EFFECT OF COVID-19 ANNOUNCEMENT ON THE SHARE RETURNS OF MANUFACTURING AND ALLIED FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any institution or university other than the University of Nairobi for examination.

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This research project has been submitted for examination with my approval as the University Supervisors.

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This research project is dedicated first to God Almighty, for my strength, my wisdom and understanding. He has ensured that everything falls into place and works in my favour. I also dedicate this work to my family for their support, understanding, follow ups and encouragement. To my daughter Lesley Wangui Mwangi who has been affected in every way possible by this quest. Thank you. My love for you cannot be quantified.

DEDICATION

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LIST OF ABBREVIATIONS AND ACRONYMS

AR	Abnormal Returns
BOC	British Oxygen Company Ltd
CAR	Cumulative Abnormal Returns
CBK	Central Bank of Kenya
CMA	Capital Markets Authority
COVID-19	Coronavirus Disease 2019
GDP	Gross Domestic Product
HFCK	Housing Finance Company of Kenya
KAM	Kenya Association of Manufacturers
LSTM	Long Short Term Memory
NSE	Nairobi Securities Exchange
SARS	Severe Acute Respiratory Syndrome
UK	United Kingdom
UNIDO	United Nations Industrial Development Organization
US	United States

ABSTRACT

The outbreak and rapid spread of the COVID-19 pandemic and it rigorous containment measures implemented globally have rigorously affected the level of economic activities worldwide. The global manufacturing output dropped by 6%, 11.2%, and 1.1% in the first three quarters of 2020, respectively, with industrialized economies registering the biggest drop. In the East Asia however an estimated 0.2% growth in output was registered. In Kenya, the manufacturing industry has witnessed a drop in production due to the pandemic. The study sought to ascertain the effect of the Covid-19 outbreak on the stock returns of the Nairobi Securities Exchange's listed manufacturing and related companies. The Nairobi Securities Exchange identified nine manufacturing and allied firms, which contributed secondary data for this study. The study examined the stock returns of nine publicly listed manufacturing and associated companies ten days before and ten days after the President took the first actions to curb the virus's spread. T-tests were used to examine the impact on stock prices of the President's early actions to restrict the virus's spread. According to the survey, 62.5 percent of publicly traded manufacturing and affiliated firms (B.O.C Kenya Ltd, British American Tobacco Kenya Ltd, Eveready East Africa Ltd, Flame Tree Group Holdings Ltd, and Kenya Orchards Ltd) had a negative reaction to the Covid-19 pandemic declaration. As a result, 37.5 percent of publicly traded manufacturing and related firms (Carbacid Investments Ltd, East African Breweries Ltd, and Unga Group Ltd) responded favorably to the Covid-19 pandemic declaration. However, the investigation revealed that none of the abnormal returns were statistically significant and that none of the abnormal returns were more than 1 or less than -1, indicating that none of the investors benefited or lost abnormally as a consequence of the Covid-19 pandemic announcement. Additionally, the investigation discovered a considerable decline in the Cumulative Average Abnormal Returns on Manufacturing and Related Businesses listed on the Nairobi Securities Exchange. This indicates that the President's early attempts to halt the spread of the virus on 15 March 2020 had a cumulatively negative impact on the stock returns of manufacturing and affiliated enterprises listed on the Nairobi Securities Exchange. The report recommends that the Treasury, the capital markets regulator, the Capital Markets Authority (CMA), and the Nairobi Securities Exchange (NSE) take certain policy measures to avert a severe financial and economic disaster caused by the COVID-19 health crisis, other pandemics, and catastrophizes. The following policy actions are recommended: expand central bank liquidity support to ensure adequate liquidity to ensure the smooth operation of markets; provide immediate fiscal support to viable businesses; and assess the need to temporarily share fiscal burdens from businesses affected by the pandemic. Recommendations are also made to the financial analysts not to estimate market capitalization, and by extension, securities value, by relying on information resulting from pandemics. To be able to predict bear and bull markets, they should mostly perform due diligence and background check on their investment targets. Henceforth, this study will offer them immeasurable insights, which will help them when advising their clients. Consultants and listed firms practitioners should not mainly focus on information resulting from pandemics to time strategies like securities exchange listings, rights issues, and dividend pay-outs.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

COVID-19's quick spread and strong worldwide control measures have had a huge impact on global economic activities. By the onset of COVID-19, financial markets have been affected worldwide. Investors lost a significant deal of money in only a few days because of the pandemic's unprecedented danger. This resulted in the stock markets in many regions fluctuating. The high risk in the financial sector as a result of the pandemic quickly spilled into other sectors affecting them differently (Yang, Chen & Zhang, 2020). Covid-19 is associated with loss of jobs which affects firms' sales revenue. At the same time, as the business continually makes loses due to the negative effect of Covid-19, risk averse investors holding such a company's stock will sell the stocks so as to avoid the loss while risk averse potential investors will avoid buying stock of such a company; this causes a fall in stock price and a decline in share returns (Ashraf, 2020).

Three theories underpin this area study. These are; the behavioral finance theory developed by Richard Thaler (1993) who proposes that investors constantly aspire investing in projects that have bigger profit and low risk chances. Rational Choice Theory developed by Adam Smith (1770s) who proposed an investor will undertake a cost-benefit analysis to establish if a given position or option is the right one for them. Stock returns are equivalent to risk-free assets plus a risk premium according to a capital asset pricing model (CAPM) devised by Sharpe (1964).

The output of the manufacturing sector has been on a declining trajectory globally since 2019 due to factors such trade tension between China and the U.S, the uncertainty caused by Brexit

among other factors (UNIDO, 2020). The onset of the COVID-19 pandemic exacerbated the situation. Industrialized nations had the greatest decline in output in the first three quarters of 2020 with a 6 percent, 11.2 percent, and 1.1 percent drop, respectively. However, a 0.2% rise in production was recorded in East Asia, according to estimates. In Kenya, the manufacturing industry has witnessed a drop in production due to the pandemic. KAM-KPMG found that 53% of surveyed firms were running at less than 50% capacity during the COVID-19 period, whereas only 8% of the surveyed manufacturers were working at less than 50% capacity prior to the COVID-19 period (KAM-KPMG Survey, 2020).

1.1.1 Covid-19 Pandemic

Infectious illness SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) is the cause of the coronavirus illness COVID-19 (SARS-CoV-2). Since its discovery in Wuhan, China, in December, the virus has spread throughout the world (Nkengasong & Mankoula, 2020). COVID-19 is a unique sickness induced by the corona virus that is connected to the Severe Acute Respiratory Syndrome (SARS) viral family (Fernandes, 2020). COVID-19 is a unique infection transmitted by the corona virus that falls to the same family as SARS, as per UNICEF (2020).

The pandemic has affected global economies, markets, asset prices, organizations, businesses and employees as well as human health. As the theory of behavioral finance posits, adversities such as the pandemic continue to shape the investors' psychological and behavior in that pessimistic investors will increase earnings volatility while optimistic investors seeks to reduce earnings volatility within the period (Lee & Jiang, 2002) all of which influences stock prices. Sharp declines have been witnessed on stock markets since the last week of February 2020. The

declines did not last long in some markets thus losses were quickly recovered, while others collapsed (Senol & Zeren, 2020). The effect of this pandemic on different economies and financial markets has been reviewed by literature especially in developed economies, however in developing countries, not much has been done. Pandemic effects are difficult to predict due to an array of factors, including the disease's intensity, mortality toll, individual behavior and politicians' reactions (McKibbin & Fernando, 2020).

Global attention has been focused on the COVID-19 pandemic's implications, with recent research focusing on two main approaches for assessing COVID-19. Some research, such as Fernandes (2020) as well as Al-Awadhi (2020), utilized the cases number in certain countries to quantify the COVID-19 influence on stock performance, while others, such as Fernandes (2020), utilized the number of days when active cases were in the country to assess the variable (Adenomon & Maijamaa, 2020). Because the effect on several African countries is due to virus-control mechanism, the current research will use the number of days since the first case was announced to assess the COVID-19 variable.

1.1.2 Share Returns

The gain or loss for a certain period, often as a percentage, is called the return on the share. It comprises cash advances and any revenue from the shares recognized by the shareholder (Mugambi & Okech, 2016). Share returns have alternatively been described as the advantages to an investor due to changes in dividends, incomes and share value (Aga, Mogadam & Samadiyan, 2013). Share returns may alternatively be described as the capital or wealth shift caused by investing (Saleh, 2015). Share returns are guidance to investors when selecting stocks. Financiers

of various financial means can invest in stocks so long as they can make a profit bigger than their investment rate (Wang, 2012).

Share returns, as per Taofik and Omosola (2013), regulate the suitable market information accessibility as well as the stock efficiency as well as effectiveness in shares and stocks allocation. Share price alterations develop some level of investors' uncertainty, influencing stock supply as well as demand. Securities exchange markets respond to any signal that can be useful in future market expansion and shaping (Širucek, 2013). Companies with high share returns are successful and therefore contribute generally to economic growth (Aliyu, 2012). Consequently, investment returns are a key part of the entire industry as unpredictable financial innovations make both consumption and investment difficult (Erdugan, 2012).

Stock market indexing is commonly used to calculate share returns. The price variation of a particular stock discloses its performance. Strengthening stock index shows an outstanding market or industry such as stock price growth reflecting good stock performance and poor stock performance (Daferighe & Sunday, 2012). The CAPM is also extensively utilized in measuring share returns (Sobia, Arshad & Szabo, 2015). Predescu and Stancu (2011) calculated the change in the stock price plus any dividend paid in computing share returns and this metric will be adopted in the current research.

1.1.3 Covid-19 Pandemic and Share Returns

Researchers believe there is a correlation between the two based on the current state of the economy. Security market performance has been found to be negatively affected, but the

infection level varies significantly from country to country, the actions taken by each nation vary and have distinct economic impacts, and the economic recovery process remains an unknown phenomenon, according to experts (Zhang, Hu & Ji, 2020).

Covid-19 and following pandemics have been researched by academics in relation to market values. COVID-19's influence on the volatility of the US stock market was studied by Hong, Bian, and Lee in 2021 and found that the outbreak was connected to market inefficiencies that present attractive opportunities for speculators and investors. The study established that the price volatility and return predictability significantly increased following the derived disruption. A study by Asli, Alvaro, and Claudia (2020) studied the COVID-19 pandemic's influence on bank stock prices throughout the world and concluded that the stress on banks that come from their duty of counter cyclical lending caused bank stock prices to underperform in their respective markets.

A study by Kumar and Kumara (2020) found that the COVID-19 outbreak has cut the stock values of companies in the oil and gas, travel and transportation, entertainment, and transportation sectors by more than 40%. COVID-19's initial economic effect on the Kenyan economy was determined to be stock market volatility, according to an assessment by Okoth (2020). Many investors have been selling and choosing to buy fixed-income assets because of the market's uncertainty, ascribed to the epidemic, according to a new survey.

1.1.4 Manufacturing and Allied Firms Listed at the Nairobi Securities Exchange

The Kenyan manufacturing industry has faced a myriad of challenges in the last 15 years. In the manufacturing sector in Kenya, production is mainly geared towards consumer goods (KAM, 2018). For the period 2010 – 2019, the industry's structure has experienced slight alterations despite targeted policy interferences trying to fine-tune some aspects of the segment. In the last three decades, the sector's share to the country's GDP has remained immobile with only limited increases. The contribution of the sectors for the period from 1964 -73, the average contribution was 10% which rose to 13.6% from 1990-2007 and then down to below 10% in recent years (KAM, 2018).

With COVID-19 pandemic outbreak, the manufacturing sector felt its effects in the second quarter of 2020. In 2020 Q3, the industry had a 3.2 percent decrease in productivity, while 2020 Q2 saw a 3.9 percent decrease. In a survey by the KPMG and KAM on 180 industries in Kenya, it was established that most of the industries have reduced about 40% of their workforce in their move to minimize cost, jobs retention as well as advance cash flows. Compared to 91 percent of non-essential products producers, 74 percent of essential goods producers have observed a decrease in demand. In general, the industry's output has decreased, and 42% of companies are currently producing at less than half their capacities (Gache, 2020).

From March, when the very first COVID 19 instance was disclosed in Kenya, listed companies' shares have consistently lost value. The decline in value was caused by investors selling their shares in anticipation of a bleak future for company earnings as a result of the virus. Odhiambo (2020) contends that the NSE-20 Share Index has been decreasing since March 2020, which

indicates a negative performance of the underlying firms' stock prices.When former President Mwai Kibaki took office, the stock market's performance reached an all-time low in March, a level not seen since 2003. (Business Daily, 2020).NSE trading by foreigners has a significant impact on stock prices because of their selling, as reported by the business newspaper.

1.2 Research Problem

The external environment has an impact on the value of a company's stock. Covid-19 epidemic, however, is predicted to have an influence on stock returns (Kleintop, 2020).Covid-19 pandemic's actual impact has yet to be discovered, and this remains a mystery to investors and policymakers alike. Research has not been done to find the answer to this question which requires answers urgently. Researchers such as Hafiz et al, 2020) and Gormsen and Koijen (2020) and other experts have forecasted that Covid-19 just like other pandemics may increase the risk that stock markets are exposed to which in turn causes a decline in share returns.

In Kenya, the coronavirus (COVID-19) pandemic was expected to have a substantial effect on the industrial sector. Kenya's industrial sector suffered in the second quarter of 2020 as a result of the pandemic, despite the country's attempts to contain the virus' spread. Production in 2020 Q2 was down by 3.9 percentage points and 3.2 percentage points from the previous quarter's growth of 2.9 percentage points. Manufacturers of food and non-food products were also impacted by the slump. In 2020 Q1, the sector contributed KSh.191 billion in value; in 2020 Q3, it added KSh.183 billion (KAM, 2021). Listed manufacturing and allied firms offers a good context to investigate how share returns of firms are influenced by Covid-19 pandemic.

Crude oil prices have a detrimental effect on stock prices because of COVID-19 confirmed incidents, according to Stifani (2020). Contextual flaws in this study might be blamed on the fact that it was done in Croatia, where the social and economic milieu is quite different from Kenya During the COVID–19 pandemic, mining, transportation, energy and heating, and the environment sectors were all badly impacted, while manufacturing, information technology and education were all shown to be robust to the epidemic, as were the health-care and education sectors. The research focuses on a developed markets which could not apply to Kenya a developing country due difference in market infrastructure.

African banks' stock values underperformed their home markets during the COVID-19 pandemic, according to a study by Asli, Alvaro, and Claudia (2020). This was due to the stress on banks that come from their countercyclical lending position. Because stock price is distinct from share return, the research has a conceptual gap. Thirteen African nations' stock markets were studied by Takyi and Bentum-Ennin (2020) using a Bayesian structural time series technique. After the COVID-19, African stock market performance was determined to be much worse than it was before to the event. Researchers concluded that COVID-19 had a negative impact on the stock market because of this. The stud presents a methodological gap as it utilized Bayesian structural time series approach which has its own limitations.

Locally, Okoth (2020) assessed how Covid-19 has impacted the Kenya’s economy so far and observed that at the close of the 09 June 2020 trading session, the NSE 20 share index had dropped shedding off more than 25% scoring below the 2000 points. The study did not focus on the Kenya’s manufacturing sector and therefore a contextual gap. The study also presents a

conceptual gap as it focused on economic growth which is a different concept from share returns. Covid-19 epidemic and NSE stock performance were studied by Mbiti (2020), who found a strong negative link according to Mbiti (2020). The study however presents a methodological gap as it was conducted for a short time duration and therefore the findings might not be conclusive.

Given the continued spread of the COVID-19 pandemic and its unpredictable effects on different stock markets, it is critical to use current stock market data to forecast how the COVID-19 pandemic would influence the share price of manufacturing and affiliated firms in Kenya. The available studies reveal existence of conceptual, contextual and methodological gaps. The study is based on these identified gaps and tries to address the research question; how did the covid-19 pandemic announcement affect the share returns among NSE-listed manufacturing firms?

1.3 Objective of the Study

To examine the influence of the COVID-19 epidemic announcement on the stock returns of listed manufacturing and allied companies in Kenya.

1.4 Value of the Study

In both theoretical and practical terms, the findings of this study will have a significant impact on stock returns. The findings will be of significance to different entities such as the government through the CBK, the CMA, the NSE and other regulatory institutions, the investors and potential investors, to the management of manufacturing firms and banks and also to other researchers and academicians.

To the regulators, the government through the CBK, the CMA, the NSE and other regulatory organizations, the research results will enlighten them on COVID-19 pandemic impact on share price thus help the regulators formulate and implement policies and guidelines that will minimize the negative impacts of the pandemic in the different sectors in the country.

To the management of companies in the manufacturing and allied companies, the findings will put them in a better position to formulate and implement strategies that would enable them to cope with the negative impacts and exploit the positive effects of the pandemic.

Using the findings of this study, researchers and academics may learn more about the link between Kenya's stock market and the COVID-19 epidemic, which can help guide future research on the pandemic's influence on the share prices of manufacturing and other businesses.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter focuses on research done by other researchers. It is critical to analyze the existing literature on the impact of COVID-19 on the stock price of Kenya's manufacturing industry in order to identify any information gaps. It begins by looking at two variables, and then looks at the factors that affect share price performance. Then, it looks at empirical evidence, and last, it looks at gaps in our understanding of these variables.

2.2 Theoretical Review

To explain the correlation between the COVID-19 epidemic and the stock price, three ideas have been proposed. The three are as follows: Rational Choice Theory, Behavioral Finance Theory, and Capital Asset Pricing Model.

2.2.1 The Behavioral Finance Theory

Richard Thaler (1993) established the behavioral Finance theory, which serves as the present research's anchor hypothesis. According to the theory, investors, or at least some of them, are prone to bias. As a result, their financial choices may not be completely sensible. Overconfidence and over optimism, representativeness, conservatism, cognitive biases, frame reliance and anchoring, regret aversion, and mental accounting are some of the biases that might be identified. According to conventional finance, if irrational investors or investors wrongly price assets, rational investors (arbitrageurs) will notice the mispricing and fix it by purchasing cheap assets and disposing costly ones. Behavioral finance theory, on the other hand,

argues mispricing may persist because arbitrage is costly and dangerous, reducing arbitrageurs' demand for fair-value restoration trades (Thaler, 1993).

The behavioral finance theory has become exceedingly popular in research. This is mostly because it blends the dry, numerical subject of finance with the interesting world of psychology. Behavioral finance theory. It is often considered that economic agents are rational, which means that they are impartial and efficient information processors, as well as making choices in accordance with utility maximization. The biases proposed by the theory appear quite relatable, and most investors have been victims of these biases at one point in time or another. This is the reason the behavioral finance theory is preferred in explaining how the market works. In a world that has become exceedingly turbulent over a long length of time, behavioral finance theory also provides a sense of control (Lekovic, 2020).

The behavioral finance theory is criticized for ignoring the presence of investor behavioral biases (noise traders) who affects the prices as well as return of assets in the market. The theory also ignores arbitrage, which prohibits rational investors from profiting from short-term mispricing and, as a result, bringing prices back to equilibrium. The hypothesis is applicable to the present study because it identifies the role of behavioral biases on the association between the Covid-19 epidemic and stock performance.

2.2.2 Rational Choice Theory

Becker is credited with founding rational choice theory, often known as rational action theory or choice theory (1976). The theory is well-known for its ability to predict economic, social, and

human behavior. When faced with multiple options, people "typically select what they perceive will have the best overall effect," according to the theory. "An individual acts as though calculating costs against advantages to arrive at conduct that optimizes personal gain," according to the rational choice theory's definition of "rationality." As a result, social scientists can use the Rational Choice Theory to better explain human behavior.

During this period of the pandemic, resources are scarce and as such there is the competition for scarce resources which makes people chooses courses of action that have the best overall outcome. The theory assumes that individuals are motivated by money and by making profits and because of this, formal and predictive models are constructed to predict human behavior (Scott, 2000). Other assumptions of the Rational Choice Theory are that; first, it is the individual that ultimately takes action and in their process of taking actions, they are rational beings, they are self-maximizing, self-calculating and self-interested. Second, people optimally select their actions, given their specific preferences and the opportunities or limitations with which they are facing (Bora, 2020).

In this theory, optimality alludes to the notion that no other plan of action would be favored by the person over the one they have selected (Abell, 2000). This thus implies that people “do the best they can, given their circumstances as they see them”. Third, in normal conditions, the diversity of options available differs from those available in a severe structural scenario, where there may be just one option (Abell, 2000). The fourth aspect is self-regarding interest, which argues that people's activities are mainly worried with their own well-being. The fifth premise is rationality that argues that individuals act in a manner that benefit them more, therefore they

pursue activities that they believe are the greatest feasible alternative and would be extremely beneficial to them.

The Rational Choice Theory is criticized on the grounds that; the theory is and uncertainty and has inadequate information. The theory is also criticized on the grounds that human social action as well as interactions are complex unlike the theory assumes. The Rational Choice Theory did not account for habits and norms which may guide much action making them pursue meaningful social action. Nevertheless, the theory has been critiqued for being overly personal, minimalist, and reliant on rational decisions in social acts. The theory, too, ignores the notion of pure altruism in a social exchange between people. The theory is pertinent to this research because it claims that when faced with multiple options, investors would choose the one that they think will produce the best overall result that will affect share returns in one way or another. The theory therefore hypothesizes existence of a negative correlation between Covid-19 pandemic and share returns.

2.2.3 Capital Asset Pricing Model

Sharpe (1964) and the documents of Lintner are credited with the asset pricing concept (1965). The concept is called the balanced model of asset pricing for hazardous assets. The CAPM is a methodology for pricing hazardous inventories according to anticipated inventory revenue. The theory states that the anticipated stock returns amount to a sum of risk-free asset prices plus a risky premium. CAPM is a risk measurement tool and an anticipated connection between anticipated revenue and stock risk.

The model serves to estimate the required return rates for the underlying security when the asset underlying a portfolio is exposed and the assets are systemically risky. The systemic safety risk is assessed by the beta factor. Beta is an important indicator of market safety returns. By developing a CAPM from Sharpe (1964) and Lintner (1965), it is now one of the most frequently utilized academics and financial planner. However, certain bond market odds emerge because the return features of inventories seem to be violating the CAPM notion that risk beta may explain only the cross-section of expected returns.

This theory is the most popular in academics and practice in financial modeling from its beginnings. The same methodology may be used to model prices of stocks, that is to say drivers of share prices, and how these prices might influence the company's performance. Thus, the theory may be used to analyze how the Covid-19 epidemic affects NSE share returns for manufacturing and affiliated companies in the context of the theory.

2.3 Determinants of Share Returns

Factors that impact the value of a company's stock are many. However this study will focus on four factors which are; expected and unexpected company news, economic factors, market sentiments and COVID-19 pandemic.

2.3.1 Covid-19 Pandemic

COVID-19 has developed as a new, very lethal virus that has affected global market activity. The pandemic has resulted in a substantial decline in the real operations of the economy due to the social distancing measures. Reduced performance in routine company processes indicates

that the amount of returns has been reduced. The negative performance is assumed to have spilled over into stock demand, contributing to a drop in the security market performance. According to Al-Awadhi et al. (2020), there is a significant as well as negative association between the pandemic level and the security market performance. According to the report, if the pandemic continues without a permanent cure or control, the population would continue to deteriorate.

The crisis of the virus, as per Ramelli and Wagner (2020), was believed to impair the functioning of most institutions, with institutional liquidity and debt levels becoming a serious worry that was overwhelming world. With the implementation of lockdowns in various countries, the research reveals that a significant drop in security performance was a clear indication of COVID-19's impact. Their research revealed concerns that the pandemic might lead to a global financial crisis.

2.3.2 Expected and Unexpected Company News

The information released in the market will determine the reaction of a company's share prices as to whether negatively or positively. Negative reactions mean the share price is declining, whilst positive reactions mean the share price is increasing because of particular company information. Profitability in a particular industry, investor moods and economic factors are all topics that a business can cover in its news releases when it comes to performance (profit and earnings, dividend and future profit announcements, new product or recall introduction, employee layoffs, securing a modern large contract) (Mariko & Theuri, 2016).

Market sentiments comprise the general investor attitude as to the general price development in a market. Investor mood and stock prices are thought to be linked in a complicated way. Because of the influence of emotions and cognition on investors' decision-making, a significant number of emotionally-oriented investors may lead to price differences in the stock market (Wang, Yu & Shen, 2020). This suggests that stock prices are influenced by investor mood, which is supported by the vast majority of academic studies.

2.3.3 Trading Volume

In the stock market, trading volume refers to the total number of shares exchanged during a certain period of time. There has been a long-held idea that a stock market's trading volume is directly linked to its success. This means that as the volume traded increased, there was an anticipation that prices would increase, causing the security market to become more active. Investors have utilized the volume of trade to choose which stocks to hold as well as when to sell them (Gungor & Kaygın, 2015). A successful company will attract more investors, necessitating the introduction of new securities into the market, most likely at a higher price. According to Gul and Javed, trading volume measures were shown to have a positive link with exchange performance (2019).

The research found that transaction volume has been regarded as the fuel for security markets, as per Stickel (1994), as reported by Aronson (2011). Investors typically rely their financial decisions on market trade volume, as per Stickel's (1994) findings. According to the research, an rise in volume traded was automatically associated with a rise in the security exchange's

performance; otherwise, it would indicate the start of share reverse, making investors more wary about the stock (Aronson, 2011).

2.3.4 Foreign Investment

Foreign investments have been considered as a parallel kind of operation, which competes for the same resources with the stock market. With the foreign exchange being a quick game of money, people tend to speculate on the earnings which can be gained from foreign exchange in span of hours even though it is quite risky as compared to security investments. Since currency rates and stock market performance have been debated, Makori (2017) found that there is a positive and strong association between the NSE's performance and foreign currency rates. This influence could be attributed to the strengthening on the currency, which gives more confidence to both prevailing as well as potential investors on the economy of the nation and end up using the security market as investment vehicle in the nation.

However, a contradiction has been evidenced in the findings of Suriani, Kumar, Jamil and Muneer (2015) which established that the two variables were not correlated and where independent of each other. The study concluded that if any relationship existed between the two variables, it was by chance and there was no reliable relation which could be formed on the two. However, in real operations, stability of the foreign exchange has been conducive to the general operation of an economy boosting the returns on investments and which end up influencing the performance of the security market.

2.4 Empirical Review

Global as well as local empirical studies in this field of knowledge provide the empirical review.

2.4.1 International Studies

The influence of COVID19 on the volatility of the US stock market was examined by Hong, Bian, and Lee (2021). Bai and Perron's methodology was used in the investigation. DJIA and S&P 500 price volatility and return predictability were found to be disrupted. Prior to COVID-19 outbreaks, members of the U.S. Senate Committee slashed their stocks, causing a stock market collapse that coincided with this outage. In addition, it was shown that the resulting disturbance significantly increased price volatility and return predictability. The results of the COVID-19 pandemic investigation suggest that speculators and traders may profit from market inefficiencies. As a result, there was an unequal distribution of wealth and earnings between market players with adequate liquidity and those in need of financial assistance.

Yan et al. (2020) analyzed how COVID-19 affected potential investing strategies and the stock market as a whole. Global pandemic COVID-19 has had an influence on stock market prices and this study aims to discover how people might benefit from this situation. Using data from previous epidemics, the research found that markets tend to respond unfavorably in the near term, but ultimately correct themselves. Pandemics had a short-term impact on the value of several businesses, but in the long term, the industries that were harmed recovered. It was also established that since the market is still volatile the price of stocks intents to keep on decreasing thus a profitable strategy will be to hold short positions until the market becomes stable. The study then recommended that companies or sectors that will be affected by the pandemic be

shorted and then ultimately buying back into those sectors after their price has substantially declined. The study however did not focus on manufacturing sector. COVID-19's influence on bank stock prices throughout the globe was studied by Asli, Alvaro and Claudia (2020).To find out how news about banks and bank stock performance is announced, researchers looked at financial sector policy. During the pandemic the stocks of banks underperformed their domestic markets due to the stress on banks that result from their role of countercyclical lending. The researchers also observed that the effectiveness of interventions especially policy one's have been mixed for instance measures of borrower assistance, monetary easing and liquidity support moderated the worse influence of the crisis, however this was not found to exist in all banks. COVID-19's impact on industrial businesses was not explored in this research.

Using an event research technique, He et al. (2020) objectively analyzed the stock performance and trends of Chinese sectors after the COVID-19 pandemic. While the pandemic had a negative effect on the Shanghai Stock Exchange, it had a positive effect on the Shenzhen Stock Exchange. It was further found that as the pandemic generated opportunities for high-tech industries, it also negatively affected the traditional sectors of China. Researchers found that transportation, energy & heating, mining, and the environment sectors have been severely impacted by COVID-19, while others including manufacturing, health care, education, and information technology have been more robust. It was also observed that the adverse effects of COVID-19 in China were quickly overcome by the country's large economy, industrial chain and complete infrastructure and strong supporting capabilities.

Covid-19's influence on the Indian stock market has been studied by Kumar and Kumara (2020). Share performance and growth were examined in connection to the onset of the COVID-19 pandemic before and after the epidemic. Using data from Jan to Jun'2020, the researchers established that Nifty 50 had dropped by thirty eight per cent as the total stock market made a loss of 27.31% since 2020 started. Stocks of companies in sectors such as oil & gas, travel and transportation, entertainment and transport have come crashing down more than 40% due to the pandemic which makes these sectors the most affected. Other businesses have declared bankruptcy due to lockdown which limited business. However, other sectors are immune to the impact of the pandemic or are able to revive faster than the others. These comprise of; banking, telecommunications healthcare, and retail. The study also observed that the stock market was performing very well in Jan 2020 before India was hit by the COVID-19.

2.4.2 Local Studies

COVID-19's first significant economic consequence in Kenya was stock market volatility, according to Okoth (2020), who performed study to see how it has influenced economic activity in Kenya. The NSE was shut down on the day when Kenya's first case of COVID-19 was reported. On this day, a more than 5% drop in the NSE 20 Index was experienced. At the close of the 09 June 2020 trading session, the NSE 20 share index had dropped shedding off more than 25% scoring below the 2000 points. As a result of this, majority of investors have indulged in a position of selling while preferring purchasing fixed income securities due to the market's uncertainty which is attributed to the pandemic. The study found that that the health and food products manufacturing are expected to increase since the two are boosted by the persistent

demand for essential food items and the likely growth in manufacturing of protective and medical equipment that is essential in dealing with the pandemic that is unfolding.

Covid-19 pandemic's effect on NSE-listed company stock performance was examined by Orenge (2020). The study used quantitative approach and regression analysis to analyze data. The researcher the traded number of company shares in a day to measure share trade volume. The researcher employed the natural logarithm of share prices to represent stock performance. Prior to and after the first instance of COVID 19, data was gathered for 30 days. The study found that except for the exchange rates, the other variables under study negatively affected share performance. Stock performance was influenced by 0.203 units for every one unit rise in COVID 19 influence, while trading volume was impacted by 0.136 units for every one unit increase.
An adverse impact was seen on the stock price as a direct effect of the covid-19 outbreak.

Thirteen African nations' stock markets were studied by Takyi and Bentum-Ennin (2020) using a Bayesian structural time series technique. From October 1, 2019 through June 30, 2020, daily stock market time series data will be used in the study. The COVID-19's debut has had a substantial impact on the performance of the African stock market, according to the data. In this study, only three countries were shown to have had a significant (or short-lived) negative influence on their stock markets because to the COVID-19 epidemic. Researchers found that the COVID-19 undervalued the Kenyan equity market by 363 percent. The study then concluded that COVID-19 negatively influenced stock markets.

2.5 Conceptual Framework

The anticipated link between components is shown in Figure 2.1. The financial performance in a certain year is the predictor variable. Control variables selected for this study are trading volumes and foreign investments. Share returns are the response variable provided by a share price movement.

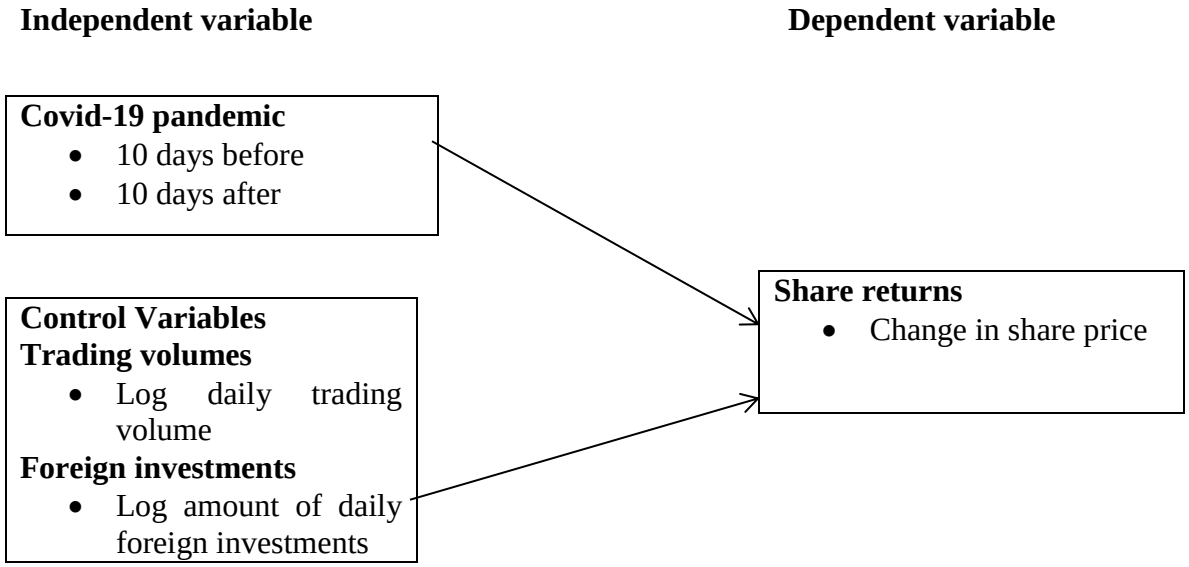


Figure 2.1: The Conceptual Model

2.6 Summary of Literature Review

Previous studies on the influence of COVID-19 on Kenyan manufacturing and stock prices were examined in this study. Financial concepts such as Behavioral Finance, Prospective Finance and Rational Choice were studied in this research. The three theories in unison agree that factors such as pandemics influence the behavior of investors which in turn influence their trading approach hence share prices of companies. The determinants of share prices were then reviewed to determine the role they play in influencing a share price. Expected and unexpected company

news was found to be related to share prices. Eriksson and Glaes (2017) and Mariko & Theuri (2016) argue that the relationship between the two factors is not significant.

Concerning economic factors, scholars have had conflicting results on the effects of economic factors on share price. However, some academics believe that variables including money availability, oil prices, and industrial output index positively impact share prices while others disagree. Concerning market sentiments, majority of researchers agree that share prices are affected by investor sentiments, which is backed by scholars like Wang, Yu and Shen (2020) and Haritha and Rishad (2020). On COVID-19 pandemic, majority of the scholar such as Khan et al. (2020); Bora (2020); Kotishwar (2020); and Ngwakwe (2020) agreed that the pandemic affected company share prices.

Empirical studies were also reviewed on this area of knowledge. Majority of empirical studies agree that COVID-19 affects shares prices of companies. The literature reviewed however did not focus on the Kenyan manufacturing and allied companies bringing a knowledge gap that this research pursued to fill.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section of the study outlines the approach that will guide it, conduct research, collect data, and analyze it. The part contains the targeted population, sample design, data analysis, scientific/analytical model, and significance test concerning the study phenomena effects of COVID-19 on stock returns.

3.2 Research Design

A study design is a clearly defined method that helps the researcher gather, assess, and evaluate the data in a systematic manner (Cooper & Schindler, 2014). In short, it is the whole strategy that one decides to go with while integrating various elements of study logically and coherently. The study used a cross-sectional methodology. Since the research was done during a certain time period or is a snapshot of one particular moment in time, the methodology is crucial. Before and after the COVID-19 announcement, a 10-day period was studied for research purposes.

3.3 Population

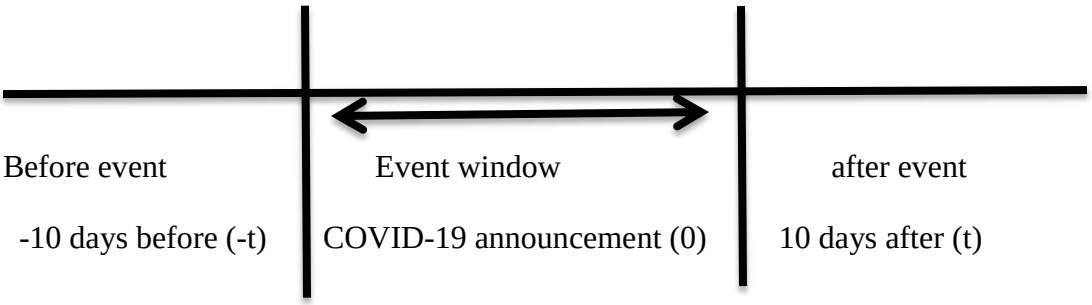
Target population refers to the whole set of people with whom the researcher is concerned who share certain criteria. Researchers focused on nine NSE-listed manufacturing and allied companies. Secondary data was gathered using the NSE's daily closing index. Before and after COVID-19 was announced in Kenya, data was collected for 10 days. The research employed a census technique to gather data since the target demographic was quite narrow. The census approach is important for a study because it collects data from the all members of the target population.

3.4 Data Collection

A secondary source is one that is already in existence. The research relied on data from the Kenyan National Stock Exchange (NSE). Ten days before and after the COVID-19 announcement, data was gathered for the study. All NSE-listed manufacturing businesses were included in the study. Price, trade volume, and foreign investment statistics were analyzed in the research.

3.5 Data Analysis

The event research approach was utilized to conduct the data analysis, which was quantitative. A major event occurred in this case when Covid-19 endemic was first discovered and the president took the first steps to stop its spread. The event window was divided into 10 days before the event date and 10 days after the event day (+10, -10) days, respectively. The researched analysed the data using Microsoft's Excel (2013) where line graphs depicting the trend of the movement of the market capitalization were generated, it also aided in generating market returns and abnormal returns. Although strategies that are applied to deal with dependences could be effective in standard operation modes, these could be unprepared to deal with the hyper nature of pandemics that are typically time-sensitive hence a call for test to be executed. The importance of the Covid-19 epidemic was determined by using T-tests. It was decided to use the Statistical Package for Social Science (SPSS) tool for the study since it provides a wide range of statistical analysis capabilities and is quite methodical. SPSS helped in generating the statistical values to test significance.



Where,

-t= before the announcement

0= the announcement date

t = after the announcement

Identifying the day COVID-19 announcement events

The event of COVID-19 announcement arrival in Kenya .The study's events date is March 15th 2020.

Estimating the event window was as follows;

Ten days before and ten days after the announcement of COVID-19 in Kenya were included in the event window. The estimated event window was 10 days before to the event and 10 days after the event.

The study used all manufacturing firms listed companies, stock prices before COVID-19 announcement and after COVID-19 announcement.

Calculating the actual return

The actual return for the stocks (Pjt) was calculated using;

$$Rjt = \frac{Pjt - Pjt^{-1}}{Pjt^{-1}}$$

(i)

Where

Rj, t = return of stock (j) on date t

Pj, t = the price of the stock represented by (j) on date t

Pj,t $_{-1}$ = the price of the stock (j) on date prior to t

To calculate the stock returns the equation was as follows;

Dependent variable ($Erjt$) and independent variable (Rmt)

$$Erjt = \alpha_f + \beta_f Rmt \qquad \text{(ii)}$$

Where,

α_f = risk free return

β_f = relative risk of beta

Rmt = Market return

Calculating the average abnormal returns and the cumulative abnormal returns.

In step five, abnormal returns were computed by averaging each day's stock prices to acquire the average abnormal return.

$$AAR_{\mathrm{i}} = \frac{\sum_{t=1}^{t=n} AR_{\mathrm{i}}}{n}$$

(iii)

Where

AAR_i = represents the average abnormal return for stock prices on day $_i$

AR_i = represents abnormal returns for stock prices 1 to n on day $_i$

n = represents number of stock

For each of the event windows, the average abnormal return (AAR) was determined. AAR value for each day was then added to the previous day's AAR to derive the day's cumulative abnormal returns (CARs).

$$CARt = \sum_{t-^{\mathrm{k}}}^{t} AR_{\mathrm{i}} \qquad \text{(iv)}$$

Where

K= number of events days before day t

Testing if the abnormal return is statistically different from zero

This CAR, statistical techniques was used to test for significance. According to Mackinlay (1997) t –test is the best approach associated with the p-value to test if the abnormal returns are significant from 0. The study used Canavos and Miller (1999) approach to calculate for the t-test.

$$\frac{\times t-\mu}{\frac{S}{\sqrt{n}}} \qquad \text{(v)}$$

Where

$\bar{\times}$ = the sample mean on day $_i$'s CAR

μ = the population mean (0)

S= standard deviation

n= number of stock returns

CAR is on day (i) was used as a (the sample mean on day (i).To find the corresponding p-value, it will be calculated using Ms excel or looked up in a statistical table.

3.5.1 Significance Test

An investigation on the impact of COVID-19 on publicly traded companies' stock returns is taking place in order to compare the data acquired and processed with reality. The study will test for significance using the p-value, and Innovate p-value will be done at a 95% confidence level. In addition, the study will use the coefficient of determination R and R^2 for correlation.

CHAPTER FOUR: DATA ANALYSIS, RESULTS, INTERPRATATIONS, AND DISCUSSION

4.1 Introduction

This chapter presents the results and discussion of the analysis. Covid-19's impact on stock returns of Nairobi Securities Exchange-listed manufacturing and related industries was the goal of the study. Secondary data applied in undertaking the research were collected from the NSE for all the 9 listed manufacturing and allied companies. The emergence of the Covid-19 pandemic in Kenya on March 15, 2020, was the subject of this event study investigation, which focused on the President's first efforts to contain the virus's spread. Although strategies that are applied to deal with dependences could be effective in standard operation modes, these could be unprepared to deal with the hyper nature of pandemics that are typically time-sensitive thus called for the necessity of the study. Stock price responses of listed manufacturing and affiliated firms were studied for 10 days before and after the President's first anti-virus measures were implemented. Microsoft Excel was used to do the data analysis (2013). The Statistical Package for the Social Sciences (SPSS) was used to investigate the influence of anti-virus measures on stock returns.

4.2 Reaction of Stock Prices to the Covid-19 Pandemic

This research examined the impact of Covid-19 announcement on the stock returns of Nairobi Securities Exchange-listed manufacturing and allied companies. An investigation was conducted on the stock price movements of nine publicly traded manufacturing and associated businesses. 10 days before and 10 days after 15 March 2020, when the President first began implementing steps to control the spread of the virus. However, trading for Mumias Sugar Co. Ltd was suspended on 25th September 2019 on grounds of insolvency and it was not trading in the event

period. Thus, only eight listed manufacturing and allied companies were analyzed for the study. Additionally, in this section, the stock returns abnormality and cumulative abnormality is discussed.

For calculating the Expected Return, we regressed stock prices against the market index over the estimate period, and then used the equation provided on page two when alpha and Beta were determined.

$$\mathbf{ERit = Rit - (\alpha i + \beta i Rmt)}$$

Where;

Rit = Return of stock at time *t*

Rmt = market return at time *t*

The values of the alpha and beta were obtained using the OLS regression which utilized the following formula.

$$\beta = \frac{\sum R_t R_{mt} - (t * \bar{R}_t * \bar{R}_{mt})}{R_{mt}^2 - (t * \bar{R}mt)}$$

$$\alpha = \bar{R}_t - (\beta * \bar{R}_{mt})$$

4.2.1 B.O.C Kenya Ltd

The reaction of B.O.C Kenya Ltd stock to the President initially instituted measures to curb the spread of the virus on 15 March 2020 event is as shown in Figure 4.1.

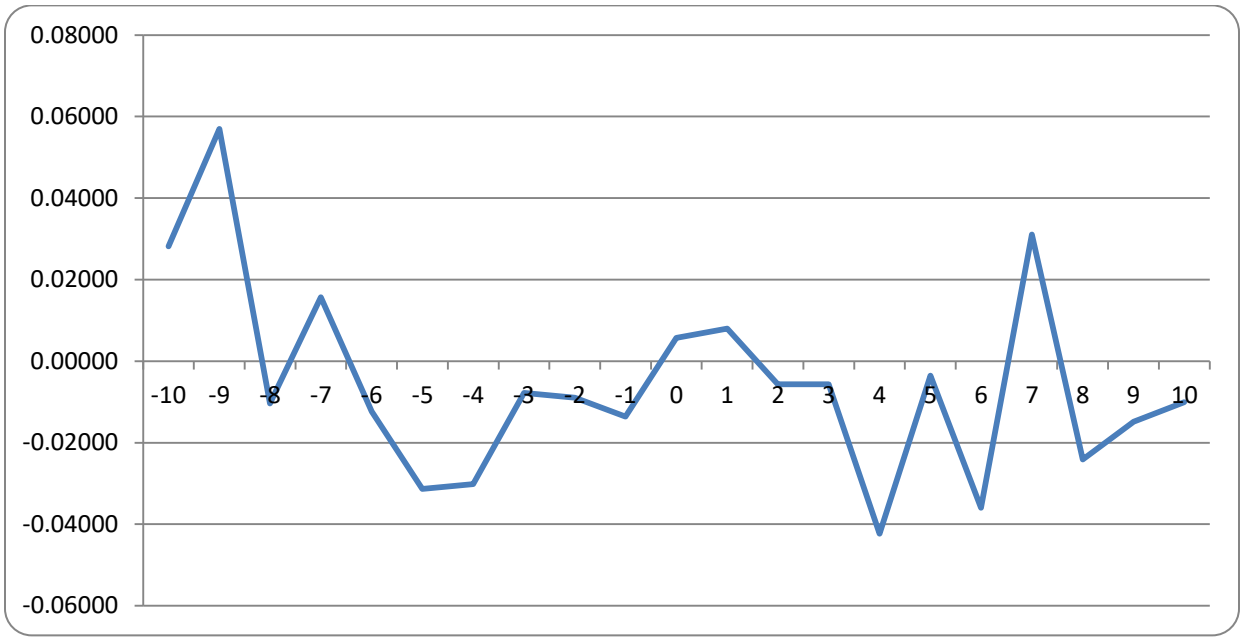


Figure 4.1: B.O.C Kenya Ltd Limited Stock Returns

B.O.C Kenya Ltd reacted erratically to the Covid-19 Pandemic announcement. After the incident, the average stock return increased from -0.003934803 before the date of the event to -0.002990517 after the date of the event. Uncertainty about how the Covid-19 outbreak may affect the performance of manufacturing and linked firms might be blamed for inconsistent reactions from investors. The stock's lowest return was -0.05417 days before the incident, while its highest return was 0.05696 days before the event.

4.2.2 British American Tobacco Kenya Ltd

The Figure 4.2 shown below indicated how the British American Tobacco Kenya Ltd stock returns reacted to the Covid-19 pandemic announcement.

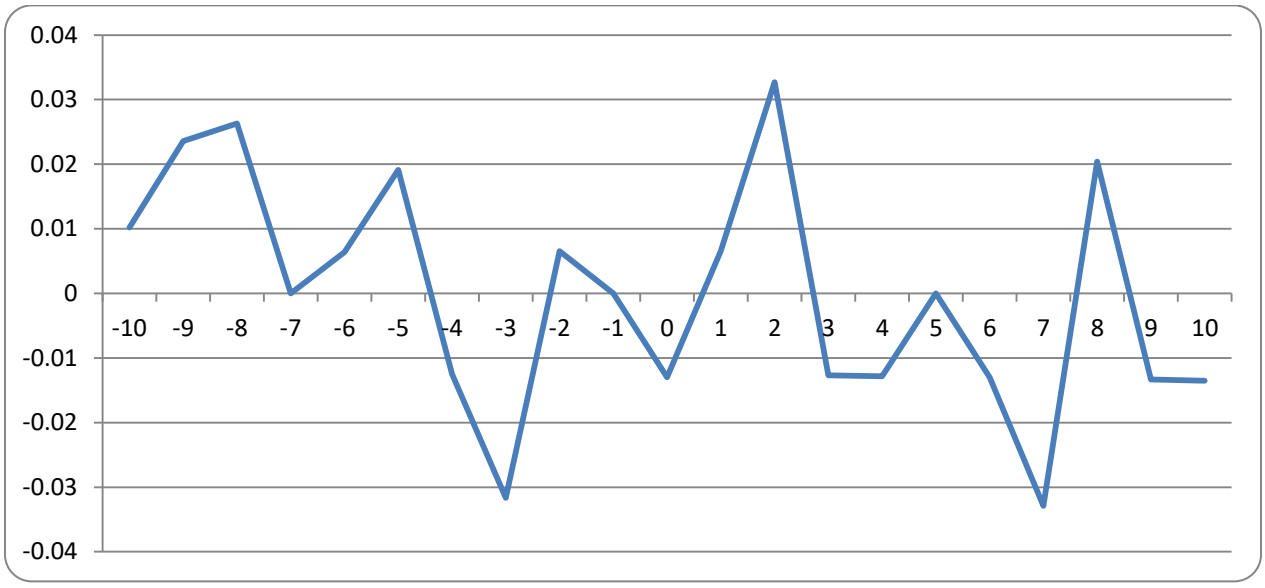


Figure 4.2: British American Tobacco Kenya Ltd Stock Returns

The British American Tobacco Kenya Ltd Stock returns had ups and downs both after and before the Covid-19 pandemic. The overall reaction was negative. There was a decline in average stock returns before the incident of -0.00060166 to -0.00322739 after the occurrence. For British American Tobacco Kenya Ltd, the lowest stock return before and after the incident was -0.064814 and 0.0522648, respectively; this was recorded 3 days before the event.

4.2.3 Carbacid Investments Ltd Stock Returns

In response to the President's early attempts to restrict the virus's spread on March 15th, 2020, the stock returns of Carbacid Investments Ltd have reacted as illustrated in Figure 4.3.

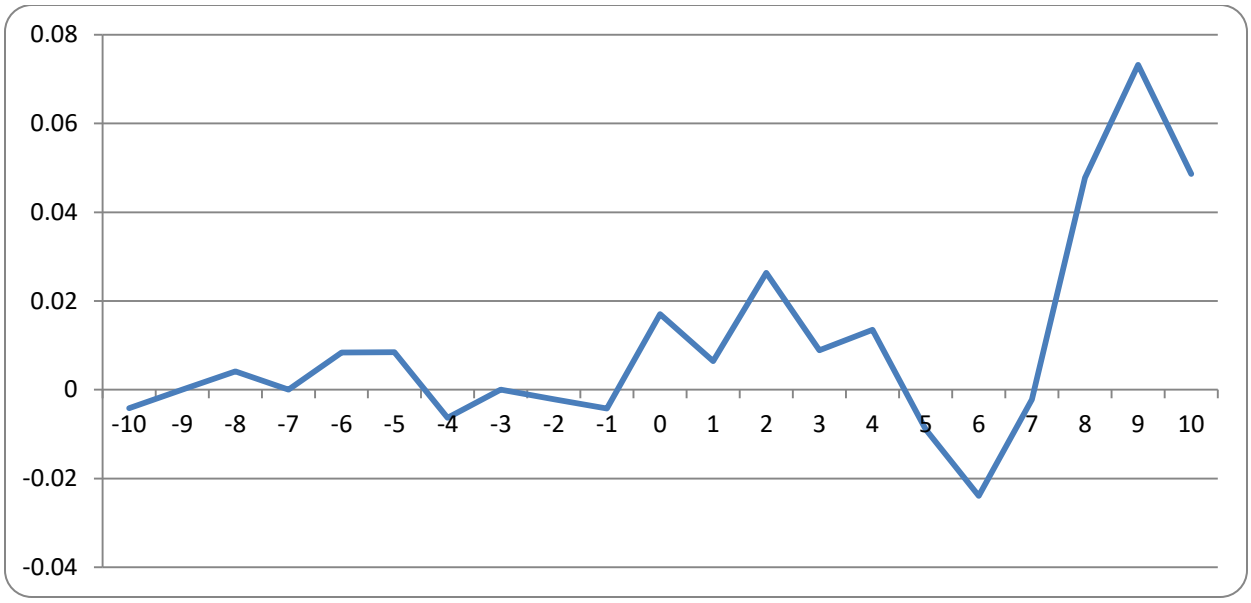


Figure 4.3: Carbacid Investments Ltd Stock Returns

Negative stock returns for Carbacid Investments Ltd occurred before to the viral occurrence, whereas positive stock returns were seen after efforts were launched by the President. After the incident, the average stock return went from -0.001879879 to 0.005692542. The average stock return increased by 0.007572421. It took only one day after the incident to achieve the greatest stock return of 0.07317 and seven days to record the lowest stock return of 0.096234.

4.2.4 East African Breweries Ltd Stock Returns

The outcomes for the reaction of East African Breweries Ltd stock returns during the event are as indicated in Figure 4.4.

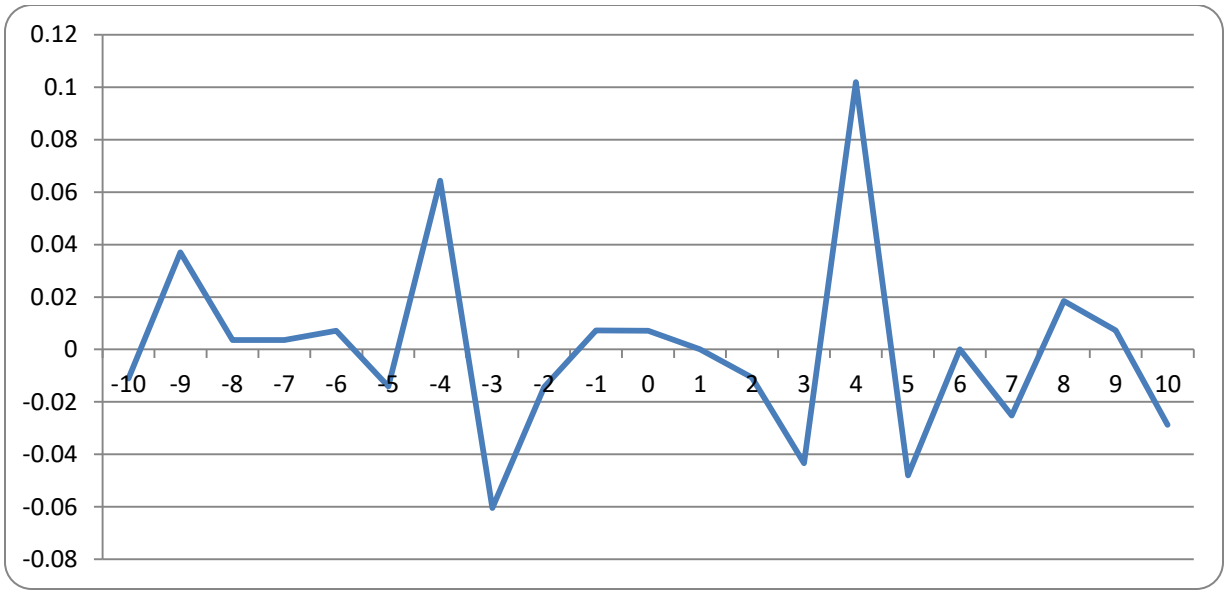


Figure 4.4: East African Breweries Ltd Stock Returns

As a result of Covid-19 pandemic news on 15 March 2020, the stock returns of East African Breweries Ltd increased from -0.001003333 before event to 0.001420109 after. The lowest stock returns rate of -0.11215 was reported 4 days before the incident, while the greatest stock returns of 0.101886 were recorded 8 days after the event.

4.2.5 Eveready East Africa Ltd Stock Returns

The reaction of Eveready East Africa Ltd stock returns subsequent to the President initially instituting measures to curb the spread of the virus on 15 March 2020 event is as illustrated in Figure 4.5.

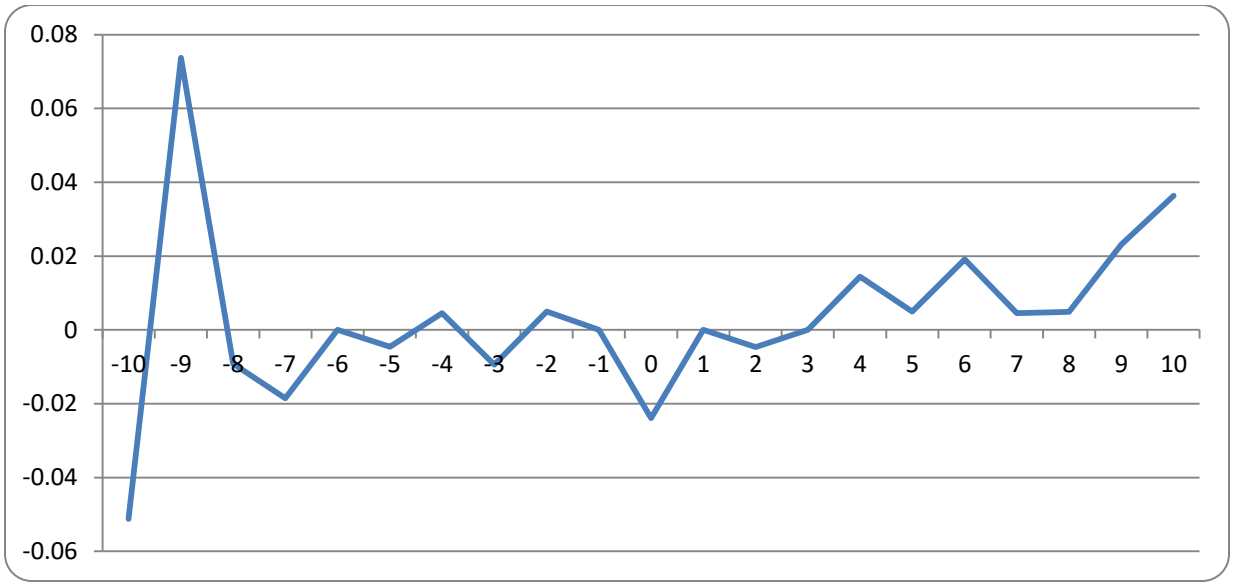


Figure 4.5: Eveready East Africa Ltd Stock Returns

After the President took the first steps to stop the spread of the virus, Eveready East Africa Ltd's stock prices rose. The average stock returns before the occurrence were -0.010282258 and after the event were 0.005980161 - 0.016262. Prior to and after the event, there was a noticeable increase in the number of people who expressed their displeasure. Only two days before the occurrence, shares returned as high as 0.07368 whereas only three days before that, shares returned as low as -0.10606. On the day of the event, Eveready East Africa Ltd's shares returned -0.023882.

4.2.6 Flame Tree Group Holdings Ltd Stock Returns

The outcomes for the reaction of Flame Tree Group Holdings Ltd stock returns to the Covid-19 pandemic announcement are as indicated in Figure 4.6.

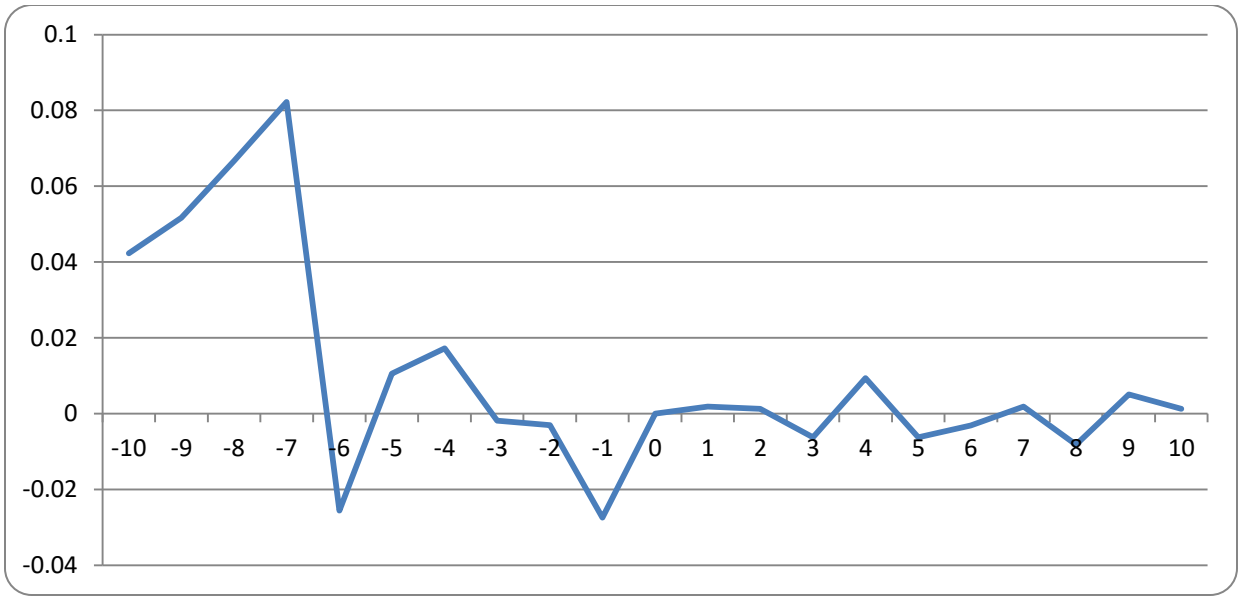


Figure 4.6: Flame Tree Group Holdings Ltd Stock Returns

Initial actions taken by the President to limit the spread of the virus were welcomed by Flame Tree Group Holdings, Ltd. From an average of 0.004901338 before to the incident, stock returns rose by an average of 0.001118803 after the occurrence. -0.0802631 was the lowest stock return two days before the event, while 0.082236 was the greatest return three days before the event day.

4.2.7 Kenya Orchards Ltd Stock Returns

Figure 4.7 depicts the stock returns of Kenya Orchards Ltd after the President's announcement on 15 March 2020 that he would begin implementing steps to control the spread of the virus.

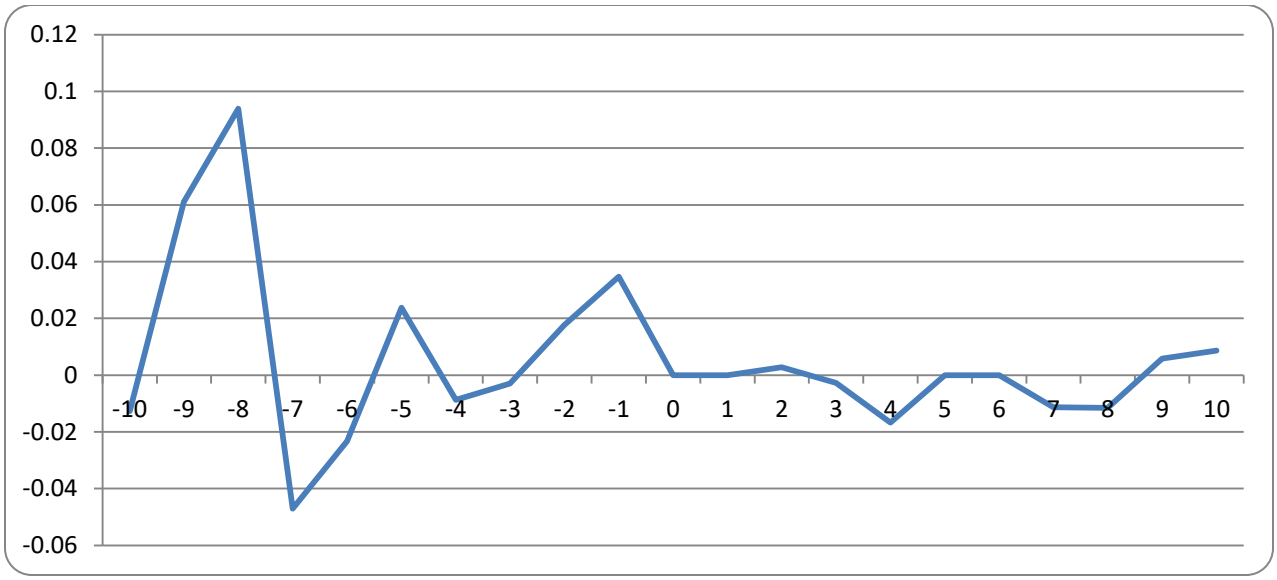


Figure 4.7: Kenya Orchards Ltd Stock Returns

The pre-event stock returns of Kenya Orchards Ltd were -0.004265546, while the post-event stock returns were 0.000975375. This shows that Kenya Orchards Ltd stock returns increased by 0.005240922, which suggests that the stock's response was good. The maximum return of 0.093939 was obtained 3 days before the Covid-19 pandemic notification event, while the lowest return of -0.1227272 was reported 1 day before the announcement.

4.2.8 Unga Group Ltd Stock Returns

Following the 15 March 2020 incident, the stock returns of Unga Group Ltd. are depicted in Figure 4.8, which depicts the stock's response.

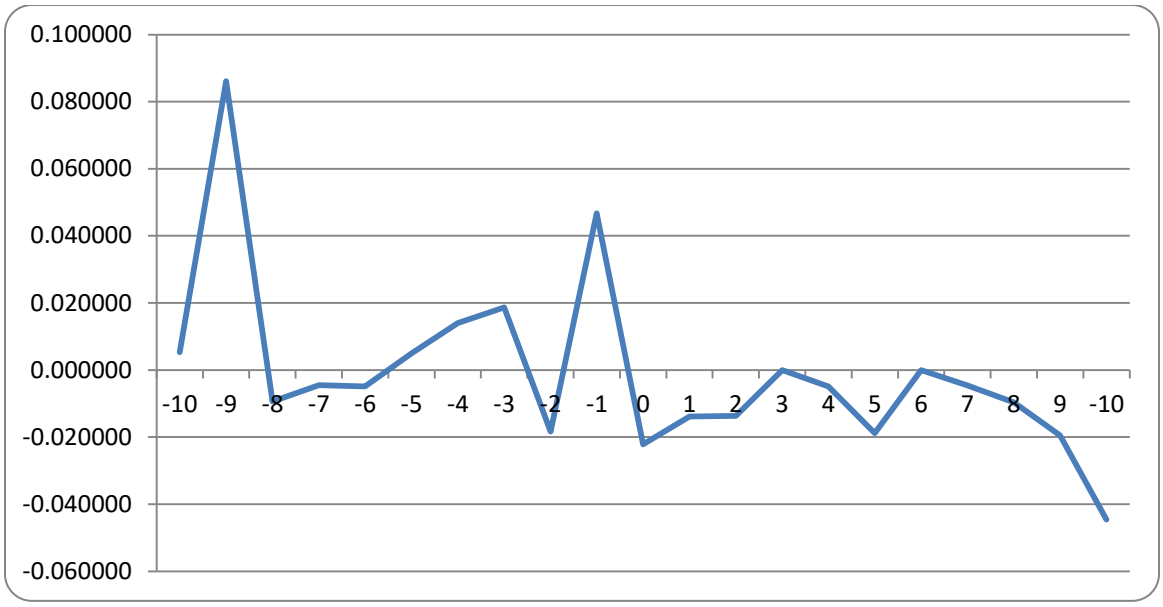


Figure 4.8: Unga Group Ltd Stock Returns

The stock price of Unga Group Ltd. was badly affected by the President's first attempt to contain the spread of the virus. 10 days of returns were 0.001707495 and -0.000387775, before and after the incident, respectively, for 10 days. A difference of -0.002095271 indicates a negative response to the President's early efforts to control the spread of the virus. Ten days following the incident, the stock returned -0.04744, while the biggest return of 0.086074 was recorded nine days before to the event. Unga Group Ltd's response to the Covid-19 pandemic news was a little more muted.

4.3 Abnormality of Stock Returns following the Covid-19 Pandemic

The stock returns of the eight listed manufacturing and related enterprises on the Nairobi Securities Exchange were used to calculate the abnormal returns of the eight companies. Table 4.1 following shows the summary of the abnormal returns as well as their significance level.

Table 4.1: Abnormality of Stock Returns following the Covid-19 Pandemic

	Average Abnormal returns	STDEV	t-test	Significance
B.O.C Kenya Ltd	-0.0033	0.018	-1.4201	0.8545
British American Tobacco Kenya Ltd	-0.0021	0.019	-0.8561	0.9120
Carbacid Investments Ltd	0.0022	0.025	0.6816	0.9299
East African Breweries Ltd	0.0004	0.028	0.1107	0.9886
Eveready East Africa Ltd	-0.0025	0.026	-0.7448	0.9234
Flame Tree Group Holdings Ltd	-0.0029	0.027	-0.8320	0.9145
Kenya Orchards Ltd	-0.0016	0.033	-0.3756	0.9613
Unga Group Ltd	0.0116	0.011	8.1685	0.2916

As a direct result of the President's early efforts to prevent the spread of the virus on March 15, 2020, the research discovered that five manufacturing and related enterprises reported negative abnormal returns and three manufacturing and related companies recorded positive abnormal returns But none of the aberrant returns were statistically significant, as indicated by the p-values, which all above 0.05. East African Breweries, Unga Group, and Carbacid Investments Ltd were the manufacturing and related firms that generated positive abnormal returns. Some of the firms having negative abnormal returns were B.O.C Kenya Ltd., British American Tobacco Kenya Ltd., Eveready East Africa Ltd., Flam Tree Group Holdings Ltd., and Kenya Orchards Ltd. Investors did neither benefit or lose money abnormally as a result of the Covid-19 Pandemic announcement, since no anomalous returns were recorded that were greater than 1 or lower than -1. Figure 4.9 shows the progression of abnormalities after the President's first attempt to control the spread of the virus on March 15, 2020.

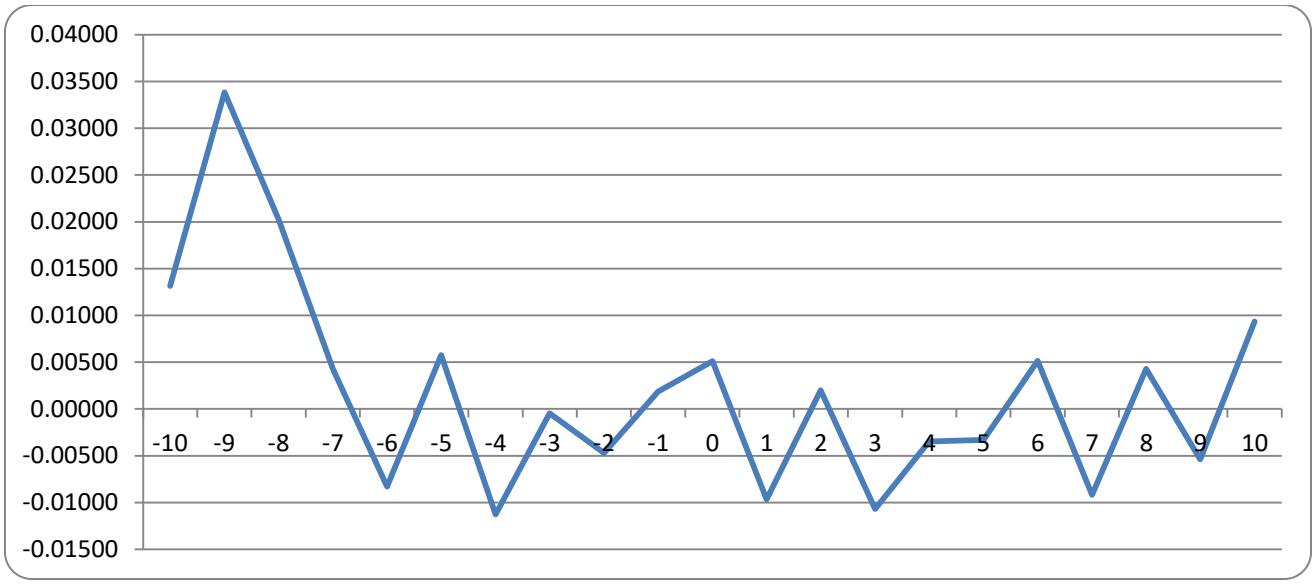


Figure 4.9: Average Abnormal Returns

The above graph demonstrates that the largest abnormal returns occurred 9 days before the incident, while the lowest abnormal returns happened 4 days before the occurrence. 4 days earlier to the event, the lowest abnormal returns of -0.01126 were detected while the biggest abnormal returns of 0.03382 were reported on the 9th day before to the event.

4.4 The Cumulative Abnormal Returns

According to Figure 4.13, the cumulative abnormal returns of the manufacturing and affiliated businesses listed at the NSE after the President's first efforts to limit the spread on March 15, 2020, are presented.

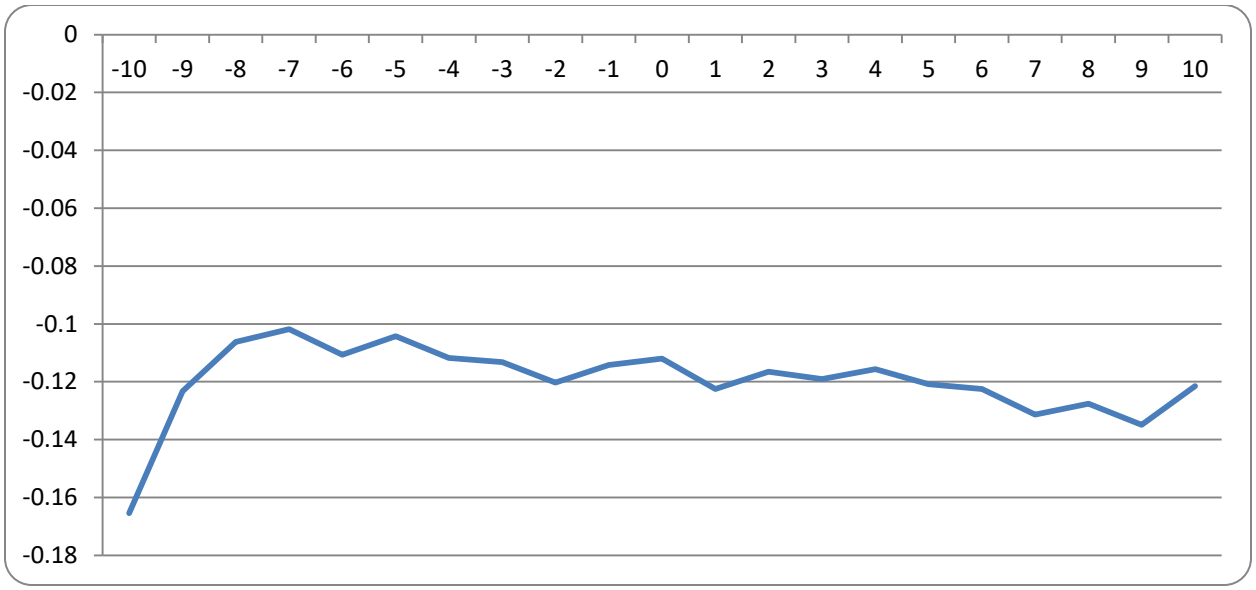


Figure 4.10: Cumulative Abnormal Returns (CAR)

The analysis indicated a negative Cumulative Average Abnormal Returns 10 days before the Covid-19 pandemic declaration and 10 days after the President began implementing efforts to stop the virus's spread on 15 March 2020. CAGR decreased steadily over time, according to the study's findings. As a result, the stock returns of the manufacturing and affiliated businesses listed on the NSE have had a cumulative negative influence on the President's first attempts to control the virus's spread.

4.5 Discussion of Research Findings

The research examined the impact of the Covid-19 epidemic on the stock prices of Kenyan manufacturing and associated enterprises. Stock returns of eight manufacturing and related companies listed on the Nairobi Securitas Exchange were studied for 10 days before to and 10 days after the President's inaugural declaration of measures to stop the virus spreading on March 15, 2020. The study discussed the stock returns abnormality and the cumulative abnormality. It was determined that the eight listed manufacturing and related companies had abnormal returns

by comparing their actual stock returns to predicted returns. Companies such as BOC Kenya, British American Tobacco, Eveready East Africa and Flame Tree Group Holdings reacted negatively to the President's efforts to limit the spread of the virus, according to the study cited in this article. Carbacid Investments Ltd., East African Breweries Ltd., and Unga Group Ltd. all expressed confidence in the President's efforts to contain the virus' spread. Some companies saw negative abnormal returns as a result of the President's early efforts to stop the spread of the virus, while others saw positive abnormal returns. In spite of this, none of the anomalous results were considered statistically significant by our experts. No aberrant returns of more than 1 or less than -1 were reported as a result of the revelation of the Covid-19 epidemic.

Cumulative Average Abnormal Returns of NSE-listed manufacturing and associated firms have been steadily declining throughout the years. For the NSE-listed manufacturing and related firms, this suggests that President's first steps in combating Ebola have had a cumulative negative impact on their stock performance. Although strategies that are applied to deal with dependences could be effective in standard operation modes, these could be unprepared to deal with the hyper nature of pandemics that are typically time-sensitive when the necessity for transition is increased. Despite the fact that the President had initially planned to begin limiting the spread of the virus on March 15, 2020, this demonstrated that the cumulative impact had a detrimental effect on the stock returns of manufacturing and allied businesses, even if some of them had not responded negatively.

Covid-19's influence on financial institutions is consistent with several theories and empirical data on the effects of pandemics and tragedies on financial institutions, such as the March 15, 2020, implementation of steps to prevent the virus' spread by the President.

The behavioral finance theory postulates that behavioral biases influences investors to make buy, sell, or hold positions which subsequently influences the share price and consequently, the share returns. The theory therefore hypothesizes the correlation between Covid-19 pandemic and share returns. The Rational Choice Theory postulates that when faced with multiple options, investors would choose the one that they think will produce the best overall result, which will affect share returns in one way or another. The idea, therefore, claims that there is a negative association between the Covid-19 epidemic and share prices. Stock returns for manufacturing and connected companies listed on the NSE fell as a result of the President's efforts to curb the virus' spread on March 15, 2020. This finding is in line with these ideas.

As stated by the CAPM, a share's value is determined by its risk-free rate of return and its premium. Covid-19, according to the theory, is a pandemic that affects NSE stock prices. Because pandemics raise the risk-free rate, banks' risk profiles and risk premiums rise as a result. A negative impact on the NSE's stock returns is projected owing to the pandemic impacts of Covid-19. An analysis of NSE-listed manufacturing and related companies found that the President's initial implementation of measures to curb the virus' spread on March 15, 2020 had a cumulative negative impact on stock returns.

Investors lost a significant deal of money in only a few days because of the pandemic's unprecedented danger. This resulted in the stock markets in many regions fluctuating. The high risk in the financial sector as a result of the pandemic quickly spilled into other sectors affecting them differently (Yang, Chen & Zhang, 2020). When the President took action on March 15, 2020, the virus had a cumulative negative impact on the stock returns of NSE-listed manufacturing and associated companies.

The output of the manufacturing sector has been on a declining trajectory globally since 2019 due to factors such trade tension between China and the U.S, the uncertainty caused by Brexit among other factors (UNIDO, 2020). The COVID-19 pandemic outbreak worsened the situation. In the first three quarters of 2020, worldwide manufacturing production fell by 6%, 11.2 percent, and 1.1 percent, respectively, with developed countries suffering the greatest decline. However, in East Asia, production increased by an estimated 0.2 percent. In Kenya, the manufacturing industry has witnessed a drop in production due to the pandemic. KAM-KPMG found that 53% of the questioned firms were operating at less than 50% capacity during the COVID-19 period compared to only 8% of manufacturers operating at less than 50% capacity previous to the COVID-19 period (KAM-KPMG Survey, 2020). These results are supported by a research that found that President’s actions on March 15, 2020, had a cumulative negative impact on the stock returns of manufacturing and associated companies listed on the NSE.

Hong, Bian, and Lee (2021) evaluated the impact of the COVID-19 pandemic on the performance of the stock market in the United States and found that the pandemic was related with market inefficiencies, which generated appealing opportunities for speculators and traders.

According to the findings of the research, the price volatility and return predictability both rose dramatically as a result of the resulting disturbance. As of March 15, 2020, the Covid-19 pandemic announcement was not statistically significant, and no abnormal returns were recorded for manufacturing and allied companies on the NSE that were greater than 1 or less than -1. This means that no investors benefitted or lost abnormally as a result of this pandemic announcement.

A study by Kumar and Kumara (2020) found that the COVID-19 outbreak has reduced the stock values of companies in the oil and gas, travel and transportation, entertainment, and transportation sectors by more than 40%. New Delhi Stock Exchange (NSE) stock returns of manufacturing and connected industries were negatively affected on March 15, 2020, when the President launched attempts to prevent its spread.

COVID-19's initial economic effect on the Kenyan economy was determined to be stock market volatility, according to an assessment by Okoth (2020). Okoth (2020) discovered that on March 15, 2020 a cumulative negative impact on stock returns of manufacturing and associated NSE-listed enterprises was caused by the President's initial steps to limit the virus' spread, which was a logical match.

From March, when the very first COVID 19 instance was disclosed in Kenya, listed companies' shares have consistently lost value. The decline in value was caused by investors selling their shares in anticipation of a bleak future for company earnings as a result of the virus. Share prices of the companies in the NSE-20 Index have been falling since March 2020, which indicates a poor performance for the underlying stock prices. After a rocky start under former President

Mwai Kibaki's government in 2003, the Kenyan stock market fell to its lowest level ever in March (Odhiambo, 2020). According to Odhiambo's (2020), the President's March 15, 2020, deployment of efforts to curb the virus' spread had a cumulative negative impact on the stock returns of manufacturing and associated NSE-listed companies.

According to Stifani (2020), a rise in COVID-19 verified cases significantly impacted oil prices, which in turn affected stock prices. Anti-virus measures implemented on March 15, 2020, had a cumulative negative impact on stock returns of manufacturing and associated enterprises listed on the NSE, according to a study by Stifani (2020).

Takyi and Bentum-Ennin evaluated the stock market performance of 13 African countries (2020). The COVID-19 has a significant influence on the performance of the African stock market, according to an analysis. That conclusion was made in a research that looked at how COVID-19 affected the stock market. For Takyi and Bentum-Ennin (2020) discovered that the early acts of the President on March 15, 2020, had a cumulative unfavorable impact on the stock returns of manufacturing and associated enterprises listed on the NSE.

Okoth (2020) assessed how Covid-19 has impacted the Kenya’s economy so far and observed that at the close of the 09 June 2020 trading session, the NSE 20 share index had dropped shedding off more than 25% scoring below the 2000 points. Manufacturing and allied enterprises listed on the National Stock Exchange (NSE) suffered cumulatively from the President's decision to deploy anti-viral measures on March 15, 2020, according to Okoth (2020) study.

Stock market performance at the NSE was investigated by Mbiti (2020) and shown to be negatively correlated with the Covid-19 epidemic.First-round anti-viral measures put in place on March 15, 2020, had a cumulatively negative impact on stock returns for manufacturing and associated NSE-listed businesses, according to studies by Mbiti (2020).

According to Al-Awadhi et al. (2020), there is a significant as well as negative association between the pandemic level and the security market performance. According to the report, if the pandemic continues without a permanent cure or control, the population would continue to deteriorate. On March 15, 2020, the President's early efforts to stop the spread of the virus had a cumulative negative impact on the stock returns of manufacturing and associated enterprises listed on the NSE, in accordance with the findings of Al-Awadhi et al. (2020) research.

The crisis of the virus, as per Ramelli and Wagner (2020), was believed to impair the functioning of most institutions, with institutional liquidity and debt levels becoming a serious worry that was overwhelming world. With the implementation of lockdowns in various countries, the research reveals that a significant drop in security performance was a clear indication of COVID-19's impact. Their research revealed concerns that the pandemic might lead to a global financial crisis. According to Ramelli and Wagner's (2020) findings, the President attempts to stop the transmission of the virus on March 15, 2020, had a cumulative negative impact on the stock returns of manufacturing and associated enterprises listed on the NSE.

The information released in the market will determine the reaction of a company’s share prices as to whether negative or positive. Negative reactions mean the share price is declining, while

positive reactions mean the share price is increasing because of particular company information. Company performance (profits and earnings, announcement of dividends and future profits, launch of a new product or recall, staff layoffs, getting a modern, significant contract), industry profitability, investor attitudes, and other economic aspects might be featured in the news (Mariko & Theuri, 2016). According to Mariko & Theuri (2016), when the President started adopting measures to stop the spread of the virus on March 15th, 2020, the stock returns of manufacturing and associated enterprises listed on the NSE were severely affected.

COVID19 influence on stock market instability performance was examined by Hong, Bian, and Lee in the United States in 2021. Both the DJIA and the S&P 500 have seen price volatility and return predictability disrupted. Prior to COVID-19 stock sell-offs by the US Senate Committee, there was a significant downtime in the system. As a result of the interruption, it was found that price volatility and return predictability rose dramatically. According to the conclusions of this study, the COVID-19 pandemic is linked to market inefficiencies, which provide attractive investment opportunities for speculative traders. The study also discovered that the epidemic caused wealth and income disparities between market participants with ample liquidity and those who were cash-strapped. Stock returns for manufacturing and closely connected NSE listed firms declined as a consequence of the President's first actions to limit viral transmission, according to Hong, Bian, and Lee's (2021) study.

Yan et al. (2020) studied the impact of COVID-19 on possible investment strategies and the overall stock market. Coronaviruses have been linked to a worldwide stock market epidemic known as COVID-19, and researchers wanted to see whether there was a way to take advantage

of this. Although short-term reactions to outbreaks like these are frequently undesirable, markets ultimately correct themselves over time, according to the research. Researchers discovered that pandemics reduced the value of many sectors in the near term, but that these businesses rebounded in the long term. It was also established that since the market is still volatile the price of stocks intents to keep on decreasing thus a profitable strategy will be to hold short positions until the market becomes stable. For manufacturing and related businesses listed on the NSE, Yan et al. (2020) found that on 15 March 2020, when the President began implementing steps to stop the spread of Ebola, there was a cumulative decrease in stock returns.

Using an event research technique, He et al. (2020) empirically analyzed the stock performance and trends of Chinese industries in the wake of the COVID-19 pandemic. The analysis found that the pandemic had a negative impact on the Shanghai Stock Exchange, whereas the Shenzhen Stock Exchange had a beneficial impact. It was further found that as the pandemic generated opportunities for high-tech industries, it also negatively affected the traditional sectors of China. Transportation, energy and heating, mining and the environment have all been severely harmed by the COVID-19 epidemic, while other fields like production and healthcare have been relatively unaffected. The researchers also found that information technology has been mostly unaffected. It was also observed that the adverse effects of COVID-19 in China were quickly overcome by the country's large economy, industrial chain and complete infrastructure and strong supporting capabilities. On March 15, 2020, the President began implementing steps to halt the spread of the virus, which had a cumulative negative effect on the stock returns of manufacturing and affiliated businesses listed on the NSE, according to a research by He et al. (2020).

Orenge (2020) studied the impact of the covid-19 epidemic on the stock performance of NSE-listed companies. The researchers utilized a quantitative method and regression analysis to examine data. The researcher the traded number of company shares in a day to measure share trade volume. The researcher employed the natural logarithm of share prices to represent stock performance. Data was collected 30 days before and after the first case of COVID 19 was recorded. Stock performance was adversely influenced by every variable except for exchange rates, according to the findings of this research." A unit rise in COVID 19 impact lowered stock performance by 0.203 units while a unit increase in trade volume reduced stock performance by 0.136 units, according to the study's findings. According to the findings of the study, the covid-19 epidemic had a detrimental impact on the stock market. As Orenge (2020) discovered, the President's first actions to stop the virus' spread on March 15 had a cumulative negative effect on stock returns for manufacturing and related businesses listed at the NSE.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Results, conclusions and suggestions on the impact of the Covid 19 on stock returns in Kenyan capital markets are summarized in this section. Additionally, a discussion of the study's limitations and recommended paths for future research is offered.

5.2 Summary of Findings

Stock returns of Kenyan manufacturing and affiliated industries were studied in an effort to determine how the Covid-19 epidemic affected their stock prices at Nairobi's Securities Exchange. Secondary data applied in undertaking the research were collected from the NSE for all the 8 listed manufacturing and allied companies. The emergence of the Covid-19 pandemic in Kenya on March 15, 2020, was the subject of this event study investigation, which focused on the President's first efforts to contain the virus. Before and after the President enacted anti-viral measures, the research analyzed the stock price responses of eight listed manufacturing and affiliated industries for 10 days before and after. Microsoft Excel was used to do the data analysis (2013). A T-test was carried out using the statistical analysis tool Statistical Package for Social Sciences (SPSS) to determine the effect of viral control methods on stock performance.

As reported, the Covid-19 pandemic declaration was met with a negative response from 62.5 percent of the listed manufacturing and affiliated companies (B.O.C Kenya Ltd, British American Tobacco Kenya Ltd, Eveready East Africa Limited, Flame Tree Group Holdings Limited, and Kenya Orchards Limited). There was a 37.5 percent positive response to the Covid-

19 pandemic announcement among the listed manufacturing and connected companies (Carbacid Investments Ltd, East African Breweries Ltd, and Unga Group Ltd). While no exceptional return above or below -1 was found, no investors benefitted from or lost money as a result of the Covid-19 pandemic statement, according to the study's findings.

The NSE's manufacturing and related firms' Cumulative Average Abnormal Returns have been steadily declining, according to the research. This indicates that the steps taken by the President on March 15, 2020, had a cumulative negative effect on the stock returns of NSE-listed manufacturing and associated companies. For 15 March 2020, the President announced a series of steps that had an immediate good impact on various manufacturing and associated companies, but the cumulative effect had a negative impact on stock returns.

5.3 Conclusions

The study's results are summarized in this chapter. According to the study's overall goal, the conclusion is written. The outbreak of Covid-19 had a detrimental impact on the stock market, according to an inquiry. Because of this study, it is found that no investors benefitted or lost excessively on the Covid-19 pandemic statement.

5.4 Recommendations

Those who will conduct future research in the area of finance will benefit from the results of this study in regards to pandemics and firm value. Subsequent researchers interested in pandemics and firm value will use the study results as a reference. Similarly, the work will provide

resourceful material for future scholars and researcher interested in the subject of pandemics and the firm value.

The President's early anti-virus initiatives had a negative impact on the stock returns of manufacturing and allied companies listed on the Nairobi Securities Exchange (NSE). A financial and economic crisis triggered by the COVID-19 health crisis and other pandemics or catastrophes necessitates that Treasury, the capital markets regulator CMA, and Nairobi Securities Exchange NSE implement appropriate policy steps, according to this study. Although strategies that are applied to deal with dependences could be effective in standard operation modes, these could be unprepared to deal with the hyper nature of pandemics that are typically time-sensitive when the necessity for transitory is increased. Policies that may be implemented include increasing central bank liquidity assistance in order to guarantee that markets are well-functioning, providing prompt fiscal support to viable firms, and evaluating the need to temporarily share fiscal burdens from impacted businesses affected by a pandemic.

The finding of the study that the Covid-19 announcement did not have a significant influence on firm returns generates recommendations to the financial analysts not to estimate market capitalization, and by extension, securities value, by relying on information resulting from pandemics. To be able to predict bear and bull markets, they should mostly perform due diligence and background check on their investment targets. Henceforth, this study will offer them immeasurable insights, which will help them when advising their clients. Consultants and listed firms practitioners should not mainly focus on information resulting from pandemics to time strategies like securities exchange listings, rights issues, and dividend pay-outs.

5.5 Limitation of the Study

To further explore ideas and empirical results that had already been presented, the current study used a formal approach by using the deductive research technique, which was guided by relevant academic literature and theories. In order to understand the study question, theories and existing empirical material must be used. However, previous research on the financial markets' influence on Covid-19 and the pandemic are sparse.

The study was conducted only in the listed Kenyan manufacturing and allied companies' context due to availability of market value constraints. It is very difficult to gauge the value of non-listed entities. If non-listed manufacturing and affiliated enterprises were included in the survey, this does not offer a clear picture of the conclusions. Due to time restrictions, the research concentrated on the manufacturing and associated sectors sector of publicly traded corporations. The conclusions of this research may not hold if additional areas of the Kenyan capital market were included. More questions would be raised if comparable research were conducted in various nations.

Secondary data were the only data sources for this investigation. Therefore, the researcher could not guarantee the correctness of the data. In most cases, this is a secondary data issue. In addition, the data was not easily accessible or open to the public. Because the occurrence occurred some time ago and the information was not easily accessible on the Nairobi Securities Exchange's website, the researcher ran into further difficulties. Accordingly, it was inferred that the researcher was required to get the product from officially recognized providers.

Due to time restrictions, this research focused on a 20-day span, 10 days before and after the outbreak of the covid-19 pandemic. Even if the research could determine the pandemic's long-term impact, it would take much longer than this. Additional data must be uploaded into Microsoft Excel and SPSS in order to receive synchronized information that can then be utilized for analysis and drawing conclusions. A large amount of time was needed to assemble and synchronize the data over time.

5.6 Suggestions for Further Research

Study results may not be applicable to non-listed manufacturing and associated industries, thus more research is needed to see whether the study's conclusions would hold if they were applied to these organizations as well. Additionally, due to time restrictions, the research concentrated on the manufacturing and associated sectors sector of publicly traded corporations. To see whether the conclusions of the present study can be applied to other parts of the Kenyan capital market, more research is needed. Furthermore, similar studies should be replicated in different countries to ascertain if the study findings would hold.

Researchers studied a 20-day period starting 10 days before to the breakout of covid-19 pandemic and finishing 10 days after. There is just a small window of opportunity for the research team to study the pandemic's long-term consequences. Short-term and long-term effects should be studied more thoroughly in the future. As a result, there were no additional important corporate or non-corporate events that may have impacted the abnormal reaction of manufacturing and associated enterprises' share prices over the time period under consideration. In order to determine whether any other events might have affected the study's conclusions, more research is required.

Secondary data were employed in this study; future research should rely on primary data such as detailed questionnaires and organized interviews provided to all stock market participants. Those results may then be supported or disproved. The event study statistical approach was used in the research, however future studies may utilize additional methods such; multiple linear regression by using dummy variables, correlation analysis, component analysis, discriminant analysis, cluster analysis, and granger causality.

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APPENDICES

Appendix 1: Companies Listed at the Nairobi Securities Exchange

Agricultural	
Ticker	**Company Name**
EGAD	Eaagads Limited
KUKZ	Kakuzi Limited
KAPC	Kapchorua Tea Company Limited
LIMT	Limuru Tea Company Limited
SASN	Sasini Tea and Coffee
WTK	Williamson Tea Kenya Limited
Automobiles and Accessories	
Ticker	**Company Name**
G&G	Car & General Kenya
Banking	
Ticker	**Company Name**
BBK	Barclays Bank of Kenya
CFC	CfC Stanbic Holdings
DTK	Diamond Trust Bank Group
EQTY	Equity Group Holdings Limited
HFCK	Housing Finance Company of Kenya
I&M	I&M Holdings Limited
KCB	Kenya Commercial Bank Group
NBK	National Bank of Kenya
NIC	National Industrial Credit Bank
SCBK	Standard Chartered of Kenya
COOP	Cooperative Bank of Kenya

Commercial and Services	
Ticker	**Company Name**
XPRS	Express Kenya Limited
KQ	Kenya Airways
LKL	Longhorn Kenya Limited
EVRD	Eveready East Africa
SCAN	Scangroup
NMG	Nation Media Group
SGL	Standard Group Limited
FIRE	Sameer Africa Limited
TPSE	TPS Serena
UCHM	Uchumi Supermarkets

Construction and Allied	
Ticker	**Company Name**
ARM	ARM Cement Limited
BAMB	Bamburi Cement Limited
BERG	Crown-Berger (Kenya)
CABL	East African Cables Limited
PORT	East Africa Portland Cement Company

Energy and Petroleum	
Ticker	**Company Name**
KEGN	Kengen
KENO	KenolKobil
KPLC	Kenya Power and Lighting Company
TOTL	Total Kenya Limited
UMME	Umeme

Insurance Segment	
Ticker	**Company Name**
BRIT	British-American Investments Company
CIC	CIC Insurance Group
CFCI	Liberty Kenya Holdings Limited
JUB	Jubilee Holdings Limited
KNRE	Kenya Reinsurance Corporation
PAFR	Sanlam Kenya Plc

Investments	
Ticker	**Company Name**
ICDC	Centum Investment Company
OCH	Olympia Capital Holdings
HAFR	Home Afrika Ltd
TCL	TransCentury Investments

Investment Services	
Ticker	**Company Name**
NSE	Nairobi Securities Exchange

Manufacturing and Allied	
Ticker	**Company Name**
BOC	BOC Kenya Limited
BAT	British American Tobacco Limited
CARB	Carbacid Investments Limited
EABL	East African Breweries
EVRD	Eveready East Africa
ORCH	Kenya Orchards Limited
MSC	Mumias Sugar Company Limited
UNGA	Unga Group
Telecommunication and Technology	
Ticker	**Company Name**
SCOM	Safaricom

Source: Nairobi Securities Exchange Website (2020)

Appendix 1I: List of Manufacturing and Allied Firms

1. B.O.C Kenya Ltd
2. British American Tobacco Kenya Ltd
3. Carbacid Investments Ltd
4. East African Breweries Ltd
5. Eveready East Africa Ltd
6. Flame Tree Group Holdings Ltd
7. Kenya Orchards Ltd
8. Mumias Sugar Co. Ltd
9. Unga Group Ltd

Appendix II: Data Collection Instrument

Day	Stock price	Returns	NSE 20 Share Index	(E)R	AR	CAR	AR t-test
1							
2							
3							
4							
5							
….							
30							
1							
2							
3							
4							
5							
…							
30							

Appendix IV: Research Data

	Day	Price	R	NSE 20 SHARE INDEX	MR	(E)R	AR	CAR	AR t-test
B.O.C Kenya Ltd	10	7.9	-0.01003	3177.7	-0.00905	-0.00489	-0.00513	-0.21253	-24.479
	9	7.98	-0.01481	3206.71	0.00608	0.004148	-0.01896	-0.20739	-23.8876
	8	8.1	-0.0241	3187.33	0.004152	0.002996	-0.02709	-0.18843	-21.7035
	7	8.3	0.031056	3174.15	0.001423	0.001365	0.029691	-0.16134	-18.583
	6	8.05	-0.03593	3169.64	-0.00018	0.000405	-0.03633	-0.19103	-22.0029
	5	8.35	-0.00358	3170.22	-0.00692	-0.00362	4.01E-05	-0.1547	-17.818
	4	8.38	-0.04229	3192.31	-0.00825	-0.00442	-0.03787	-0.15474	-17.8226
	3	8.75	-0.00568	3218.88	0.00398	0.002893	-0.00857	-0.11687	-13.4609
	2	8.8	-0.00565	3206.12	-0.0104	-0.0057	4.73E-05	-0.10829	-12.4733
	1	8.85	0.007973	3239.8	0.005565	0.00384	0.004133	-0.10834	-12.4787
	0	8.78	0.005727	3221.87	-0.0006	0.000157	0.00557	-0.11247	-12.9548
	-1	8.73	-0.01356	3223.8	0.004847	0.003411	-0.01697	-0.11804	-13.5964
	-2	8.85	-0.00896	3208.25	0.008792	0.005768	-0.01473	-0.10107	-11.6418
	-3	8.93	-0.00778	3180.29	0.003683	0.002715	-0.01049	-0.08635	-9.94557
	-4	9	-0.03017	3168.62	-0.00022	0.000385	-0.03056	-0.07585	-8.73697
	-5	9.28	-0.03132	3169.31	-0.00062	0.000143	-0.03146	-0.0453	-5.21741

	-6	9.58	-0.01237	3171.28	-0.0052	-0.00259	-0.00978	-0.01384	-1.59398
	-7	9.7	0.015707	3187.87	0.002718	0.002138	0.013568	-0.00406	-0.46795
	-8	9.55	-0.01036	3179.23	0.000126	0.00059	-0.01095	-0.01763	-2.03076
	-9	9.65	0.056955	3178.83	0.019895	0.012402	0.044553	-0.00668	-0.76925
	-10	9.13	0.028153	3116.82	-0.00215	-0.00077	0.028924	-0.05123	-5.90085
British American Tobacco Kenya Ltd	10	73	-0.01351	3177.7	-0.00905	-0.01136	-0.00215	-0.06995	-3.87797
	9	74	-0.01333	3206.71	0.00608	0.010867	-0.0242	-0.0678	-3.75882
	8	75	0.020408	3187.33	0.004152	0.008033	0.012375	-0.0436	-2.41725
	7	73.5	-0.03289	3174.15	0.001423	0.004022	-0.03692	-0.05598	-3.10326
	6	76	-0.01299	3169.64	-0.00018	0.001662	-0.01465	-0.01906	-1.05673
	5	77	0	3170.22	-0.00692	-0.00824	0.008238	-0.00441	-0.24463
	4	77	-0.01282	3192.31	-0.00825	-0.0102	-0.00262	-0.01265	-0.70134
	3	78	-0.01266	3218.88	0.00398	0.00778	-0.02044	-0.01003	-0.55606
	2	79	0.03268	3206.12	-0.0104	-0.01335	0.046027	0.010408	0.57696
	1	76.5	0.006579	3239.8	0.005565	0.01011	-0.00353	-0.03562	-1.97457
	0	76	-0.01299	3221.87	-0.0006	0.001051	-0.01404	-0.03209	-1.77884
	-1	77	0	3223.8	0.004847	0.009054	-0.00905	-0.01805	-1.00061
	-2	77	0.006536	3208.25	0.008792	0.014852	-0.00832	-0.009	-0.49868

	-3	76.5	-0.03165	3180.29	0.003683	0.007344	-0.03899	-0.00068	-0.03769
	-4	79	-0.0125	3168.62	-0.00022	0.001611	-0.01411	0.038309	2.123727
	-5	80	0.019108	3169.31	-0.00062	0.001018	0.01809	0.052421	2.905994
	-6	78.5	0.00641	3171.28	-0.0052	-0.00572	0.012127	0.03433	1.903148
	-7	78	0	3187.87	0.002718	0.005925	-0.00593	0.022203	1.230857
	-8	78	0.026316	3179.23	0.000126	0.002116	0.0242	0.028128	1.559319
	-9	76	0.023569	3178.83	0.019895	0.03117	-0.0076	0.003928	0.217778
	-10	74.25	0.010204	3116.82	-0.00215	-0.00123	0.011435	0.011529	0.639143
Carbacid Investments Ltd	10	12	-0.00415	3177.7	-0.00905	-0.00661	0.002462	0.012154	0.897957
	9	12.05	0	3206.71	0.00608	-0.00209	0.002092	0.009692	0.716046
	8	12.05	0.004167	3187.33	0.004152	-0.00267	0.006834	0.0076	0.561514
	7	12	0	3174.15	0.001423	-0.00348	0.003483	0.000766	0.056567
	6	12	0.008403	3169.64	-0.00018	-0.00396	0.012366	-0.00272	-0.20079
	5	11.9	0.008475	3170.22	-0.00692	-0.00598	0.014451	-0.01508	-1.11446
	4	11.8	-0.00632	3192.31	-0.00825	-0.00637	5.9E-05	-0.02953	-2.18213
	3	11.875	0	3218.88	0.00398	-0.00272	0.002719	-0.02959	-2.18648
	2	11.875	-0.0021	3206.12	-0.0104	-0.00701	0.004914	-0.03231	-2.38739
	1	11.9	-0.00418	3239.8	0.005565	-0.00225	-0.00194	-0.03723	-2.75043

	0	11.95	0.017021	3221.87	-0.0006	-0.00409	0.021109	-0.03529	-2.6072
	-1	11.75	0.006424	3223.8	0.004847	-0.00246	0.008884	-0.0564	-4.16678
	-2	11.675	0.026374	3208.25	0.008792	-0.00128	0.027655	-0.06528	-4.82317
	-3	11.375	0.008869	3180.29	0.003683	-0.00281	0.011677	-0.09294	-6.86644
	-4	11.275	0.013483	3168.62	-0.00022	-0.00397	0.017457	-0.10461	-7.72918
	-5	11.125	-0.00891	3169.31	-0.00062	-0.00409	-0.00481	-0.12207	-9.01894
	-6	11.225	-0.02391	3171.28	-0.0052	-0.00546	-0.01845	-0.11725	-8.66321
	-7	11.5	-0.00217	3187.87	0.002718	-0.0031	0.000927	-0.0988	-7.30008
	-8	11.525	0.047727	3179.23	0.000126	-0.00387	0.051598	-0.09973	-7.36858
	-9	11	0.073171	3178.83	0.019895	0.002036	0.071134	-0.15133	-11.1808
	-10	10.25	0.048593	3116.82	-0.00215	-0.00455	0.053145	-0.22246	-16.4365
East African Breweries Ltd	10	135	-0.02878	3177.7	-0.00905	-0.00737	-0.02141	-0.01989	-0.69869
	9	139	0.007246	3206.71	0.00608	0.001444	0.005803	0.001512	0.053102
	8	138	0.01845	3187.33	0.004152	0.00032	0.01813	-0.00429	-0.15069
	7	135.5	-0.02518	3174.15	0.001423	-0.00127	-0.02391	-0.02242	-0.78743
	6	139	0	3169.64	-0.00018	-0.00221	0.002206	0.001489	0.052297
	5	139	-0.04795	3170.22	-0.00692	-0.00613	-0.04181	-0.00072	-0.02518
	4	146	0.101887	3192.31	-0.00825	-0.00691	0.108796	0.041097	1.443346

	3	132.5	-0.04332	3218.88	0.00398	0.00022	-0.04354	-0.0677	-2.37765
	2	138.5	-0.01071	3206.12	-0.0104	-0.00816	-0.00256	-0.02416	-0.84846
	1	140	0	3239.8	0.005565	0.001144	-0.00114	-0.0216	-0.75864
	0	140	0.007194	3221.87	-0.0006	-0.00245	0.009642	-0.02046	-0.71848
	-1	139	0.007246	3223.8	0.004847	0.000725	0.006521	-0.0301	-1.05713
	-2	138	-0.01429	3208.25	0.008792	0.003024	-0.01731	-0.03662	-1.28617
	-3	140	-0.0604	3180.29	0.003683	4.68E-05	-0.06045	-0.01931	-0.67825
	-4	149	0.064286	3168.62	-0.00022	-0.00223	0.066512	0.041137	1.444777
	-5	140	-0.01408	3169.31	-0.00062	-0.00246	-0.01162	-0.02537	-0.89117
	-6	142	0.007092	3171.28	-0.0052	-0.00513	0.012224	-0.01375	-0.48295
	-7	141	0.003559	3187.87	0.002718	-0.00052	0.004074	-0.02598	-0.91227
	-8	140.5	0.003571	3179.23	0.000126	-0.00203	0.005597	-0.03005	-1.05537
	-9	140	0.037037	3178.83	0.019895	0.009494	0.027543	-0.03565	-1.25196
	-10	135	-0.01099	3116.82	-0.00215	-0.00335	-0.00764	-0.06319	-2.21929
Eveready East Africa Ltd	10	28.5	0.036364	3177.7	-0.00905	-0.00569	0.042054	-0.22645	-23.717
	9	27.5	0.023065	3206.71	0.00608	0.004841	0.018224	-0.2685	-28.1216
	8	26.88	0.00486	3187.33	0.004152	0.003499	0.001361	-0.28672	-30.0303
	7	26.75	0.004506	3174.15	0.001423	0.001599	0.002908	-0.28809	-30.1728

	6	26.63	0.019135	3169.64	-0.00018	0.000481	0.018654	-0.29099	-30.4774
	5	26.13	0.005	3170.22	-0.00692	-0.00421	0.00921	-0.30965	-32.4312
	4	26	0.014436	3192.31	-0.00825	-0.00514	0.019575	-0.31886	-33.3957
	3	25.63	0	3218.88	0.00398	0.003379	-0.00338	-0.33843	-35.4459
	2	25.63	-0.00466	3206.12	-0.0104	-0.00663	0.001969	-0.33505	-35.092
	1	25.75	0	3239.8	0.005565	0.004482	-0.00448	-0.33702	-35.2983
	0	25.75	-0.02388	3221.87	-0.0006	0.000191	-0.02407	-0.33254	-34.8288
	-1	26.38	0	3223.8	0.004847	0.003982	-0.00398	-0.30847	-32.3075
	-2	26.38	0.004952	3208.25	0.008792	0.006729	-0.00178	-0.30449	-31.8904
	-3	26.25	-0.00943	3180.29	0.003683	0.003172	-0.01261	-0.30271	-31.7044
	-4	26.5	0.004549	3168.62	-0.00022	0.000456	0.004092	-0.2901	-30.3841
	-5	26.38	-0.00453	3169.31	-0.00062	0.000176	-0.0047	-0.2942	-30.8127
	-6	26.5	0	3171.28	-0.0052	-0.00302	0.003015	-0.28949	-30.3201
	-7	26.5	-0.01852	3187.87	0.002718	0.0025	-0.02102	-0.29251	-30.6359
	-8	27	-0.00917	3179.23	0.000126	0.000696	-0.00987	-0.27149	-28.4345
	-9	27.25	0.07368	3178.83	0.019895	0.014459	0.059221	-0.26162	-27.4007
	-10	25.38	-0.05121	3116.82	-0.00215	-0.00089	-0.05033	-0.32084	-33.6033
Flame Tree Group Holdings Ltd	10	15.9	0.001259	3177.7	-0.00905	-0.00023	0.001489	-0.14122	-8.63056

	9	15.88	0.005063	3206.71	0.00608	-0.00135	0.006409	-0.14271	-8.72159
	8	15.8	-0.00816	3187.33	0.004152	-0.0012	-0.00696	-0.14912	-9.11328
	7	15.93	0.001887	3174.15	0.001423	-0.001	0.002889	-0.14216	-8.68808
	6	15.9	-0.00313	3169.64	-0.00018	-0.00088	-0.00225	-0.14505	-8.86464
	5	15.95	-0.00623	3170.22	-0.00692	-0.00039	-0.00584	-0.1428	-8.72707
	4	16.05	0.009434	3192.31	-0.00825	-0.00029	0.009722	-0.13695	-8.36993
	3	15.9	-0.00625	3218.88	0.00398	-0.00119	-0.00506	-0.14668	-8.96412
	2	16	0.001252	3206.12	-0.0104	-0.00013	0.001382	-0.14162	-8.65493
	1	15.98	0.001881	3239.8	0.005565	-0.00131	0.003189	-0.143	-8.73939
	0	15.95	0	3221.87	-0.0006	-0.00085	0.000853	-0.14619	-8.93426
	-1	15.95	-0.02744	3223.8	0.004847	-0.00125	-0.02618	-0.14704	-8.9864
	-2	16.4	-0.00304	3208.25	0.008792	-0.00155	-0.00149	-0.12086	-7.38614
	-3	16.45	-0.00182	3180.29	0.003683	-0.00117	-0.00065	-0.11936	-7.29484
	-4	16.48	0.017284	3168.62	-0.00022	-0.00088	0.018165	-0.11871	-7.25502
	-5	16.2	0.010605	3169.31	-0.00062	-0.00085	0.011457	-0.13688	-8.36519
	-6	16.03	-0.02553	3171.28	-0.0052	-0.00051	-0.02502	-0.14833	-9.06536
	-7	16.45	0.082237	3187.87	0.002718	-0.0011	0.083335	-0.12331	-7.53634
	-8	15.2	0.066667	3179.23	0.000126	-0.00091	0.067573	-0.20665	-12.6294

	-9	14.25	0.051661	3178.83	0.019895	-0.00236	0.054025	-0.27422	-16.7591
	-10	13.55	0.042308	3116.82	-0.00215	-0.00074	0.043046	-0.32825	-20.0609
Kenya Orchards Ltd	10	103	0.008671	3177.7	-0.00905	0.001041	0.00763	-0.1507	-5.66086
	9	104.5	0.005814	3206.71	0.00608	-0.00141	0.007227	-0.15833	-5.94746
	8	102	-0.01149	3187.33	0.004152	-0.0011	-0.01039	-0.16556	-6.21893
	7	103	-0.01136	3174.15	0.001423	-0.00066	-0.01071	-0.15516	-5.82849
	6	105	0	3169.64	-0.00018	-0.0004	0.000397	-0.14446	-5.42633
	5	105	0	3170.22	-0.00692	0.000696	-0.0007	-0.14485	-5.44124
	4	108	-0.01676	3192.31	-0.00825	0.000912	-0.01767	-0.14416	-5.41511
	3	108	-0.00279	3218.88	0.00398	-0.00107	-0.00171	-0.12649	-4.75129
	2	108	0.002793	3206.12	-0.0104	0.00126	0.001534	-0.12477	-4.68693
	1	106.5	0	3239.8	0.005565	-0.00133	0.001329	-0.12631	-4.74454
	0	103	0	3221.87	-0.0006	-0.00033	0.00033	-0.12764	-4.79448
	-1	105	0.034682	3223.8	0.004847	-0.00121	0.035895	-0.12797	-4.80686
	-2	101.5	0.017647	3208.25	0.008792	-0.00185	0.0195	-0.16386	-6.15519
	-3	105	-0.00293	3180.29	0.003683	-0.00102	-0.00191	-0.18336	-6.88767
	-4	105	-0.00872	3168.62	-0.00022	-0.00039	-0.00833	-0.18145	-6.81598
	-5	103.5	0.02381	3169.31	-0.00062	-0.00033	0.024135	-0.17312	-6.50309

	-6	105	-0.02326	3171.28	-0.0052	0.000417	-0.02367	-0.19726	-7.4097
	-7	108	-0.04709	3187.87	0.002718	-0.00087	-0.04622	-0.17359	-6.52045
	-8	108	0.093939	3179.23	0.000126	-0.00045	0.094386	-0.12736	-4.78412
	-9	108	0.061093	3178.83	0.019895	-0.00365	0.064747	-0.22175	-8.3296
	-10	108.5	-0.0127	3116.82	-0.00215	-7.8E-05	-0.01262	-0.28649	-10.7617
Unga Group Ltd	10	26.25	0.044568	3177.7	-0.00905	-0.00748	0.052049	-0.0356	-2.57813
	9	25.13	-0.01951	3206.71	0.00608	0.000854	-0.02036	-0.08765	-6.34771
	8	25.63	-0.00966	3187.33	0.004152	-0.00021	-0.00945	-0.06728	-4.87299
	7	25.88	-0.00462	3174.15	0.001423	-0.00171	-0.0029	-0.05783	-4.18846
	6	26	0	3169.64	-0.00018	-0.0026	0.002597	-0.05493	-3.9782
	5	26	-0.01887	3170.22	-0.00692	-0.00631	-0.01256	-0.05753	-4.16627
	4	26.5	-0.00488	3192.31	-0.00825	-0.00704	0.002162	-0.04497	-3.25667
	3	26.63	0	3218.88	0.00398	-0.0003	0.000303	-0.04713	-3.41326
	2	26.63	-0.0137	3206.12	-0.0104	-0.00822	-0.00548	-0.04743	-3.43523
	1	27	-0.01388	3239.8	0.005565	0.00057	-0.01445	-0.04195	-3.03834
	0	27.38	-0.02214	3221.87	-0.0006	-0.00283	-0.01932	-0.0275	-1.99189
	-1	28	0.046729	3223.8	0.004847	0.000174	0.046555	-0.00819	-0.59288
	-2	26.75	-0.01835	3208.25	0.008792	0.002348	-0.0207	-0.05474	-3.96457

	-3	27.25	0.018692	3180.29	0.003683	-0.00047	0.019159	-0.03404	-2.46565
	-4	26.75	0.014026	3168.62	-0.00022	-0.00262	0.016642	-0.0532	-3.85319
	-5	26.38	0.004952	3169.31	-0.00062	-0.00284	0.007791	-0.06984	-5.05846
	-6	26.25	-0.00493	3171.28	-0.0052	-0.00536	0.000435	-0.07764	-5.6227
	-7	26.38	-0.00453	3187.87	0.002718	-0.001	-0.00353	-0.07807	-5.65422
	-8	26.5	-0.00935	3179.23	0.000126	-0.00243	-0.00692	-0.07454	-5.3986
	-9	26.75	0.086074	3178.83	0.019895	0.008465	0.077609	-0.06762	-4.89749
	-10	24.63	0.005306	3116.82	-0.00215	-0.00368	0.008988	-0.14523	-10.5182