0.21$, $p < 0.01$.

Details of the correlational analysis are summarised in Table 14.

Table 14

Correlational Analysis of Capital Structure determinants

		Tangibility	ROE	ROA	Growth	Dividend Payout Ratio	Lev	Size
Tangibility	*r*	1	-.090	-.157**	.016	-.066	.050	.030
	p		.064	.001	.742	.177	.302	.534
ROE	*r*	-.090	1	.238**	-.100*	.003	.016	.042
	p	.064		.000	.040	.951	.741	.387
ROA	*r*	-.157**	.238**	1	.077	.020	-.263**	.159**
	p	.001	.000		.112	.686	.000	.001
Growth	*r*	.016	-.100*	.077	1	-.008	-.041	.231**
	p	.742	.040	.112		.866	.404	.000
Dividend Payout Ratio	*r*	-.066	.003	.020	-.008	1	-.044	-.014
	p	.177	.951	.686	.866		.364	.780
Lev	*r*	.050	.016	-.263**	-.041	-.044	1	-.212**
	p	.302	.741	.000	.404	.364		.000
Size	*r*	.030	.042	.159**	.231**	-.014	-.212**	1
	p	.534	.387	.001	.000	.780	.000	

Note. **. Correlation is significant at the 0.01 level (2-tailed).

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

I examined the factors that determine the capital structure practices for each of the identified industries. The results of the analysis are shown in Appendix A. For firms operating in the Agricultural sector, profitability was the only significant factor that influence capital structure decision, ROE ($b = -0.37$, $t(18) = -2.40$, $p = 0.03$) and ROA ($b = -0.59$, $t(18) = -4.63$, $p < 0.01$). All the other determinants of the capital structure were insignificant in determining the capital structure of firms operating in the Agricultural sector. The significant inverse relationship between profitability and leverage indicated that firms within the Agricultural sector follow the pecking order theory of capital structure.

For firms in the construction industry, Asset Tangibility (b = -0.45, $t(23)$ = -2.88, $p < 0.01$), Profitability, ROE (b = 0.44, $t(23)$ = 4.29, $p < 0.01$), ROA (b = -0.43, $t(23)$ = -4.01, $p < 0.01$) and Firm Size (b = -0.18, $t(23)$ = 6.12, $p < 0.01$) were the significant factors that influence capital structure. Growth and Dividend payout ratios were insignificant in determining the capital structure practice. The inverse relationship between tangibility, ROA, and size gave credence to the pecking order theory practice when making capital structure decisions. Also, the significant positive relationship between ROE and Leverage is an indication of the trade-off theory. That suggested that some firms within the construction industry practiced the trade-off theory of capital structure.

In analysing the capital structure practices of firms operating in the consumer goods industry, the results indicated that profitability ROE (b = 0.57, $t(23)$ = 5.28, $p < 0.01$) ROA (b = -0.53, $t(23)$ = -4.70, $p < 0.01$) and growth (b = 0.27, $t(23)$ = 3.03, $p < 0.01$) were significant in determining capital structure. The significant positive relationship between growth and leverage and the significant negative relationship between ROA is an indication of the presence of the pecking order theory. The trade-off theory was also represented by the significant positive relationship between ROE and Leverage. Assets tangibility, size, and dividend payout ratio were insignificant in determining the relationship between capital structure practices for firms operating in the consumer goods industry.

Asset tangibility (b = -0.25, $t(23)$ = -2.38, p = 0.02) was the only capital structure determinant that was significant in determining the capital structure of firms operating in the ICT industry. The inverse relationship is evidence of the pecking order theory. For firms in the industry goods sector, profitability measured by ROE (b

$= 0.30$, $t(58) = -3.8$, $p = 0.02$) and ROA ($b = -0.90$, $t(58) = -3.8$, $p = 0.02$) were the only significant determinants of capital structure. Tangibility ($b = 0.43$, $t(48) = 3.13$, $p < 0.01$) and growth ($b = -0.31$, $t(48) = -2.37$, $p = 0.02$) were the only significant determinants of capital structure among firms operating in the oil and gas Industry. The oil and gas industry exhibited capital structure practices following the trade-off theory.

The results revealed that only firm size ($b = -0.81$, $t(48) = -5.30$, $p < 0.01$) was the significant determinant of capital structure for firms in the services industry. The negative direction of the size coefficient relative to leverage indicated the practice of the pecking order. For the Health care and Industrial goods sector, none of the determinants of capital structure considered in this study were statistically significant in determining firms' capital structure in these two sectors. The results of correlational analysis based on the different industries are presented in Appendix C.

Capital Structure Practice of Financial Distressed Firms

I sought to determine the capital structure practice associated with firms classified as financially distressed based on Altman's Z–score rule. Firm-years that recorded a Z - score less than 4.15 were classified as financially distressed. The results suggested that only firm size ($b = -0.343$, $t(48) = -4.11$, $p < 0.01$) was significant in determining the capital structure practices of financially distressed firms. The correlation between firm size of financially distressed firm and leverage was statistically significant ($r(144) = -0.351$, $p < 0.01$). I found this relationship to be significant, even at the 1% level. The significant inverse relationship between firms' size and leverage of financially distressed firms indicated that capital structure

decisions were taken following the pecking order theory (Rahman et al., 2019). The

regression analysis results and correlational analysis are detailed in Table 15 and

Table 16, respectively.

Table 15

Capital Structure Determinants of Financially Distressed Firms

	Unstandardized Coefficients		Standardized Coefficients	*T*	Sig.
	B	Std. Error	Beta		
(Constant)	1.766	.245		7.195	.000
TANGIBILITY	-.036	.175	-.016	-.207	.836
ROE	.010	.017	.047	.597	.552
ROA	-.406	.264	-.122	-1.540	.126
GROWTH	.036	.054	.054	.657	.512
DPR	-.045	.077	-.046	-.582	.561
SIZE	-.053	.013	-.343	-4.111	.000

Table 16

Correlational Analysis for Distressed Firms

		TANGIBILITY	ROE	ROA	GROWTH	DPR	LEV	SIZE
TANGIBILITY	r	1	.031	.069	.018	-.082	-.006	-.036
	p		.707	.398	.827	.316	.942	.660
ROE	r	.031	1	.045	-.187*	.052	.011	.052
	p	.707		.583	.021	.528	.894	.528
ROA	r	.069	.045	1	.015	.121	-.187*	.180*
	p	.398	.583		.852	.138	.021	.027
GROWTH	r	.018	-.187*	.015	1	-.017	-.058	.299**
	p	.827	.021	.852		.833	.477	.000
DPR	r	-.082	.052	.121	-.017	1	-.103	.134
	p	.316	.528	.138	.833		.206	.102
LEV	r	-.006	.011	-.187*	-.058	-.103	1	-.351**
	p	.942	.894	.021	.477	.206		.000
SIZE	r	-.036	.052	.180*	.299**	.134	-.351**	1
	p	.660	.528	.027	.000	.102	.000	

Note. **. Correlation is significant at the 0.01 level (2-tailed).

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

Relationship Between Capital Structure Elements and Financial Distress

To determine the relationship between capital structure practices and financial distress, I adopted Muigai and Muriithi (2017) model. This model required regressing capital structure elements such as debt structure, equity structure, and debt ratio with financial distress. The debt structure was presented as the short-term debt ratio and long-term debt ratio. Equity structure referred to the internal equity ratio and external equity ratio. The internal equity ratio was calculated as retained earnings to shareholders' funds. The debt ratio refers to leverage.

The regression results suggested that the overall model was statistically significant in determining the relationship between capital structure practices and financial distress [$R_2 = 0.55$, $R_{adj} = 0.54$, $F(6, 418) = 85.25$, $p < 0.01$]. The model indicated that 54% of financial distress changes are accounted for by the capital structure elements of assets structure, debts structure, and equity structure. The regression coefficients are summarized in Table 17.

Table 17

Regression Model Coefficients

	B	β	t	p	Bivariate r	Partial r
(Constant)	10.862		7.541	.000		
Tangibility	-4.310	-.189	-4.767	.000	-.199	-.227
IES	.032	.051	.356	.722	-.009	.017
EES	.062	.031	.214	.831	.017	.010
STDR	1.890	.157	4.185	.000	.207	.201
LTDR	3.469	.135	3.172	.002	-.058	.153
Leverage	-10.002	-.685	-20.294	.000	-.708	-.705
Size	.042	.020	.591	.555	.160	.029

The constant of the regression equation had a beta value of 11.59 and a standard error of 0.75. Internal equity structure did not have any significant influence on financial distress, $b = 0.05$, $t(418) = 0.37$ $p = 0.71$. Similarly, external equity structure did not have any significant influence on financial distress, $b = 0.03$, $t(418) = 0.24$, $p = 0.81$. Firm size also did not have any statistically significant relationship with financial distress, $b = 0.02$, $t(418) = 0.6$, $p = 0.56$. Assets tangibility significantly predicted financial distress, $b = -0.19$, $t(418) = -4.77$, $p < 0.01$. Short-term debts ratio was also a significant determinant of financial distress, $b = 0.16$, $t(418) = 4.172$, $p < 0.01$. Long term debt ratio explained a significant proportion of variance in financial

distress, $b = 0.14$, $t(418) = 3.20$, $p < 0.01$. Financial distress is significantly influenced by leverage, $b = -0.69$, $t(418) = -20.91$, $p < 0.01$.

I have detailed in Table 18 the result of a correlational analysis on the relationship between capital structure elements and financial distress. The correlation between asset tangibility and financial distress is significant, even at a significant level of 0.01, $r(423) = -0.20$, $p < 0.01$. The relationship between financial distress and short-term debt ratio was significant at a significant level of 0.01, $r(423) = 0.21$, $p < 0.01$. I found a similar relationship between financial distress and leverage, $r(423) = -0.71$, $p < 0.01$. The relationship between financial distress and long-term debt ratio was significant but only at the significance level of 0.05, $r(423) = -0.06$, $p = 0.01$. Both internal and external equity structure did not have any significant influence on financial distress.

Table 18

Correlational Coefficient (Model 2)

		Z" - Score	IES	EES	STDR	LTDR	Lev	Size	Tang
Z" -	r	1	-.009	.017	.207[**]	-.058	-.708[**]	.160[**]	-.199[**]
Score	p		.850	.730	.000	.229	.000	.001	.000
IES	r	-.009	1	-.973[**]	-.001	-.003	.036	-.073	.020
	p	.850		.000	.987	.954	.462	.131	.684
EES	r	.017	-.973[**]	1	.004	-.013	-.044	.081	-.026
	p	.730	.000		.937	.796	.365	.094	.592
STDR	r	.207[**]	-.001	.004	1	-.477[**]	-.078	-.041	-.328[**]
	p	.000	.987	.937		.000	.109	.402	.000
LTDR	r	-.058	-.003	-.013	-.477[**]	1	.022	.059	.552[**]
	p	.229	.954	.796	.000		.653	.225	.000
Lev	r	-.708[**]	.036	-.044	-.078	.022	1	-.212[**]	.050
	p	.000	.462	.365	.109	.653		.000	.302
Size	r	.160[**]	-.073	.081	-.041	.059	-.212[**]	1	.030
	p	.001	.131	.094	.402	.225	.000		.534
Tang	r	-.199[**]	.020	-.026	-.328[**]	.552[**]	.050	.030	1
	p	.000	.684	.592	.000	.000	.302	.534	

Note. **. Correlation is significant at the 0.01 level (2-tailed).

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

I examined the relationship between capital structure practices and financial distress for the different industries. The details are provided in Appendix B. The results indicated that leverage had a significant negative relationship with financial distress, measured as the Z–score for all the industries. Tangibility is also significantly and inversely related to financial distress for all industries except the Health care industry and the Industrial goods industry. The results showed that the Internal equity structure positively related to financial distress in the consumer goods and ICT industries but inversely in the Natural resources industry. The external equity structure is inversely related to financial distress in the consumer goods and Natural

resources industries but positively in the ICT industry. Long-term debt was positively related to the financial distress index for firms in the ICT, natural resources, and the oil and gas industries. Short-term debt was significantly related to the consumer goods industry only and was excluded from the ICT analysis, natural resources, and service industries because they were in breach of regression's collinearity assumption.

Hypothesis Testing

In regression analysis, the *p*-value for each dependent variable tests the null hypothesis. The Null hypothesis indicates that the dependent variable's coefficient is equal to zero and has no effect. A *p*-value of less than 0.05 suggests that the researcher should reject the null hypothesis. Capital structure elements with a low p-value show that changes in financial distress can be accounted for by changes in these elements. A larger p-value shows that financial distress changes are not related to changes in the capital structure elements.

I found a significant relationship between capital structure practices and financial distress. Assets tangibility ($b = -0.19$, $t[418] = -4.77$, $r[423] = -0.20$, $p <0.01$), Short-term debt ($b = 0.16$, $t[418] = 4.172$, $r[423] = 0.21$, $p <0.01$), Long-term debt ($b = 0.14$, $t[418] = 3.20$, $r[423] = 0.78$, $p <0.01$ and Leverage ($b = -0.69$, $t[418] = -20.91$, $r[423] = -0.71$, $p <0.01$) significantly affect the financial distress of businesses operating within the West African region. The significant *p*-value provides statistical support to reject the Null Hypotheses ($H_0 1$).

Summary

In this study, I used a sample of 85 sampled firms operating in different industries. These firms were publicly listed on either the Ghana stock exchange or the Nigerian stock exchange. I collected financial information from these 85 firms over 5 years, from 2014 to 2018. A total of 425 firm years were used in conducting this study. The summary statistics suggested that, on average, the firms are not financially distressed.

Two regression models were adopted in answering the research question. I found both models to be statistically significant. The first model provided evidence in support of the pecking order theory. Size and ROA were the only determinants of capital that were significant in determining capital structure in the West African region.

The second model related capital structure elements as dictated by the pecking order practice to financial distress. The results indicated that financial distress is significantly influenced by asset tangibility, short-term debt ratio, long-term debt ratio, and leverage. Equity structure had no significant influence the financial distress. Using both the regression and correlational method, I found evidence of a significant relationship between capital structure practices and financial distress. As such, I rejected the Null Hypotheses ($H_0 1$).

In Chapter 5, I compare the findings in Chapter 4 to the literature, providing evidence to support this finding in the literature and those that contradict the findings. I make conclusions and analyze the implication of the findings. I also make a series of

recommendations. I looked at the implication of the studying findings towards positive

social changes.

Chapter 5: Discussion, Conclusions, and Recommendations

This quantitative correlational study aimed to ascertain the relationship between capital structure practice and financial distress in West African companies. I used a quantitative research methodology. The research design was a correlational study design. I used correlational and regression analysis. The study population was all firms listed on the various capital markets in the West African region. I employed the stratified sampling method to select companies that were involved in the study. To determine financial distress, I used Altman's Z"-Score.

The analysis results found evidence that these firms follow the pecking order theory when deciding on capital structure. Firm Size and Profitability (ROA) are significant in determining capital structure. They are also positively related to leverage. Relating capital structure to financial distress, tangibility, debt structure, and leverage significantly influenced the firms' financial distress level. The equity structure did not influence the financial distress level.

Interpretation of Findings

In this study, I sought to find if there exists a relation between capital structure practices and financial distress. The research question was developed after a thorough review of the literature. The capital structure theories guided the study: Modigliani and Miller (1958) irrelevance theory, the pecking order theory, and the trade-off theory. Two regression models were adopted to test the capital structure practices and the relationship between capital structure practices and financial distress. These two regression models were used in testing the hypotheses. The result of the hypotheses tests led to the rejection

of the Null Hypotheses. The hypotheses test results revealed a statistically significant

relationship between capital structure practices and financial distress.

The findings revealed that most of the firms employed debt capital in financing

their operations. Debt capital constituted 64% of the total capital of the businesses. This

finding is consistent with that of Mwangi et al. (2014), who also found that firms listed

on the Kenyan stock exchange use more debt than equity in financing their operations.

Ikpesu (2019) also found that Nigeria's firms are highly geared, with 84% of their capital

being from debt. Fredrick (2018) also found that firms in Nigerian rely heavily on debt

funding relative to equity. That is contrary to Muigai (2016) findings, which found that

Kenya's firms use more equity than debt in financing their operations. The finding is an

indication that capital structure is an important financing decision for firms operating in

West Africa.

The results also indicated that these firms prefer short-term debt to long-term

debts. Short-term debts (repayable within a year) were about 76% of total debts on firms'

capital structure in the West African region. Long-term debt (repayable after 1 year)

formed 26% of the firms' total debt capital. This result revealed a clear preference for

short-term debts relative to long-term debts. According to Plesko (2000), companies tend

to use more short-term debt because it is relatively less expensive than long-term debt.

Also, the collateral requirements for long-term loans make long-term debt relatively

difficult for most businesses to secure (Bitok et al., 2019). Also, the long-term debt

markets in West African countries are less developed; as such, access to long-term debt

capital is difficult. The standard deviation of the two forms of debt was high, indicating high volatility between the two debt forms.

The summary statistics revealed that most West African regional firms were not financially distressed ($M = 5.18$, $SD = 6.00$). The mean value of the Altman Z – Score was above the distress zone. These firms were operating within the grey zone, as per the decision rule of the Altman Z" – Score model. This finding is consistent with Ikpesu's (2019) findings, which also found that Nigerian firms are not distress but operating within the grey area, using the Altman Z – Score. On the contrary, Fredrick (2018) found that Nigerian firms are distressed. The firms' average profitability measure was 5% of assets invested and 17% when profitability was measured as a return on equity.

Capital Structure Practices

The Jarallah et al. (2019) model was adopted to determine capital structure practices. This model required regressing the determinants of capital structure on leverage. The study used Tangibility, ROA, ROE, Size, Growth, and Dividend Payout ratio as capital structure determinants. I found the model to be statistically significant in determining capital structure ($f[6, 417] = 8.44$, $p < 0.01$), with $r(423) = 0.33$, $R^2 = 0.11$. The results suggested that Tangibility ($b = 0.02$, $t[418] = 0.46$, $p = 0.65$), ROE ($b = 0.09$, $t[418] = 1.85$, $p = 0.07$), Growth ($b = 0.03$, $t[418] = 0.1$, $p = 0.54$), Dividend Payout Ratio ($b = -0.04$, $t[418] = -0.87$, $p = 0.39$) were statistically insignificant in determining the capital structure of firms in the West African region. The correlational analysis also confirmed the insignificant relationship between Tangibility, Growth, ROE, and DPR with Leverage. This finding is inconsistent with several empirical studies that have found

tangibility, growth, ROE, and Dividend Payout ratio as significant determinants of capital

structure (Al Ani & Al Amri, 2015; Kareem, 2019; Paudyal et al., 2002; Rahman et al.,

2019; Saif-Alyousfi et al., 2020; Tulcanaza Prieto & Lee, 2019). This finding was

consistent with that of Kamau and Kariuki (2014), who found an insignificant

relationship between tangibility, profitability, and leverage in Kenya's firms. Kinde

(2013) found that asset tangibility had an insignificant contribution to capital structure

determination among Ethiopian firms. Gharaibeh (2015) also found an insignificant

relationship between dividend payout ratio and capital structure. The relationship

between capital structure and its determinants have been found in several empirical and

theoretical studies to be controversial and inclusive (Tulcanaza Prieto & Lee, 2019). The

inconsistency in the significance level of the determinants of capital structure, as

provided in theory and empirical studies, calls for more research.

Profitability measured as ROA ($b = -0.25$, $t(418) = -5.18$, $p < 0.01$) and Firm size

($b = -0.18$, $t(418) = -3.8$, $p < 0.01$) had significant influence on capital structure

determination. The results suggested that an increase in ROA leads to a 0.25 decline in

the need for debt in the business's capital structure. Similarly, an increase in firms size

leads to a 0.18 decline in leverage. The correlational analysis also confirmed this

significant relationship between capital structure and ROA, $r(423) = -0.26$, $p < 0.01$ as

well as with Size, $r(423) = -0.21$, $p < 0.01$. Salim and Susilowati (2019) found a

significant inverse relationship between capital structure and ROA as well as with

company size in the Indonesian food and beverage industry. Ariyani et al. (2019) also

found a significant negative relationship between capital structure and ROA but a

significant positive relationship between a firm's size and capital structure among firms operating in Indonesia. This relationship between firm size and the capital structure was inconsistent with Wahome et al. (2015), who found an insignificant relationship between size and capital structure for Kenya's insurance companies.

The direction of the independent variables' coefficient, which are the determinants of capital structure, indicates the capital structure practices adopted. Tangibility and ROA were positively related to leverage but were not significant. This positive relationship reflected the existence of the trade-off theory in influencing capital structure decisions. As tangibility and ROA were not statistically significant, we cannot accept the trade-off theory's existence. Growth had a positive, statistically insignificant relationship with capital structure, suggesting the pecking order theory's existence. Because growth was not statistically significant, this relationship would not be considered in determining capital structure practices. DPR had an insignificant negative influence on capital structure. This suggested the pecking order theory's existence in determining capital structure, but that would not be considered because DPR was found to be statistically insignificant in determining capital structure.

Return on Assets, as a proxy for profitability, had a beta of -0.25. The inverse relationship between profitability and leverage is evidence of the pecking order theory's existence in making capital structure decisions (Rahman et al., 2019). That is because profitable firms generate more internally generated funds to finance their operations and do not need to secure debt funds (Zurigat, 2009). This interpretation is consistent with several empirical studies (Abor, 2005; Le & Phan, 2017; MacCarthy & Ahulu, 2019;

Nenu et al., 2018; Paudyal et al., 2002; Rahman et al., 2019). As ROA was statistically

significant, we can conclude that the pecking order theory influences capital structure

decisions by firms operating in the West African region.

Firm size also resulted in a negative coefficient of 0.18. This negative relationship

is also evidence of the pecking order theory (Rahman et al., 2019). Awan and Amin

(2014) argued that the businesses' size is inversely related to leverage for firms that adopt

the pecking order theory. That is because large firms have more diverse sources of

income and would prefer to finance their activities internally before going for external

funding (Al Ani, & Al Amri, 2015). As firms' size increases, their profit potential also

increases, reducing their need for debt funding.

Further evidence of the pecking order influencing financing decisions can be seen

from analyzing the internal equity ratio's mean value. As per the pecking order theory

dictates, managers must first finance operations from internal sources, then debt, before

issuing new equity. A comparison of the internal equity ratio ($M = 0.51$, $SD = 9.56$) and

external equity structure ($M = 0.23$, $SD = 2.96$) revealed that firms in the West African

region rely heavily on internal income in funding their operations. This financing

preference is an indication that these firms follow the pecking order theory of capital

structure. An examination of the debt distribution between short-term debts and long-

term debts also gives credence to the pecking order theory. Nunes and Serrasqueiro

(2017), in an empirical study of the capital structure of hotels, concluded that the pecking

order theory is prevalent where there is more short-term debt relative to long-term debts.

There was more short-term debt than long-term debt for firms operating in the region.

Regarding the magnitude and significance of capital structure determinants, I obtained similar results from both the correlational and regression analysis, confirming the study results' robustness. Strong theoretical and empirical evidence supports the pecking order theory as the capital structure theory influencing capital structure decisions among firms operating within the West African Region. The capital structure practices employed by West African firms was based on the pecking order theory.

An examination of the capital structure practices for firms and firm-years that were financially distressed (with a Z- Score < 4.15) indicated that the distressed firms followed the pecking order theory. Evidence of the pecking order theory as the dominant capital structure theory influencing capital structure decisions was found in the Agricultural, Construction, Consumer goods, ICT, Industrial Goods, and Services industries. There was also evidence of the trade-off theory for firms in the Construction, Consumer Goods, Industrial Goods, and Oil and gas industries. There was evidence of both the pecking order theory and trade-off theory in the Construction, Consumer goods, and Industrial Goods industries. That indicated that the pecking order theory and the trade-off theory were not mutually exclusive in those industries. Mukherjee and Mahakud (2012) also found that the pecking order and the trade-off theory were not mutually exclusive but complementary in determining capital structure practices among Indian firms. For this reason, none of the two theories considered in this study could be specifically blamed as the cause of financial distress for firms already distressed.

Capital Structure Elements and Financial Distress

It has been established that the pecking order theory is the dominant capital structure decision theory that influenced the nature and structure of capital structure among firms operating within the West African region. That implies that the capital structure of these firms follows the dictates of the pecking order theory. I examined the capital structure in its components form, equity structure, debt structure, assets tangibility, and financial leverage.

Financial distress and Equity Structure

A significant component of the capital structure is equity. I sought to ascertain if the equity structure had any influence on the financial health of the business. Equity structure refers to how the firms obtain equity, either from internal sources or external sources. Internal equity structure ($b = 0.53$, $t(418) = 0.37$, $p = 0.71$) did not have any significant influence on the level of financial distress. That suggested that changes in the firms' reserve income do not significantly change their financial health. Manzaneque et al. (2016) also found that the internal equity structure did not significantly influence financial distress. This finding is contrary to Muigai (2016), who found that the internal equity structure was statistically positively and significantly related to financial distress for nonfinancial firms operating in Kenya. Lee et al. (2019) also found a significant positive relationship between internal equity structure and financial distress among Malaysian firms. Other empirical studies have found an inverse relationship between internal equity structure and financial distress (Bassey et al., 2016; Kihooto et al., 2016; Thirumalaisamy, 2013).

The results of the analysis indicated a positive insignificant relationship between external equity structure and financial distress, ($b = 0.53$, $t(418) = 0.37$, $p = 0.71$). That means that financial distress is unaffected by the introduction of new capital from external sources. This finding is corroborated by the findings of Manzaneque et al. (2016). Unlike the results of this study, Abdioğlu (2019) found a significant positive relationship between equity structure and financial distress. Lee et al. (2019) and Muigai (2016) found a significant inverse relation between external equity structure and financial distress.

Financial distress and Asset Structure

Assets structure refers to the proportion of the firm's capital invested in property, plants, and equipment. Assets tangibility was used as a proxy for asset structure. I sought to ascertain if there is a relationship between the assets structure and financial distress. The results of the analysis indicated a significant negative relationship between asset structure and financial distress. This relationship indicated that firms with higher tangible asset value were associated with a low Z-Score index during the study period. As low value for Z- Score indicates financial distress, as investments in fixed assets increase, the likelihood of financial distress also increases. This inverse relationship is corroborated by the empirical studies of Chadha and Sharma (2015), Cuong and Thang (2015), and Lee et al. (2019). Contrary to these results, Mwaniki and Omagwa (2017) and Setiadharma and Machali (2017) found a significant positive relationship between asset tangibility and financial distress.

Financial distress and Debt to Maturity

Empirical studies have shown a mixed relationship between debt to maturity and financial distress. Both short-term debt and long-term debt were regressed to financial distress. The results indicated a significant positive relationship between debt and financial distress. The relationship between short-term debt and financial distress indicated a significant positive relationship, ($b = 0.157$, $t[418] = 4.17$, $p < 0.01$). That implied that firms with high short-term debts were associated with a high Z-Score index. That indicated that businesses with more short-term debt in their capital structure are less likely to experience financial distress. This conclusion reflects Stulz's (2001) argument, who indicated that short-term debts make managers more efficient and disciplined in their management functions as they must repay the debts within a short time. That is to avoid the transfer of control of the business to creditors. Myers (1977) also supported this argument when he suggested that businesses with short-term debts cannot make suboptimal decisions. On the contrary, Muigai (2016) found an inverse relationship between short-term and financial distress for nonfinancial firms in Kenya. Abdioğlu (2019) also found that increases in short-term borrowing increase companies' financial distress level in Turkey. Vatavu (2015), Hatem (2017), and Jayiddin et al. (2017) also found an inverse relationship between short-term debt and financial distress.

Like the relationship between short-term loan to financial distress, this study also found a positive significant relationship between long-term loans and financial distress, ($b = 0.14$, $t[418] = 3.20$, $p < 0.01$). The results revealed that as firms contract more long-term debts, their Altman Z-Score will go up, indicating a decline in their probability of

financial distress. Lau et al. (2016) found a positive relationship between long-term debt and financial distress for Malaysia's selected industries. Lee et al. (2019) mirrored this study's findings when they found a positive relationship between long-term debt ratio and financial distress. Serrasqueiro and Maças Nunes (2008) explained that this relationship results from the long repayment period for long-term debt, which does not strain the company of current liquidity. Brick and Ravid (1985) found a similar relationship and explained that long-term debts help businesses avoid taxes, enhancing their liquidity and financial performance. Schiantarelli and Sembenelli (1999) explained that firms normally utilize long-term loans for capital projects, which increases the firms' long-run profitability. The result is inconsistent with Baum et al. (2006) 's findings, who found an inverse relationship between long-term debt and financial distress.

The relationship between debt structure and financial distress has been found to differ based on the industry as different industries have different capital structure structures. Different industries exhibited different relationships between long-term debt and financial distress. Long-term debt related significantly to firms' financial distress in the ICT, Natural resources, and oil and gas industry. Onaolapo and Kajola (2010) found a different relationship between debt maturity and financial distress for various industries in Nigeria. Hatem (2017) also found a different relationship between debt maturity and financial distress for firms operating in Mexico and Malaysia. According to Lee et al. (2019), the different country characteristics account for the relationship between debt to maturity and financial distress. Less developed countries like Ghana and Nigeria do not have well-developed capital markets; thus, most businesses depend on debts to survive.

That could explain the positive relationship between the financial distress index and both short-term and long-term debt ratios.

Financial distress and leverage

I sought to ascertain if there exists any relationship between financial leverage and financial distress. The regression results indicated a significant inverse relationship between financial distress and leverage, ($b = -0.6p$, $t[418] = -20.91$, $p < 0.01$). The ratio of debt capital to total capital employed in a business compared to the financial distress index indicated an inverse association. That implied that as the ratio of debt to the total capital increase, the financial distress index decreases, indicating that firms will fall into poor financial status. Lee et al. (2019), Kumar (2017), Kazemian et al. (2017), and Muigai (2016) all found an inverse relationship between leverage and financial distress. This relationship could be explained by the high-interest rate for debts (Gupta et al., 2014; Kumar, 2017; Muigai, 2016). The high cost of debt could reduce profits and, subsequently, difficulty in repayment of debts. On the contrary, Bei and Wijewardana (2012) found a significant positive relationship between financial leverage and financial distress. Other studies found no significant relationship between financial distress and financial Leverage (Pratheepkanth, 2011; Wabwile et al., 2014).

Limitations of the Study

A limitation of this study's findings is that I considered only quantitative factors that influence the capital structure and ignored qualitative factors that also influence capital structure decisions. There are qualitative factors identified in finance literature as influencing capital structure decisions and how they relate to the business's financial

health. These qualitative factors include the business executive personality, experiences, background, access to credit, the agency conflicts between shareholders and managers, and political and legal systems.

In this study, I could not consider all the firm-related factors in the finance literature that influence capital structure decisions and how it affects the business's financial health. Other firm-specific factors include nondebt tax shield, liquidity, working capital ratio, risk, assets utilization ratio, ownership structure, age, and share price performance. The exclusion of these factors limited the independent variables used in this study's model.

Another limitation of the study is that I did not consider external factors, such as the macroeconomic factors, beyond the firms' control, but that may influence the relationship between capital structure practices and financial distress. Gross Domestic Product, Inflation, Interest rate, and the country's level of development and its capital market have been empirically proven to influence capital structure decisions. These factors could influence the relationship between capital structure practices and financial distress but were not considered in this study before arriving at the study's conclusions.

Data for the study were collected from only listed firms. Private firms were excluded from the analysis. The study findings were limited to public firms and cannot be generalized for all Ghanaian and Nigerian firms. Also, data used in the study were secondary data collected from the sampled firms' financial statements, as the data had already been collected for different purposes, the results of this study are subject to the assumption when the primary data was collected.

Recommendations

In determining the relationship between capital structure practices and financial distress, the findings indicated a significant inverse relationship between both forms of debt, long-term debts and short-term debt. That suggested that business financial health improves when they have access to debt capital. As businesses in the West African region get more debt capital, they tend to get out of financial distress into financial health. The barriers to debt capital are the high-interest rates and cumbersome debt requirements and procedures. Policymakers can improve the development of the debt market and implement policies aimed at reducing debt rates. These will ensure the availability of debt capital for these firms and promote their growth and prosperity. Policymakers should develop the debt markets so providers of funds can easily make funds available to businesses.

The study findings did not find any significant relationship between equity structure and financial distress. The findings showed an inverse relationship between the capital structure element of leverage and financial distress. Leverage was defined as the ratio of debt to the sum of debt and equity capital. The inverse relationship suggested that business financial health will improve when there is a decline in the leverage ratio. A reduction in the leverage ratio results from increasing the leverage function base, which is an increment in equity. Policymakers can improve the financial health of businesses that operate within the West African region by ensuring the growth and stability of the capital markets to aid the issue of more equity securities. Also, policymakers can reduce the stamp duty on equity issues so more investors can participate in equity issues and make

more funds available to businesses. This will reduce the leverage ratio through the ease of acquiring equity funding leading to an improvement in the financial health of businesses in the region.

This study's findings indicated that capital structure determinants of assets tangibility, growth, profitability size, and dividend payout ratio explained only 10.8% of capital structure practices among West African companies. About 89.2% of the determinants of capital structure practices is unexplained by the determinants employed in this study. The factors considered in this study were all firm-specific determinants of capital structure practices. Other external factors such as the firms' industry, inflation rate, interest rates, gross domestic products, state of the country's development, and the state of the capital market development have influenced capital structure decisions in the finance literature. Further research is required to determine if these external and macro-economic factors also influence capital structure practices for firms operating in the West African region.

The firm-specific factors considered in determining capital structure practices are not the only firm-specific capital structure practice determinants. Other firm-specific determinants of capital structure found in finance literature include the firm's age, working capital ratio, risk, assets utilization ratio, ownership structure, share price performance, firm liquidity, earnings volatility, and taxes. To fully appreciate capital structure determinants using firm-specific determinants, future studies can examine the effect of all firm-specific determinants or the other firm-specific determinants of capital

structure practices, not considered in this study, on firms' capital structure practices in the West African region.

In this study, I considered quantitative factors in determining capital structure practices. That was influence by the research methodology adopted for this study. As indicated in the study limitations, other qualitative factors, seen in the literature, such as business executive personality, experiences, background, access to credit, the agency conflicts between shareholders and managers, and political and legal systems, can also influence the capital structure decisions and practices of firms. This study did not consider the effect of these qualitative factors in determining the capital structure practices of firms operating in the West African region. Future studies can examine these qualitative factors' effect in influencing capital structure practices for firms operating in the West African Region.

The study was conducted with data from listed firms' published financial statements on the Ghana stock exchange and Nigerian stock exchanges. The findings are based on data from only public firms. Future studies can examine the relationship between capital structure practice and financial distress for private firms in Ghana and Nigeria. Similarly, this study's findings indicated that debt results in good financial health for firms operating in the West African region. The results indicated a significant positive relationship between long-term debt and short-term debt to the financial distress index. I did not make a distinction between the type of debt, whether bank loans or bonds. Future studies can examine the type of debt that West African firms employ to improve their businesses' financial health.

Implications

The study results could have some positive social change activities for managers of firms and policymakers, which could positively affect the lives of employees and individuals who depend on the business. The results of the analysis indicated an inverse relationship between asset tangibility and financial distress. That suggested that as businesses invest more in physical and tangible assets, the likelihood of financial distress increases. That could be attributed to the fact that the funds invested in assets are locked up and do not immediately become available in meeting the business's day-to-day needs. To avoid financial distress and improve their business's financial health, managers must reduce the purchase of fixed assets that are not immediately needed in meeting the business's operational needs. That will reduce the investment in tangible assets and free up cash to meet their financing needs. When businesses are financially healthy, employees are paid on time, and there is a possibility of an increment in employees' salaries. A stable and regular income for employees can positively affect the families of these employees. This could lead to an improvement in the social and economic status of employees of these businesses. Also, employees of financially healthy businesses can have sound minds as they are assured of a stable and secure job. The healthy finances of employees can lead to healthy and happy lives for all employees of a business and their dependents.

The findings of this study present some positive social change implications for managers of businesses. All managers are interested in running and operating successful and financially healthy companies to be regarded as good managers. No manager is

interested in managing a collapsing business. This study's findings provide a clear understanding of the relationship between capital structure practices and financial distress. That suggests that as managers take financing decisions with an appreciation of these decisions' implications on the business's financial health, they may take actions to avoid putting their businesses into financial distress. Similarly, managers of financially distressed firms would appreciate measures they need to take to improve their business's financial health when making financing decisions. That would result in firms being financially healthy as a testimony to managers' quality and management decisions. Also, the belief in being a quality manager boosts managers' confidence and helps their business adopt new and emerging business environments, better manage cost, enhance the market image, and increase profitability.

The study findings also have some implications for the national economy and everyone within the country. When businesses are financially distressed, they cannot meet their financial obligations, including paying taxes, payments to creditors, and experience loss. When managers understand the relationship between their financing decisions and financial distress, they can avoid their business being trapped in financial distress. Financially healthy firms can pay their taxes, making money available to national authorities to provide social goods and services for all the citizens. When businesses are financially healthy, they can contribute to the national growth and development through growth in the gross domestic product (GDP) and the per capita income for all citizens.

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Financially healthy firms can meet their debt obligations. They can pay their debt obligation to their bankers, bondholders, and creditors. That makes a larger pool of funds available for other businesses to access to improve their financial status. When businesses pay their obligations to their creditors, the creditors' businesses also grow, leading to growth in all businesses in the country. When businesses pay their obligations to bondholders, it increases confidence in the bond market. That would promote the development of the bond and capital market of the country. A developed capital market helps businesses raise long-term funding to purchase capital goods, leading to economic growth. The developed capital market not only provides funding to enterprises; the market can also fund government developmental activities for the benefit of all citizens.

Conclusions

Businesses in the West African region follow the pecking order theory when making financing decisions. There was some evidence of the practice of the trade-off theory dictates as complementary to the pecking order in the Construction, Consumer goods, and Industrial goods industries. Firms that were already financially distress followed the pecking order theory when making financial decisions. To avoid financial distress for firms operating in the West African region, they should invest more of their capital in current assets and access more capital, debt capital, and equity capital. Firms that are already financially distress can also improve their financial health by securing more capital, either debt capital or equity capital. The debt capital can be either short-term debt or long-term. This would lead to an improvement in employees' economic and

social lifestyles, improve the quality of managers' decisions, and lead to economic growth

for all citizens of the country.

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Appendix A: Industrial Analysis of Capital Structure Practice

	Agriculture Standardised Beta	Construction Standardised Beta	Consumer Goods Standardised Beta	Health Care Standardised Beta	ICT Standardised Beta	Industrial Goods Standardised Beta	Natural Resources Standardised Beta	Oil and Gas Standardised Beta	Services Standardised Beta
	(p value)	(p value)	(p value)	(p value)	(p value)	(p value)	(p value)	(p value)	(p value)
Variables									
(Constant)	0.139	-1.116	0.837	0.968	2.185	0.831	0.668	0.146	10.158
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.196)	(0.675)	(0.000)
Tangibility	-0.114	-0.448	-0.096	-0.339	-0.253	-0.069	0.065	0.430	0.262
	(0.379)	(0.008)	(0.324)	(0.021)	(0.023)	(0.603)	(0.714)	(0.003)	(0.073)
ROE	-0.371	0.440	0.571	0.373	0.235	-0.231	0.300	0.056	0.580
	(0.027)	(0.000)	(0.000)	(0.008)	(0.058)	(0.071)	(0.016)	(0.663)	(0.651)
ROA	-0.591	-0.430	-0.525	-0.063	-0.189	-0.117	-0.897	0.034	0.760
	(0.000)	(0.001)	(0.000)	(0.678)	(0.123)	(0.433)	(0.016)	(0.795)	(0.602)
Growth	-0.096	-0.193	0.266	-0.057	-0.129	-0.178	0.208	-0.306	0.232
	(0.563)	(0.094)	(0.003)	(0.689)	(0.20)	(0.194)	(0.066)	(0.024)	(0.1016)
DPR	0.111	-0.226	0.020	-0.147	-0.067	0.191	-0.010	-0.058	-0.087
	(0.380)	(0.074)	(0.818)	(0.290)	(0494)	(0144)	(0.916)	(0.648)	(0.519)
Size	0.283	0.887	-0.099	-0.253	-0.756	-0.152	-0.077	0.173	-0.809
	(0.053)	(0.000)	(0.299)	(0.094)	(0.000)	(0.237)	(0.515)	(0.216)	(0.000)
Statistics									
Regression	0.898	0.898	0.554	0.609	0.830	0.394	0.921	0.530	0.750
R Squared	0.806	0.806	0.307	0.371	0.689	0.155	0.849	0.281	0.563
Adjusted R Squared	0.741	0.755	0.264	0.271	0.633	0.068	0.798	0.190	0.470
f statistic	12.444	15.896	7.222	3.731	12.191	1.775	16.822	3.066	6.016
	(0.000)	(0.000)	(0.000)	(0.05)	(0.000)	(0.120)	(0.000)	(0.013)	(0.000)

Appendix B: Relationship Between Financial and Capital Structure - Industrial Analysis

	Agriculture Standardised Beta (p value)	Construction Standardised Beta (p value)	Consumer Goods Standardised Beta (p value)	Health Care Standardised Beta (p value)	ICT Standardised Beta (p value)	Industrial Goods Standardised Beta (p value)	Natural Resources Standardised Beta (p value)	Oil and Gas Standardised Beta (p value)	Services Standardised Beta (p value)
Variables									
(Constant)	20.652	-49.406	17.541	153.380	9.729	19.449	14.328	5.611	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.483)	(0.000)	(0.000)	(0.000)
Tangibility	-0.294	-0.640	-0.509	0.152	-0.258	-0.019	-0.347	-0.414	-0.238
	(0.017)	(0.000)	(0.000)	(0.251)	(0.002)	(0.824)	(0.000)	(0.000)	(0.000)
[='2ES	-1.912	-0.008	0.169	0.095	0.745	2.453	-0.977	0.042	0.079
	(0.324)	(0.970)	(0.001)	(0.628)	(0.001)	(0.113)	(0.000)	(0.361)	(0.243)
EES	-1.661	-0.056	-0.113	0.070	0.819	2.337	-1.149	-0.076	-0.021
	(0.388)	(0.830)	(0.017)	(0.718)	(0.000)	(0.130)	(0.000)	(0.102)	(0.763)
LTDR	-0.1287	2.4139	-0.0457	-2.5386	0.3339	-0.1423	0.4197	0.4661	
	(0.497)	(0.563)	(0.585)	(0.265)	(0.000)	(0.902)	(0.000)	(0.000)	(0.110)
STDR		2.091	-0.246	-2.829		-0.105		0.782	
		(0.618)	(0.007)	(0.218)		(0.928)		(0.000)	
LEVERAGE	-1.080	-0.794	-0.838	-0.648	-0.852	-0.911	-0.610	-0.261	-0.901
	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Statistics									
Regression	0.97	0.877	0.916	0.8	0.904	0.856	0.991	0.955	0.959
R Square	0.941	0.770	0.839	0.640	0.816	0.733	0.982	0.911	0.920
Adjusted R Square	0.925	0.709	0.829	0.583	0.789	0.706	0.978	0.900	0.906
f statistic	60.245	12.804	84.817	11.260	30.244	26.602	211.073	82.196	66.823
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Table 19

Oil and Gas Industry Correlations

		Tang	IES	EES	STDR	LTDR	LEV	Zscore	ROE	ROA	Growth	DPR	Size
Tang	*r*	1	-.246	.028	-.296*	.869**	.417**	-.361**	-.030	-.237	-.163	-.160	-.320*
	p		.071	.840	.028	.000	.002	.007	.828	.081	.238	.244	.017
	n	55	55	55	55	55	55	55	55	55	54	55	55
IES	*r*	-.246	1	.219	.041	-.270*	-.156	.074	.505**	.024	.024	.167	.069
	p	.071		.108	.768	.046	.254	.592	.000	.860	.861	.224	.617
	n	55	55	55	55	55	55	55	55	55	54	55	55
EES	*r*	.028	.219	1	-.016	-.073	-.156	-.084	-.090	.077	.075	-.122	.185
	p	.840	.108		.908	.595	.255	.543	.515	.578	.590	.376	.175
	n	55	55	55	55	55	55	55	55	55	54	55	55
STDR	*r*	-.296*	.041	-.016	1	-.200	-.353**	.907**	.019	.148	.266	.006	-.002
	p	.028	.768	.908		.143	.008	.000	.890	.280	.052	.963	.987
	n	55	55	55	55	55	55	55	55	55	54	55	55
LTDR	*r*	.869**	-.270*	-.073	-.200	1	.472**	-.179	-.148	-.297*	-.227	-.182	-.466**
	p	.000	.046	.595	.143		.000	.191	.282	.028	.098	.185	.000
	n	55	55	55	55	55	55	55	55	55	54	55	55
LEV	*r*	.417**	-.156	-.156	-.353**	.472**	1	-.484**	.091	-.103	-.328*	-.107	-.039
	p	.002	.254	.255	.008	.000		.000	.508	.455	.016	.436	.775
	n	55	55	55	55	55	55	55	55	55	54	55	55
Zscore	*r*	-.361**	.074	-.084	.907**	-.179	-.484**	1	-.106	.242	.262	.016	-.165
	p	.007	.592	.543	.000	.191	.000		.440	.075	.055	.909	.228

		Tang	IES	EES	STDR	LTDR	LEV	Zscore	ROE	ROA	Growth	DPR	Size
	n	55	55	55	55	55	55	55	55	55	54	55	55
ROE	*r*	-.030	.505**	-.090	.019	-.148	.091	-.106	1	.073	-.054	.036	.189
	p	.828	.000	.515	.890	.282	.508	.440		.596	.697	.796	.166
	n	55	55	55	55	55	55	55	55	55	54	55	55
ROA	*r*	-.237	.024	.077	.148	-.297*	-.103	.242	.073	1	.202	-.025	.098
	p	.081	.860	.578	.280	.028	.455	.075	.596		.143	.854	.477
	n	55	55	55	55	55	55	55	55	55	54	55	55
Growth	*r*	-.163	.024	.075	.266	-.227	-.328*	.262	-.054	.202	1	-.038	.248
	p	.238	.861	.590	.052	.098	.016	.055	.697	.143		.786	.071
	n	54	54	54	54	54	54	54	54	54	54	54	54
DPR	*r*	-.160	.167	-.122	.006	-.182	-.107	.016	.036	-.025	-.038	1	.070
	p	.244	.224	.376	.963	.185	.436	.909	.796	.854	.786		.613
	n	55	55	55	55	55	55	55	55	55	54	55	55
Size	*r*	-.320*	.069	.185	-.002	-.466**	-.039	-.165	.189	.098	.248	.070	1
	p	.017	.617	.175	.987	.000	.775	.228	.166	.477	.071	.613	
	n	55	55	55	55	55	55	55	55	55	54	55	55

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 20

Agriculture Industry Correlation

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
Tang	*r*	1	-.151	-.136	.096	.138	-.476*	-.159	.102	-.862**	.862**	-.110	.269
	p		.471	.517	.649	.510	.016	.447	.626	.000	.000	.599	.193
	n	25	25	25	25	25	25	25	25	25	25	25	25
Z	*r*	-.151	1	.473*	.860**	-.228	.297	.422*	-.431*	.010	-.010	-.915**	-.525**
	p	.471		.017	.000	.273	.150	.035	.032	.962	.962	.000	.007
	n	25	25	25	25	25	25	25	25	25	25	25	25
ROE	*r*	-.136	.473*	1	.387	-.657**	.172	.991**	-.993**	.110	-.110	-.613**	-.390
	p	.517	.017		.056	.000	.411	.000	.000	.600	.600	.001	.054
	n	25	25	25	25	25	25	25	25	25	25	25	25
ROA	*r*	.096	.860**	.387	1	-.109	.208	.305	-.324	-.172	.172	-.794**	-.286
	p	.649	.000	.056		.605	.317	.138	.115	.410	.410	.000	.165
	n	25	25	25	25	25	25	25	25	25	25	25	25
GROWTH	*r*	.138	-.228	-.657**	-.109	1	-.134	-.691**	.689**	-.163	.163	.340	.560**
	p	.510	.273	.000	.605		.522	.000	.000	.437	.437	.096	.004
	n	25	25	25	25	25	25	25	25	25	25	25	25
DPR	*r*	-.476*	.297	.172	.208	-.134	1	.161	-.142	.383	-.383	-.077	-.242
	p	.016	.150	.411	.317	.522		.443	.497	.059	.059	.714	.244
	n	25	25	25	25	25	25	25	25	25	25	25	25
IES	*r*	-.159	.422*	.991**	.305	-.691**	.161	1	-.997**	.147	-.147	-.568**	-.400*
	p	.447	.035	.000	.138	.000	.443		.000	.482	.482	.003	.048

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
	n	25	25	25	25	25	25	25	25	25	25	25	25
EES	r	.102	-.431*	-.993**	-.324	.689**	-.142	-.997**	1	-.078	.078	.589**	.406*
	p	.626	.032	.000	.115	.000	.497	.000		.711	.711	.002	.044
	n	25	25	25	25	25	25	25	25	25	25	25	25
STDR	r	-.862**	.010	.110	-.172	-.163	.383	.147	-.078	1	-1.000**	.203	-.033
	p	.000	.962	.600	.410	.437	.059	.482	.711		.000	.330	.876
	n	25	25	25	25	25	25	25	25	25	25	25	25
LTDR	r	.862**	-.010	-.110	.172	.163	-.383	-.147	.078	-1.000**	1	-.203	.033
	p	.000	.962	.600	.410	.437	.059	.482	.711	.000		.330	.876
	n	25	25	25	25	25	25	25	25	25	25	25	25
LEV	r	-.110	-.915**	-.613**	-.794**	.340	-.077	-.568**	.589**	.203	-.203	1	.486*
	p	.599	.000	.001	.000	.096	.714	.003	.002	.330	.330		.014
	n	25	25	25	25	25	25	25	25	25	25	25	25
SIZE	r	.269	-.525**	-.390	-.286	.560**	-.242	-.400*	.406*	-.033	.033	.486*	1
	p	.193	.007	.054	.165	.004	.244	.048	.044	.876	.876	.014	
	n	25	25	25	25	25	25	25	25	25	25	25	25

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

** Correlation is significant at the 0.01 level (2-tailed).

Table21

Construction Industry Correlation

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
Tang	p	1	-.656**	-.206	-.002	-.106	-.264	.099	-.369*	-.439*	.436*	.215	.759**
	p		.000	.274	.990	.576	.159	.602	.045	.015	.016	.254	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
Z	p	-.656**	1	-.091	.254	.123	.389*	.088	.462*	.541**	-.535**	-.675**	-.669**
	p	.000		.631	.175	.517	.034	.642	.010	.002	.002	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROE	p	-.206	-.091	1	.219	.247	-.165	-.446*	.150	-.187	.193	.373*	-.062
	p	.274	.631		.244	.188	.383	.014	.429	.322	.307	.042	.745
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROA	p	-.002	.254	.219	1	.162	.296	-.139	.279	.062	-.047	-.385*	.052
	p	.990	.175	.244		.394	.113	.464	.135	.743	.806	.036	.787
	n	30	30	30	30	30	30	30	30	30	30	30	30
GROWTH	p	-.106	.123	.247	.162	1	-.384*	-.096	.219	-.159	.171	.022	.047
	p	.576	.517	.188	.394		.036	.613	.244	.400	.367	.909	.807
	n	30	30	30	30	30	30	30	30	30	30	30	30
DPR	p	-.264	.389*	-.165	.296	-.384*	1	.229	.023	.370*	-.361*	-.434*	-.226
	p	.159	.034	.383	.113	.036		.223	.904	.044	.050	.017	.230
	n	30	30	30	30	30	30	30	30	30	30	30	30
IES	p	.099	.088	-.446*	-.139	-.096	.229	1	-.649**	.225	-.226	-.252	.081
	p	.602	.642	.014	.464	.613	.223		.000	.232	.229	.180	.672
	n	30	30	30	30	30	30	30	30	30	30	30	30

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
EES	p	-.369*	.462*	.150	.279	.219	.023	-.649**	1	.187	-.180	-.402*	-.490**
	p	.045	.010	.429	.135	.244	.904	.000		.322	.342	.028	.006
	n	30	30	30	30	30	30	30	30	30	30	30	30
STDR	p	-.439*	.541**	-.187	.062	-.159	.370*	.225	.187	1	-1.000**	-.749**	-.721**
	p	.015	.002	.322	.743	.400	.044	.232	.322		.000	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LTDR	p	.436*	-.535**	.193	-.047	.171	-.361*	-.226	-.180	-1.000**	1	.745**	.720**
	p	.016	.002	.307	.806	.367	.050	.229	.342	.000		.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LEV	p	.215	-.675**	.373*	-.385*	.022	-.434*	-.252	-.402*	-.749**	.745**	1	.540**
	p	.254	.000	.042	.036	.909	.017	.180	.028	.000	.000		.002
	n	30	30	30	30	30	30	30	30	30	30	30	30
SIZE	p	.759**	-.669**	-.062	.052	.047	-.226	.081	-.490**	-.721**	.720**	.540**	1
	p	.000	.000	.745	.787	.807	.230	.672	.006	.000	.000	.002	
	n	30	30	30	30	30	30	30	30	30	30	30	30

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 22

Consumer Goods Industry Correlation

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
Tang	r	1	-.656**	-.206	-.002	-.106	-.264	.099	-.369*	-.439*	.436*	.215	.759**
	p		.000	.274	.990	.576	.159	.602	.045	.015	.016	.254	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
Z	r	-.656**	1	-.091	.254	.123	.389*	.088	.462*	.541**	-.535**	-.675**	-.669**
	p	.000		.631	.175	.517	.034	.642	.010	.002	.002	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROE	r	-.206	-.091	1	.219	.247	-.165	-.446*	.150	-.187	.193	.373*	-.062
	p	.274	.631		.244	.188	.383	.014	.429	.322	.307	.042	.745
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROA	r	-.002	.254	.219	1	.162	.296	-.139	.279	.062	-.047	-.385*	.052
	p	.990	.175	.244		.394	.113	.464	.135	.743	.806	.036	.787
	n	30	30	30	30	30	30	30	30	30	30	30	30
GROWTH	r	-.106	.123	.247	.162	1	-.384*	-.096	.219	-.159	.171	.022	.047
	p	.576	.517	.188	.394		.036	.613	.244	.400	.367	.909	.807
	n	30	30	30	30	30	30	30	30	30	30	30	30
DPR	r	-.264	.389*	-.165	.296	-.384*	1	.229	.023	.370*	-.361*	-.434*	-.226
	p	.159	.034	.383	.113	.036		.223	.904	.044	.050	.017	.230
	n	30	30	30	30	30	30	30	30	30	30	30	30
IES	r	.099	.088	-.446*	-.139	-.096	.229	1	-.649**	.225	-.226	-.252	.081
	p	.602	.642	.014	.464	.613	.223		.000	.232	.229	.180	.672
	n	30	30	30	30	30	30	30	30	30	30	30	30

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
EES	r	-.369*	.462*	.150	.279	.219	.023	-.649**	1	.187	-.180	-.402*	-.490**
	p	.045	.010	.429	.135	.244	.904	.000		.322	.342	.028	.006
	n	30	30	30	30	30	30	30	30	30	30	30	30
STDR	r	-.439*	.541**	-.187	.062	-.159	.370*	.225	.187	1	-1.000**	-.749**	-.721**
	p	.015	.002	.322	.743	.400	.044	.232	.322		.000	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LTDR	r	.436*	-.535**	.193	-.047	.171	-.361*	-.226	-.180	-1.000**	1	.745**	.720**
	p	.016	.002	.307	.806	.367	.050	.229	.342	.000		.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LEV	r	.215	-.675**	.373*	-.385*	.022	-.434*	-.252	-.402*	-.749**	.745**	1	.540**
	p	.254	.000	.042	.036	.909	.017	.180	.028	.000	.000		.002
	n	30	30	30	30	30	30	30	30	30	30	30	30
SIZE	r	.759**	-.669**	-.062	.052	.047	-.226	.081	-.490**	-.721**	.720**	.540**	1
	p	.000	.000	.745	.787	.807	.230	.672	.006	.000	.000	.002	
	n	30	30	30	30	30	30	30	30	30	30	30	30

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 23

Health Care Industry Correlation

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
Tang	r	1	-.656**	-.206	-.002	-.106	-.264	.099	-.369*	-.439*	.436*	.215	.759**
	p		.000	.274	.990	.576	.159	.602	.045	.015	.016	.254	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
Z	r	-.656**	1	-.091	.254	.123	.389*	.088	.462*	.541**	-.535**	-.675**	-.669**
	p	.000		.631	.175	.517	.034	.642	.010	.002	.002	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROE	r	-.206	-.091	1	.219	.247	-.165	-.446*	.150	-.187	.193	.373*	-.062
	p	.274	.631		.244	.188	.383	.014	.429	.322	.307	.042	.745
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROA	r	-.002	.254	.219	1	.162	.296	-.139	.279	.062	-.047	-.385*	.052
	p	.990	.175	.244		.394	.113	.464	.135	.743	.806	.036	.787
	n	30	30	30	30	30	30	30	30	30	30	30	30
GROWTH	r	-.106	.123	.247	.162	1	-.384*	-.096	.219	-.159	.171	.022	.047
	p	.576	.517	.188	.394		.036	.613	.244	.400	.367	.909	.807
	n	30	30	30	30	30	30	30	30	30	30	30	30
DPR	r	-.264	.389*	-.165	.296	-.384*	1	.229	.023	.370*	-.361*	-.434*	-.226
	p	.159	.034	.383	.113	.036		.223	.904	.044	.050	.017	.230
	n	30	30	30	30	30	30	30	30	30	30	30	30
IES	r	.099	.088	-.446*	-.139	-.096	.229	1	-.649**	.225	-.226	-.252	.081
	p	.602	.642	.014	.464	.613	.223		.000	.232	.229	.180	.672

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
	n	30	30	30	30	30	30	30	30	30	30	30	30
EES	r	-.369*	.462*	.150	.279	.219	.023	-.649**	1	.187	-.180	-.402*	-.490**
	p	.045	.010	.429	.135	.244	.904	.000		.322	.342	.028	.006
	n	30	30	30	30	30	30	30	30	30	30	30	30
STDR	r	-.439*	.541**	-.187	.062	-.159	.370*	.225	.187	1	-1.000**	-.749**	-.721**
	p	.015	.002	.322	.743	.400	.044	.232	.322		.000	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LTDR	r	.436*	-.535**	.193	-.047	.171	-.361*	-.226	-.180	-1.000**	1	.745**	.720**
	p	.016	.002	.307	.806	.367	.050	.229	.342	.000		.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LEV	r	.215	-.675**	.373*	-.385*	.022	-.434*	-.252	-.402*	-.749**	.745**	1	.540**
	p	.254	.000	.042	.036	.909	.017	.180	.028	.000	.000		.002
	n	30	30	30	30	30	30	30	30	30	30	30	30
SIZE	r	.759**	-.669**	-.062	.052	.047	-.226	.081	-.490**	-.721**	.720**	.540**	1
	p	.000	.000	.745	.787	.807	.230	.672	.006	.000	.000	.002	
	n	30	30	30	30	30	30	30	30	30	30	30	30

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 24

ICT Industry Correlation

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
Tang	r	1	-.656**	-.206	-.002	-.106	-.264	.099	-.369*	-.439*	.436*	.215	.759**
	p		.000	.274	.990	.576	.159	.602	.045	.015	.016	.254	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
Z	r	-.656**	1	-.091	.254	.123	.389*	.088	.462*	.541**	-.535**	-.675**	-.669**
	p	.000		.631	.175	.517	.034	.642	.010	.002	.002	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROE	r	-.206	-.091	1	.219	.247	-.165	-.446*	.150	-.187	.193	.373*	-.062
	p	.274	.631		.244	.188	.383	.014	.429	.322	.307	.042	.745
	n	30	30	30	30	30	30	30	30	30	30	30	30
ROA	r	-.002	.254	.219	1	.162	.296	-.139	.279	.062	-.047	-.385*	.052
	p	.990	.175	.244		.394	.113	.464	.135	.743	.806	.036	.787
	n	30	30	30	30	30	30	30	30	30	30	30	30
GROWTH	r	-.106	.123	.247	.162	1	-.384*	-.096	.219	-.159	.171	.022	.047
	p	.576	.517	.188	.394		.036	.613	.244	.400	.367	.909	.807
	n	30	30	30	30	30	30	30	30	30	30	30	30
DPR	r	-.264	.389*	-.165	.296	-.384*	1	.229	.023	.370*	-.361*	-.434*	-.226
	p	.159	.034	.383	.113	.036		.223	.904	.044	.050	.017	.230
	n	30	30	30	30	30	30	30	30	30	30	30	30
IES	r	.099	.088	-.446*	-.139	-.096	.229	1	-.649**	.225	-.226	-.252	.081
	p	.602	.642	.014	.464	.613	.223		.000	.232	.229	.180	.672
	n	30	30	30	30	30	30	30	30	30	30	30	30

		Tang	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
EES	*r*	-.369*	.462*	.150	.279	.219	.023	-.649**	1	.187	-.180	-.402*	-.490**
	p	.045	.010	.429	.135	.244	.904	.000		.322	.342	.028	.006
	n	30	30	30	30	30	30	30	30	30	30	30	30
STDR	*r*	-.439*	.541**	-.187	.062	-.159	.370*	.225	.187	1	-1.000**	-.749**	-.721**
	p	.015	.002	.322	.743	.400	.044	.232	.322		.000	.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LTDR	*r*	.436*	-.535**	.193	-.047	.171	-.361*	-.226	-.180	-1.000**	1	.745**	.720**
	p	.016	.002	.307	.806	.367	.050	.229	.342	.000		.000	.000
	n	30	30	30	30	30	30	30	30	30	30	30	30
LEV	*r*	.215	-.675**	.373*	-.385*	.022	-.434*	-.252	-.402*	-.749**	.745**	1	.540**
	p	.254	.000	.042	.036	.909	.017	.180	.028	.000	.000		.002
	n	30	30	30	30	30	30	30	30	30	30	30	30
SIZE	*r*	.759**	-.669**	-.062	.052	.047	-.226	.081	-.490**	-.721**	.720**	.540**	1
	p	.000	.000	.745	.787	.807	.230	.672	.006	.000	.000	.002	
	n	30	30	30	30	30	30	30	30	30	30	30	30

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 25

Industrial Goods Correlation

		TANG	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
TANG	r	1	-.022	-.118	-.383**	.013	-.102	.116	-.118	-.593**	.597**	-.012	-.049
	p		.861	.350	.002	.919	.417	.359	.351	.000	.000	.924	.700
	n	65	65	65	65	65	65	65	65	65	65	65	65
Z	r	-.022	1	.141	.365**	.253*	-.066	-.147	.144	-.244	.241	-.843**	.132
	p	.861		.263	.003	.042	.600	.241	.253	.051	.053	.000	.295
	n	65	65	65	65	65	65	65	65	65	65	65	65
ROE	r	-.118	.141	1	.138	-.056	.139	-.958**	.967**	.106	-.104	-.228	.168
	p	.350	.263		.273	.658	.270	.000	.000	.401	.409	.068	.180
	n	65	65	65	65	65	65	65	65	65	65	65	65
ROA	r	-.383**	.365**	.138	1	.363**	.313*	-.017	.020	.202	-.196	-.154	.180
	p	.002	.003	.273		.003	.011	.893	.876	.107	.117	.220	.152
	n	65	65	65	65	65	65	65	65	65	65	65	65
GROWTH	r	.013	.253*	-.056	.363**	1	.195	.137	-.133	.075	-.064	-.207	.233
	p	.919	.042	.658	.003		.120	.278	.289	.553	.611	.098	.062
	n	65	65	65	65	65	65	65	65	65	65	65	65
DPR	r	-.102	-.066	.139	.313*	.195	1	-.111	.110	.165	-.159	.071	.158
	p	.417	.600	.270	.011	.120		.378	.384	.189	.206	.576	.209
	n	65	65	65	65	65	65	65	65	65	65	65	65
IES	r	.116	-.147	-.958**	-.017	.137	-.111	1	-.999**	-.080	.079	.287*	-.180
	p	.359	.241	.000	.893	.278	.378		.000	.526	.531	.021	.151

		TANG	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
	n	65	65	65	65	65	65	65	65	65	65	65	65
EES	*r*	-.118	.144	.967**	.020	-.133	.110	-.999**	1	.081	-.080	-.277*	.169
	p	.351	.253	.000	.876	.289	.384	.000		.520	.525	.026	.179
	n	65	65	65	65	65	65	65	65	65	65	65	65
STDR	*r*	-.593**	-.244	.106	.202	.075	.165	-.080	.081	1	-.998**	.314*	.197
	p	.000	.051	.401	.107	.553	.189	.526	.520		.000	.011	.116
	n	65	65	65	65	65	65	65	65	65	65	65	65
LTDR	*r*	.597**	.241	-.104	-.196	-.064	-.159	.079	-.080	-.998**	1	-.311*	-.204
	p	.000	.053	.409	.117	.611	.206	.531	.525	.000		.012	.104
	n	65	65	65	65	65	65	65	65	65	65	65	65
LEV	*r*	-.012	-.843**	-.228	-.154	-.207	.071	.287*	-.277*	.314*	-.311*	1	-.220
	p	.924	.000	.068	.220	.098	.576	.021	.026	.011	.012		.079
	n	65	65	65	65	65	65	65	65	65	65	65	65
SIZE	*r*	-.049	.132	.168	.180	.233	.158	-.180	.169	.197	-.204	-.220	1
	p	.700	.295	.180	.152	.062	.209	.151	.179	.116	.104	.079	
	n	65	65	65	65	65	65	65	65	65	65	65	65

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 26

Natural Resources Industry Correlation

		TANG	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
TANG	*r*	1	-.733**	-.458*	-.716**	-.367	-.021	-.448*	.471*	-.071	.071	.512**	-.231
	p		.000	.021	.000	.071	.921	.025	.018	.735	.735	.009	.266
	n	25	25	25	25	25	25	25	25	25	25	25	25
Z	*r*	-.733**	1	.050	.881**	.154	.071	-.055	-.072	-.120	.120	-.887**	.027
	p	.000		.813	.000	.462	.734	.795	.732	.568	.568	.000	.897
	n	25	25	25	25	25	25	25	25	25	25	25	25
ROE	*r*	-.458*	.050	1	.153	.385	-.005	.683**	-.709**	.263	-.263	.199	.183
	p	.021	.813		.466	.058	.982	.000	.000	.204	.204	.341	.381
	n	25	25	25	25	25	25	25	25	25	25	25	25
ROA	*r*	-.716**	.881**	.153	1	.224	.064	-.004	-.143	.184	-.184	-.839**	-.175
	p	.000	.000	.466		.282	.762	.986	.496	.379	.379	.000	.402
	n	25	25	25	25	25	25	25	25	25	25	25	25
GROWTH	*r*	-.367	.154	.385	.224	1	-.057	.357	-.340	-.027	.027	.077	.285
	p	.071	.462	.058	.282		.788	.080	.096	.896	.896	.714	.168
	n	25	25	25	25	25	25	25	25	25	25	25	25
DPR	*r*	-.021	.071	-.005	.064	-.057	1	-.073	.109	-.147	.147	-.092	.135
	p	.921	.734	.982	.762	.788		.730	.606	.482	.482	.661	.518
	n	25	25	25	25	25	25	25	25	25	25	25	25
IES	*r*	-.448*	-.055	.683**	-.004	.357	-.073	1	-.946**	.296	-.296	.322	.218
	p	.025	.795	.000	.986	.080	.730		.000	.151	.151	.116	.295

		TANG	Z	ROE	ROA	GRO WTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
	n	25	25	25	25	25	25	25	25	25	25	25	25
EES	*r*	.471*	-.072	-.709**	-.143	-.340	.109	-.946**	1	-.487*	.487*	-.185	.042
	p	.018	.732	.000	.496	.096	.606	.000		.014	.014	.377	.843
	n	25	25	25	25	25	25	25	25	25	25	25	25
STDR	*r*	-.071	-.120	.263	.184	-.027	-.147	.296	-.487*	1	-1.000**	-.008	-.781**
	p	.735	.568	.204	.379	.896	.482	.151	.014		.000	.971	.000
	n	25	25	25	25	25	25	25	25	25	25	25	25
LTDR	*r*	.071	.120	-.263	-.184	.027	.147	-.296	.487*	-1.000**	1	.008	.781**
	p	.735	.568	.204	.379	.896	.482	.151	.014	.000		.971	.000
	n	25	25	25	25	25	25	25	25	25	25	25	25
LEV	*r*	.512**	-.887**	.199	-.839**	.077	-.092	.322	-.185	-.008	.008	1	.178
	p	.009	.000	.341	.000	.714	.661	.116	.377	.971	.971		.393
	n	25	25	25	25	25	25	25	25	25	25	25	25
SIZE	*r*	-.231	.027	.183	-.175	.285	.135	.218	.042	-.781**	.781**	.178	1
	p	.266	.897	.381	.402	.168	.518	.295	.843	.000	.000	.393	
	n	25	25	25	25	25	25	25	25	25	25	25	25

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 27

Service Industry Correlation

		TANG	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
TANG	r	1	-.387*	.088	-.168	-.119	-.329	-.119	.020	-.166	.166	.172	.103
	p		.022	.616	.335	.497	.054	.496	.911	.342	.342	.322	.556
	n	35	35	35	35	35	35	35	35	35	35	35	35
Z	r	-.387*	1	-.118	.570**	.076	.253	-.264	.481**	-.293	.293	-.923**	.627**
	p	.022		.498	.000	.663	.142	.125	.003	.088	.088	.000	.000
	n	35	35	35	35	35	35	35	35	35	35	35	35
ROE	r	.088	-.118	1	-.081	.010	-.092	-.134	-.406*	-.254	.254	.065	.025
	p	.616	.498		.642	.956	.601	.441	.015	.140	.140	.711	.889
	n	35	35	35	35	35	35	35	35	35	35	35	35
ROA	r	-.168	.570**	-.081	1	.044	.000	.073	.267	-.370*	.370*	-.307	.426*
	p	.335	.000	.642		.800	1.000	.678	.121	.029	.029	.073	.011
	n	35	35	35	35	35	35	35	35	35	35	35	35
GROWTH	r	-.119	.076	.010	.044	1	-.053	.290	.231	-.167	.167	-.061	.334*
	p	.497	.663	.956	.800		.761	.091	.183	.338	.338	.728	.050
	n	35	35	35	35	35	35	35	35	35	35	35	35
DPR	r	-.329	.253	-.092	.000	-.053	1	-.016	.008	.220	-.220	-.152	-.049
	p	.054	.142	.601	1.000	.761		.928	.964	.204	.204	.384	.781
	n	35	35	35	35	35	35	35	35	35	35	35	35
IES	r	-.119	-.264	-.134	.073	.290	-.016	1	.059	-.055	.055	.417*	-.082
	p	.496	.125	.441	.678	.091	.928		.738	.752	.752	.013	.638

		TANG	Z	ROE	ROA	GROWTH	DPR	IES	EES	STDR	LTDR	LEV	SIZE
	n	35	35	35	35	35	35	35	35	35	35	35	35
EES	*r*	.020	.481**	-.406*	.267	.231	.008	.059	1	-.234	.234	-.532**	.483**
	p	.911	.003	.015	.121	.183	.964	.738		.177	.177	.001	.003
	n	35	35	35	35	35	35	35	35	35	35	35	35
STDR	*r*	-.166	-.293	-.254	-.370*	-.167	.220	-.055	-.234	1	-1.000**	.264	-.587**
	p	.342	.088	.140	.029	.338	.204	.752	.177		.000	.126	.000
	n	35	35	35	35	35	35	35	35	35	35	35	35
LTDR	*r*	.166	.293	.254	.370*	.167	-.220	.055	.234	-1.000**	1	-.264	.587**
	p	.342	.088	.140	.029	.338	.204	.752	.177	.000		.126	.000
	n	35	35	35	35	35	35	35	35	35	35	35	35
LEV	*r*	.172	-.923**	.065	-.307	-.061	-.152	.417*	-.532**	.264	-.264	1	-.666**
	p	.322	.000	.711	.073	.728	.384	.013	.001	.126	.126		.000
	n	35	35	35	35	35	35	35	35	35	35	35	35
SIZE	*r*	.103	.627**	.025	.426*	.334*	-.049	-.082	.483**	-.587**	.587**	-.666**	1
	p	.556	.000	.889	.011	.050	.781	.638	.003	.000	.000	.000	
	n	35	35	35	35	35	35	35	35	35	35	35	35

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

** Correlation is significant at the 0.01 level (2-tailed).