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EFFECT OF FINANCIAL DISTRESS ON STOCK PRICES VOLATILITY OF MANUFACTURING LISTED COMPANIES IN RWANDA. A CASE OF BRALIRWA PLC 2011-2021

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OCTOBER 2022

DECLARATION

I, the undersigned, confirm that this research is original, completed by me, and has not been submitted to any other institution by any other person for any other award.

UWAMARIYA Denise
Date: ……. /……/2022
Signature ……

DEDICATION

This research project is dedicated to my husband Nsengumuremyi Florent, who has been there for me every step of the way. His love, along with that of our beloved son, Baho Nziza Dax Floyd, inspired me to work hard and finish this dissertation.

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Finally, I would like to take this opportunity to express my gratitude to everyone who helped to make this study a success, whether directly or indirectly.

APPROVAL PAGE

I, the undersigned, confirm that I supervised the student during the research development process, and that the submission is made with my approval.

Supervisor : Dr. TWESIGYE Daniel

Date: …..... /……/2022

Signature ……

Table of contents

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

µ : Mean

ANOVA : Analysis Of Variance

EPS **:** Earning Per Share

PLC **:** public limited company

RSE **:** Rwanda Stock exchange

EBIT **:** Earning before income and tax

TA **:** Total asset

TL **:** Total liabilities

GDP : Gross Domestic Product

LR : Likelihood Ratio

LRM : Liquidity Risk Management,

MAX : Maximum

MFIs : Microfinance Institutions

MIN : Minimum

OLS : Ordinary Least Squares

SMEs : Small and Medium Enterprises

SPSS : Statistical Package for Social Scientists

STD : Standard Deviation

VIF : Variance Inflation Factors

OPERATIONAL DEFINITIONS OF KEY TERMS

Financial distress is a term used in corporate finance to describe a situation in which a company's promises to its creditors are broken or only partially honored. If financial distress is not alleviated, it can result in bankruptcy**.**

Price volatility simply refers to the amount of change in a stock's price over time. Some investment opportunities have a high degree of change or volatility, while others have a low degree of change or volatility.

Earnings per share (EPS) is a company's net profit divided by the number of outstanding common shares. EPS measures how much money a company makes for each share of stock it owns and is a popular metric for estimating corporate value.

Price to Earnings "Price to Earnings Ratio The multiple is the ratio of a stock's share price to its earnings per share (EPS). One of the most widely used stock valuation metrics is the PE ratio. It indicates whether a stock is expensive or cheap at its current market price".

The dividend yield: is a financial ratio (dividend/price) expressed as a percentage that shows how much a company pays out in dividends each year in relation to its stock price.

The Dividend Coverage Ratio:" Dividend cover is a financial metric that measures how many times a company can pay dividends to its shareholders. The dividend coverage ratio is calculated by dividing the company's net income by the dividend paid to shareholders".

ABSTRACT

Many financially strong companies have already gone out of business around the world as a result of the financial crisis. Corporate financial distress has a high societal and economic cost in addition to significant financial losses for its creditors.Different outcomes of financial crises that occurred in many countries around the world and had an impact on the economies of developed and developing countries, whether short or long term, have revealed that a lack of investment and financial tools in financial and investment institutions lead to inconsistency in achieving a balance of liquidity, profitability, and safety on the one hand, and financial sector growth and continuity on the other. The general objective of the study was to assess the effect of financial distress on stock price volatility in manufacturing listed companies reference Bralirwa plc Rwanda. The specific objectives were to investigate the effect of cashflow trend on earning per share shift of Bralirwa plc; to investigate the effect of profit margin change on price earning shiftof Bralirwa plc, explore the effect of capital dilemma on dividend yield shift of Bralirwa plc and to determine the effect of financial gearing on dividend cover shift on bralirwa plc . This study was guided by key theories that is liquid asset theory, Altman z score theory,cash management theory ,wreckers theory, capital structure theory, capital asset pricing model, arbritrage pricing theory. The correlational research design was employed in this research with secondary date from 2011-2021 base on financial statements. The study used both descriptive and inferential statistics in analyzing the data. Analysis was done with the help of Statistical Package for Social Scientists (SPSS. 20). Results revealed that 60.2% of the changes in earning per share of Bralirwa can be accounted for by in cash flow trend. There was a positive and significant relationship between cash flow trend and earning per share of Bralirwa (β= 0.024, p value <0.05). The profit margin indicators were found to be statistically significant in explaining the effect of profit margin on price earning 61.9% of the changes in price earning of Bralirwa can be accounted for by profit margin. There was a positive and significant relationship between profit margin change and price earning of Bralirwa (β= 0.001, p value <0.05). Results revealed that 95% of the changes in dividend yield of Bralirwa can be accounted for by in capital dilemma. There was a positive and significant relationship between capital dilemma trend and dividend yield of Bralirwa (β= 0.019, p value <0.05). Results revealed that 75% of the changes in dividend cover of Bralirwa plc can be accounted for by in financial gearing. There was a positive and significant relationship between financial gearing and dividend yield of Bralirwa (β= 0.0068, p value <0.05). It was recommended that Bralirwa plc should improve their liquidity management and awareness to the price volatility to their shareholders

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This introductory chapter gives a comprehensive analysis of the background to the study, problem statement, objectives, research questions, significance, and scope of study.

1.1. Background to the study

In recent years, studies on corporate failure or its prediction have been very prevalent among the academicians, financial practitioners, and watchful economic bodies. Many financially strong companies have already gone out of business around the world as a result of the financial crisis. Corporate financial distress has a high societal and economic cost in addition to significant financial losses for its creditors. As a result, financial distress prediction studies are important for everyone involved: owners, shareholders, lenders, suppliers, and the government. With the recent global financial crisis and the failure of many organizations in the United States and the European countries, it has become all the more necessary that the stakeholders study the financial health of their organization (Suprabha K R,2018).

Different outcomes of financial crises that occurred in many countries around the world and had an impact on the economies of developed and developing countries, whether short or long term, have revealed that a lack of investment and financial tools in financial and investment institutions lead to inconsistency in achieving a balance of liquidity, profitability, and safety on the one hand, and financial sector growth and continuity on the other. (Aziz & Dar, 2016).

In Africa, the stock exchange markets are very small and are characterized by low liquidity levels as per global standards. They normally keep on changing between 10% and 20% of the GDP. Their markets also tend to be very small in comparison with their economies. Even older markets in countries like Zimbabwe, Kenya and Nigeria are small compared to their economies. The small size of the markets explains why many institutional investors are unable to participate in African markets. In recent years, the region to the south of the Sahara's financial growth increased from 1.4% in 2016 to 2.7% the following year. (2017).

In the East African Community, financial growth continued to expand in 2017 regardless of some critical challenges resulting from poor weather. For countries like Kenya, Rwanda and

Tanzania, financial growth remained robust, although it fell below the 2016 level (Jeanluc&muiruri,2022)

Governance is less common in many businesses because it relies solely on soft information and lacks accurate and robust data to forecast the possibility of future bankruptcies. (Li et al., 2020). During the recent financial crisis, investors tended to avoid trouble, so the reaction to the capital market will be different. The amount of capital issued by investors is decreasing. (Elyasiani et al., 2014)

In listed companies, financial distress can occur, especially in companies experiencing economic difficulties have a direct impact on the chain of production to distribution. Companies that move production offshore face an increasing risk of supply-chain disruption due to potential financial distress of foreign suppliers. Receiving a 12-month advance warning of impending supplier difficulties allows purchasing companies to either remedy the supplier's condition or contract with another supplier. (Bozkurt et al., 2017).

In recent years, there have been numerous cases of corporate failures, companies going bankrupt, or becoming financially distressed. The phenomenon is increasingly becoming worrisome in the manufacturing industry. Many researchers have tried to predict possible financial distress of many corporate entities, most of which are in the manufacturing industry (Salomon, Koffi &Frederick, 2016). Stock price volatility refers to the movement of stock prices over time is the result of insecurity, unpredictability, and risks. This affects investors' interests and results in price differences between buying and selling.

During significant macroeconomic uncertainty shocks, such as the COVID-19 pandemic, the Great Recession, and the Eurozone debt crisis, there have been numerous examples of rising stock price volatility and jumps. The ongoing uncertainties and volatility in the global economy are expected to have an impact on African economies in the coming year. In 2022, our initial plan is to increase top line, profit, and margin growth in the context of Rwanda's continued outperformance relative to the broader African Region, driven by continued volume and value growth, cost management, and debt reduction. However, the COVID-19 outbreak continues to pose an unprecedented health crisis and macroeconomic risk, both of which are likely to have an impact on the economy. (Bralirwa repor,2021). Given the significance of pricing fluctuations and corporate financial distress, the current study will

look into the impact of financial distress on the trend of stock pricing volatility in manufacturing companies listed on the Rwanda Stock Exchange.

1.2. **Statement of the problem**

Failure of a business is not an unexpected event rather it is the outcome of a failure path, which may consist of some phases, each characterized by specific signs of failure. Because failure is not a sudden occurrence, and if advance warning signals are detected, the more time managers will have for preparing and reacting in subsequent phases of the crisis. Investors are highly concerned with maximizing profit margins, so their primary focus is on changes in stock price, which increases the risk involved in investments.

The stock market prices are highly affected by demand and supply forces in the market, political in addition investor' expectations, therefore, the market faces high levels of uncertainty as a result of movements of price unexpectedly, finding that distressed stocks underperform safe stocks, unconditionally and when controlling for either size or book to market.

Campbell, Hilscher, and Szilagyi (2008) find that excess returns are nearly monotonically declining in failure risk. Conversely, Wang F (2012) find distressed stocks outperform if they are also small and have high book-to-market ratios. Garlappi and Yan (2011) find that highly distressed, high-priced stocks exhibit a value premium that increases over a limited range of distress risk. (Spencer Arnott,2020).

several failures of large joint stock companies in the U.S. and Europe over the recent decade such as Philipp Holzmann, Enron, WorldCom, Swissair, ABB, Parmalat have shocked investors across the globe and helped to raise the awareness that nowadays, not only small and medium enterprises, but also large corporations are not protected from default. The causes of financial distress and bankruptcy can be varied (systematic or unsystematic) when taking into consideration the instability, vulnerability, and ultimately the deep-rooted structural change taking place in the world economy. (Natalie O,2017)

The global economy was hit hard by the COVID-19 pandemic, which created panic in global financial markets. Drastic and impactful changes have been witnessed since the beginning of 2020, and their impact has led to various events that have interfered with different aspects of human life, including the social and economic arenas. Due to this impact, several economies are currently trying to recover from recessions. The pandemic hit almost every aspect of the economy hard, including consumption, trade, manufacturing, supply chains, and financial behaviors. Due to COVID-19 uncertainty, massive recovery plans are called for worldwide to

counter these adverse effects on economies. Different approaches have been suggested by different sources internationally, but the ideal recovery method is considered to be based on sustainable post-COVID-19 strategies (Yoshino et al., 2019).

Managers are incentivized to strategically withhold bad news in order to keep investors' expectations at unjustifiable levels and inflate a firm's stock price beyond its intrinsic value at the expense of shareholders. Accordingly, such opportunistic behavior prolongs the false impression investors have regarding the firm's true state of economic fundamentals (Kothari et al., 2011; Hutton et al., 2012; Kim et al., 2011a). These strategies enable managers to disguise negative information for long periods, keeping the public in the dark regarding its adverse impact on the firm's economic value. When investors discover previously withheld negative information that allows them to better discern the firm's (true) state of economic fundamentals, the market absorbs the drop in their expectations, rapidly increasing the firms' distress risk level.

More than 500 Rwandans are likely to lose their jobs in the coming months as some 53 companies in various sectors close shop after filing for bankruptcy The list includes East African Steel Working Ltd, Ortadogu Energy Petroleum, Engineering, Construction and Trade, as well as Rwanda Polyvalent Construction and General Trading Ltd.The companies will officially be closed when the public notice of objection lapses at the end of the month. The notice serves to ensure that anyone, especially creditors, with unfinished affairs with the business is given an opportunity to object to its closure before the winding down are concluded. (The East african2014).

Only when an empirical financial model is developed to assist in arriving at optimal capital structure decisions for better financial performance of companies listed on the Rwanda Stock Exchange, such as Cimerwa, Bralirwa, Uchumi Super Market Ltd, National Media Group, Bank of Kigali Group, Kenya Commercial Bank (KCB), Equity Bank Group, I&M Bank Rwanda, Bophero, and MTN Rwandacell, will a financial dilemma be addressed.

Debt reduction remains a priority for Bralirwa Plc; as a result of repayment, the USD denominated long-term IFC loan is now Rwf 14.6 billion, following the repayment of the BPR loan in 2018. As a result, despite the reclassification of the Bramin long-term loan to investments, our net debt position decreased to Rwf 41.3 billion (2018: Rwf 47.7 billion). The net finance cost was reduced to Rwf 7.8 billion (2018: Rwf 8.1 billion). Profit and total

comprehensive income fell by -83.5 percent to Rwf 1.2 billion (2018: Rwf 7.2 billion). As a result, earnings per share fell to Rwf 1.16. (2018: Rwf 7.04). Given the significant uncertainties surrounding the extent and duration of the disruption caused by the COVID-19 outbreak, the Board is taking steps to protect cash flow and preserve liquidity in the company's best interests, and has proposed not paying a dividend on the 2019 results (Bralirwa, 2019).

This represents a deterioration in the entity's financial performance, as evidenced by a slowing of return on asset, earnings per share, and dividend yield among key indicators, while the financial managers are faced with the dilemma of capital structure to optimize the corporation's performance. books on cooking, Cyclical Shares are the stock of a company that is particularly vulnerable to changes in economic conditions.

When a company enters financial distress, it is quickly confronted with the dilemma of raising capital to fund its restructuring. Given this, few are inclined to trust this risky investment, especially given that a financial boost does not guarantee a lengthy solution to the problems at hand. People have long been interested in fluctuation, whether in theoretical research or in practice in terms of stock prices in most cases, this concern is directed toward stock price fluctuations are both a risk and a direct cause of loss participants in the market. Therefore, after seen the volatility in close share price of Bralirwa since 2011-2021 where year ended close share price were 333rwf; 630rwf; 839rwf; 380rwf; 174rwf; 140rwf; 150rwf; 150rwf; 139rwf; 121rwf; 126rwf (http://www.cdhcapitalltd.org/research?listedcomp=bok) and The volatility was on the decline, so I was curious to know if it was caused by financial distress, which is why this study will investigate the effect of financial distress on stock price volatility among manufacturing listed companies on the Rwanda Stock Exchange, with a specific reference to Bralirwa Plc.

1.3. Research Objectives

1.3.1. General objective

The study's overarching goal was to assess the effect of financial distress on stock price volatility among Rwandan manufacturing listed companies, with particular emphasis on Bralirwa plc.

1.3.2. Specific objective

To achieve the general objective, the following specific objectives were formulated and assessed:

1. To investigate the impact of the cash flow trend on the earnings per share shift in Bralirwa plc.

2.To investigate the result of profit margin on price earning shift in Bralirwa plc

3.To explore the effect of capital dilemma on dividend yields shift in Bralirwa plc

4.To determine the effect of financial gearing on dividend cover in Bralirwa plc

1.4 Hypothesis

H0. Cash flow trend does not significantly affect the earning per share

H1. Cash flow trend significantly affect the earning per share

H0. Profit margin movement does not significantly affect the price earning

H1- Profit margin movement does significantly affect the price earning

H0 –Capital dilemma does not significantly affect the dividend yield

H1. Capital dilemma does significantly affect the dividend yield

H0. Financial gearing does not significantly affect the dividend yield

H1. Financial gearing does significantly affect the dividend yield

1.5 Scope of the study

The study focused on effect financial distress on stock price volatility practices in manufacturing listed companies in Rwanda, with a special reference to BRALIRWA plc in range of 2011-2021.

1.6 Significance of the study

The study showed how financial distress prediction will have helped to enhance financial performance by reaching the frontiers that wouldn't have been reached had it and create confidence in share invest due to clear information of financial distress and the cause change of price fluctuation.

1.6.1 To the researcher and other researchers

The research is also important to the researcher because it fulfills the requirement for the award of a master's degree with honors in finance at the University of Kigali, as well as providing the researcher with a comprehensive understanding of the effect of financial distress on stock price volatility. It will also serve as a foundation for future research by other researchers.

1.6.2 To BRALIRWA and other firms

In practice, the managerial team of BRALIRWA and other firms value this study because they understand how much they stand to gain from financial distress prediction and stock price volatility. As a result, the study will assist financial managers across all industries in understanding the measures they must take to predict financial distress and prevent it from occurring in the future.

1.7 Limitations of the study

1) Many financial facts and primary data were not disclosed or easily obtained due to confidentiality.

2) The study will have restricted to only 2011-2021 data of BRALIRWA PLC

CHAPTER 2 LITERATURE REVIEW

2.1 Conceptual review

In corporate finance, the concept of financial distress deals with a situation in which a firm fail to meet debt obligations to its creditors the majority of business failures are thought to be the result of financial difficulties. In other words, financial distress is a state of being in severe financial difficulties which may result in bankruptcy. (Chang-e, 2016; Pranowo et al., 2010).

According to Ray (2011) when loan contracts are violated and the organization incurs constant losses and fails to honor obligations when they are due, along with cash flow issues, the firm experiences financial distress. When a business is in financial trouble, its operating conditions deteriorate, resulting in a significant financial burden and the inability to pay both secured, preferential, and unsecured creditors.

(Benmelech et al., 2012; Garlappi & Yan, 2011) that is where the capital dilemma comes in because of the inability to pay shareholders their dividends where of right issues, raise new share, loan requires decision comes in as solution and business with too much gearing and operation in profit margin decrease will face some difficulties in their solvency and stand strong in the market.

Stock price volatility is a risk indicator in the stock market that involves a change in share prices. (Mgbame & Ikhatua, 2013). Stock price volatility is a risk indicator in the stock market that involves a change in share prices. (Aurangzeb, 2012). Stock price volatility is used to depict market price trends. Stock price volatility disrupts the smooth operation of the financial system, causing uncertainty and influencing stock market performance. (Ilaboya & Aggreh, 2013). High volatility may increase the possibility of investor losses beyond certain levels, raising concerns about the market's and economy's overall conditions. (Pryymachenko, 2013).

Furthermore, volatility influences the bid-ask spread because increasing volatility is associated with a wider spread between bidding and asking prices. Stock price volatility give ideas on investors, their ration related to earning per share, price earning, dividend yield and dividend cover may change due to that volatility in against way or positive way.

2.2. Theoretical review related to financial distress

This section reviews theoretical literature on business funding, financial distress prediction, equilibrium state of asset and liabilities, of cash flow and outflow, solvency, efficient of stock market, liquidity which are essentially the main theories on liquid asset theory, Altman z-score model, cash management theory, the wrecker's theory.

2.2.1. Liquid asset theory

The theory explained financial distress within the framework of a cash flow. This theory is based on the concept that net cash flows relative to current liabilities should be the primary standard to be used to describe a company's financial distress condition. Firms with positive cash flows can raise capital and borrow from the capital market, whereas firms with negative or insufficient cash inflows cannot borrow from the capital market. As a result, they are at risk of default. According to this theory, a company will go bankrupt if its current year profit or net cash flow is negative or less than its debt obligations. (Altman & Hotchkiss, 2016).This theory will be useful on one of my research of objective which is the effect of cash flow problem on earning per share. Both individuals and businesses can be concerned with tracking liquid assets as a portion of their net worth

2.2.2. **Model Altman Z-Score**

The Altman Z-score is a measure of a company's health and probability of bankruptcy. Several key ratios are used in the formulation of an Altman Z-score value. The Z Score was first developed by New York University Professor Edward Altman in 1960. The Z-score is also an effective tool for analyzing private companies' financial health and creditworthiness. It has widespread acceptance among auditors, management accountants, courts, and loan evaluation database systems. The approach of the formula has been used in a variety of contexts and countries. Forty years of public scrutiny speaks highly of its validity. Z-score value for Public Companies or Manufacturing Industries is calculated as follows:

$$Z = 1.2*X1 + 1.4*X2 + 3.3*X3 + 0.6*X4 + 1.0*X5$$

Where:

- X1 = Working Capital/Total Assets
- X2 = Retained Earnings/Total Assets

• X3 = EBIT/Total Assets

• X4 = Market Value of Equity/Total Liabilities

• X5 = Net Sales/Total Assets The result of Altman Z-score Model for public and manufacturing companies is interpreted as follows: • Z-score above 3.0 – The company is considered ‘Safe’ based on the financial figures only. • Z-score between 2.7 and 2.99 – ‘On Alert’. This zone is an area where one should ‘Exercise Caution’. • Z-score between 1.8 and 2.7 – Good chance of the company going bankrupt within 2 years of operations from the date of financial figures given. • Z-score below 1.80 – Probability of Financial Catastrophe is Very High.

2.2.3. Cash management theory

Each firm's primary concern is the management of cash balances. This is due to the difficulty of precisely forecasting cash flows, particularly inflows, and the lack of perfect concurrence between cash inflows and outflows. A cash inflow/outflow imbalance would indicate a failure of the firm's cash management function, which could lead to financial distress and, ultimately, business failure. (Aziz & Dar, 2016). The continuation of such an imbalance may cause financial distress for the firm and, as a result, business failure. The process of managing cash inflows and outflows is known as cash management. Individuals and businesses alike require cash monitoring to maintain financial stability.

2.2.4 The wrecker’s theory

The wrecker’s theory was developed initially by Campbell, Hilscher, and Szilagy (2015) suggested that stocks of distressed firms perform in a manner which is vastly inferior to stocks of financially healthy firms. The wreckers' theory of financial distress seeks to explain the benefits that may step out of financial distress to stakeholders (Kalckreuth, 2015). This theory contributes to an efficient-market interpretation of a stock market by empirically connecting work on private benefits to asset pricing literature, and it suggests that financial structure and default probability may be important in determining the size of private benefits of controversies (Kalckreuth, 2015). The theory underpins a firm's currency risk as a result of share price volatility and the dependent variable, as it explains why some firms experience financial distress as a result of currency risk. If properly managed, can be used as a risk

reduction mechanism for a firm's financial distress in terms of enabling better management of a firm's currency, credit, and liquidity risks.

2.3. Conceptual theories on stock price volatility

This section reviews theoretical literature on dividend distribution, assess risk on stock price changes, stock price fluctuation which are essentially the main theories on capital structure, asset pricing, cash flow model under certainty.

2.3.1 Theory of Capital Structure

(1958) Modigliani and Miller (1958) introduced a new mainstream on the subject, which was previously characterized by two polarized beliefs. One believed that dividend distribution maximized the company's value to its stockholders, while the other believed that dividend distribution prevented the company from investing in profitable projects, thereby impeding value maximization. They developed the idea that a company's value is independent of its capital structure. Chew (2018) Because of the innovative nature of this proposal, Modigliani and Miller are regarded as the founders of modern finance. Although the assumptions underlying Modigliani and Miller's (1958) original proposal, such as the absence of taxes, cannot be fully validated in real-world situations.

This theory is especially relevant in this study because the majority of the companies listed on the RSE have a highly leveraged capital structure, raising the question of when to strike a balance between the benefit of tax shelter on interest expense and the negative effect of financial distress.

2.3.2. Capital Asset Pricing Model

Sharpe (1963) proposed the CAPM (Capital Asset Pricing Model), which prices assets using a single factor, Beta. CAPM, widely regarded as the first asset-pricing model, assumes that a single factor guides share prices or expected performance. Because of its simplicity and user appeal, CAPM laid the groundwork for asset pricing. According to empirical research, selecting inversely related assets can help an investor reduce portfolio risk returns. (Otweyo, 2014). CAPM considers market risk as the only source of risk while ignoring other sources. CAPM assumes that investors are rewarded for taking market-related risks rather than company-related risks. The argument is that the specific uncertainty of a firm can be avoided, which is a premise proposed by Harry Markowitz (Ouma & Muriu, 2014).

CAPM divides total risk into two categories: systematic risk and unsystematic risk. This model is concerned with market-specific risk, which is assigned a beta coefficient. The main risk that CAPM deals with is market uncertainty, which is typically calculated using the beta coefficient (Muiruri, 2014). CAPM is based on several assumptions, the first of which is that there is a risk-free rate of return, that taxes do not exist, and that short selling of assets is permitted. Another assumption is that there are many securities in the market, and that by constructing a portfolio, company specific risk can be diversified away. Finally, investors' goal is to maximize their returns, which implies that they are risk averse (Ouma & Muriu, 2014).

2.3.3. Arbitrage Pricing Theory

Due to limitations of earlier asset pricing theories, the Arbitrage Pricing Theory Ross (1976) was introduced. This asset pricing theory establishes the theoretical framework to relate stock returns with several variables, which can affect the source of income volatility (Shrestha & Subedi, 2014). Arbitrage Pricing Theory's ability to include multiple factors in the model has made it influential in the pricing of assets. Investors believe that the probabilistic nature of returns is well captured in the structure of the factors in APT's multi-factor model (Mutuku & Kirwa, 2015). In the pricing of financial assets, the Arbitrage Pricing Theory employs macroeconomic or fundamental factors. Factor loading, which is the beta coefficient sensitivities, is used to weight these factors. (Otweyo, 2014).

The APT rests on the premise that in an efficient financial market, arbitrage process should be possible. APT further assumes some factors, which make returns of security to deviate from expectation.These are market and sector-related factors that influence stock performance. This multi-factor model was developed on the assumption that certain factors influence stock market performance... These include sector related and relevant macroeconomic forces (Gatuhi, 2015). APT model assumes that several industry-specific and broader macroeconomic factors that impact asset returns besides the beta. Market Beta is the sensitivity of particular assets to the shifts in returns, on which CAPM is anchored, such as the GDP, the rate of inflation and composition of rates of interest and so on, which could impact organizations in several ways (Tripathi & Seth, 2014).

(Aroni, 2011). APT assesses the significance of individual risk factors and whether they are priced in tandem with market returns in order to determine the acceptable risk-return trade-off. (Tripathi & Seth, 2014). APT is related to the market portfolio concept, which states that

people have different investment portfolios, each with its own systematic risk. In terms of results, APT outperforms CAPM because it uses multiple factors to explain shared and systematic risk. Hassan and Awais (2015) In contrast to the CAPM, the APT recognizes that various sources of risk influence an asset's expected return and stock market performance.

2.4. Empirical Literature

Tan (2012) investigated financial distress and financial performance in the Asian Financial Crisis of 1997-1998. His sample included 277 entities, and he discovered that the crisis caused an exogenous shock, shifting management's focus away from internal issues like financial performance and leverage. The study confirmed other researchers' findings that high financial leverage contributed significantly to the decline in firm value. The findings of his study demonstrated that entities with low financial leverage outperformed those with high financial leverage and were better positioned to withstand external shocks.

Angraini (2014) conducted research to develop an appropriate financial distress prediction model for Indonesian companies, with the addition of corporate governance as a variable. The study included 42 companies that were consistently in the performance index for the Indonesian Stock Exchange over a three-year period (2011-2013). Panel data regression with the Fixed Effect Method was used as the estimation model. He concluded that, while managerial ownership had no effect on financial distress, institutional ownership had a significant impact on the entity's ability to withstand financial distress. The ownership structure was not affected by liquidity as a moderating variable.

Mahama (2015) assessed the state of financial distress using Altman's Z-score for 10 entities listed on the Ghana Stock Exchange between 2007 and 2013. He identified signs of financial trouble as follows: the company not paying creditors on time; the company being sued in collection matters; the company experiencing a significant event that is not expected to reoccur; the company's bank or secured lender threatening to shut down business operations; a union threatening some type of action against the company; a major supplier threatening to terminate services to the company; the company not being able to perform its contracts on time or at all;

According to Jahur and Quadir (2012), the most common causes of financial distress and business failure are frequently a complex combination of problems and symptoms. Capital inadequacy, where the business did not start with enough capital and has struggled since day

one, is one of the most significant causes of financial distress in young companies. In any business, capital serves as a means of absorbing losses. It acts as a buffer against unexpected losses that are not covered by the current earning pattern (Adeyemi, 2012).

Where other companies have undertaken management succession planning for key roles and identified high potential s in their company's employee's, usually firms in financial distress do not prepare at all for top management succession (Galloway & Jones, 2006). This could lead to recruiting unbalanced management team which lack essential skills to steer the company ahead. Any wrong investment decision made may plunge the company to financial distress since some of the decision s involve huge cash outlay and irreversible.

The importance of innovation to a firms' future has been documented extensively, though the level of risk associated with innovation has been examined to a small degree (Chao, Lipson & Loutskina, 2012). The probability that innovation will drive a firm to financial distress is high especially where the competitors introduces innovative and competitive products which reduces the attractiveness of the company's products and services (Jahur & Quadir, 2012). Therefore, innovation can either give a firm a competitive edge to its rivals or will see its demise equally.

In each of these instances, the companies were successful before an operational event or unheeded signal led to financial problem and in some cases the subsequent failure of the company. In other countries, the business that were able to recognize earlier warning signs such as Zellers, Canadians Tire and The Bay have survived by diffentiating themselves or changing and improving their business model (Zwaig & Pickett, 2012).

Kipruto (2013) adopted the Multivariant Discriminant Analysis (MDA) statistical technique as used by Altman. He was concerned with testing the validity of Altman's model for predicting financial distress in Uchumi supermarkets. He found out that the model was a good predictor of financial distress. The company recorded 21 declining Zscore values indicating that it was experiencing financial distress and hence the reason for its delisting from the NSE in 2006.

Memba and Job (2013) in their study on causes of financial distress in firms financed by ICDC Kenya established that financial distress was largely caused endogenous factors. They identified a number of these factors, the key ones' poor corporate governance coupled by weak internal control systems. Other factors included improper use of resources, inappropriate capital structure, difficulties in accessing affordable credit, shortage of capital and poor human resources policies and practices leading to unwarranted legal battles. Their

findings were in tandem with the findings of Tan (2012) on financial distress of companies in Asia.

2.5. Research gap

Existing research indicates that financial distress has a strong positive relationship with return on equity, and thus firm value. In addition, there is a growing debate over whether poor performance and value loss in financially distressed institutions are caused by the financial distress situation itself or by other factors that must be isolated. The question of whether market pricing of distress risk is adequate also arises, and it is against this backdrop that this study seeks to investigate the effects of financial distress on the value of firms listed on the RSE.

2.6. Conceptual framework

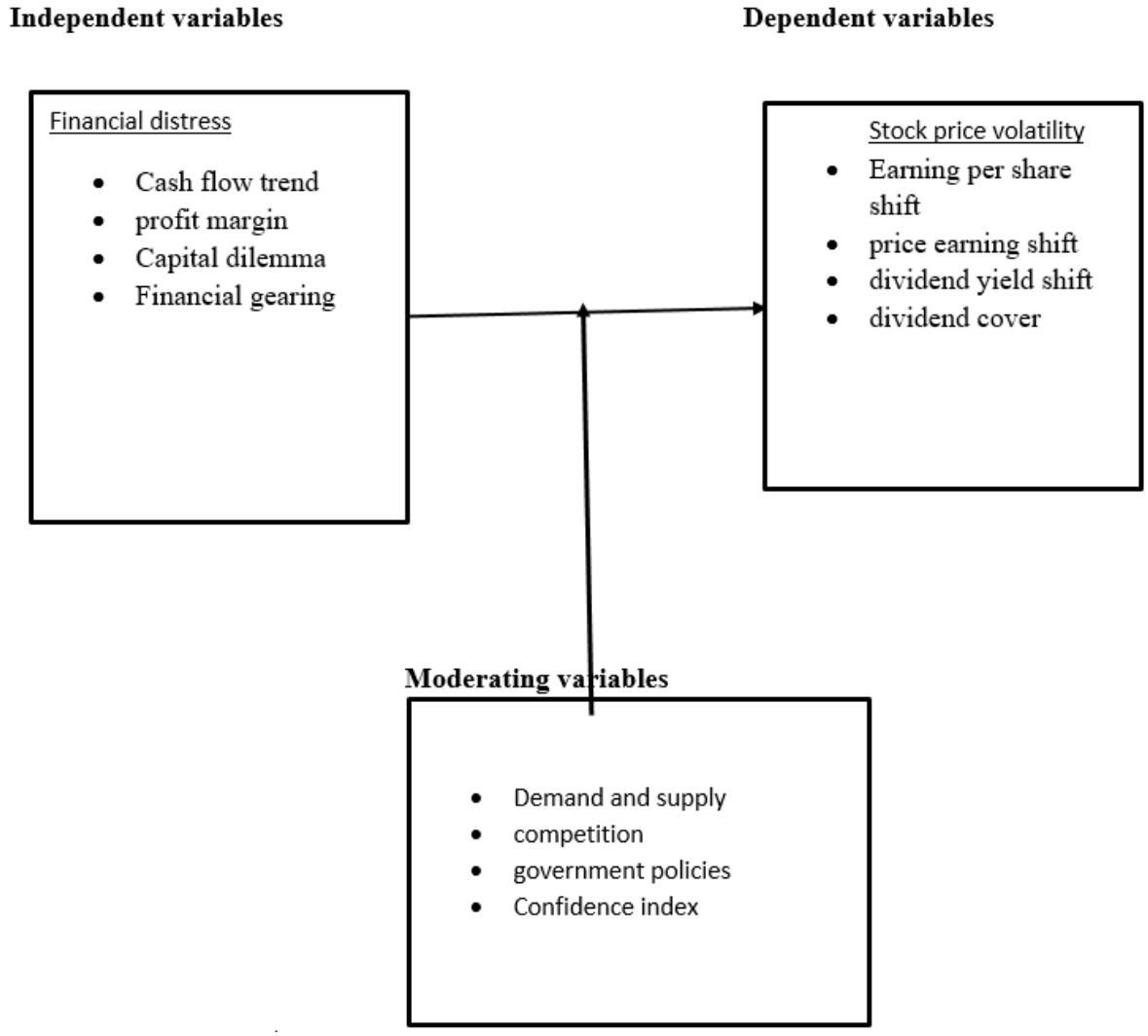

Figure 1:Conceptual framework, primary data 2022

The diagram above depicts three variables. The independent variable is financial distress, which manifests itself as cash flow, profit margin, capital dilemma, and financial gearing, while the dependent variable is stock price volatility, manifested as a shift in earnings per share, price earning, dividend per share, and dividend cover. In this study, the moderating variable is the company characteristics, which include the company's size, maturity level, industry in which it operates, and flexibility in changing its business. Our moderating variable will be based on demand and supply, market competition, government policies, and the confidence index.

CHAPTER 3. METHODOLOGY

It is common and usually possible to categorize a research methodology in educational research or study as descriptive, explanatory, or exploratory; thus, descriptive explanatory research will be used in this study. The quantitative research method will be used as data in this study because it allows for theories and hypotheses and can collect large amounts of data required to answer the research questions.

3.1 Research Methods

This study will examine and predict the financial distress of companies, as well as the causal relationship of the variables. The purpose of the research is to prove the hypothesis, test it using the Altman Z-score method, and perform regression analysis using SPSS software V.22. This study used a quantitative strategy because it emphasizes quantification in data collection and analysis and used a deductive approach, which is appropriate for quantification in data collection and analysis. Furthermore, the correlational research design will be chosen because it establishes the relationship between the variables under investigation.

3.2. Population

In this study, the population consists of manufacturing companies listed on the Rwanda Stock Exchange. Assuming that this research focuses on publicly traded manufacturing companies, it can provide interesting results to further develop deeper, and decisions and actions can be taken in anticipation of dealing with potential financial distress.

3.3. Samples and Sampling Techniques

The method used is purposive sampling method, the research that has the purpose or specific targets in selecting a random sample based on the criteria.

The sampling criteria used by researchers are as follows:

1. Listed manufacturing companies in the Rwanda Stock Exchange.
2. Companies that have a complete financial statement data and published research that is active during the period of 2011 until 2021.
3. Companies that have information for variables used in this study.

Here's a list of listed manufacturing company will be used as a sample and meet the criteria in this study.

-Bralirwa

3.4. Data Collection Methods

3.4.1 Data Collection Instruments

The data for this study gathered through a review of various articles, papers, and previous studies. In addition, financial statements published by companies for the period 2011-2021 will be another source of data. Bralirwa's financial statements are available in print as well as on the websites of the respective companies.

The research was obtained the audited financial statements for the ten periods (2011,2012,2013,2014,2015,2016,2017, 2018, 2019,2020, and 2021) of Bralirwa from the Rwanda Stock Exchange website as well as the company published documents as part of the research procedure. Financial information for financial ratios was derived from these firms' financial statements, which will then be summarized and processed to produce comparative financial ratios for use in the analysis phase.

3.4.2 Reliability and Validity

The term "reliability" refers to the random error in measurement. The accuracy or precision of the measuring instrument is indicated by its reliability.

The researcher used the test-retest reliability technique with a supervisor who is an expert in the domain to provide validity.

This allowed the researcher to address any errors or irregularities that may have arisen during the research process.

Mugenda and Mugenda (1999) define validity of results as a degree to which results obtained from the analysis actually represent the variables of study. Thus, validity refers to whether the findings accurately reflect the situation and are supported by evidence. Validity is established by correlating the scores with a similar instrument. The researcher collected data from respondents who work in the planning department using the content validity technique, with items on the questionnaire related to the construct being measured.

3.5. Data Analysis Procedure

This study will analyze the financial statements of the firms included in the study and this will be the main source of data. The collected data will be tabularized after coding and editing, then financial ratios calculated. Also multiple regression analysis, test with ALTAM Z-SCORE method will be conducted so as to establish the relation between the variables. The analysis will be done by SPSS version 22.0. Where some test will be tested:

1.Autocorrelation test

Detection of autocorrelation according to Santoso (2002) can be seen in figures DW (Durbin-Watson) with the following criteria:

DW Figures below -2 means that there is positive autocorrelation.

DW Figures between -2 to +2, meaning there is no autocorrelation.

DW Figures above the +2 means that there is a negative autocorrelation.

2. Heteroskidastity-test

Tests conducted using Glejser -test heteroscedasticity symptoms with the following steps:

a. Finding the residual unstandardized dependent variable absolute value.

b. Regress the absolute value then returned to the independent variables.

c. From the results obtained by regression of this views the partial significant value. If there's nothing significant, then it can be concluded, there are no heteroscedasticity symptoms on the multiregress.

3.multicollinerality test: VIF (Variance Inflation Factor) was used to calculate multicollinearity tests (Gujarati, 1995; 339). The criteria of value VIF 10 and Tolerance Values approaching fulfilled the non-multicollinearity assumption (Santoso, 2002:206).

3.**correlation test**: A (Pearson) correlation is a number between -1 and +1 that indicates how closely two quantitative variables are related linearly.

4.**coefficient of determinant test**: a measure that assesses the ability of a model to predict or explain an outcome in the linear regression setting

5.create regression model: To test the hypothesis, the following regression model is established**.** $Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

where:

Y = stock price volatility

β_o **= Constant**

β1-β4 Regression Coefficient (cash flow, profit margin, capital dilemma, financial gearing)

X1 = Earnings per share

X2 = Price earning

X3 = dividend yield

X4 = dividend cover

3.6. Ethical Consideration

The researcher sought permission from the offices concerned in the firms at the start of data collection and requested authorization for the research to proceed with data collection. All materials used were referenced so that the author could be identified. No data collected will be used for purposes other than academic research.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS DISCUSSION

4.0 Introduction

This chapter analyzes the research findings and presents them. Interpretations are provided after each table where necessary, always taking into account the initial secondary data from Bralirwa plc's financial statements.

The analysis was carried out to determine the financial distress issue with a publicly traded manufacturing company by evaluating its ability to cover day-to-day financial requests and when they become due, as well as its relationship to share price volatility. Computation of financial distress were as followed:

a) X1: management the working capital and total assets

The research revealed liquidity issues, with current liabilities exceeding current assets and no financial resources to assist Bralirwa plc in daily operations.

Table 1: X1 : The working capital and total assets

period	WC	total asset	ratio	1.2*ratio
2011	-1,531,408	49,889,793	-0.03	-0.04
2012	-7,098,943	74,526,830	-0.1	-0.11
2013	-12,473,072	91,536,816	-0.14	-0.16
2014	-20,495,696	107,184,231	-0.19	-0.23
2015	-26,776,677	122,882,563	-0.22	-0.26
2016	-23,641,754	131,740,315	-0.18	-0.22
2017	-17,108,686	127,728,532	-0.13	-0.16
2018	-53,872,210	134,801,291	-0.4	-0.48
2019	-30,923,385	121,741,195	-0.25	-0.3
2020	-30,866,206	127,270,756	-0.24	-0.29
2021	-22,449,816	116,407,878	-0.19	-0.23

Table 1:The working capital and total assets ,primary data ,2022

The decrease in the ratio resulted from a greater increase in total short-term liabilities than in total assets. The low ratio results from the comparison of cumulative liabilities (current) to liquid cash obtained from sales made during the period. Failure to maintain sufficient liquidity levels as a result of increased liabilities will result in failure to meet their short-term obligations.

b) X2: retained earnings and total asset

It is the company's remaining net income after dividends have been paid to shareholders (Chasan, 2012). The analysis was carried out to determine Bralirwa plc's ability to fund its shareholders in order for them to receive dividends when they occur.

Table2: X2: retained earnings to total asset

PERIOD	RE	TA	RATIO	1.4*ratio
2011	17,006,748	49,889,793	0.34	0.48
2012	27,342,019	74,526,830	0.37	0.51
2013	32,515,256	91,536,816	0.36	0.5
2014	33,414,271	107,184,231	0.31	0.44
2015	28,083,516	122,882,563	0.23	0.32
2016	24,338,553	131,740,315	0.18	0.26
2017	28,391,226	127,728,532	0.22	0.31
2018	31,776,519	134,801,291	0.24	0.33
2019	27,311,205	121,741,195	0.22	0.31
2020	35,287,839	127,270,756	0.28	0.39
2021	43,812,566	116,407,878	0.38	0.53

Table 2: X2: retained earnings to total asset ,primary data 2022

Table 2 showed that the retained earnings for the 11 years are lower compared to total assets. Bralirwa plc relies on debt, or leverage. Bralirwa plc funded its assets by borrowing instead of through retained earnings which, again, increases the risk of bankruptcy.

c)X3: EBIT to total asset

Bralirwa plc's ability to generate cash from operations was assessed over an 11-year period.

The investigation was conducted to determine how Bralirwa generated revenue from the capital invested in assets.

Table3: X3: EBIT to total asset

period	EBIT	TA	ratio	3.3*ratio
2011	20,224,555	49,889,793	0.41	1.34
2012	24,861,282	74,526,830	0.33	1.1
2013	21,320,469	91,536,816	0.23	0.77
2014	18,769,824	107,184,231	0.18	0.58
2015	8,251,641	122,882,563	0.07	0.22
2016	2,665,782	131,740,315	0.02	0.07
2017	7,709,373	127,728,532	0.06	0.2
2018	10,346,166	134,801,291	0.08	0.25
2019	2,878,987	121,741,195	0.02	0.08
2020	12,993,979	127,270,756	0.1	0.34
2021	25,624,295	116,407,878	0.22	0.73

Table 3:X3: EBIT to total asset, primary 2022

Table 3 showed that the EBIT for the 11 years are lower compared to total assets. The Bralirwa plcs are not performing well by comparing the profit (net income) it is generating to the capital it invested in assets.

d)X5: Equity market to total liabilities

To determine the level at which the value of the Bralirwa's assets can decline before the liabilities exceed the assets and the Bralirwa becomes insolvent, the ratio of stockholder investment in the Bralirwa to total liabilities was used.

Table4.: X4: Equity market to total liabilities

PERIOD	MV	TL	RATIO	0.6*ratio
2011	19,677,880	30,211,913	0.65	0.39
2012	30,013,151	44,513,679	0.67	0.4
2013	35,186,388	56,350,428	0.62	0.37
2014	40,714,271	66,469,960	0.61	0.37
2015	35,383,213	87,499,350	0.4	0.24
2016	31,638,250	100,102,065	0.32	0.19
2017	35,690,923	92,037,609	0.39	0.23
2018	39,076,216	95,725,075	0.41	0.24
2019	34,610,902	87,130,293	0.4	0.24
2020	42,587,536	84,683,220	0.5	0.3
2021	51,112,263	65,295,615	0.78	0.47

Table 4: X4: Equity market to total liabilities ,primary data 2022

Table 4 shows that the MV of equity is lower over the 11 years when compared to total liabilities. The amount by which the value of the Bralirwa's assets can decline before the liabilities exceed the assets and the bralirwa becomes insolvent.

e) X5: net asset and total asset

Asset turnover refers to the extent to which assets are used to maximize revenue generation. The analysis was carried out to determine the efficiency with which Bralirwa plc's assets generate revenue.

Table5: X5: net asset and total asset

PERIOD	NET SALES	TA	RATIO	1*ratio
2011	64,958,343	49,889,793	1.3	1.3
2012	76,978,565	74,526,830	1.03	1.03
2013	78,503,492	91,536,816	0.86	0.86
2014	79,238,392	107,184,231	0.74	0.74
2015	84,087,746	122,882,563	0.68	0.68
2016	88,798,803	131,740,315	0.67	0.67
2017	86,353,934	127,728,532	0.68	0.68
2018	96,953,763	134,801,291	0.72	0.72
2019	100,691,220	121,741,195	0.83	0.83
2020	100,520,707	127,270,756	0.79	0.79
2021	123,596,476	116,407,878	1.06	1.06

Table 5: X5: net asset and total asset, primary data 2022

Table 5 shows that sales for certain years are lower than total assets for the previous 11 years.Because Bralirwa's management did not effectively manage variable costs and other expenses that were meant to maximize revenues, the asset turnover ratios obtained are indicators of bankruptcy. Cash flow issues are strong indicators that Bralirwa will fail.

f) Analysis of financial distress with z.score altman

The application of Z-Score model revealed that there is a highly likelihood that the bankruptcy will occur because Z-Score in certain years is below 1.8 for Bralirwa under study for 11years.

To obtain the value Z "-score on Altman models namely by adding the coefficient of 1.2 multiplied by the working capital to total assets (X1) coupled with a coefficient of 1.4 times the retained earnings to total assets (X2) coupled with a coefficient of 3.3 times the EBIT to total assets (X3) coupled with a coefficient of 1.6 times the book value of equity to book value of debt (X4) coupled with a coefficient of 1 times the net sales to total asset (X5).

Table 6. financial distress with z.score altman

PERIOD	x1	x2	x3	x4	x5	total	zone
2011	-0.04	0.48	1.34	0.8	1.3	3.88	safe
2012	-0.11	0.51	1.1	0.66	1.03	3.19	safe
2013	-0.16	0.5	0.77	0.46	0.86	2.42	safe
2014	-0.23	0.44	0.58	0.35	0.74	1.87	safe
2015	-0.26	0.32	0.22	0.13	0.68	1.1	distress
2016	-0.22	0.26	0.07	0.04	0.67	0.82	distress
2017	-0.16	0.31	0.2	0.12	0.68	1.15	distress
2018	-0.48	0.33	0.25	0.15	0.72	0.97	distress
2019	-0.3	0.31	0.08	0.05	0.83	0.96	distress
2020	-0.29	0.39	0.34	0.2	0.79	1.43	distress
2021	-0.23	0.53	0.73	0.44	1.06	2.52	safe

Table 6:financial distress with z.score altman, primary data 2022

This shows that at certain years Bralirwa had face financial distress. Table calculation of Altman Z "-Score as follows.

4.1. Panel Data Diagnostic Tests

To ensure that the data was suitable for analysis, panel data diagnostic tests were run. The primary goal of the tests was to see if the panel data selected met the basic requirements for regression analysis. Normality, multicollinearity, autocorrelation, and heteroscedasticity were the only tests used.

4.1.1 Normality test

Normality was determined using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The null hypothesis, which states that the disturbances are not normally distributed, was examined in the study. The null hypothesis of normality was rejected at the 5% level if the p-value was less than 0.05.

Table 7 Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CASHFLOW	.295	11	.003	.808	11	.011
EPS	.141	11	.02*	.945	11	.017
capital dilemma	.111	11	.01*	.966	11	.041
D/Y	.184	11	.04*	.903	11	.002
gearing	.194	11	.020*	.921	11	.028
dividend cover	.282	11	.015	.796	11	.003
profit margin	.179	11	.02*	.938	11	.049
P/E	.317	11	.003	.792	11	.004

Table 7:Tests of Normality, primary data 2022

The results from Table 7 shows that the data was normally distributed as the respective p values for all variables were less than 0.05.

4.1.2 Multicollinearity test

The variance inflation factors were used in this study to assess multicollinearity (VIF). VIF values greater than 10 indicate the presence of Multicollinearity, according to Katrutsa and Strijov (2017). Multicollinearity inflates standard errors and confidence intervals, resulting in unstable coefficient estimates for individual predictors.

Table 8 Tests of Multicollinearity test

Model	Collinearity Statistics	
	Tolerance	VIF
CASHFLOW	.626	1.597
capital dilemma	.344	2.909
gearing	.259	3.859
profit margin	.161	6.196

Table 8:Tests of Multicollinearity test,primary data 2022

The results in Table 8 indicated absence of multicollinearity since the VIF of all the variables were less than 10. This implies that the independent variables in this study namely cashflow

trend,profit margin, capital dilemma, financial gearing are not correlate.

4.1.3 Autocorrelation test

The study employed the Durbin Waston test for autocorrelation to detect the existence of autocorrelation in the data, that is, whether the residual is serially correlated over time. The Durbin-Watson tests produces a test statistic that ranges from 0 to 4. Values close to 2 (the middle of the range) suggest less autocorrelation, and values closer to 0 or 4 indicate greater positive or negative autocorrelation respectively.

Table 9.Autocorrelation test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.906[a]	.822	.703	131.321	1.813

Table 9:Autocorrelation test, primary data 2022

The benchmarking is that if Durbin Waston (p value) is =2 there is no correlation;>2 negative correlations;<2 there is positive correlation. Hence in our study, A **rule of thumb** is that test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern. In the present study, DW test is 1.8 implying that there is relatively no autocorrelation among residuals.

4.1.4 Heteroscedasticity test

The research tested for panel level heteroscedasticity employing the Likelihood Ratio (LR) as shown in Table 10. The null hypothesis was that the error variance was homoscedastic. F Test for heteroscedasticity under the assumption that the errors are independent and identically distributed. You can perform the test using the fitted values of the model, the predictors in the model and a subset of the independent variables.

Table 10. Heteroscedasticity test

Model	Correlations

		Zero-order	Partial	Part
1	CASHFLOW	.060	.731	.452
	capital dilemma	.585	.222	.096
	gearing	.500	.225	.097
	profit margin	.747	.790	.544

Table 10:heteroskedasticity test ,primary data 2022

The ratio of largest variance to the smallest variance is 1.5 or below, the data is homoscedastic. In our case, from part, partial and zero order ratios are indicative of values below 1.5 implying the absence of heteroskedasticity in the data as indicated by Poi and Wiggins (2011).

4.1.5. Correlation coefficient between financial distress and stock price volatility of Bralirwa

Positive correlation means any increase in explanatory variable causes increase in stock prices and decrease in explanatory variables causes decrease in stock prices similarly in case of negative correlation it is vice versa i.e. increase in explanatory variable causes decrease in stock prices.

		z-score	share price
z-score	Pearson Correlation	1	.573
	Sig. (2-tailed)		.066
	N	11	11
share price	Pearson Correlation	.573	1
	Sig. (2-tailed)	.066	
	N	11	11

Table 11:table of correlation, Primary source2022

The Table 11 is about inferential statistics, where Pearson Correlation was used to indicate whether there is or not Relationship between financial distress and stock volatility of Brwalirwa.The findings from the table presented above prove that the correlation coefficient between financial distress, stock price volatility of Bwalirwa is 0.573 that is greater than the significance level (0.01), and it is a positive high correlation. Since that the coefficient of

correlation is greater than the level of significance (0.573>0.01), this research concludes that there is a relationship between financial distress on stock price volatility. Hence the research concludes that financial distress had impacted positively the stock price volatility of Bralirwa.

4.2. Descriptive statistical on effect of financial distress on stock price volatility of Bralirwa

a) **First objective to find out the effect of cash flow trend on earning per share shift in Bralirwa plc**

Bralirwa actively manages its intraday liquidity positions, cash flow trend (μ = 0.455; STD=0.2382), and earnings per share change (μ = 9.645; STD=6.0169). This was done to demonstrate how the reaction of earnings per share on cash flow trended upwards and downwards.

Table12. Descriptive Statistics on effect of cashflow trend on earning per share shift in Bralirwa plc

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
CASHFLOW	11	.2	.9	.455	.0718	.2382	.057
EPS	11	1.2	18.5	9.645	1.8142	6.0169	36.203
Valid N	11						

Table 12: effect of cash flow trend on earning per share **,Primary source2022**

b) Second objective to investigate the effect of profit margin on price earning shift in Bralirwa plc

Bralirwa actively manages its reputation in order to maintain a level of profit that will attract shareholders and lead to an increase in price earning. Profit margin change (μ = 0.117; STD=0.805575) and shift in earnings per share (μ = 42.60; STD=36.462) are statistically significant.

Table13. Descriptive Statistics on effect of profit margin on price earning shift in Bralirwa plc

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
profit margin	11	.0118	.2472	.117182	.0242890	.0805575	.006
P/E	11	7.3953	119.9603	42.600998	10.9938382	36.4624363	1329.509
Valid N	11						

Table 13:effect of profit margin on price earning ,primary data 2022

c. Third objective to explore the effect of capital dilemma on dividend yields shift in Bralirwa plc

Bralirwa capital dilemma, where delay or fasting in decision can ruin proper time of right investment either to idle financials or unnecessary investment, or dilemma of shareholder on aware of proper situation, statistically lead to this, capital dilemma (μ = 0.2 STD=0.12649) and dividend yield shift (μ = 0.009; STD=0.3015).

Table14. Descriptive Statistics on effect of capital dilemma on dividend yield shift in Bralirwa plc

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
capital dilemma	11	.00	.40	.2000	.03814	.12649	.016
D/Y	11	.00	.10	.0091	.00909	.03015	.001
Valid N	11						

Table 14:effect of capital dilemma on dividend yield, primary data 2022

d) Fourth objectives to determine the effect of financial gearing on dividend cover in Bralirwa plc

Bralirwa chose a capital structure in which the lability was high to asset in most of the 11 years, indicating that Bralirwa is gearing financially and statistically shows, financial gearing (μ = 2.009 STD=0.5941) and shift in dividend cover (μ = 1.809; STD=1.1606).

Table15. Descriptive Statistics on effect of financial gearing on dividend cover shift in Bralirwa plc

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
gearing	11	1.3	3.2	2.009	.1791	.5941	.353
dividend cover	11	.3	4.9	1.809	.3499	1.1606	1.347
Valid N	11						

Table 15:effect of financial gearing on dividend cover ,primary data 2022

4.3. Regression Analysis for the financial distress on stock price volatility of manufacturing industries

This section presents the model summary, analysis of variance and the model coefficients.

4.3.1. Results on the effect of cash flow trend on earning per share shift in Bralirwa plc

Table 16: Model Summary on effect of cash flow trend on earning per share shift in Bralirwa plc

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.679[a]	.662	.602	.1680309

Table 16:Model Summary on effect of cash flow trend on earning per share, primary 2022

Results in Table 16 revealed that 60.2% of the changes in earning per share of financial of Bralirwa can be accounted for by cash flow trend management while the remaining percentage can be accounted for by other factors excluded in the model. The standard error which measures the precision within which the regression coefficient is measured is quite low at only 0.16 signaling a high reliability of the data points.

Table 17: Analysis of Variance on effect of cash flow trend on earning per share shift in Bralirwa plc.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.218	1	.218	7.718	.021[b]
	Residual	.254	9	.028		
	Total	.472	10			

Table 17:regressionof cash flow earning per share , primary data 2022

Analysis of variance results in Table 17 revealed that earning per share of financial of Bralirwa (F= 7.718, p value <0.05).

From the results above, the overall test for the null hypothesis, indicated by F-statistics of 7.718 and the significance associated with P-value of 0.021. Since the significance associated with P-value of 0.021 is lower than 0.05, then we reject the null hypothesis and statistically conform that the results are free from random occurrence. This implies that the cash flows trends impact the earning per share.

Table 18: Regression Coefficient on on effect of cash flow trend on earning per share shift in Bralirwa PLC

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.220	.099		2.218	.045
	EPS	.024	.009	.679	2.778	.021

Table 18:Regression Coefficient on effect of cash flow trend on earning per share ,2022

Regression coefficients results in Table 18 revealed that there was a positive and significant relation (β= 0.024, p value <0.05). Therefore, the cash flow are very important factors in the earning per share.

The bivariate model was derived as shown below: $Y= 0.220 +0.024 X_1 + €$

Where Y = Earnings per share, X_1 = cash flow, € = Error Term

This means that a unit change in cash flow trends leads to 0.024 units changes in earning per share in Bralirwa Plc with 0.220 constant.

4.3.2. Results on effect of profit margin on price earning shift in Bralirwa plc

Table 19: Model Summary on effect of profit margin on price earning shift in Bralirwa plc

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.493[a]	.653	.619	.0378570

Table 19:Model Summary on effect of profit margin on price earning ,primary data 2022

Results in Table 19 revealed that 61.9% of the changes in price earning of financial Bralirwa plc can be accounted for by margin profit while the remaining percentage can be accounted for by other factors excluded in the model. The standard error which measures the precision within which the regression coefficient is measured is quite low at only 0.03 signaling a high reliability of the data points.

Table 20: Analysis of Variance on effect of profit margin on price earning shift in Bralirwa plc

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.016	1	.016	2.897	.0123[b]
	Residual	.049	9	.005		
	Total	.065	10			

Table 20:Analysis of Variance on effect of profit margin on price earning ,primary data 2022

Analysis of variance results in Table 20 revealed that capital adequacy had significant effect on the profitability of financial Bralirwa plc(F= 2.897, From the results above, the overall test for the null hypothesis, indicated by F-statistics of 2.897 and the significance associated with P-value of 0.0123 (shown by column labelled “Significance – F”) indicate the existence of a

strong relationship between the variables. Since the significance associated with P-value of 0.0123 is lower than 0.05 (the confidence level assumed for this study), then we reject the null hypothesis and statistically conform that the results are free from random occurrence. This implies that the profit margin effects the price earning.

Table 21 Regression Coefficient on effect of profit margin on price earning.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.164	.035		4.646	.001
	P/E	.001	.001	.493	1.702	.0123

Table 21:Regression Coefficient on effect of capital adequacy on profitability of financial cooperatives. Primary data,2022

Regression coefficients results in Table 21 revealed that there was a negative and significant relationship between profit margin and price earning of financial Bralirwa plc (β= 0.001, p value <0.05)

The bivariate model was derived as shown below: $Y= 0.164 +0.001X_1 + €$

Where Y = price earning, X_1 = profit margin, € = Error Term

This means that a unit change in profit margin leads to 0.001 units changes in price earning in Bralirwa Plc with 0.164 constant

4.3.3. Results on effect of capital dilemma on dividend yields shift in Bralirwa plc

Table 22 Model Summary on effect of capital dilemma on dividend yields shift in Bralirwa plc

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.119[a]	.97	0.95	.02084

Results in Table 22 revealed that 95% of the changes in dividend yield of Bralirwa plc can be accounted for by capital dilemma while the remaining percentage can be accounted for by other factors excluded in the model. The standard error which measures the precision within which the regression coefficient is measured is quite low at only 0.02 signaling a high reliability of the data points.

Table 23: Analysis of Variance on effect of capital dilemma on dividend yields shift in Bralirwa plc

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.130	.0277[b]
	Residual	.004	9	.000		
	Total	.004	10			

Table 22:Analysis of Variance on effect of capital dilemma on dividend yields, primary data 2022

Analysis of variance results in Table 23 revealed that capital dilemma had significant effect on the dividend yield of financial Bralirwa (F= 0.13, p value0.0277 <0.05). From the results above, the overall test for the null hypothesis, indicated by F-statistics of 0.13 and the significance associated with P-value of 0.0277 (shown by column labelled “Significance – F”) indicate the existence of a strong relationship between the variables. Since the significance associated with P-value of 0.0277 is lower than 0.05 (the confidence level assumed for this study), then we reject the null hypothesis and statistically conform that the results are free from random occurrence. This implies that the capital dilemma effects the dividend yield.

Table 24: Regression Coefficient on effect of capital dilemma on dividend yields shift in Bralirwa plc

odel		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.024	.012		2.008	.016
	capital dilemma	.019	.052	.119	.360	.027

Source: Primary data, 2022

Table 23:Regression Coefficient on effect of capital dilemma on dividend yields ,primary data ,2022

Regression coefficients results in Table 24 revealed that there was a positive and significant relationship between capital dilemma and dividend yield (β= 0.019, p value <0.05).

The bivariate model was derived as shown below: $Y= 0.024+0.19X_1 + €$

Where Y = dividend yield, X_1 = capital dilemma, € = Error Term

This means that a unit change in capital dilemma leads to 0.019 units changes in dividend yield in Bralirwa Plc with 0.024 constant

4.3.4. Results on effect of financial gearing on dividend cover in Bralirwa plc

Table 25 summary on effect of financial gearing on dividend cover in Bralirwa plc

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.035[a]	.85	.750	1.22259

Source: Primary data, 2022

Table 24:summary on effect of financial gearing on dividend cover, primary data 2022

Results in Table 25 revealed that 75% of the changes in dividend cover of Bralirwa plc can be accounted for by financial gearing while the remaining percentage can be accounted for by other factors excluded in the model. The standard error which measures the precision within which the regression coefficient is measured is quite low at only 1.22 signaling a high reliability of the data points

Table 26: Analysis of Variance on effect of financial gearing on dividend cover in Bralirwa Plc

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.016	1	.016	.011	.0419[b]
	Residual	13.453	9	1.495		
	Total	13.469	10			

Table 25:Analysis of Variance on effect of financial gearing on dividend cover ,primary data 2022

Analysis of variance results in Table 26 revealed that capital dilemma had significant effect on the dividend yield of financial Bralirwa (F= 0.11, p value 0.0419 <0.05). From the results above, the overall test for the null hypothesis, indicated by F-statistics of 0.11 and the significance associated with P-value of 0.0419 (shown by column labelled “Significance – F”) indicate the existence of a strong relationship between the variables. Since the significance associated with P-value of 0.0419 is lower than 0.05 (the confidence level assumed for this study), then we reject the null hypothesis and statistically conform that the results are free from random occurrence. This implies that the financial gearing effect the dividend cover.

Table 27: Regression Coefficient on effect of financial gearing on dividend cover in Bralirwa Plc

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.946	1.358		1.433	.0186
	gearing	.068	.651	-.035	-.105	.0419

Table 26:Regression Coefficient on effect of financial gearing on dividend cover ,primary data,2022

Regression coefficients results in Table 27 revealed that there was a positive and significant relationship between financial gearing to dividend cover (β= .068, p value <0.05).

The bivariate model was derived as shown below: $Y= 1.946+0.68X_1 + €$

Where Y = dividend cover, X_1 = financial gearing, € = Error Term

This means that a unit change in financial gearing leads to 0.68units changes in dividend cover in Bralirwa Plc with 1.946 constant**Table 28. ANOVA TABLE**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	476887.494	4	119221.874	6.913	.020[b]
	Residual	103470.688	6	17245.115		
	Total	580358.182	10			

The table 28 Analysis of variance, the processed data which is the financial statement, had a significance level of 0% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. This is an indication that cash flow trend, profit margin, capital dilemma, financial gearing and family characteristics significantly influence stock price volatility of Bralirwa Plc.

Table 29: Regression model on price volatilities of Bralirwa Plc

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.007	6.903		.039	.020
	CASHFLOW	3.997	1.541	.572	2.625	.039
	capital dilemma	5.795	5.043	.164	.557	.001
	profit margin	8.314	3.140	1.354	3.155	.020
	gearing	8.187	138.468	.191	.565	.033

The table 29 give the individual regression model coefficients in a combined model on extent to which dependent variable as stock price volatility is influenced by cash flow trend, profit margin, capital dilemma and financial gearing.

The established regression equation was $Y= \beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_{4+}\varepsilon_i$

Where Y = dependent variables, β_0 = a constant; $\beta_1,\beta_2,\beta_3, \beta_4$= coefficients

X_1, X_2, $X_{3,X4}$= independent variables and ε_i= error term

$Y=16{,}007+ 3.997x_1+ 5.795x_2+ 8.314x_3+8.187x_4+ \varepsilon_i.$

Where: X_1: cash flow, X_2: profit margin, X_3: capital dilemma, X_4 financial gearing and ε_i= error term. The regression analysis implies that a unit change in cash flow trends leads to 3.997units ;change in capital dilemma lead to5.795, change in profit margin leads to 8.314 units; change in financial gearing leads to 8.187 units to change of stock price volatility with constant of 16.007

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

This is the final chapter of the study, and it contains a summary of the findings, a conclusion, and recommendations related to the study. Aside from providing a comprehensive overview of the research findings, the conclusion assists in determining whether or not the study's specific objectives were met.

5.1 Summary of findings

The findings are in line with the specific objectives summarizing the effect of financial distress on stock price volatility in listed manufacturing companies where a focus is on Bralirwa Plc

5.1.1 Objective One: To find out the effect of cash flow trend on earning per share shift in Bralirwa plc

The first objective of the study sought to find out the effect of cash flow trend on earning per share shift on bralirwa plc.Where by the ratio were calculated cash flow rend calculated based on cash from operation to current liabilities and earning per share were calculated based on profit attributed on number shares.

Results revealed that 60.2% of the changes in earning per share can be accounted for change in cashflow trend. Analysis of variance results revealed that cashflow trend had significant effect on earnings per share of financial Bralirwa ($F= 7.718$, p value <0.05). Regression coefficients results revealed that there was a positive and significant relationship between cashflow and earning per share *(*$\beta= 0.024$, p value <0.05). The cash flow trend indicators were found to be statistically significant in explaining the effect of cash flow trend on earning per share shift in Bralirwa plc

5.1.2 Objective Two: To investigate the effect of profit margin on price earning shift in Bralirwa plc

The second objective of the study sought to investigate the effect of profit margin on price earning shift in Bralirwa plc. Where by the ratio were calculated profit margin calculated

based profit to revenue and price earning were calculated based on price to earning price share

Results revealed that 61.9% of the changes in price earning can be accounted for change in profit margin change . Analysis of variance results revealed that profit margin change had significant effect on price earning of financial Bralirwa (F= 2.897, p value <0.05). Regression coefficients results revealed that there was a negative and significant relationship between profit margin and price earning *(*β= 0.001, p value <0.05). The profit margin change indicators were found to be statistically significant in explaining the effect of profit margin on price earning shift in Bralirwa plc

5.1.3 Objective Three: To explore the effect of capital dilemma on dividend yields shift in Bralirwa plc

The third objective of the study sought to explore the effect of capital dilemma on dividend yields shift in Bralirwa plc Where by the ratio were capital dilemma calculated dividend paid to retain earnings and dividend yield were calculated based on dividend per share to share price Results revealed that 95% of the changes in dividend yield can be accounted for change in capital dilemma . Analysis of variance results revealed that capital dilemmachange had significant effect on dividend yield of financial Bralirwa (F= 0.13, p value <0.05). Regression coefficients results revealed that there was a positive and significant relationship between capital dilemma and dividend yield *(*β= 0.019, p value <0.05). The capital dilemma change indicators were found to be statistically significant in explaining the effect of capital dilemma on dividend yields shift in Bralirwa plc

5.1.4 Objective four: To determine the effect of financial gearing on dividend cover in Bralirwa plc

The fourth objective of the study sought to determine the effect of financial gearing on dividend cover in Bralirwa plc where by the ratio were financial gearing calculated debt to equity and dividend cover were calculated based profit after tax to total dividend paid

Results revealed that 75% of the changes in dividend cover can be accounted for change in financial gearing. Analysis of variance results revealed that financial gearing change had significant effect on dividend cover of financial Bralirwa (F= 0.011, p value <0.05). Regression coefficients results revealed that there was a positive and significant relationship between capital dilemma and dividend yield *(*β= 0.001, p value <0.05). The financial gearing

change indicators were found to be statistically significant in explaining the effect of financial gearing on dividend cover in Bralirwa plc .

5.2 Conclusion

The assessed financial distress includes cash flow trend, profit margin change, capital dilemma and financial gearing to stock price volatility include shift in earning per share, price earning, dividend yield and dividend cover. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that all the independent variables were statistically significant and thus in position to make conclusion for the study. From the findings on the coefficient of determination, the study found that there was great variation in cash flow trend, profit margin change, capital dilemma and financial gearing to stock price volatility include shift in earning per share, price earning, dividend yield and dividend cover at 95% confidence interval. This clearly shows that there is a positive relationship between financial distress to stock price volatility.

5.3. Recommendations

The recommendations were based on the objectives of the study, that is between financial distress to stock price volatility in listed manufacturing companies.

The study recommended that managers should be able to identify the status of their business either in safe or distress through acquisition of financial information that is relevant for them to make informed financial decisions relating to their businesses.

It is also recommended that financial of Bralirwa should improve their liquidity management. They should ensure that business operation should not rely on liabilities which increase level of gearing where the more the gearing the more the risks.

Based on the findings and conclusion, the study recommends for Bralirwa on thinking of adjust their capital structure and restructure to avoid fall into bankruptcy as figure or number with analysis of z-score and statistics either descriptive and inferential show that there is distress in 11 years mostly so restructure should be apply and some measure to mitigate financial distress should applied on time.

5.4. Area for further research

Further research should also be carried out to determine non-financial the factors and awareness of financial distress that affect the manufacturing industries in Rwanda

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