

**THE IMPACT OF COVID-19 ANNOUNCEMENTS ON STOCK  
RETURNS OF 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 presented to any institution or university other than the University of Nairobi for examination.

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## **ABBREVIATION**

**ATS:** Automated Trading System

**CBK:** Central Bank of Kenya

**CMA:** Capital Markets Authority

**COVID-19:** Corona Virus Disease2019

**EMH:** Efficient Market Hypothesis

**IFE:** Internal Factor Evaluation

**NASI:** NSE All Share Index

**NSE:** Nairobi Securities Exchange

**NSE20:** Nairobi Securities Exchange Top 20 Share Index

**GDP:** Gross Domestic Product

**CARs:** Cumulative Abnormal Returns

**AAR:** Average Abnormal Return

**CAAR:** Cumulative Average Abnormal Return

**CAPM:** Capital Asset Pricing Model

**USA:** United States of America

**UK:** United Kingdom

**EU:** European Union

## ABSTRACT

Stock prices and other market values can be affected significantly by announcements, whether positive or negative, especially if the news is unexpected. The COVID-19 pandemic is a rare occurrence; no other incident of comparable magnitude and severity in recent past has occurred. The study's objective was to see how COVID-19 announcements affected NSE-listed firms' stock returns. The independent variables were the announcements on March 12, 2020, March 15, 2020, and April 6, 2020, which corresponded to the announcement of the first positive COVID-19 case and the start of each stage of COVID-19 preventative efforts in Kenya. The stock market returns were the dependent variable in this study. There was no sampling, and the research was based on secondary data. All firms listed at the NSE as at December 31st, 2019 were included in the target population. Daily closing stock prices for all firms listed and the daily closing prices of the NSE All-Share Index (NASI) were analyzed for the period October 15, 2019 to April 15, 2020. Using the event study methodology, the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) were determined using the Market Model and the significance of abnormal return values was tested using statistical theory (t-test). Microsoft Excel spreadsheets were used for the analysis. Based on the research findings, all the three events under study had an impact on stock returns of firms listed at the NSE, but the level of influence varied in every event. The research concluded that there was a significant market reaction to the announcements thus supporting the Efficient Market Hypothesis that asserts that when new information appears in the financial markets, prices are updated immediately. The study recommended that investors could use COVID-19 pandemic information to forecast stock values, and such information should be considered while managing their portfolio in the event of future crises. Also, businesses should press regulators to develop clear policies aimed at reducing economic uncertainty, persuading them that a gradual lifting of the closures will allow businesses to recover. Finally, it was recommended that it is critical for the government and government regulatory authorities to take effective and prompt steps to assist enterprises severely impacted by the COVID-19 pandemic in resolving issues and restarting production and operations.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Event studies have been an important aspect of empirical research in finance since the work of Fama et al. (1969), evaluating the effects of specific economic events on stock returns. The wealth effects generated by the event announcements are linked to a considerable gap between realized and predicted returns. Technical analysts, economists, researchers and traders invest considerable time and effort to predicting the effect of information or public declarations on prices of stock to decide the insight of exchanging between asset classes or leaving the market altogether, among other investing strategies. The announcement effect, regardless of whether negative or positive, can make huge changes in stock prices or other market values, particularly if the news is unforeseen. Coronavirus, as a worldwide pandemic, is a one-of-a-kind event; no other event of similar scope and severity has happened in the recent past. To contain the virus, the Kenyan government imposed partial lockdowns; a ban on political and social gatherings, a dusk-to-dawn curfew, and travel restrictions after the first incidence of the sickness was announced in March 2020. These actions resulted in panic selling by investors and a drop in economic activity, lowering stock returns.

Theories which explored the link between Coronavirus pandemic announcements and stock market returns included: The Efficient Market Hypothesis (EMH) by Malkiel and Fama (1970) who proposed that the overall stock price reflects the value of an organization, and it is difficult to generate additional income using the available information. This study was underpinned by the EMH theory where prices at the stock market reflect the current pandemic event. The Rational Expectations Theory (Muth, 1961) states that our results are not systematically different from what people expect

them to be. He argued that people make a choice based on three main aspects: past experience, rationality and available information. At such a turmoil period as the COVID-19 pandemic time, investors will not take extrapolation of past GDP trends at disaster periods for granted. Understanding the impact of such pandemics or disasters on asset prices and economic performance will help investors to avoid losses on their stock market investments. According to the Black Swan theory, emergence of Coronavirus swept the world due to its uniqueness, which caused serious health problems and deaths and sparked a downward spiral in global stock exchanges. Taleb (2007) used the black swan discovery to describe unanticipated and unpredictable events that have beneficial or negative effects on businesses and stock markets. COVID-19 was an unexpected event that shook the stock market, particularly as national border closures and travel restrictions disrupted supply chains.

The Nairobi Securities Exchange (NSE) oversees stock market operations in Kenya. Among its many other goals and roles, the organization promotes and improves thrift culture and/or saving by offering alternative investment methods and assisting in the transfer of these savings to investments in productive enterprises and publicly traded stocks. The NSE currently trades over 100 million shares per month, making it a key player in Kenya's economic growth. This is made possible by repurposing idle savings and money by connecting lenders and borrowers of funds at the lowest possible cost. The market has been useful in informing the public about the benefits of the stock market and boosting investor confidence by requiring quoted firms to publish their financial reports.

The announcements of COVID-19 in Kenya, as well as their consequences on stock returns at the Nairobi Stock Exchange (NSE), serve the interests of investors when

making investment decisions in difficult circumstances. Past experience shows that crises create risks, yet in addition opportunities for investment: in troublesome occasions, stock return predictability and price volatility soar. Because the COVID-19 pandemic is a novel pandemic, there has been limited research on its consequences on stock market returns, especially on the Kenyan stock market.

### **1.1.1 COVID-19 Announcements**

The COVID-19 pandemic, commonly known as the coronavirus pandemic, is a severe acute respiratory syndrome caused by coronavirus 2 (SARS-CoV-2). It was first identified in December 2019 near Wuhan, China. In January 2020, the World Health Organization (WHO) labeled the pandemic a public health crisis of worldwide concern, and on March 11, 2020, it was proclaimed a global pandemic (UNICEF, 2020). In this research, COVID-19 announcements in Kenya will relate to the announcement of the first case of COVID-19 on March 12, 2020; the roll out of measures implemented to curb the spread of the virus on March 15, 2020; the announcement of the cessation of movement in and out of four counties on April 6, 2020 and the announcement of the extension of the nationwide dusk to dawn curfew for a further 30 days.

While the actual socioeconomic repercussions of the COVID-19 pandemic are unknown, the pandemic's severe consequences can be seen around the world, even if they are simply indicative. Due to Kenya's fragile health care system, underdeveloped financial sector, limited resources and financial capacity, the pandemic presents a serious risk to the country's economic growth and advancement. Therefore, the COVID-19 pandemic is anticipated to severely damage the well-being of households, investment and non-financial markets, as well as Kenya's economic growth and development. The repercussions of COVID-19 on finance and stock exchanges is

causing anxiety among financial economists and investors. Understanding the stock price reaction to announcements related to the COVID-19 event will provide policymakers with valuable experience in preparing plans, reacting quickly, and adjusting methods to reduce losses in the future. Aside from that, the event dates are well-suited to the study's objective and have not been explored previously.

Recognizing the possible economic consequences of the pandemic and in response to the international appeal to determine the financial cost of the coronavirus, a number of new empirical analyses have sought to explore the effect of COVID-19 pandemic on stock exchange returns in several nationalities adopting various econometric approaches. Some studies, such as Fernandes (2020), Salisu (2020) and Al-Awadhi et al. (2020), employed country-specific cases and deaths to assess the impact of COVID-19 on stocks, while others such as Adenomon, Maijamaa and John (2020) and Madai (2021), used the number of days when active cases were reported in the country.

### **1.1.2 Stock Returns**

An increase or decrease in the value of a stock (usually expressed as a percentage) over a period of time is called stock returns. This includes capital gains and any equity gains earned by investors (Mugambi & Oketch, 2016). Because stock returns are predictors that determine future discount rates and expected cash flows, they can be used to forecast output and investment volumes. Investors and governments use stock returns as an index when making investment decisions. (Wang,2012). Investors put their money into the stock market with the hopes of making a profit. This type of income is referred to as "stock returns," and it might come in the form of stock trading gains or dividends. (Reddy, 2016). Stock returns, simply put, are the amount of money gained or lost on an investment over time.

Stock returns determine the effectiveness of stocks and shares in their issuance and the accessibility of sufficient market information. Changes in stock prices affect the supply and demand for stocks, causing some uncertainty for investors (Taofik & Omosola, 2013). Širucek (2013) found that shares and stock markets respond to all valuation information related to future market movements. Firms with a high return on equity are highly profitable, contributing to overall economic growth (Aliyu, 2011). For that reason, stock market returns are an important part of the economy, as fluctuations in economic development trends make it challenging to invest and expense (Erdugan, 2012).

A stock market index is used to calculate the return on shares. Price fluctuations affect performance of a stock. Higher stock indices indicate a more efficient market or sector than lower stock indices because rising stocks indicate positive trends and declining stocks indicate negative trends. The NSE20 stock index in Kenya is employed to calculate stock earnings as it is a measure of security market efficiency.

### **1.1.3 COVID-19 Announcements and Stock Returns**

Of particular interest is the COVID-19 crisis that triggered the global financial crisis. Quarantine and labour movement restrictions are being instituted to subdue the advancement of the disease affecting the global economy. Decreased demand and reduced supply from disruptions in global supply chains has hampered investment and increase risk aversion, undermining trade and consumer confidence. The prices of goods have fallen while stock prices have dropped to a 10-year low and continue to decline (OECD, 2020). Without strategic planning, the stock market continues to plummet, and investors are in a hurry to sell their shares. Investment must be maintained to prevent the economy from collapsing and as such, private investors



need enough information to regain confidence and better understanding of how stock prices will move in the future.

According to Fama's (1970) EMH theory, security prices will always represent all available information in an efficient market. As a result, investment managers must be able to respond swiftly and precisely to real and projected changes by adapting or planning ahead of time. Prudence like this assist to ensure that the stock market rewards not just presently but also in the future. When threats and opportunities emerge to the industry participants at the same time, participants that have made proper preparations for changes are able to take advantage of the opportunities which present themselves therefore getting positive returns and on the contrast those without adequate preparation face the threats that adversely affect their financial performance and stock returns (Gerlach, Peng & Shu, 2005)

Taleb (2007) developed the Black Swan Theory, which is applied to describe events that have very unforeseeable consequences for money markets, stock exchanges, and the entire economy. COVID-19 has emerged suddenly and is becoming more and more prevalent with global health professionals being shocked and overwhelmed. Infections and deaths have created great unpredictability in the world's financial system (Baker et al., 2020). Market participants are likewise taken aback.

In a short period of time, many studies have emerged on the financial significance of this pandemic on returns at the stock exchanges. The market's reaction to the announcement of a lockdown owing to the COVID-19 outbreak was evaluated by Huo and Qui (2020) with a focus on the Chinese market. They discovered that in the event window, 22 out of 28 industries had negative cumulative abnormal returns (CARs), mostly affecting the leisure services industry. The biotechnology and

pharmaceutical industries, on the other hand, had the most favourable CARs. However, most industries that had first experienced negative CARs recovered with positive CARs after a month. Huo and Qui (2020) concluded that industry and corporate level turbulence was triggered by investor overreaction to pandemic lockdown events. Their results stem from overreaction to companies with high retail ownerships.

#### **1.1.4 Firms Listed at the Nairobi Securities Exchange**

The Nairobi Stock Exchange (NSE) was established as a private union of market traders under the Societies Act of 1954, with a mission of growing the securities market and regulating trading activities, before its privatization in 1988. To enable live trading, NSE introduced the Automated Trading System (ATS) where it served traders on the first come first serve basis. To facilitate trading of government securities, ATS was connected to the Central Depository System and the CBK. Since then, it has undergone a number of updates and improvements, including the creation of the NSE All-Share Index (NASI) in 2008 to equip investors with a thorough market performance analysis. The Capital Markets Authority (CMA), a state regulatory authority, licenses and regulates the Nairobi Securities Exchange. The CMA also approves public offerings and public listings of securities that are issued and traded at the NSE (NSE, 2021). The NSE currently has 64 companies listed.

The outbreak of COVID-19 is affecting stock markets, corporate performance in many industries, and other aspects at the corporate level. Thousands of potential investors lost their employment as a result of the economic limitations brought about by the pandemic, thus reducing local investor participation in the market. The announcement of the first case of COVID-19 on 12<sup>th</sup> March 2020 in Kenya,

categorized as negative news saw a great number of foreign traders who had invested heavily on the Kenyan securities at the NSE to begin selling them fearing a market crash, which has led to a significant drop in stock prices at the bourse (Karungu et al., 2020). Trading at the NSE was suspended on 13<sup>th</sup> March 2020 after the NSE All-Share Index (NASI) dropped by more than 5%, clearing out Ksh 120 billion off investors' portfolios due to panic selling. The day before 12<sup>th</sup> March 2020, the bourse had lost Ksh 122 billion, meaning that the fear brought about by Coronavirus had wiped out Ksh 242 billion as foreign investors sold their equity holdings to buy gold and fixed income assets. Stock markets fell sharply when the first cases were announced in Kenya, with companies like Safaricom and Commercial Bank of Kenya (KCB) falling by 5.4% and 7.0% respectively.

## **1.2 Research Problem**

A company's management is concerned about anything that could affect the price of its stock. This is because stock prices are tied to corporate value, which is linked to investor wealth and the company's overall outlook. As a result, company management must be aware of all elements that may influence performance of their stock. Among the factors are emergence and announcement of pandemics or epidemics. The key theory that has been developed on share price movements is the one developed by Fama (1970). In his theory of Efficient Market Hypothesis, he posits that asset prices (or markets) at all times 'fully reflect' accessible information and are hence 'efficient'. Information is essential for the stock market to work for businesses and investors. As a result, it can have a beneficial or unfavourable impact on buying, selling, or hold decisions. Whenever information is received, a positive or negative outcome is anticipated (Pesakovic, 2017). Information could be announcements such as dividends, acquisitions, or current events.

COVID-19 is having a serious detrimental impact on Kenya's economy. The first big hit was the volatility of the stock market. The NSE halted trading after the NSE 20 index fell 5% on the first day of the COVID-19 outbreak in the country. The market had fallen even further by the end of the trading session on Tuesday, June 9, 2020. The NSE20 share index had fallen more than 25% since the beginning of the year and hovered below the 2000-point limit. Because of the market's uncertainty, most investors have been net selling fixed income securities since the outbreak of the pandemic. The country has been forced to enforce partial lockdowns, which have resulted in restricted or halted economic activity, putting businesses and firms in financial jeopardy. A variety of businesses have been hit hard by the slowdown in economic activity, and many sectors such as trade, tourism, real estate and transport have been negatively influenced by the pandemic. This study will be motivated by the unexpected event like COVID-19, and its consequences on the stock market. A positive stock market return would be an indicator of improved performance for companies that directly or indirectly improves the living conditions of Kenyans through employment.

Although much research has been done within a short time on the outbreak and its significance on returns at the stock exchange, it is yet to be fully covered, which is why companies are still experiencing the effects. According to Baker et al. (2020), volatility of the U.S. stock market reached an all-time high because of COVID-19. This explanation is consistent with that of Liu et al. (2020) who established that the pandemic has had an unfavorable and severe influence on the returns of all 21 dominant stock indices in their study, with Asian indices experiencing the largest declines in abnormal returns. Davis et al. (2020) found that the bad news about the pandemic caused significant negative return for 41 high-risk companies for lodging,

travel, traditional retail, aviation, energy, restaurants, residential construction and REITs. Firms operating in the electronic commerce, basic foodstuffs, meds trials, financial management, video games, web-based services, minerals & metals that fed into distribution chains for semi-conductors, cloud-based computing and electrical equipment industries saw favorable return reactions to the same news. According to Gormsen and Kojien (2020), yearly dividend growth in the US and Japan fell by 8%, while it fell by 14% in the EU.

In the African region, Takyi (2021) investigated how the coronavirus pandemic affected business performance in 13 African countries in the short term. They established that the pandemic brought about large and negative effects on stock markets in 10 countries while not having a significant (or relatively short-term negative) influence on stock markets in three others. Locally, Orege (2020) found that COVID-19 affected share performance negatively. Other studies in Kenya that have focused on similar calamities were done by Wesonga (2016) and Muriithi (2010). The studies were undertaken when the stock market was not at its present levels and were based on political risk and the global financial crisis, respectively.

This research furthers the work done by Orege (2020) who considered the effects of COVID-19 pandemic on stock performance of firms listed at the NSE. However, his research is deficient due to the fact that he observed different variables in his study within a different time span. Previous research from other countries is also unreliable in the Kenyan context, because governments' responses to the pandemic vary by economy, and security market improvements are at different levels. It's also worth noting that the severity of the pandemic varies, necessitating local studies with local data, and the event dates picked for this study haven't been researched previously.

This is the gap that this study aimed to fill by answering the research question: What influence do COVID-19 announcements have on stock market returns of NSE-listed companies?

### **1.3 Research Objective**

The purpose of this research was to evaluate the impact of the COVID-19 announcements on the stock returns of firms listed at the Nairobi Securities Exchange.

### **1.4 Value of the Study**

This study will complement the available studies on the effect of the pandemic on stock markets. Its findings will provide investors with background information on how to evaluate the brunt that the COVID-19 pandemic has on their investments. This allows them to give attention to the event and be able to diversify risks while investing at the stock market. Knowledge of such provides a competitive advantage to the investors in form of better information on the best investment decisions. Future investors can use this study as a foundation upon which they can gauge how the prevailing epidemics or pandemics will impact on their investment choices.

Scholars, future researchers, and academics who intend to do comparable or similar research will benefit from the findings. Additionally, the results will help researchers and academics select relevant research topics by highlighting issues that require further empirical research to close research gaps.

The findings and recommendations of this study will be useful to legislators or policymakers such as the CMA, the government and the NSE, who can use them to develop important policies to offset the repercussions of COVID-19 announcements on firm performance.

This research will also help with theory building. This is the theoretically expected association between COVID-19 announcements and stock market returns, and results of this study will confirm or refute the hypotheses presented to advance theories on this issue.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The key objective of this section is to go over the theories that underpin the research. In addition, the chapter discusses prior empirical investigations on the topic and related issues. Other components of the chapter include an explanation of the determinants of stock market returns, a conceptual framework that explains the research variable relationships, a study gap, and finally a literature summary.

### **2.2 Theoretical Review**

This study explored possible explanations for the correlation between COVID-19 announcements and stock returns. The theoretical reviews discussed include the Efficient Market Hypothesis, the Black Swan Theory, and the Rational Expectations Theory.

#### **2.2.1 Efficient Markets Hypothesis**

Fama (1969) published an article explaining the theory of efficient capital markets, which in recent years has led to the publishing of a significant amount of material. The main idea of the hypothesis is that "...the price (or market) of a security fully reflects the available information that is always considered as efficient" (p. 383). That is, when new information appears in the financial markets, prices are updated immediately. It also suggests that prices that are "fully reflective" of the new information can take three different forms. First, the weak form implies a financial market based solely on historical price or earnings records, and the second, when the market considers other publicly available information (e.g. market announcements), price forces tend to react quickly. This leads to a semi-strong form. Finally, the strong



form is typically market participants with exclusive access to sensitive information that influences pricing.

However, there is a growth in the number of literatures that is challenging the market efficiency theory. In the field of behavioural finance, for example, scholars suggest that enhancing academic finance requires broader social sciences, such as sociology and psychology. According to Shiller (2003), "...to some observers / ... / price fluctuations occur for no fundamental reason, because they are the result of "sunspots", "animal spirits" or just mass psychology."(p. 84). Also, according to Brown (2011), there is no underlying process that makes price fully reflect new information, so the assumption fails to act as a standard of detection. Malkiel (2003) supports the market efficiency hypothesis, but he acknowledges that pricing is not consistently perfect, and the markets have made mistakes owing to the irrationality of its players.

Shiller (2003) argues that investors tend to act irrationally to new information, and the view is backed up by De Bondt and Thaler (1987) where they establish that experimental psychology suggests that individuals generally "overreact" to dramatic and unexpected occurrences. Shiller, De Bondt, and Thaler's evidence that stock markets are bound to underestimate or overreact to certain events contradicts Fama's idea of efficient markets.

This theory was useful in this research since it enabled the researcher to comprehend how the price of a security provides an investment in the market. It also provided the researcher with accurate information about the market type (if one of the three), as well as the various price securities associated with it. Share prices should represent

past information in a weak-form capital market. As a result, investors should use earnings yield, which is based on historical data, to forecast stock returns.

### **2.2.2 The Black Swan Theory**

Taleb (2007) established the Black Swan theory and its economic applications. In his written works, Taleb associated the use of black swans with ancient Australia at the time that beholding a black swan was rare and unexpected to the inhabitants of that era, besides the white swans. Nevertheless, a scientist found a black bird that resembles the famous white swan that surprised ornithologists in the past (Taleb, 2007). Consequently, Taleb used the sighting of the then-new black swan to characterize unforeseen and unpredictable events that negatively or positively affect stock markets and business operations. The term "black swan" is used to describe a highly unlikely event. The Black Swan theory is applied to explain occurrences that are unforeseeable and have repercussions for stock markets, financial markets, and the whole economy. Given the uncertainty of Black Swan events, economists suggest diversifying one's investment portfolio to lessen the negative consequences of such events.

The uncertainty surrounding black swan events has resulted in the assumption that such events are unpredictable in the future. Several authors, such as Paté-Cornell (2012), Aven (2015), Lindaas and Pettersen (2016), have questioned this approach and have suggested that these occurrences can be speculated through warnings and alerts in advance, however, a warning (e.g., a medical signal of a new virus or latest updates) may be examined promptly or regularly. Precursors and alerts can be put to use as a kind of dynamic risk evaluation in which data, reviews and system information are collected, worked-on and re-implemented.

Green (2011) partially supports Taleb's argument that despite the fact that these types of incidents are unpredictable, corporations must be prepared to respond effectively and must also deal with the psychological impact of the shock of unimaginable events. On the other hand, other researchers say that the appearance of black swan events is somewhat predictable and offer several ways of managing it (Werther, 2013; Murphy & Conner, 2012; KPMG, 2013; Kenett, 2013)

This theory is consistent with this study, considering that the advent of the pandemic in China, due to its uniqueness, has affected the entire global community and caused severe health implications and death, as well as a stock market crash.

COVID-19, with its sudden rise and rising infections and deaths, has confounded and overwhelmed healthcare workers around the world, prompting the Kenyan government and health authorities to institute measures to control the spread of the virus. These came as announcements that have led to the fluctuations in the stock market and money markets, making investors to be sceptical.

### **2.2.3 Rational Expectations Theory**

According to the Rational Expectations Theory, individuals' choices are based on three main factors: past experiences, available information, and their human rationality. John F. Muth suggested this idea in his original paper, Rational Expectations and Theory of Price Movements, published in the journal *Econometrica* in 1961. Muth applied this phrase to characterize various events that were in part influenced by the expectations of people.

Despite that logic, the Rational Expectations hypothesis is nonetheless criticized by a large number of people. According to Arrow (1978), assumptions about rational expectations require experienced statisticians to analyse subsequent general balance

of the economy. According to Brimmer and Sinai (1981), it is impracticable. Due to ignorance, it is unlikely that ordinary people will have access to all relevant information about various decision-making processes. Fellner (1980) and Shiller (1978) emphasize the incapacity of economic representatives to embark on gathering the necessary data and building appropriate economic models.

This theory was considered in this study because of its connection between the concepts of expectations and NSE performance, which affects the level of performance to some extent.

### **2.3 Determinants of Stock Returns**

Stock returns are particularly important since they have such a direct impact on stockholder wealth. The following are some of the most important factors that are thought to influence stock market performance:

#### **2.3.1 COVID-19 Announcements**

In the past, different kinds of pandemics had broken out and killed large numbers of human beings and disturbed the world economy. At the end of December 2019, a disease with flu-like symptoms was identified in China. It is the first global fatal pandemic in more than a century (the last one being the 1918 flu pandemic, also known as the Spanish Flu). The first outbreak was in China at the end of 2019 and in less than three months till March 2020, it had advanced across the globe, leading to a huge statistic of infections and death. Given the massive blow of the Coronavirus on the population's physical and mental health, the economic and financial consequences appear to be secondary. However, people are directly involved in economic and financial activities so the impact of COVID-19 on these sectors must be evaluated.

With the announcement of preventive measures and treatment of the infected, economic activities have almost come to a standstill. While the return on a securities market investment depends on the performance of the company in question, in this scenario, the news of the outbreak in Kenya affected companies and reduced profitability and solvency, causing the stock price to fall in the stock market. As per the EMH theory, investors are rational and make their own investment decisions based on market information. Fama et al. (1969) in their Event study provided beneficial backing for how stock prices correspond to information. The COVID-19 event is advancing around the world and the response is being reflected in the stock market.

### **2.3.2 Inflation Rate**

According to Tucker (2007), inflation is a sharp rise in the total cost of a product or service in an economy. Inflation is described as a rise in the average price level, not the unit price of a good or service. In their study, Sloman and Kevin (2007) explained that inflation can take two forms: demand-pull inflation which is due to a rise in demand for goods and cost-push inflation, which occurs when costs rise.

Because of high inflation rates, there are higher prices that are likely to slow down business and decrease earning for companies. Interest rates also tend to rise because of high prices. Fama (1981) contended that there is no interrelationship between real economic activity and inflation and thus has a positive effect on market performance. Generally, inflation creates uncertainty and hence lack of confidence in the future and such a factor consequently reduces corporate profits which would further discourage investors from investing in the stock market and the stocks become less attractive. As inflation makes the stock market perform poorly, there would be fewer incentives for

the investors. Therefore, the stock index ought to correlate with the expected inflation negatively, and with short term interests acting as a substitution same to the IFE.

### **2.3.3 Interest Rates**

Interest rates, in the form of risk-free rates, are important in investment practice because they are used to calculate a guaranteed or near-guaranteed return on investment. As a result, when valuing stocks, stockholders use a risk-free rate, for instance the Treasury Bills rate, as the base rate at the time of evaluating the worth of an investment. Bearing in mind that the cost of capital includes the risk-free rate and the risk premium (Lintner, 1965; Sharpe, 1964), the Treasury Bills interest rate increases the cost of capital, which increases the market. Since Treasury Bills is at par with equity capital as an investment fund, stockholders are more inclined to reduce their equity capital and reallocate additional funds to Treasury Bills when Treasury Bills interest rates rise. For this reason, Treasury bills are considered secure because the government guarantees payment.

In addition, publicly traded companies can raise long-term funds through the issuance of additional stocks (equity finance) or borrowing from commercial banks (debt finance). Nevertheless, businesses continually try to reduce the cost of capital while increasing the value of existing owners. As a result, lower lending rates may encourage businesses to borrow more bank loans and issue fewer additional shares, which reduces the cost of capital and reduces the risk of diluting existing shares. Therefore, decreased loan interest rates are more likely to translate into higher returns in the stock market. (Kganyago & Gumbo, 2015). Contrarily, high lending rates may compel companies to issue additional shares to finance their investments. As a result, stock prices may fall, which may lower returns on the stock market. High interest

rates, low cash flow and low stock market returns can be associated with the high interest rates on loans.

#### **2.3.4 Company Announcements**

Rumours and news have a huge impact on the stock market. People interpret news differently based on their cognitive abilities, which can affect investor sentiment and future prospects as well as business performance. Changes in management, profit or loss statements, profits and expected future earnings, dividend declarations, new product launches, employee layoffs, major new contract signings, accounting errors or scandals and anticipated acquisitions or mergers are some of the company's unique factors that can affect the share price. (Alanyali, Moat & Preis, 2013).

Investors keep an eye on the price dynamics of industry's products, new players, and industry sales forecasts, as some companies are more affected by industry-specific conditions than larger economic conditions. An improvement in dividends could indicate that an entity can expend to pay additional dividends in the future. Investors may lower the company's stock value and cash flow if they record lower-than-expected results. Diversification is often seen as a positive indicator of a company's health if tailored assets are segregated from the company's key business. Accordingly, this triggers a rise in demand for the stock, which generates an increase in the stock price.

#### **2.3.5 Firm Size**

A public company's market capitalization is used to determine its size on a stock exchange. The total assets of a corporation can also be used to estimate its size. Ikiiki and Nzomoi (2013) defined market capitalization as the total number of issued firm shares listed on the stock exchange. The market capitalization of a corporation rises as

the number of outstanding shares rises, while all other factors remain constant. Market capitalization, according to Musebe (2015), is an important metric for investors to utilize when calculating their investment returns. It's also a popular metric for assessing the health of publicly listed companies and determining their worth.

Companies with lower market capitalizations have higher earnings than firms with higher market capitalizations (Banz, 1981). Idris and Bala (2015) corroborated this statement by finding that stock market capitalization had a notable unfavourable influence on stock market returns. Investors say they demand higher returns from small businesses than from large businesses because of the risks of small businesses.

## **2.4 Empirical Studies**

There are several empirical studies supporting the connection between COVID-19 and local and international stock market returns, and these studies draw similar conclusions.

### **2.4.1 Global Studies**

COVID-19's short-term influence on 21 major stock indices in the United States, Germany, Japan, Italy, Singapore, South Korea, and the United Kingdom was studied by Liu et al. (2020). The Dow Jones Index, which was chosen as the standard index to compute the abnormal returns of composite indexes, was used to collect daily closing values of these indexes from February 21, 2019 to March 18, 2020. They discovered that the stock exchanges in these countries had fallen since the virus's emergence, using an event study method to their investigation. They also pointed out that Asian countries had a higher rate of negative differential outcomes than other countries.

Davis et al. (2020) used the Risk Factors reviews in pre-pandemic 10-K filings and two text-analytic applications: expert-curated dictionaries and supervised machine



learning to study how firm-level risk exposures affect stock returns in response to COVID-19 announcements in the United States. On the 20 jump days between February 24 and March 27, 2020, they looked at daily returns for 2,155 equity instruments, but only for U.S.-affiliated companies with the price of shares listed in U.S. Dollars. On these days, their text-based models explained up to fifty percent of the inconsistency in abnormal firm-level returns. They discovered that negative pandemic updates resulted in significant adverse return implications for 41 companies with considerable exposure to accommodation, travel, energy, REITs, retail, restaurants, aircraft manufacture, and housing construction, among other industries. Firms having high exposures to web-based services, meds trials, video games, e-commerce, basic foodstuffs, financial management, and minerals and metals that fed into distribution chains for electrical equipment, semiconductors, and cloud-based computing saw favourable return responses to the same news.

From January to July 2020, Gormsen and Koijen (2020) used data from aggregate stock and dividend futures markets to evaluate how stockholders' anticipations about economic growth changed over time resulting from the Covid-19 outbreak and related governmental actions. They chose the S&P500 index in the United States, the Euro Stoxx 50 index in the European Union, and the Nikkei 225 index in Japan as representative stock indices. Their projections predicted an 8% drop in yearly dividend growth in Japan and the U.S, and a 14% drop in the E.U. Furthermore, around March 24, news concerning US monetary policy and the fiscal stimulus plan lifted the stock exchange and long-term growth forecasts but had minimal impact in improving short-term growth anticipations.

Baker et al. (2020) investigated in what manner the pandemic has affected the US market. They used the text-based methods to gather evidence of large daily

movements in the exchange since 1900 and general market volatility since 1985. They discovered that while past pandemics, like the Spanish flu, had only marginal effects on the US stock markets, the pandemic had a significant impact. According to the investigations, government limits on business activity and free-willed social distancing, both of which have tremendous consequences in a service-based economy, were the basis as to why the stock exchange in the U.S reacted to Covid-19 much greater than to earlier pandemics.

Takyi (2021) used time series stock market data from October 1, 2019 to June 30, 2020 to investigate the short-term influence of COVID-19 on stock market performance in 13 African countries. They assessed the relative impact of the pandemic on stock market performance in Nigeria, South Africa, Ghana, Tanzania, Mauritius, Kenya, Tunisia, Zambia, Uganda, Morocco, Cote d'Ivoire, and Botswana using a new Bayesian technique for structural time series (state space model). Overall, their Bayesian posterior estimates showed that performance of the stock markets in Africa has declined greatly throughout and after the COVID-19 period, generally from -2.7% to -21%. At the country-specific level, they discovered that COVID-19 had a considerable adverse influence on stock exchange markets in ten nations, while the other three do not have significant (or short-lived negative) impacts on stock markets.

#### **2.4.2 Local Studies**

Oreng (2020) attempted to assess the effect that the COVID-19 pandemic had on stock performance of firms listed at the NSE by considering other variables. Control variables were exchange rate, stock trading volume and the days to 2019 dividends book closure. The study adopted a quantitative approach where quantitative data was

collected and analysed through regression. Data was collected within 30 days of the first case announcement and excluded weekends when the stock exchange closed. Study results indicated that except for the exchange rates, other variables under the study affected share performance negatively.

Muriithi (2010) investigated whether the worldwide financial crisis had an impact on the performance of the NSE. The performance indicator was the NSE20 Share Index. Data for the NSE20 Share Index were collected from the NSE from 1991 to 2010. The month end indices for the period obtained from the NSE were analysed using means and variances using the SPSS statistical package. The study found significant differences in market performance in the year following the crisis that hit major stock exchanges, but the effects were not strong enough to warrant any panics. It showed that market performance is low during the financial crises period but immediately after the crises the market performance improves.

Wesonga (2016) looked at how political risks and macroeconomic factors affected the stock market performance of NSE-listed companies. To analyse all firms listed on the NSE, this study used a descriptive research design using monthly secondary data from January 2000 to May 2013. The NASI and the NSE20 Share Index, the two primary NSE indexes, were used to assess the NSE's performance. It found that the two indexes' performance was significantly correlated, with the two indices responding differentially to several macroeconomic factors although moving in almost the same direction. Inflation, political risks, interest rates and exchange rates, all had an unfavourable impact on the NSE20 share index, according to available data. Oil price and money supply, nevertheless, exhibited a positive correlation with the two indices. The influence of political risk on NSE performance was shown to be statistically significant.

According to this analysis, a pandemic like COVID-19 can bring forth varying consequences subject to the structure of the stock market or the measures made by corporations and nations to reduce the pandemic's effects. It is arguable that many studies into the impacts of COVID-19 on stock exchanges and the financial market have major focus on assessing the disease's spread and financial implications. To the best of my knowledge, there hasn't been any research in relation to the impact of COVID-19-related announcements on stock returns in Kenya. Furthermore, there has been relatively little research done in Kenya to assess the economic and stock market effects of the COVID-19 pandemic. As a result, the purpose of this research was to examine return data to see if there is a link between COVID-19 announcements and NSE returns.

## **2.5 Summary of Literature Review**

Various rationales have been used to explain the impact of COVID-19. This theoretical review discusses three theories. The three theories are the Efficient Market Hypothesis (EMH), the Black Swan theory, and the Rational Expectations Theory. This section also goes over some of the key determinant factors that influence stock returns. COVID-19 and stock returns have been the subject of a few empirical studies conducted both globally and locally. The results of these studies have also been discussed in this chapter.

The different effects of the COVID-19 outbreak on stock returns are sufficient motivation to investigate research prospects in Kenya. The impact of COVID-19 in the short-run on 21 key stock indices in Singapore, Japan, the United States, South Korea, Germany, Italy and the United Kingdom was studied by Liu et al. (2020), who discovered that these countries' stock exchanges had fallen since the virus's

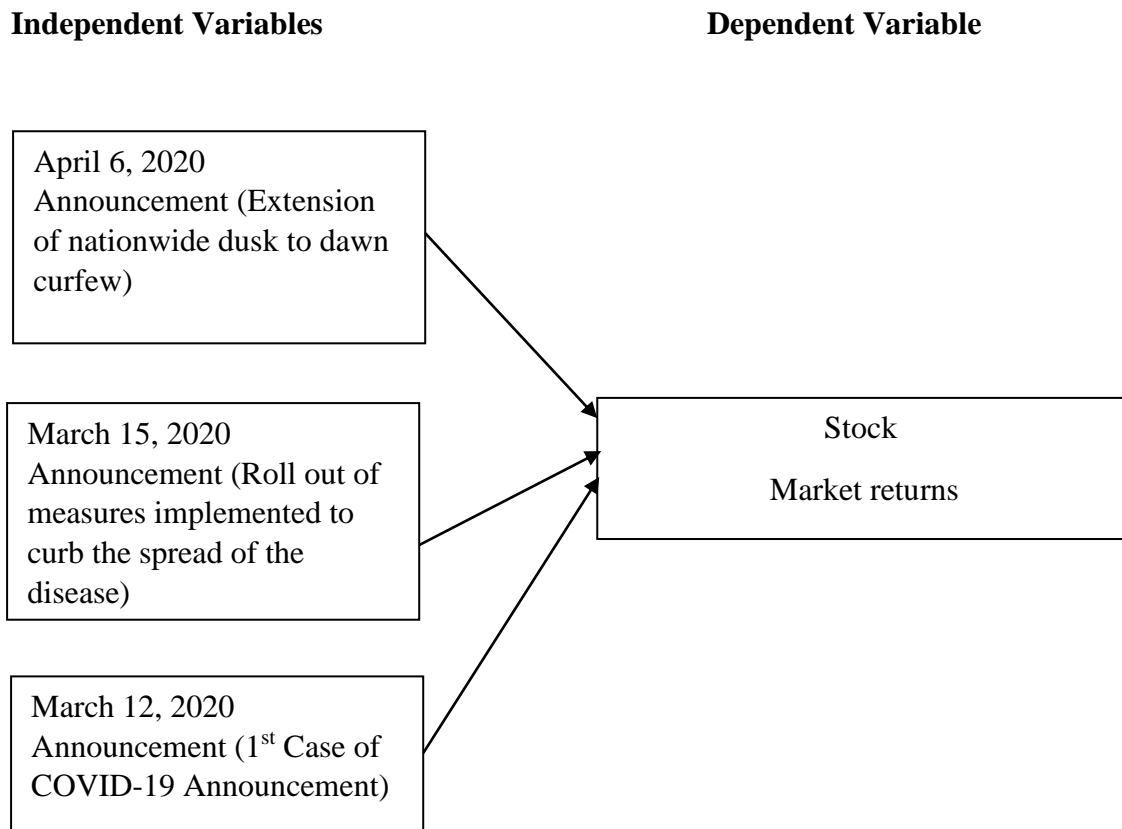
emergence. They also pointed out that Asian countries had a higher rate of negative differential outcomes than other countries. Davis et al. (2020), Gormsen and Koijen (2020), Baker et al. (2020) and Takyi (2021) identified similar negative effects, but noted that the countries' response to the pandemic is diverse, leading to different short-term projections for stock returns

Although the security market has been seen to be influenced by global market conditions, such as during the global financial crisis as explored by Muriithi (2010) and political risk as investigated by Wesonga (2016), the COVID-19 impact has been so categorical, necessitating this study. This research furthers the work done locally by Orange (2020). Also, in the Kenyan context, his research looked at stock market returns without considering the impact of COVID-19 announcements and this is the gap this research aimed to fill.

## **2.6 Conceptual Framework**

Many developments in the macro and microeconomic environment have affected the stock market. A common assumption of markets is that investors react to market information by increasing or withdrawing their investments. Investors' reactions are determined by whether they receive good or unfavorable news. If the news is positive, the investor will increase his or her stock market investments, resulting in a rise in stock market prices. If the news is bad, the investor may decide to sell his or her shares, causing the supply of stocks on the market to rise and stock prices to fall. As a result, the stock market is adjusted by stock demand and supply. The current pandemic outbreak is having a detrimental impact on human beings; hence the stock market reaction must be unfavorable. There were three event variables that were investigated in this study: The March 12, 2020 announcement, March 15, 2020

Announcement and April 6, 2020 announcement which were the independent variables, with stock market return (SR) as a dependent variable. The following figure depicted the casual correlation between the dependent and independent variables: -



**Figure 2. 1 Conceptual Framework**

**Source: Researcher (2021)**

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This section explains the approaches to research that were employed to objectively determine the effect of COVID-19 on stock returns. Additionally, it covers information about the study design, the study population, data collection and methods, and ultimately the data analysis methods used.

### **3.2 Research Design**

A study design is an outline for the procedure that will be utilized to investigate the connection between the dependent and independent variables by a researcher (Khan, 2008). The event study methodology utilized in this review will be founded on Bromiley et al. (1988) and Fama et al. (1969)'s theory of efficient markets, which states that when new financially applicable news enters the market and is consumed by stockholders, the relevant information or market shocks will be promptly translated into stock prices. To put it another way, asset values are thought to react instantly to any new information released in the market. The event study approach examines how people react to a certain occurrence by determining whether it results in abnormal stock earnings that can be linked to new knowledge. The event study design was adopted since the study focused on the impact of COVID-19 announcements on NSE share returns.

### **3.3 Population**

Burns and Burns (2008) define population as the unit of analysis from which the study attempts to draw inferences. Because there were few firms and the study relied on secondary data, the study's target population were all members of the population, which were companies trading on the NSE as of December 31st, 2019. As a result, there was no sampling.

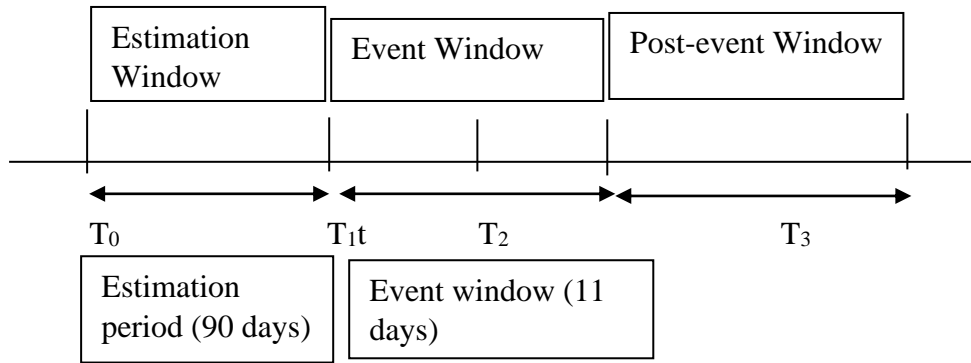
### **3.4 Data Collection**

Data was acquired only from a secondary source. The data included daily closing stock values for 63 companies listed at the NSE from October 15, 2019 to April 15, 2020 and data on the closing stock values for the NSE All-share Index for the same period. Three event dates were determined in this study: March 12, 2020, March 15, 2020, April 6, 2020, which corresponded to the day the first COVID-19 case was announced in Kenya and the start of each stage of Covid-19 preventative actions in Kenya. These were gathered and recorded in a data collecting table, as available on the NSE website and data bank.

### **3.5 Data Analysis**

To make analysis easier, the data was be sorted and tabulated. The Microsoft Excel Spreadsheets was used to conduct the analysis. To arrive at definitive conclusions, the study utilized the date of the first case announcement on March 12, 2020, as day one of the period (there will be three periods) and as the event date ( $t=0$ ). The first day the exchange reopened was day zero if the news was made on a day when the exchange was closed. Day zero was therefore on Monday if the intervention was made public on Saturday or Sunday, for example. The 11-day event window started 5 days before the event date (" $t=-5$ ") and ended 5 days after (" $t = + 5$ "). This study was divided into three event windows based on the event window:  $(-5; +5)$ ,  $(5; 1)$ , and  $(-1; -5)$ . The cumulative influences on stock prices for the five days preceding to and after the event date were investigated using the event window  $(-5; +5)$ .





**Figure 3. 1 Event Study Timeline**

**Source: Researcher (2021)**

The estimation period (defined by “t” = 101 and “t” = 11) was 90 days before the particular event date. The estimation period ought to be sufficiently long to make it possible for a more accurate forecast of the stock's expected return while decreasing the impact associated with short-term changes. Furthermore, using such a timeframe for estimation may reduce the impact of various corporate disclosure actions on share prices during the course of the observation period. This study used a step-by-step approach to research.

**Step 1: To determine abnormal returns for each security daily, the study used the following formula:**

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \dots \dots \dots (1)$$

Where  $AR_{i,t}$  denotes the abnormal return of security i on date t,  $R_{i,t}$  the actual return of security i on date t, and  $E(R_{i,t})$  the expected return of security i on date t.

To calculate the stock's actual return:

$$R_{i,t} = (P_{i,t} - P_{i,t-1}) / P_{i,t-1} \dots \dots \dots (2)$$

Where  $P_{i,t}$ ,  $P_{i,t-1}$  are the prices of security on dates t and t-1, respectively.

The expected return on the security can be calculated using a variety of approaches. Two major techniques are the Market Model and the Asset Valuation Model (CAPM—Capital Asset Pricing Model). This research employed the first technique, the Market Model. The market return on day t, according to this method, is usually invariably the single factor impacting the return of security i on day t. This model is similar to the CAPM, only that it employs a fixed coefficient instead of a risk-free rate. As a result, the following market model formula was used to compute the expected return on a stock:

$$E(R_{i,t}) = (\alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}) \dots \dots \dots (3)$$

Where  $E(R_{i,t})$  is the expected return associated with security i on date t;  $R_{m,t}$  is the daily return of market portfolio on date t;  $\alpha_i$  and  $\beta_i$  are market model coefficients;  $\varepsilon_{i,t}$  is the error term.

**Step 2: To calculate average abnormal return and accumulated abnormal return using the following 2 formulas:**

$AAR_t = \frac{\sum_{t=1}^N AAR_t}{N}$  : The average abnormal return of N stocks was calculated for each day in the event window (from t=-5 to t=+5).

$CAAR_{t=11} = \sum_{-5}^{+5} AAR_{i,t}$  : In the event window, the cumulative average abnormal return for 1 share was calculated.

**Step 3: To calculating AAR and CAAR t-statistics:**

The significance of abnormal return values was tested using statistical theory (t-test).

In the event window, the formula for calculating t-stat for  $AAR_t$  and  $CAAR_t$  is as follows:

$$t - statistic(AAR) = \frac{AAR}{SE(AAR_t)} \dots \dots \dots (4)$$

Where  $(SE_{(AAR_t)}) = \sqrt{\frac{\sum_{t=-101}^{-11} (AAR_t - E(AAR_t))^2}{N(N-1)}}$  is the Standard Error of  $AAR_t$  in the estimation window.

$$t - statistic(CAAR_{t=5}) = \frac{\sum_{t=-5}^5 AAR_t}{\sqrt{11}SE(AAR_t)} \dots \dots \dots (5)$$

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

The data results and findings based on the study's objective are presented in this chapter. It also examines the data gathered from the NSE in order to assess the impact of COVID-19 announcements on the stock returns of NSE-listed companies. To make the results of the study easier to understand, they were presented in charts and tables.

### **4.2 Descriptive Analysis**

The closing prices for all companies listed at the NSE and the NASI closing prices data used in this research was collected from NSE offices for the period October 15, 2019 to April 15, 2020. Daily returns were calculated as a percentage change in the closing prices over successive days. The sample consisted of 7749 closing prices of 63 listed companies. The tables below present the mean, median, maximum, minimum, standard deviation, skewness and kurtosis of values of AAR and CAAR within the event window of 11 days for the three events under study.

**Table 4. 1 Descriptive Statistics for AAR and CAAR over the Event Window of March 12, 2020 Announcement**

	AAR	CAAR
Mean	-0.0048	-0.0233
Median	-0.0052	-0.0172
Maximum	0.0071	0.0019
Minimum	-0.0152	-0.0526
Standard Deviation	0.0058	0.0200
Skewness	0.3297	-0.1909
Kurtosis	1.3552	-1.7529

**Source: Research Findings (2021)**

**Table 4. 2 Descriptive Statistics for AAR and CAAR over the Event Window of March 15, 2020 Announcement**

	AAR	CAAR
Mean	-0.0059	-0.0368
Median	-0.0062	-0.0444
Maximum	0.0061	-0.0040
Minimum	-0.0179	-0.0650
Standard Deviation	0.0063	0.0211
Skewness	-0.0730	0.3708
Kurtosis	1.1290	-1.4594

Source: Research Findings (2021)

**Table 4. 3 Descriptive Statistics for AAR and CAAR over the Event Window of April 6, 2020 Announcement**

	AAR	CAAR
Mean	0.0017	0.0167
Median	0.0021	0.0192
Maximum	0.0160	0.0335
Minimum	-0.0123	-0.0068
Standard Deviation	0.0092	0.0131
Skewness	0.0127	-0.4109
Kurtosis	-1.2760	-0.9684

Source: Research Findings (2021)

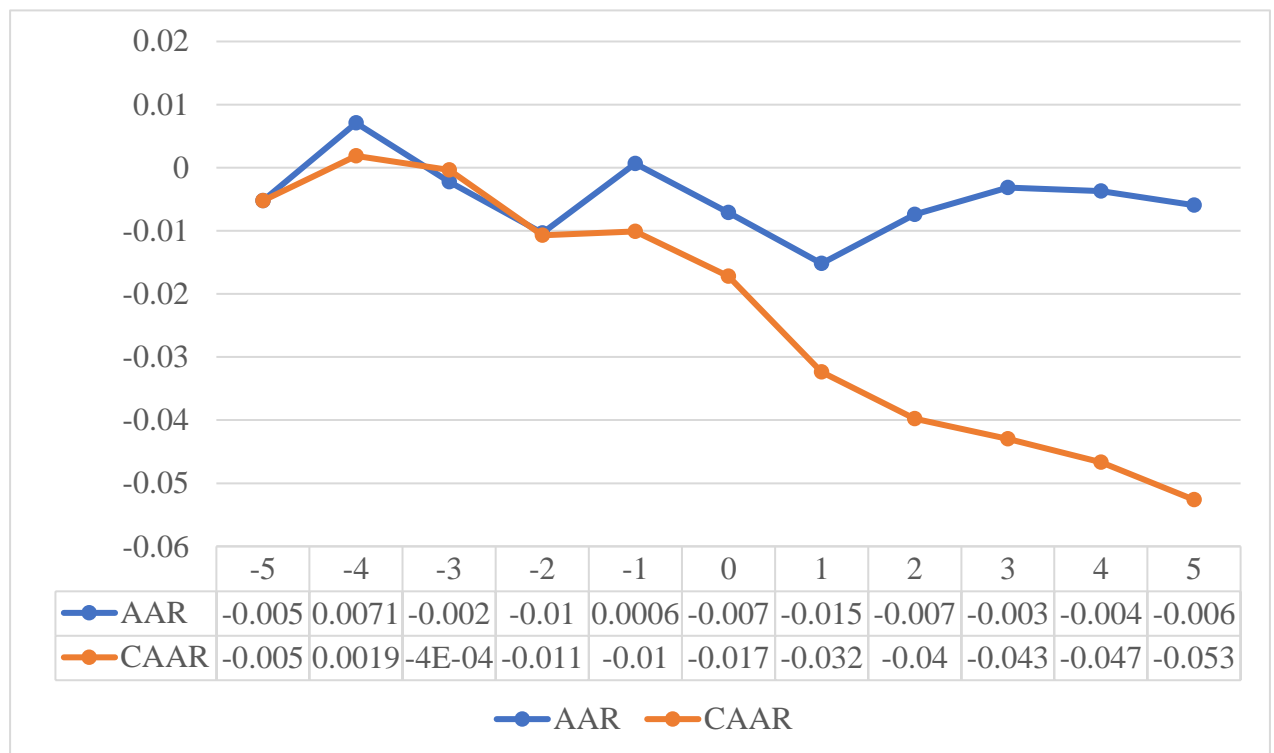
### 4.3 Data Presentation

The data was collected was analyzed using Microsoft Excel spreadsheets. The study looked at how the stock market reacted to the first COVID-19 positive case being discovered, the adoption of anti-virus measures, and the subsequent extension of the

dusk-to-dawn curfew. All NSE-listed companies' abnormal returns, as well as the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) were analyzed. The study looked at the 5-day period before and after the announcements, with an event window of 11 days. The AAR and CAAR for the 63 enterprises analyzed are depicted in the figures below for the 11-day event window.

#### 4.3.1 Analysis for the March 12, 2020 Announcement

The average abnormal and cumulative average abnormal returns were calculated using the daily and expected returns. The findings are as follows:



**Figure 4. 1 Trend Analysis of AAR and CAAR for the March 12, 2020 Announcement**

**Source: Research Findings (2021)**

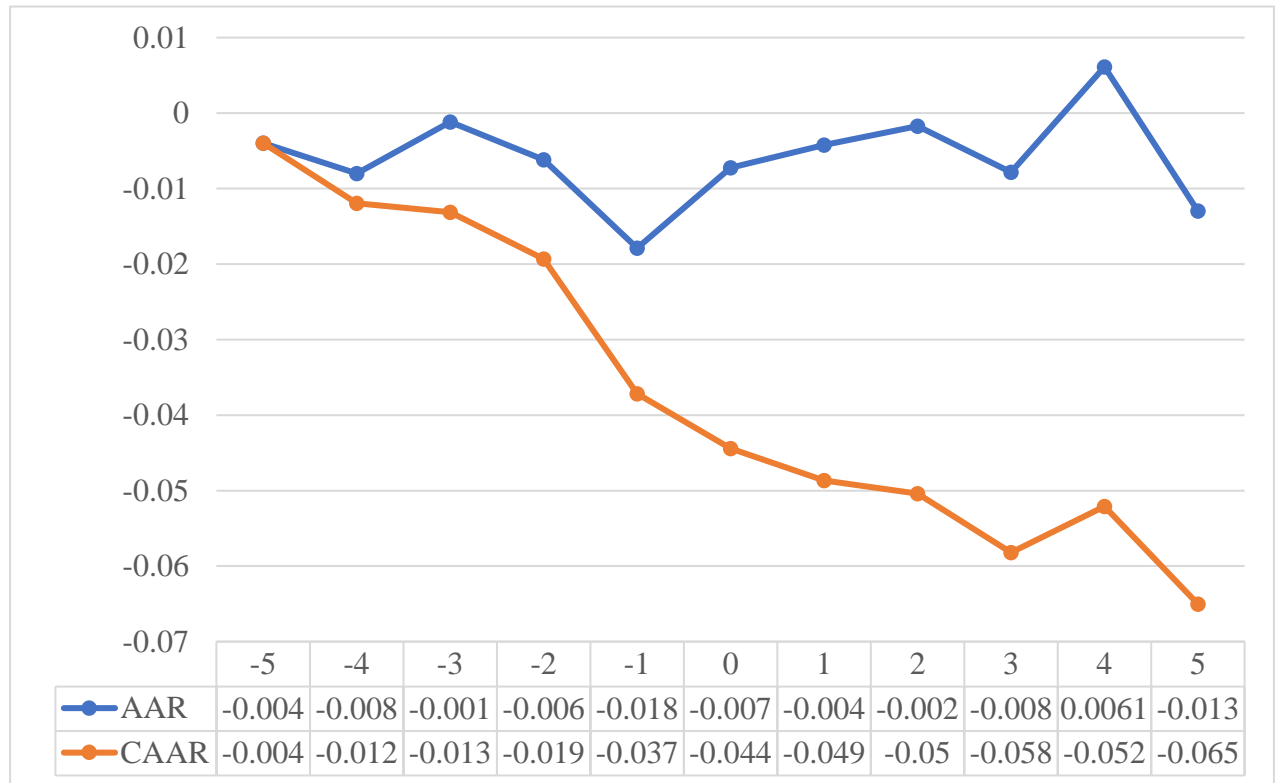
Stock prices plummeted after the first positive case of COVID-19 was revealed on March 12, 2020, as seen by the negative fall in the average abnormal return and cumulative average abnormal returns.

Although the numbers for average abnormal returns are generally negative after the event date, the curve for average abnormal returns fluctuates both before and after the event date. Returns were shown to rise on days 4 and 1 before to the event date, with positive values of 0.007077 and 0.000633 respectively. The curve falls dramatically downwards following the event date, but with a slight rise one day later. Investors reacted negatively to news about the first case, as all average abnormal return values after the event date were negative.

Throughout the event timeframe, the cumulative average abnormal returns curve trends downward. The only time there was a positive cumulative average abnormal return of 0.001866 was four days before the event date. As seen in Figure 4.1, the first positive case's disclosure had a significant negative impact on stock returns.

### 4.3.2 Analysis for the March 15, 2020 Announcement

The average abnormal and cumulative average abnormal returns were calculated using the daily and expected returns. The findings are as follows:



**Figure 4. 2 Trend Analysis of AAR and CAAR for the March 15, 2020 Announcement**

**Source: Research Findings (2021)**

The announcement of efforts to stop the virus's spread was made on March 15, 2020. The AAR curve, which fluctuates throughout the event window, shows the influence of the announcement. The returns are shown to rise significantly from the previous day's value on the day of announcement, though with a negative return of -0.00725. Except for a positive value of 0.006122 on the 4th day after the event, all return values were negative throughout the event window, and the curve sloped downwards on the 5th day following the event date. The small uptick in the curve for the two days



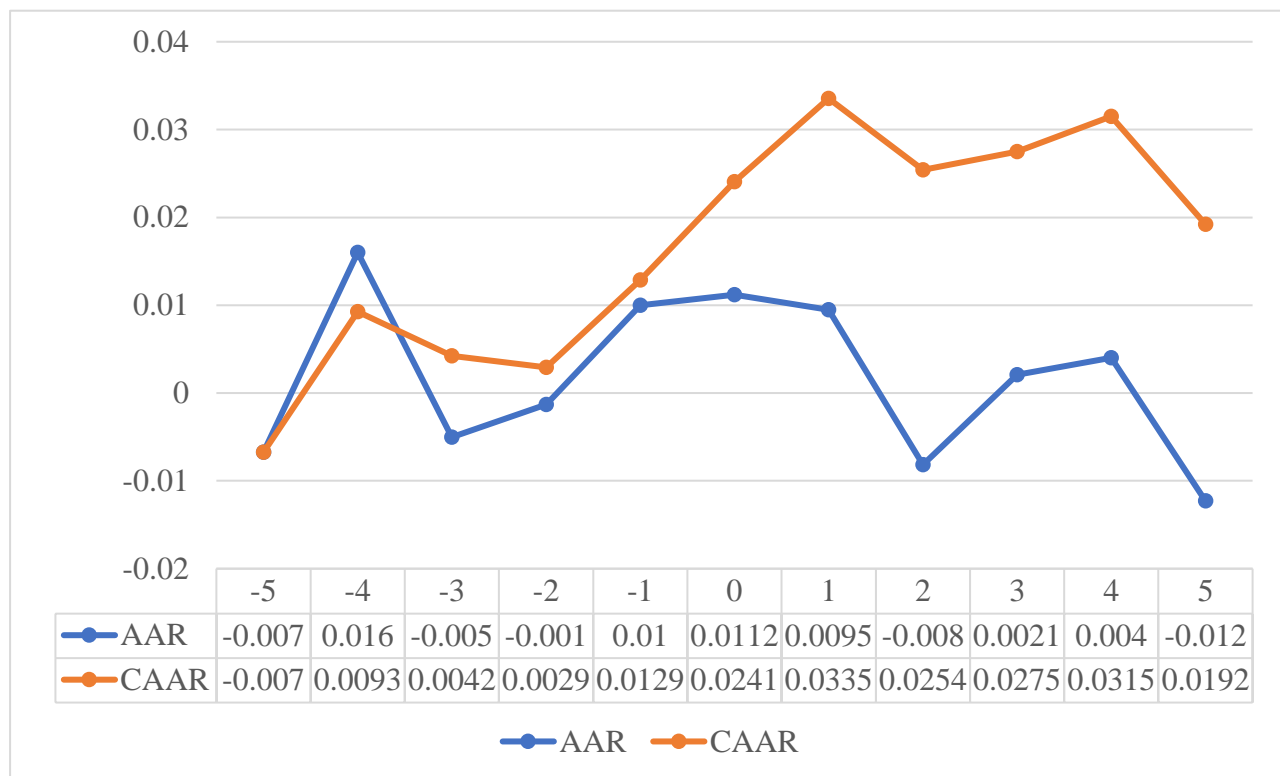
following the event date indicates that the announcement had no significant negative impact on market returns.

The cumulative average abnormal return curve falls downward throughout the event timeframe, with a minor spike on the fourth day after the event date.

The announcement of actions to limit the spread of the virus had a minimal impact on market return values, as shown in Figure 4.2.

### 4.3.3 Analysis for the April 6, 2020 Announcement

The average abnormal and cumulative average abnormal returns were calculated using the daily and expected returns. The findings are as follows:



**Figure 4. 3 Trend Analysis of AAR and CAAR for the April 6, 2020 Announcement**

**Source: Research Findings (2021)**

The announcement of the extension of the dusk-to-dawn curfew on April 6, 2020 resulted in a slight decrease in returns on the day of the announcement, however return values remained positive. The first day after the announcement, there is a dramatic drop in returns, followed by a modest gain for the next two days, and then a sharp drop on the fifth day. There was a sharp spike on the fourth day before the announcement, a sharp decline on the third day, and then a rise until the event day. Throughout the duration, the curve fluctuates in general. Except for the 5th, 3rd, and 2nd day before the event, and the 2nd and 5th day after the event, the majority of return values are positive over the event frame.

The CAAR curve fluctuates across the event window period as well, with a high spike two days before and a day after the event date. Except for the 5th day before the event, which has a value of -0.00675, all the CAAR values are positive.

It is obvious from Figure 4.3 that the announcement had a substantial impact on market return values.

#### **4.4 Test of Significance**

The standard deviation of both AAR and CAAR was used to calculate the AAR and CAAR t-statistics.

**Table 4. 4 Test of Significance of AAR for the March 12, 2020 Announcement**

Date	Window	AAR	<i>t</i> -sign
05-Mar-20	-5	-0.005	-0.136
06-Mar-20	-4	0.007	0.362
09-Mar-20	-3	-0.002	-0.170
10-Mar-20	-2	-0.010	-0.188
11-Mar-20	-1	0.001	-0.083
<b>12-Mar-20</b>	0	-0.007	-0.215
13-Mar-20	1	-0.015	-0.585
16-Mar-20	2	-0.007	-0.352
17-Mar-20	3	-0.003	-0.238
18-Mar-20	4	-0.004	-0.125
19-Mar-20	5	-0.006	-0.263

The abnormal return at the event date was -0.007, with a *t*-value of -0.215, when Kenya declared the country's first positive case. This indicates that while the return was negative, it was not statistically significant at the time of the event. All return values were not statistically significant at the 1%, 5 %, or 10% significance levels during the event window.

**Table 4. 5 Test of Significance of CAAR for the March 12, 2020 Announcement**

Date	Window	CAAR	<i>t</i> -sign
05-Mar-20	-5	-0.005	-0.136
06-Mar-20	-4	0.002	0.226
09-Mar-20	-3	0.000	0.056
10-Mar-20	-2	-0.011	-0.132
11-Mar-20	-1	-0.010	-0.215
<b>12-Mar-20</b>	0	-0.017	-0.430
13-Mar-20	1	-0.032	-1.015
16-Mar-20	2	-0.040	-1.366
17-Mar-20	3	-0.043	-1.605
18-Mar-20	4	-0.047	-1.730*
19-Mar-20	5	-0.053	-1.993**

**Note:** \*, \*\* Indicates significant at 10% and 5% level of significance, respectively, based on t-statistics.

At the date of the announcement, the cumulative average abnormal return was -0.017, with a t-value of -0.430. This indicates that while the return was negative, it was not statistically significant. At the 1%, 5%, and 10% significance levels, all t-values were statistically insignificant prior to the event date. The CAAR values were both negative and statistically significant on the fourth and fifth days after the incident date, with return values of -0.047 and -0.053, and t-values of -1.730 and -1.993 respectively. This reveals that the CAAR levels at 10% and 5% four and five days following the test were statistically significant.

**Table 4. 6 Test of Significance of AAR for the March 15, 2020 Announcement**

Date	Window	AAR	<i>t</i> -sign
09-Mar-20	-5	-0.004	-0.114
10-Mar-20	-4	-0.008	-0.241
11-Mar-20	-3	-0.001	-0.081
12-Mar-20	-2	-0.006	-0.170
13-Mar-20	-1	-0.018	-0.678
<b>16-Mar-20</b>	0	-0.007	-0.352
17-Mar-20	1	-0.004	-0.254
18-Mar-20	2	-0.002	-0.063
19-Mar-20	3	-0.008	-0.358
20-Mar-20	4	0.006	0.327
23-Mar-20	5	-0.013	-0.761

On March 15, 2020, when the measures to stop the virus from spreading were implemented, the average abnormal return on that day was -0.007, with a *t*-value of -0.352. This indicates that the return was negative at the time of the event, but not statistically significant.

All AAR and *t*-values were negative prior to the event date, but not statistically significant. Except for the fourth day after the event, the *t*-values were all negative after the event date, indicating that the effect of the announcement was statistically insignificant throughout the event timeframe.

**Table 4. 7 Test of Significance of CAAR for the March 15, 2020 Announcement**

Date	Window	CAAR	<i>t</i> -sign
09-Mar-20	-5	-0.004	-0.114
10-Mar-20	-4	-0.012	-0.355
11-Mar-20	-3	-0.013	-0.435
12-Mar-20	-2	-0.019	-0.605
13-Mar-20	-1	-0.037	-1.283
<b>16-Mar-20</b>	0	-0.044	-1.636
17-Mar-20	1	-0.049	-1.890*
18-Mar-20	2	-0.050	-1.953*
19-Mar-20	3	-0.058	-2.311**
20-Mar-20	4	-0.052	-1.984**
23-Mar-20	5	-0.065	-2.745***

**Note:** \*, \*\*, \*\*\* Indicates significant at 10%, 5%, and 1% level of significance, respectively, based on t-statistics.

At the date of the announcement, the cumulative average abnormal return was -0.044, with a t-value of -1.636. This indicates that while the return was negative, it was not statistically significant at the time of the event. At the 1%, 5%, and 10% significance levels, all t-values were negative and statistically insignificant prior to the event date. Following the event date, the return values at (0,1) were -0.049, (0,2) were -0.050, (0,3) were -0.058, (0,4) were -0.052, and (0,5) were -0.065, with t-values of -1.890, -1.953, -2.311, -1.984, and -2.745. This demonstrates that the return values following the event announcement date were negative and statistically significant at 10% on the

first and second days after the event, 5% on the third and fourth days after the event, and 1% statistically significant on the fifth day after the event.

**Table 4. 8 Test of Significance of AAR for the April 6, 2020 Announcement**

Date	Window	AAR	<i>t</i> -sign
30-Mar-20	-5	-0.007	-0.122
31-Mar-20	-4	0.016	0.486
01-Apr-20	-3	-0.005	-0.167
02-Apr-20	-2	-0.001	-0.113
03-Apr-20	-1	0.010	0.230
<b>06-Apr-20</b>	0	0.011	0.412
07-Apr-20	1	0.009	0.289
08-Apr-20	2	-0.008	-0.154
09-Apr-20	3	0.002	0.047
14-Apr-20	4	0.004	0.103
15-Apr-20	5	-0.012	-0.247

The average abnormal return value was 0.011 with a *t*-value of 0.412 on April 6, 2020, when the government announced the extension of the dusk-to-dawn curfew. Although this indicated a favorable response to the announcement, the return value was statistically insignificant. The return values increased in a positive and negative trend before the event date, although they were all statistically insignificant. This was likewise to the returns after the event date. The announcement had no statistically significant effect on the average abnormal returns of firms listed at the NSE during the event window.

**Table 4. 9 Test of Significance of CAAR for the April 6, 2020 Announcement**

Date	Window	CAAR	<i>t</i> -sign
30-Mar-20	-5	-0.007	-0.122
31-Mar-20	-4	0.009	0.363
01-Apr-20	-3	0.004	0.197
02-Apr-20	-2	0.003	0.084
03-Apr-20	-1	0.013	0.313
<b>06-Apr-20</b>	0	0.024	0.725
07-Apr-20	1	0.034	1.014
08-Apr-20	2	0.025	0.860
09-Apr-20	3	0.027	0.907
14-Apr-20	4	0.032	1.010
15-Apr-20	5	0.019	0.763

At the date of the announcement, the cumulative average abnormal return was 0.024, with a *t*-value of 0.725. This indicates that while the return was positive, it was not statistically significant at the time of the event. Except for the 5th day before the event, all *t*-values were positive prior to the event date, but they were all statistically insignificant at the 1%, 5%, and 10% significance levels. The CAAR values and *t*-values were all positive after the event date, but statistically insignificant. This indicates that investors were optimistic about the announcement, despite the fact that the news had little statistical relevance on market prices during that event frame.



#### **4.7 Discussion and Interpretation of the Findings**

The study's main purpose was to investigate if the announcements surrounding the first COVID-19 case, as well as the remedies enacted, had an impact on NSE-listed firms' stock returns. Calculating the mean of all companies' abnormal returns yielded the AAR. The cumulative average abnormal returns were calculated by aggregating the average abnormal returns before and after the announcements. Before and after the event announcements, all firms were found to have experienced abnormal returns.

The news of the first positive case had a significant negative impact on stock prices. At the 1%, 5%, and 10% significance levels, all AAR values were not statistically significant across the event frame. The CAAR was negative at the time of the announcement, but not statistically significant. At the 1%, 5%, and 10% significance levels, all t-values were statistically insignificant prior to the event date. The CAAR values were both negative and statistically significant at the 10% and 5% significance levels on the fourth and fifth days after the event date.

The announcement of measures to stop the virus from spreading had a minor impact on the market's return values. On that particular day, the average abnormal return was negative, but not statistically significant. All AARs and t-values were negative prior to the event date, but not statistically significant. Except for the fourth day after the event, the t-values were all negative after the event date, indicating that the effect of the announcement was statistically insignificant throughout the event timeframe. At the event date, the cumulative average abnormal return was negative but not statistically significant. At the 1%, 5%, and 10% significance levels, all t-values were negative and statistically insignificant prior to the event date. On the first and second days following the event, the return values were negative and statistically significant

at 10%, statistically significant at 5% on the third and fourth days after the event, and statistically significant at 1% on the fifth day after the event.

The market return figures were unaffected by the news made on April 6, 2020. The announcement elicited a positive response, although the return value was statistically insignificant. The announcement had no statistically significant influence on the AAR and CAAR of companies listed at the NSE during the event window.

These findings partly corroborated with Takyi (2021) whose results showed that performance of the stock markets in Africa has declined greatly throughout and after the COVID-19 period, generally from -2.7% to -21%. At the country-specific level, they discovered that COVID-19 had a considerable adverse influence on stock exchange markets in ten nations, while the other three did not have significant (or short-lived negative) impacts on stock markets.

This research is also partly in agreement with Davis et al. (2020) whose text-based models explained up to fifty percent of the inconsistency in abnormal firm-level returns. They discovered that negative pandemic updates resulted in significant adverse return implications for some companies while others saw favourable return responses to the same news.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter discusses a summary of the findings from the preceding section, draws conclusions based on the study's goal, and explains the limitations found throughout the study. In addition, the chapter offers policymakers and decision-makers recommendations. Finally, the researcher makes suggestions for areas that can be researched further by other scholars.

### **5.2 Summary of Findings**

Using the event analysis method, this study looked at how the COVID-19 announcements in Kenya affected the stock returns of firms listed at the Nairobi Securities Exchange. The three events studied were: (i) the first COVID-19 positive case, which was announced on March 12, 2020; (ii) the implementation of measures to combat the virus, which began on March 15, 2020; and (iii) the government's announcement on April 6, 2020 that the dusk-to-dawn curfew would be extended. Each event was studied using the window [-5; 5].

The results demonstrated that after the event date, the AAR of the event (i) changes sign from positive to negative, AAR of the event (ii) is all negative, and AAR of the event (iii) is a mix of both negative and positive returns, with the majority being positive. This implied that investors' attitudes about events (i) and (iii) were mixed. The cumulative average abnormal return following event dates (i) and (ii) were majorly negative, but event (iii) was majorly positive. However, these figures were still lower than before the COVID-19 event.

### **5.3 Conclusion**

The results show that the announcements had both a favorable and negative influence on the stock market for the three events. On March 12, 2020, the news had a moderate negative impact on abnormal stock returns, but on March 15, 2020, the announcement had a substantial negative impact on abnormal company returns. Due to the extension of the dusk-to-dawn curfew, the COVID-19 announcement had a positive impact on abnormal returns of firms' shares on April 6, 2020.

The study concluded that there was a significant market reaction to the announcements, thereby supporting the Efficient Market Hypothesis, which states that when new information enters the financial markets, prices are updated immediately, and that the NSE market is a type of semi-strong form, in which the market reacted quickly to COVID-19 announcements, which can be considered other publicly available information.

### **5.4 Recommendations**

Based on the findings, the researcher made the following suggestions to businesses, investors, and government regulatory agencies: (i) Investors can use COVID-19 pandemic data to forecast stock prices. This information can be used to manage their portfolio in the event of a similar catastrophic event in the future. The effectiveness of COVID-19 pandemic prevention measures has the potential to provide abnormal profits for investors. As a result, in order to make trading decisions at the proper point in the event timeline, investors must actively gather data. (ii) The COVID-19 pandemic has wreaked havoc on manufacturing and commercial operations. Businesses should press regulators to create clear rules targeted at eliminating economic uncertainty and persuade them that a phased lifting of the closures will

allow them to recover rapidly. (iii) It is vital for the government and government regulatory agencies to take effective and timely steps to assist businesses that have been severely impacted by the COVID-19 pandemic in resolving challenges and resuming production and operations.

### **5.5 Limitations of the Study**

The study was conducted over a seven-month period, from October 2019 to April 2020. There is no assurance that the same result will be persistent in the future. Furthermore, the findings may no longer be relevant beyond 2020. Covering important changes over a longer period of time and with more variables, will make the results more dependable.

The study's main limitation was the data quality. It was merely presumed that the information was correct. This is a common issue when working with secondary data, which was employed in this study instead of first-hand primary information connected with primary data.

The data analysis was done using Microsoft Excel spreadsheets. It was a limitation to accurately generalize the study's findings due to the faults and human errors associated with this method.

Kenya's Nairobi Securities Exchange (NSE) is a frontier market, and the country's experience with the COVID-19 pandemic has been unlike any other. This analysis, however, did not take into consideration any country-specific characteristics. This was also one of the study's limitations.

## **5.6 Suggestions for Further Research**

The study focused on the impact of COVID-19 announcements on NSE-listed firms' stock returns, and it mainly relied on secondary data. It is suggested that more research be done because the study did not include all forms of announcements linked to COVID-19.

Future research could involve adding country-specific factors or investigating additional market indicators like Trading Frequency Activity and Trading Volume Activity to analyze market reaction to COVID-19-related events and announcements.

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## **APPENDICES**

### **Appendix A: Listed companies at NSE**

#### **AGRICULTURAL**

Eaagads Ltd

Kapchorua Tea Co. Ltd

Kakuzi

Limuru Tea Co. Ltd

Rea Vipingo Plantations Ltd

Sasini Ltd

Williamson Tea Kenya Ltd

#### **AUTOMOBILE AND ACCESSORIES**

Car and General(K) Ltd

#### **BANKING**

Absa Bank Kenya Plc.

I&M Holdings Ltd

Diamond Trust Bank Kenya Ltd

HF Group Ltd

KCB Group Ltd

National Bank of Kenya Ltd

NCBA Group PLC

Standard Chartered Bank Ltd

Equity Group Holdings

The Co-operative Bank of Kenya Ltd

BK Group PLC

## **COMMERCIAL AND SERVICES**

Express Ltd

Sameer Africa PLC

Kenya Airways Ltd

Nation Media Group

Standard Group Ltd

TPS Eastern Africa (Serena)Ltd

Scan group Ltd

Uchumi Supermarket Ltd

Longhorn Publishers Ltd

Deacons (East Africa) Plc

Nairobi Business Ventures Ltd

## **CONSTRUCTION AND ALLIED**

Athi River Mining

Bamburi Cement Ltd

Crown Paints Kenya PLC.

E.A. Cables Ltd

E.A. Portland Cement Ltd

## **ENERGY AND PETROLEUM**

Total Kenya Ltd

Ken Gen Ltd

Kenya Power & Lighting Co. Ltd

Umeme Ltd

## **INSURANCE**

Jubilee Holdings Ltd

Sanlam Kenya PLC

Kenya Re-Insurance Corporation Ltd

Liberty Kenya Holdings Ltd

Britam Holdings Ltd



CIC Insurance Group Ltd

## **INVESTMENT**

Olympia Capital Holdings Ltd

Centum Investment Co Ltd

Trans-Century Ltd

Home Afrika Ltd

Kurwitu Ventures

## **INVESTMENT SERVICES**

Nairobi Securities Exchange Ltd

## **MANUFACTURING & ALLIED**

B.O.C Kenya Ltd

British American Tobacco Kenya Ltd

Carbacid Investments Ltd

East Africa Breweries Ltd

Mumias Sugar Co. Ltd

Unga Group Ltd

Eveready East Africa Ltd

Kenya Orchards Ltd

Flame Tree Group Holdings

**TELECOMMUNICATION AND TECHNOLOGY**

Safaricom PLC

**REAL ESTATE INVESTMENT TRUST**

Stanlib Fahari I-REIT

**EXCHANGE TRADED FUND**

New Gold issuer (RP) Ltd

**Appendix B: Figures of Closing Stock Prices of Companies Listed at the NSE for the Period October 15, 2019 to April 15, 2020.**

Name of the firm.....	
Date	Closing Stock Price

**Appendix C: Closing Prices of the NSE All-Share Index for the period October 15, 2019 to April 15, 2020.**

Date	Closing Stock Price
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