

**THE EFFECT OF COVID-19 ANNOUNCEMENT ON STOCK RETURNS OF
LISTED COMPANIES AT NAIROBI SECURITIES EXCHANGE**

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DECLARATION


This research project is my original work and has never been presented in any institution or university other than the University of Nairobi for examination.

Signature  Date 18/11/2021

Nichodemus Ngao Nzioka

D63/5619/2017

This Research Project has been presented for examination with my approval as the University Supervisor.

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ABSTRACT

Every investor's objective is to get value from the investment vehicle they have selected. Stock returns are the profits an investor derives from a portfolio invested in the stock exchange market for a certain period. However, upon the COVID-19 pandemic announcement, the stock market disruption was experienced in both advanced and developing economies. In Kenya, an increase in equity volatility and a decline in return on assets was experienced in the financial sector. The study aimed at examining the COVID-19 announcement effect on the stock returns of all listed companies at the Nairobi Securities Exchange. Cross-section methodology was used for the event study five days prior the announcement of COVID-19 and five days after the event of announcement. The target population was all listed companies at Nairobi Securities Exchange. Secondary data was extracted from the data bank available at Nairobi Securities Exchange. Data was analyzed using the market model Abnormal Returns and Cumulative Abnormal Returns. The T-test was employed to test availability of significance at 5%. The findings revealed that the COVID-19 announcement had an influence on the stock returns. Conclusion of the study was that all companies in the economy were affected by the COVID-19 announcement. The study recommends that a different model be used to measure firms' sector-specific factors, allowing the identification of anomalies that may interfere with stock returns. Further studies should be done on the phenomena using other models such as TGARCH and GJH GARCH to measure stock return volatility. In addition, a comparative analysis should be carried on the effect of the COVID-19 announcement on stock returns of companies within East African Countries.

ABBREVIATIONS

ADF- Augmented Dicky Fuller

Africa CDC - Africa Centres for Disease Control and Prevention

ARCH model - Autoregressive Conditional Heteroscedasticity

CARs – Cumulative Abnormal Returns

CBK - Central Bank of Kenya

COVID-19 – Coronavirus Disease 2019

CSR – Corporate Social Responsibility

ECM - Efficient Capital Markets

EMH - Efficient Market Hypothesis

GCC – Gulf Cooperation Council

KEU- Kenya Economic Update

NSE – Nairobi Securities Exchange

PP - Philips - Perron test

ROA - Return on Assets

TGARCH Model - Threshold GARCH (TGARCH) model

UNDP – United Nations Development Partners

United Nations Development Partners

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Market efficiency is about accessing all the relevant market information that is very important for any investment vehicle. It can be a broad term, implying any metric used to measure market-related information dispersion (CFI, 2021). Fama Eugene came up with the word market efficiency in 1970 (Michael, 2020). However, the announcement of the arrival of COVID-19 in the world disrupted economic growth. This prompted many countries to come up with stringent measures which were intended to curtail and restrain the COVID-19 Virus spread. The rigorous measures included a partial or total lockdown of the countries as the option to curtail the movement of the virus to many areas. This interfered with the social and economic activities of the people. The movement of people from one country to another country was restricted. Shares' markets always respond to any information which would shape their price, which could be realistic to market development in the future. Consequently, stock markets returns' worries are vital elements of collective economy as wobbly/unstable economic growth movements or trends usually make consumption as well as investment tough (Muriithi & Waweru, 2017).

The theoretical foundations for the current study includes the Efficient Market Hypothesis (EMH) with three subsections, Random Walk Theory, as well as Dow Theory. EMH, which Fama came up with within 1970, asserts that it is essential to have all the information (Michael, 2020). The information includes; the past information, present information, and the inside information of the industry or the company one is contemplating investing in. Jules Regnault introduced the random Walk Theory in 1863. It argues that it is complicated to determine the stock prices movement and, therefore, very unlikely for an investor to beat

the market. Charles Dow came up with Dow Theory in 1902. The theory attempts to enlighten in addition to speculating on the trends of security prices which implies that people and investors will tend to interpret the information provided to them about the operations of the market.

Nairobi Securities Exchange has 63 listed companies that play a vital role by enhancing savings, resource mobilization, or cost-effective capital for investment purposes and extending share /stock trading platforms to various investors and businesses (NSE, 2021). They are critical to economic growth as they offer an avenue for capital allocation and stock selling or buying. They are involved in activities such as allowing stock trading and financial resources mobilization in order to pool those funds for economic gain. However, COVID-19 stressed the economy more so the banking industry due to measures to curb the spread, limiting profitability and returns to shareholders of listed banks. The growing rate of non-performing loans and tight liquidity indicate the COVID-19 effect in the banking sector (CBK, 2021). Other factors such as inflation and interest rates have influenced the overall companies' performance and, as a result, affected the share return (Ouma & Muriu, 2014).

1.1.1 Coronavirus Disease 2019 Announcement

COVID-19 is a virus that has negative effects on the human body as it causes a severe acute respiratory syndrome that leads to death (WHO, 2020). Africa CDC defines the virus as a communicable disease majorly affecting the respiratory system and is brought about by the new coronavirus strain and results in human illness (Africa CDC, 2021). NICD states that it's a highly communicable disease with symptoms closely associated with the common cold that came to the limelight on December 31, 2019, from China before spreading to

other regions and parts of the entire globe/world (NICD, 2020). Wuhan City reported the first instance of the COVID-19 virus, where the city is located in Hubei province, China, on December 31, 2019; since then, the virus has spread to the whole world. The virus was declared an international health emergency because it affected all the countries equally; to some, it was severe, for instance, in America, Europe, and South America. The virus led to many countries coming up with stringent measures to curtail the COVID-19 virus spread. The measures include wearing masks, washing/sanitizing hands, social distancing, and lockdowns (WHO, 2020).

According to Karungu *et al.* (2020), the COVID-19 surge in Kenya negatively hit the Nairobi Securities Exchange. The loss of foreign investors was felt as the investors were afraid that the market would collapse. This fear factor saw many individuals who invested in the NSE securities disposing of their stake/stocks, which led to a nose-dive in the securities prices. As a result, the NSE-20 Share Index lost value by about 300 basis points since March 15 and May 15, 2020. This case scenario arising from the Coronavirus Disease 2019 pandemic forms the basis of this study, and a number of cases reported were used for study purposes.

Many researchers have utilized different approaches to measure COVID-19 and how it has affected the stock market globally. For instance, Alzyadat and Asfoura (2021) used the number of daily reported COVID-19 pandemic cases. In another study, Basistha and Bora (2021) measured the COVID-19 pandemic by using the day of the Outbreak and before the day of the Outbreak to show how it affects stock returns. And in an Africa perspective, Zoungrana *et al.* (2021) measured stock market disruption using the number of weekly death reports from the COVID-19 pandemic to show how it affects the stock market. In

this study, COVID-19 was measured using the number of days before COVID-19 announcements as well as the number of days after announcement of the pandemic.

1.1.2 Stock Return

The definition of Stock returns includes the value an investor receives in profits or dividends paid annually (Sugito, Noormansyah & Nursanita, 2019). Stock returns are the income or profits one gets after investing in an investment vehicle or portfolio. Stock returns are the profits an investor derives from a portfolio invested in the stock exchange market for a certain period (Rakhal, 2015). Stock return is a loss or gains achieved when investing in the stock market. The possibilities include no change, loss, or gain in price. Either way, several factors influence the volatility of stock prices, such as corporate actions, inflation, and the existing political climate. The stock return also incorporates a particular period according to the goals and objectives set by the investor.

Many factors influence stock returns, including inflation levels, exchange rates, firm-specific interest rates, money supply, and monetary policies (Abbas *et al.*, 2019). Other factors such as the company's lifecycle influence the stock returns of the shares. In instances where there is an adverse association between the organization's age as well as the expenses, the diverse perspectives arrive at the stock return. Stock returns are realizable if the organization utilizes its experience in making the right decisions regarding the capital structure; this maximizes acquiring new capital through issuing debt instruments; this increases the debt interest shield, which influences the shareholders' stock return. Expected stock returns are achieved when the share reaches optimal levels (Iqmal & Putra, 2020). In addition, a company valued highly by stock market indicators is expected to attract many investors, thus increasing the purchase of the shares.

An organization expected to have high returns and low risks attracts more investors willing to invest in the company. Exchange rates, Inflation rates, money supply, in addition to short-term interest have impact on the stock returns (Mumo, 2017). The factors interfere with the returns that an investor is expected to gain for a specific time. In case of any changes, be it positive or negative, the stock market may experience a shock wave that may lead to a gain or loss. Stock return is measured through the appreciation of the price of shares price, also known as a capital gain. Capital gain is the gain made by a shareholder when he/she sells his/her shares at a higher price than which they were bought at. A company's share price can appreciate or depreciate over a period and is influenced by internal factors such as financial performance, dividend payment history, and external factors such as inflation, interest rates, and government regulations (Mugo, 2017). Dividend and capital gains are utilized to measure the return on shares given time t .

1.1.3 Coronavirus Disease 2019 Announcement and Stock Returns

The announcement of the pandemic, COVID-19, brought about stock market disruption in both advanced economies and developing economies. Basistha and Bora (2021) found stock market volatility in the Indian stock market during the pandemic. In addition, the study noted that during the pre-COVID-19, the stock returns were higher than during the COVID-19 period. The study used daily closing price indices. Liu *et al.* (2020) examined how the pandemic outbreak affected stock market responses. They found that their stock price fell to the lowest level during the Outbreak in the stock markets in countries affected by the pandemic. In Asia, for instance, the presence of negative abnormal returns was experienced in various countries. This informed many investors to be pessimistic about future investments because of uncertainty.

According to Kahneman and Tversky (1979), studies in behavioral finance have found out that investors overreact or underreact in the market, especially where new information sets in contrary to the EMH, thus causing a more than appropriate effect on security prices. In so doing, investors tend to overreact to negative news, which results in stock prices going down (Hammond, 2015). Spence (1973) indicates in his discussion on signaling theory that profit warnings are signals indicators or otherwise leads information to those who have invested; hence get prepared that the anticipated dividends will not be as expected, but lower, thus a negative sign resulting in stock prices decline as well as the returns decline. Arbitrage pricing theory by Ross (1976) asserts that in selecting and deciding on an investment portfolio, an investor must take into consideration of other factors such as; industry sector and the country-specific factors that may interfere with the returns. Using an event study, Lee and Lu (2021) noted that COVID-19 affected stock prices of all sectors in the economy. This led to negative abnormal returns and a cumulative abnormal return. In addition, abnormal stock prices of corporate social responsibility companies were smaller than companies with no CSR. Corporate social responsibility is viewed as the most effective strategy that increases the image of the company. This may translate to a competitive advantage for the organizations.

1.1.4 Companies Listed at Nairobi Securities Exchange

Nairobi Securities exchange establishment can be dated back to 1954. NSE is a member of the African Security exchange association as well as the world federation of exchanges besides the East African security exchange association. The Nairobi Securities Exchange further has membership in the association of futures. United Nations-led SSE initiative recognizes it as a partner exchange (NSE, 2021). Nairobi Securities Exchange plays an

essential part in the country's economy because it provides a platform for savings as well as investments by aiding the local as well as international firms in accessing capital which is cost-effective. There are 63 companies listed at NSE from all sectors of the economy. The listed companies are; twelve banking, seven agricultural, one automobile and accessories, five construction and allied, eleven commercial & services, nine manufacturing and allied, four energy and petroleum, six insurance firms, six investments, one real estate investment trust, and telecommunication and technology (NSE, 2021). Capital Market Authority is the government's only body to oversee NSE operations (CMA, 2019). The CMA is tasked with regulating and issuing licenses to all the listed companies at NSE (CMA, 2019).

In Kenya, the first case of the COVID-19 virus was confirmed on March 12, 2020. The information of the virus's arrival led to disruption of the economy, for instance, volatility of stock markets due to uncertainty of measures established to restrain the movement of the COVID-19 virus spread. According to Albulescu (2021), there was a real economic effect pre and post COVID-19 news, which caused price bubbles in the stock market. The stock markets are very sensitive to news, whether bad or good because they affect the stock prices in regard to market efficiency. Albulescu (2020) found institution factors, market uncertainty, and economic situations as real determinants of financial volatility.

1.2 Research Problem

Every investor's objective is to get value from the investment vehicle they have selected. Stock returns are the profits an investor derives from a portfolio invested in the stock exchange market for a certain period (Rakhal, 2015). However, when the pandemic, COVID-19, was announced, the stock market disruption was experienced in both advanced

and developing economies. In Kenya, an increase in equity volatility and a decline in return on assets was experienced in the financial sector (KEU, 2020). For instance, Kenya Commercial Bank stocks declined by 7.0% in one day, when the first COVID case was reported in Kenya, policy brief (UNDP, 2020).

The pivotal theories for stock returns are efficient market, Dow, and random walk theory. Market efficiency by Fama (1970) contemplates that having all the information when making an investment decision on stocks is important. The theory is branched into three categories that are weak, semi-strong as well as strong market efficiency. An investor can make an informed decision on a stock if there is strong market efficiency. Random walk theory contends that it's very difficult to determine the movement of prices of stocks, therefore, very unlikely for an investor to beat the market. Therefore, the theory cannot predict stock returns because it contemplates that the past trend of stock prices cannot predict the future. Dow Theory, developed in 1902, is about the timing strategy, meaning through forecasting, an investor is in a position to identify and readjust risks through benchmarking.

The announcement of COVID-19 in Kenya disrupted many sectors of the economy. The financial sector was hard hit because of the government's measures to cushion the citizens, such as no use of transaction fees charged, rotation of staff, and reduction of lending rates. In addition, there was a decrease in earnings and a failure to pay dividends by companies. In the future, the CBK and CMA should develop strategies to mitigate the pandemic, such as coming up with funding options and other services such as credit schemes (CBK, 2021). Studies have been carried out with regards to the effect COVID-19 announcement on stock returns. Lee and Lu (2021) examined the effect COVID-19 had on socially responsible

enterprises stock prices, which was the empirical study carried out in Taiwan Stock Market. The study focus was socially responsible enterprises. Liu *et al.* (2020) studied the COVID-19 Occurrence as well as affected Nations' stock markets. The focus of the study was on the leading major countries such as the USA, Germany, Japan, Korea, Singapore, Italy, and the UK. Alzyadat and Asfoura (2021) conducted an empirical study on COVID-19 pandemic effects, focusing on the Saudi Arabia stock market. Zhang *et al.* (2021) studied the COVID-19 impact shocks on the stock market's volatility. The study focused on firms under technologically advanced countries, including Netherlands China, the USA, Switzerland, Sweden, as well as the UK.

Kamau (2020) researched how interest rate capping affected listed commercial banks' stock returns at the NSE. The study finding showed that interest capping had a substantial effect on the returns of the banks' stock. Mbithi (2020) studied how the COVID-19 disease impacted the stock performance of organizations quoted at the NSE. The study results specified that COVID-19 had an adverse/negative effect on the performance of stock for the NSE listed firms. Nzioki (2018) investigated the determinants of stock returns for the commercial banks listed at NSE and found that inflation and dividend policy affected stock returns negatively while the effect of firm size was positive and statistically significant. However, no study focused on the effect of the COVID-19 announcement on the stock returns of listed companies. Therefore, the study seeks to answer the question, how does the COVID-19 announcement affect the stock returns of all companies listed at the Nairobi Securities Exchange?

1.3 Research Objective

To examine the effect of the COVID-19 announcement on stock returns of all companies listed at NSE.

1.4 Value of the Study

The study may be of value to all players in the industry, policymakers, and in theory, all the scholars who may want to conduct further studies on the research phenomena. The findings from the study add value to all players involved in the sector. The players such as companies listed at NSE, the government, NSE, CMA, and investors. The listed companies may use the findings from the study to develop remedies that may take care of any similar risks that may occur in the future. In addition, it may enable them to design immunization plans to mitigate the risks. The government may benefit from the study findings because it may aid in understanding the pandemic and the type of financial package that may be needed to counter the virus. To NSE and CMA, the study findings enable them to develop advisory statements that may caution and audit the listed commercial banks. The study findings allow the investors to understand the pandemics and when to buy or sell their shares.

In policy, the study findings allow the listed firms to design mitigation strategies that may counter similar risks if they occur in the future. This enhances them sustain the shock or minimize the risk. The government can understand the risk hence design stimulus packages that mitigate the adverse effect or the risk, therefore reducing the shock in the economy.

In theory, researchers, scholars, lecturers, and the entire academic fraternity may benefit from the study findings. The findings enable them to understand the dynamics of pandemics and how to formulate mitigation strategies. In addition, the study findings may

add value to the empirical context for scholars who may use the findings to carry further studies on the effect of the COVID-19 announcement on stock returns of all listed firms. The scholars may also use the study findings as a reference point in understanding the study's literature review.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section discusses Literature and Empirical reviews from global and local journals regarding the study's objectives to examine the effect of the COVID-19 Announcement on Stock Returns. The section contains a Theoretical Framework, Determinants of Return, a Conceptual Framework, and the Summary Literature Review.

2.2 Theoretical Review

This section discusses the contextual theories that give insight on the study phenomena effect of COVID-19 announcement on stock returns. The theories that were used are Dow Theory, The Efficient Market Hypothesis, as well as Random Walk Theory, the theories are considered essential in the study in discussing the phenomena.

2.2.1 Efficient Market Hypothesis

An American economist, Fama Eugene, introduced the Efficient Market Hypothesis Theory in 1970 while working on efficient markets and stock prices' behavior (Fama, 1970). He introduced the theory after working on asset pricing and portfolio theory. The argument from Fama was that stock prices always indicate/reflect all relevant available information; hence the current stock prices integrate the new information. In his article dated May 1970 with the title of efficient capital markets, Fama indicated three types of efficiency (Fama, 1970). The three types included; strong form, semi-strong as well as weak form. The weak form represented information in the historical prices and which are utilized in predicting former price trend hence not possible to gain from it. The semi-strong form reflects established prices. The strong form shows the set-out information, including the private ones hence incorporated in price direction (Fama, 1970).

The critique of the theory is that those partaking in the market have no chance of gaining extra return from any newly available information, as reflected in the stock prices. The stock market is efficient if the stock price does not change due to new information in the market. Efficiency in the impression of efficient capital markets (ECM) implies information efficiency grouped into three types; weak, semi-strong, and strong. There are various situations in which market history shows the evidence of rational investors setting out market prices; hence psychological factors play a dominant part (Malkiel, 2003).

Fama (1970) indicated that when share prices fully indicate all the available past information and investors might not utilize the historical information in making economic profits, it refers to weak form efficiency. The Semi-strong efficiency form shows share price reflects entirely the historical as well as public besides private information. Share splits communicate new information to the capital markets, and the reaction to this information depends on the form of efficiency the market exhibits. Stock price best estimates intrinsic stock value because it integrates all available information. This theory is critical in this study since it helps in understanding the way the COVID-19 information reached out to the firms being studied.

2.2.2 Random Walk Theory

Jules Regnault introduced the theory in 1863. The theory argues that it is very difficult to determine the movement of stock prices and, therefore, very unlikely for an investor to beat the market (Burton, 2021). Financial markets are volatile, and investors should always build portfolios resembling the stock market (Sandev, Metzler & Chechkin, 2018). The theory assumed that there is no interdependence in stock prices, and therefore, there is no particular trend followed by the prices.

The theory has been put on trial in wall street journal, where a contest was arranged to test the assumptions at the New York Securities Exchange. The result showed that investors beat the market severally (Van Horne & Parker, 1967). This is a critique of the theory as there are many investors across the market, and trends may arise depending on the amount of time each investor spends. Therefore, the market has trended in the long run, and it's also easy to outperform the market in the short run too; hence, the assumptions in place do not hold. The theory is important in the study because investors may play along with information dissemination and outperform the market depending on the form of efficiency in the market.

2.2.3 Dow Theory

The theory was developed by Charles Dow in 1902. The theory attempts to explain and speculate on the trends of security prices and base the argument on three hypotheses. These included; the fact that average discounts everything, which implied that changes in the market would almost not be felt due to the different movements which cancel each other's effect; the primary market trend is free from a violation which was based on the assumption of steady movement and lastly that Dow Theory is not perfect (Yadav, 2017). The theory is just a technical strategy utilized to predict the market when in an upward direction when one of the averages used advances from the previous essential high followed by comparable averages (Charles, 2021).

According to Kirkpatrick and Julie (2019), the Dow Theory implies that people and investors will tend to have an interpretation of the information provided to them about the operations of the market. That means that every person may perceive and tend to form personal expectations on the security markets based on these expectations. With the basic

assumption that the security prices cannot be manipulated being at the Centre of the theory, evidence still exists of manipulated results by firms that affect the share prices, forming the basis on which the challengers of the theory build (Kirkpatrick and Julie, 2019). The theory is considered for the current study due to its linkage between the concepts of expectations on the stock return of firms listed at the NSE.

2.3 Determinants of Stock returns

This part discusses the factors associated with stock returns. The study used the study objective in discussing the factors that measure stock returns. The study's focal point is the effect of COVID-19 on the stock returns of all companies listed at NSE.

2.3.1 Coronavirus Disease 2019 Announcement

Studies show that the announcement of COVID-19 disrupted stock markets globally and locally. However, the effect depends on market efficiency because the advanced market showed a limited impact. Therefore, there is a need for more research because the findings cannot be generalized since advanced countries exhibit a strong market efficiency compared to developing countries. The stock market experience shockwave reactions during the early periods. Zoungrana, Toe, and Toe (2021) noted weekly reports of death disrupted and interfered with the stock market and not the cases which had not been confirmed yet. In addition, the stringent measures the governments put in place worsened the situation. Bahrini and Filfilan (2020) noted that the pandemic negatively affected the GCC counties' stock market due to the total of death cases reported.

2.3.2 Profitability

Profitability is the amount of money that a firm can obtain from the business operation activity that determines the growth. It can also be explained as a company's capacity to

yield income in the future and show the success of its operations (Umpiantu, 2020). A company's profitability is one of the alternatives employed to evaluate the return rate from investments correctly will be achieved. Profitability shows financial investment's profit that affects the company's value if its ability to create earnings increases as the stock price also goes higher (Umpiantu, 2020). So that a firm remains in the running and ward off competition from organizations working in the same industry, profit maximization is a vital objective. Profitability is measured through performance proxies such as sales margins, profit margins, return on investment (ROA), and net return.

2.3.3 Size

Company size is normally considered the most appropriate control variable based on empirical evidence that large firms have an abundance of resources at their disposal to invest in profitable ventures that guarantee investors better returns (Umpiantu, 2020). Umpiantu argues that big firms have a higher profile, thus attracting considerable public attention, and are always keen to safeguard their reputation with the broader public. The size was measured on a ratio scale as the log of total assets.

2.4 Empirical Review

Globally, Alzyadat and Asfoura (2021) researched the effect COVID-19 had on Saudi Stock Market. Daily Stock Return was what the study relied and was computed for five months, March (15th to August 15, 2020), and the daily infection rate was recorded across the period. The ARCH model was used in the analysis. From the findings, there was a negative consequence of the COVID-19 disease on stock returns. The study presents a contextual knowledge gap because it was done in Saudi, and a similar study should be done in Kenya to see whether the results hold.

Zhang, Wang, and Nosheen (2021) had their study and focused on investigation of the COVID-19 impact on the stock markets the countries considered to be developed. Sample of closing stock market returns was used for the sample countries' stock markets (China, USA, and the UK). The study used the TGARCH model in its examination of the volatility of the stock market. From the finding, there was no substantial impact of COVID-19 pandemic on the volatility of the returns of the developed stock markets used. This indicated a strong form of market efficiency since the information was already integrated into the markets. The study presents a contextual knowledge gap because it was done on advanced markets, and a similar study is necessary for developing markets.

Lee and Lu (2021) investigated the impact of the COVID-19 pandemic on the stock prices of socially responsible firms listed at the Taiwan Stock Market. The idea was to see whether corporate social responsibility reduced the effect of COVID-19 on the share prices of companies that embraced CSR compared to non-CSR organizations. The event study method was used to check changes in stock prices. The study findings indicated negative abnormal returns post the Outbreak, but the effect on CSR companies was less than non-CSR companies. This study presents a conceptual knowledge gap because it focused on CSR besides contextual knowledge gap also exists since the study was carried out in Taiwan.

Basistha and Bora (2021) examined the COVID-19 Outbreak and the impact it had on market volatility of stocks: evidence from the worst impacted economy. The study used Bombay Stock Exchange as well as National Stock Exchange daily price indices in the India Stock market for 3Rd September 2019 to 10Th July 2020. Comparative analysis was adopted for the study. GJH GARCH model was used to measure stock volatility. From

findings, the revelation that the stock returns were high prior the COVID-19 Outbreak than after the COVID-19 Outbreak was realized. The findings present a contextual knowledge gap; however, the study's focus is the effect of the COVID-19 announcement on stock returns of companies listed at NSE.

Zhang, Wang, Ul-Haq, and Nosheen (2021) had their examination on the COVID-19 shocks impact on the stock market's volatility in Technologically advanced countries. The study focus was China, the USA, Switzerland, Sweden, Netherlands, and UK. Descriptive statistics were employed in the study. TGARCH model was utilized to measure stock volatility. The study period was 5Th January 2015 to 4Th April 2020. The findings revealed there was no significant returns presence of stock volatility from advanced countries. The study compared the stock volatility from technologically advanced countries; however, the study's focus is on the banking sector. The study represents a contextual knowledge gap.

Liu *et al.* (2020) investigated COVID-19 Outbreak as well as affected countries' stock markets. The study used the major affected countries, USA, Japan, Korea, Italy, Singapore, Germany, besides the UK. The methodology used was event study to conduct the research. The findings resulted that stock markets from the Majorly affected nations experienced immediate after the virus occurrence. On top of that, the panel effect regression indicated abnormal returns were experienced. The study provides a rich contextual gap that can be used to infer in the study phenomena.

Zoungrana, Toe, and Toe (2021) investigated the COVID-19 Outbreak and stock returns on Monetary Union's stock market and West African Economic in the African region. The study was an empirical analysis through the event study approach. GARCH model was employed to measure stock volatility. The study period was January 23, 2020, to March

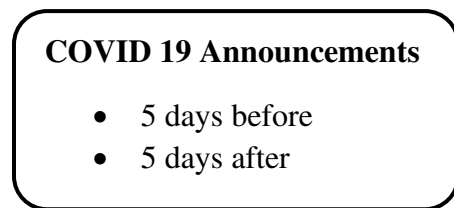
02, 2020. The findings revealed the pandemic affected the stock returns. The study presents a contextual knowledge gap; however, the study focuses on the effect of the COVID-19 announcement on the stock return of companies listed at NSE.

Locally, Kamau (2020) investigated the effect interest rate capping had on the stock return of commercial banks quoted at NSE. The study population was the 11 commercial banks listed at the NSE. The event study approach was adopted where an event window of +/-15 days was used. From the findings, the announcement of interest capping had a weighty effect on stock returns of listed banks because they all indicated negative abnormal returns (CARs) over the study period. The study presented a conceptual knowledge gap because the focus was on interest rate capping, while the current study looks at the COVID-19 effect.

2.5 Conceptual Framework

This section shows a diagrammatical presentation of the variables under the study. In addition, it shows the associations of variables as per the study phenomena effect of COVID-19 announcement on stock returns of companies listed at NSE. This includes how the variable was measured in the study. Figure 2.1 presents the conceptual framework.

Independent Variable



Dependent Variable

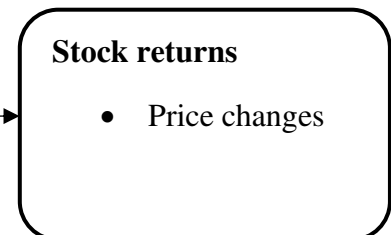


Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

The theories Dow Theory, EMH and Random Walk Theory were reviewed. The efficient market hypothesis infers that stock prices reflect the available information in the market (Fama, 1970). The information includes the past, private and public information; investors should have all the information. The random walk theory asserts that it's very difficult to determine the movement of stock prices and, therefore, very unlikely for an investor to beat the market. However, the theory is not effective in the long run but short run. The attempt of the Dow Theory is towards explaining as well as speculating on the trends of security prices that inform the decision in deciding the portfolio to invest in. However, the theory is not perfect (Kirkpatrick and Julie, 2019).

Many studies carried out globally indicated COVID-19 pandemic affected the stock markets. Alzyadat and Asfoura (2021) researched the effect of COVID-19 on Saudi Stock Market. They realized there was an adverse effect of the COVID-19 pandemic on stock returns. This indicated a contextual knowledge gap because it was done in Saudi, and a similar study should be done in Kenya to see whether the results hold. Zhang, Wang, and Nosheen (2021) conducted research on the impact of COVID-19 towards developed stock markets. The finding indicated no significant impact of COVID-19 on returns volatility of the developed stock markets used. Indicating there is market efficiency. Lee and Lu (2021) investigated the impact of the COVID-19 pandemic on the stock prices of socially responsible firms listed at the Taiwan Stock Market. The findings indicated that there were negative abnormal returns post the Outbreak, but the effect on CSR companies was less in comparison to non-CSR companies. The study focused on CSR; however, the study's focus is Companies listed at NSE.

Zoungrana, Toe, and Toe (2021) investigated the COVID-19 Outbreak and stock returns on the Monetary Union's stock market and West African Economic from a regional perspective. The study found the pandemic affected the stock returns. The study focused on the member countries' economies; however, this study's focus is the effect of the COVID-19 announcement on the stock return of companies listed at NSE. There are study gaps since the findings did measure the effect in the financial sector. In addition, the pandemic was not reported at the same time in the member countries. And in a local perspective, Kamau (2020) investigated the effect interest rate capping had on the stock return of commercial banks listed at the NSE. The study found the announcement of interest capping had noteworthy effect on listed banks' stock returns. The study utilized the factors interest capping on stock return. However, the study's focus is the effect of the COVID-19 announcement on the stock return of companies listed at NSE. Therefore, there is a knowledge gap that the study seeks to fill.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This part of the research presents the Methodology that directs it, research, gather 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 announcement on stock returns.

3.2 Research Design

A research design is a clearly outlined strategy structured that aids the researcher to collect, measure and analyze the data (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. The Methodology is important because it's a study conducted over a certain period or a snapshot of one point in time. The study focused on 5 days prior to announcement the COVID-19 and 5 days after event of announcement. In addition, the research design is appropriate for the study because it focuses on all sectors of the economy.

3.3 Population

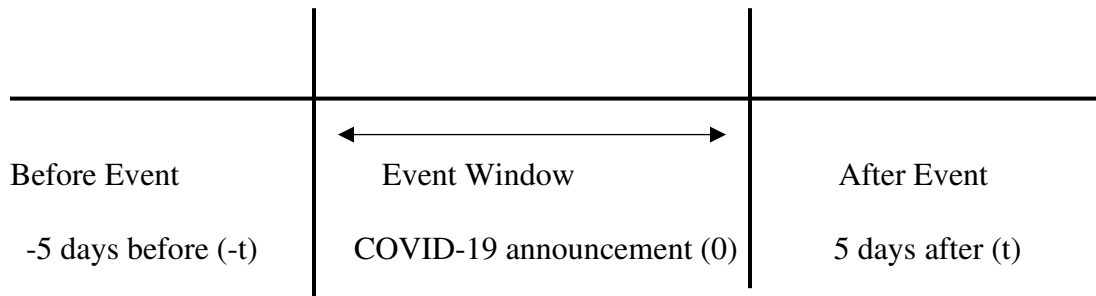
The targeted population can be said to be the entire group which interests the researcher and has the identical characteristics. The target population for the study was the 63 companies listed at the NSE. Secondary data was the daily closing price index that was collected from NSE. The data collected was 5 days prior the COVID-19 announcement as well as 5 days after the announcement in Kenya. Since the target population is specific, the study census approach was used in the data collection process. The census approach is important for the study because it collects data from all target population members.

3.4 Data Collection

Secondary data is readily available data. The study employed secondary data that was accessed from the NSE in Kenya. The collected data represented 5 days prior the COVID-19 announcement as well as 5 days after the announcement. The data collected was explicitly for all companies listed at NSE. The study extracted data, price, trading volume.

3.5 Data Analysis

The study employed descriptive statistics for analysis. Descriptive statistics involves mean and standard deviation for all the variables. The study used a specific formula to analyze stock price changes before and after the COVID-19 announcement. The changes in prices was 5 days prior the announcement and 5 days after the COVID-19 announcement.



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 12, 2020.

Estimating the event window used was as follows;

The event window involves 5 days prior announcement of the COVID-19 and 5 days after the announcement of COVID-19 in Kenya. The estimated event window was 5 days prior the event as well as 5 days following the event announcement.

The study used all listed companies, stock prices prior announcement the COVID-19 and after the announcement.

Calculating the actual return

The actual return for the stocks (R_{jt}) is calculated using;

$$R_{jt} = \frac{P_{jt} - P_{jt-1}}{P_{jt-1}} \quad (i)$$

Where

R_{jt} = return of stock (j) on date t

P_{jt} = the price of the stock represented by (j) on date t

P_{jt-1} = the price of the stock (j) on date prior to t

To calculate the stock returns, the equation was as follows;

Dependent variable (Er_{jt}) and independent variable (R_{mt})

$$Er_{jt} = \alpha_f + \beta_f R_{mt} \quad (ii)$$

Where,

α_f = Risk-Free Return

β_f = Relative Risk of Beta

R_{mt} = Market return

Calculating average abnormal returns as well as cumulative abnormal returns

Average abnormal returns was calculated through getting the average of the abnormal returns as indicated in step five using stock prices for each day

$$AAR_i = \frac{\sum_{t=1}^{t=n} AR_i}{n} \quad (iii)$$

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 stocks, 11

The average abnormal returns (AAR) was calculated for each of the event window. AAR value for each day was then added to the previous day's AAR to derive the day's cumulative abnormal returns (CARs).

$$CAR_t = \sum_{t-k}^t AR_i \quad (iv)$$

Where

K = number of events days before day t

Testing if the abnormal return is statistically different from zero

This CAR statistical technique 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 to calculate for the t-test

$$\frac{\bar{x} - \mu}{\frac{S}{\sqrt{n}}} \quad (v)$$

Where

\bar{x} = 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 was calculated using Ms excel or looked up in a statistical table.

3.5.1 Significance Test

This is a test for comparing the collected and analyzed data with the truth being examined the effect of the announcement of COVID-19 on the performance of all listed companies stock returns. The study tested for significance using the p-value, and Innovate p-value was done at a 95% confidence level.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION, AND INTERPRETATION

4.1 Introduction

This section includes the data analysis, presentation, and interpretation of the effect of the COVID-19 announcement on the returns of the stocks for the companies quoted at NSE. The data analysis includes five days before and after the COVID-19 announcement. Abnormal Returns as well as Cumulative Abnormal Returns, T-test, and P- Values are used to interpret the data.

4.2 Descriptive Statistics

The study objective was the effect of COVID-19 announcement on the stock returns of all companies listed at NSE. The data is presented and interpreted according to the average abnormal returns, cumulative abnormal returns, and the t-statics test, the P-value to check for the significance level. The event period for the study is five days before and five days after announcement of COVID-19.

Table 4.1: Descriptive Statistics

Item	AAR	CAR
Mean	0.180	-0.0049
Standard Deviation	0.1453	0.9929
Skewness	-0.103	-3.188
Std.Error of Skewness	0.661	0.661
Kurtosis	-1.822	10.361
Std.Error of Kurtosis	1.279	1.279
Minimum	0.00	0.04

Maximum

-0.30

0.04

Source: Research Findings

Table 4.1 indicates the skewness of the data by showing asymmetry of the data direction. From the findings, the data indicates a negative direction for average abnormal returns as well as Cumulative abnormal returns. This implies that the average abnormal returns besides Cumulative abnormal returns have a negative skewness, with the standard errors positive. The negative skewness means there presence of longer tails or flatters tails towards the left side of the distribution.

4.3 Data Presentation

This section presents the findings as per the announcement effect on the days before and after the event. The findings present the stock returns reaction before and after the announcement day. AAR and CAR were analyzed before the announcement was made and after the announcement was made. The calculations were carried out from March 05, 2020, to March 19, 2020. The findings are presented in Table 4.2.

Table 4.2: Statistics for 11 days

Day to / after day	Date	AAR	CAR	T- Score	P-Value
-5	05-Mar-20	-0.31149	-0.3005	0.854599	0.793611
-4	06-Mar-20	-0.01692	-0.00748	0.325998	0.624427
-3	09-Mar-20	0.015795	0.020848	0.241549	0.592995
-2	10-Mar-20	0.032961	0.032234	0.275659	0.605789
-1	11-Mar-20	-0.00764	0.007978	0.263371	0.601194
Event day	12-Mar-20	0.012624	0.022235	0.213113	0.58224
1	13-Mar-20	0.009398	0.018417	0.257538	0.599007

2	16-Mar-20	0.034138	0.039713	0.011459	0.504459
3	17-Mar-20	0.029714	0.035861	0.029196	0.511359
4	18-Mar-20	0.027488	0.036419	0.149994	0.558124
5	19 Mar 2020	0.033269	0.040547	#DIV/0!	#DIV/0!

Source: Research Findings

Table 4.2: Indicates that AAR and CAR had negative values the 1st, 4th, and 5th day before the event. However, it is noted that there was an increase after the announcement day, the second day through the event day. The p-value at (5%) significant level indicates that there was not statistically before the event. Further, the findings indicate that the p –value was not statistically significant during the announcement day, and after the announcement, the p values were not statistically significant.

4.4 Discussion of Research Findings

The study's findings indicate any positive or negative announcement affects stock returns of all listed companies in the Nairobi Securities Exchange. The abnormal returns were experienced in all the sectors of the economy before and after the announcement of COVID-19.

The T-test findings show that the p-value at (5%) was not statistically significant before and after the announcement. This was indicated during the whole event windows before and after announcement day. This suggests that the announcement affected returns of stocks.

The study findings support market efficiency that any announcement has an effect on all listed companies. Since the pandemic was not anticipated, most listed companies were caught flat-footed with no mechanism to mitigate against the announcement. The study

findings are similar to Liu *et al.* (2020), who noted that any information in the market has an effect on returns of stock. In addition, the study also noted that there was a slight change in the stock returns during as well as after the COVID-19 pandemic outbreak. Further, the study findings concur with Alzyadat et al. (2021), who noted that the COVID-19 pandemic negatively affected stock returns. The most notable incidence in the study was that the stock prices for various companies listed at NSE fell considerably from positive to negative.

CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This part presents the summary of the study findings, the conclusion, recommendation limitations of the study, and suggestions for further studies. The summary findings represent the study finding for the window before the event happened and the window after the event.

5.2 Summary of Findings

The study's general objective was to examine the effect of the COVID-19 announcement on the stock returns of companies listed at NSE. The result revealed positive and negative abnormal returns before the announcement day and after the announcement. In addition, the T-test revealed that the p-value at (5%) was not statistically significant, all the events days before the announcement. Further p-values revealed that there was no statistical significance during the announcement day and after the announcement. This implies that the announcement day had an effect on the stock returns.

5.3 Conclusion

The analysis from the abnormal returns means that any announcement made, be it negative or positive information in the market, affects stock returns. This was revealed by the companies experiencing negative abnormal stock returns before and after the COVID-19 announcement. In addition, the p-values indicated no statistical significance; the announcement contributed to abnormal returns of stock returns of all listed companies at NSE

The study, therefore, concludes that all the sectors in the economy were affected by the COVID-19 announcement. All the sectors were hard hit with the distraction that happened

before and after the announcement. In other instances, the stringent mechanism put in place contributed to the market distraction.

5.4 Recommendations

The study used the model CAR to check the behavior of stock returns in the event study by comparing the effect of the COVID-19 announcement on the stock returns. In the analysis, it was noted that some companies were not affected by the COVID-19 announcement. Therefore, the study recommends that a different model be used to measure firms' sector-specific factors, allowing the identification of anomalies that may interfere with the stock returns. This may enable the identification of other factors that may lead to abnormal returns in the event study.

In addition, the study recommends that the test to determine how the firms reacted or unreacted should be done to establish the extent of the stock returns.

5.5 Limitations of the study

There were challenges in the data access where it took some time to get all the data from NSE. This proved to be a challenge in the time period. In addition, the data provided was not complete. The study also was limited to the data for COVID-19 announcement and stock prices to measure how it affects the returns and no other factors that may affect stock returns.

5.6 Suggestions for further Studies

The study focused on the effect of the COVID-19 announcement on the stock returns of companies listed at the Nairobi Securities Exchange. The study used abnormal returns and cumulative abnormal returns to measure how the announcement affected the listed companies at NSE. The study suggests that further studies should be done on the study

phenomena using other models, such as the TGARCH model, to measure the stock return volatility.

In addition, a comparative analysis should be carried on the effect of the COVID-19 announcement on stock returns within East African countries. It should use models such as GJH GARCH to measure stock returns volatility. Others factors may also be incorporated in the study to establish the extent of the effect on stock returns in all sectors of the economy.

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APPENDICES

Appendix I: List of Companies Listed at NSE

Appendix I: FIRMS LISTED AT THE NSE

Commercial Banks

1. Kenya Commercial Bank
 2. I&M Holdings
 3. ABSA Bank Kenya Plc
 4. Diamond Trust Bank Kenya
 5. Equity Group Holdings
 6. CFC Stanbic Bank
 7. NIC Bank Limited
 8. Standard Chartered Bank Kenya Ltd
 9. The Cooperative Bank of Kenya Ltd
 10. Housing Finance Co. Kenya Ltd
 11. NCBA Group Plc
 12. BK Group Plc
 13. Egaads Ltd
 14. Limuru Tea Co.Ltd
 15. Williamson Tea Kenya Ltd
 16. Kapchorua Tea Co.Ltd
 17. Rea Vipingo Plantations Ltd
 18. Kakuzi
 19. Sasini Ltd
 20. Car and General (K) Ltd
-

-
21. Express Ltd
 22. Sameer Africa Plc
 23. Standard Group Ltd
 24. Kenya Airways Ltd
 25. Nation Media Group
 26. Scangroup Ltd
 27. Deacons(East Africa) Plc
 28. Longhorn Publishers Ltd
 29. TPS Eastern Africa (Serena) Ltd
 30. Uchumi Supermarket Ltd
 31. Nairobi Business Ventures Ltd
 32. Athi River Mining
 33. Bamburi Cement Ltd
 34. Crown Paints Kenya PLC
 35. E.A Cables Ltd
 36. E.A Portland Cement Ltd
 37. Total Kenya Ltd
 38. Umeme Ltd
 39. KenGen Ltd
 40. Kenya Power & Lighting Co Ltd
 41. Jubilee Holdings Ltd
 42. Sanlam Kenya Plc
 43. Liberty Kenya Holdings Ltd
 44. Britam Holdings Ltd
-

-
45. CIC Insurance Group Ltd
 46. Kenya Re-Insurance Corporation Ltd
 47. Olympia Capital Holdings Ltd
 48. Centum Investment Co Ltd
 49. Trans-century Ltd
 50. Home Afrika Ltd
 51. Kurwitu Ventures
 52. Nairobi Securities Exchange
 53. B.O.C Kenya Ltd
 54. British America Tobacco Kenya Ltd
 55. Mumias Sugar Co
 56. Kenya Orchards Ltd
 57. Flame Tree Group Holdings
 58. Unga Group Ltd
 59. Carbacid Investments Ltd
 60. East Africa Breweries Plc
 61. Eveready East Africa Ltd
 62. Safaricom Plc
 63. Stanlib Fahari I-REIT

Source: NSE (2021)

Appendix II: Data Collection Sheet

Day	Date	Share Price	COVID-19 Effect
1			
2			
3			
4			
5			
0			
1			
2			
3			
4			
5			