THE EFFECTS OF COVID-19 PANDEMIC ON STOCK PERFORMANCE FOR FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

I declare that this research project is my original work and has never been submitted to any other institute for any academic purpose.

Sign…… Date……...

Mbiti Benson Orenge

D63/19033/2019

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

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LIST OF ABBREVIATIONS

ADF: Augmented Dickey Fuller Test

ANOVA: Analysis of Variance

CMA: Capital Market Authority

COVID-19: Corona Virus Disease of 2019

GARCH: Generalized Auto-Regressive Conditional Heteroscedasticity

NSE: Nairobi Securities Exchange

OLS: Ordinary Least Squares

SARS: Severe Acute Respiratory Syndrome

UNICEF: United Nations International Children's Emergency Fund

US: United States

VIF: Variance Inflation Factor

ABSTRACT

This study sought to determine the effect of Covid-19 pandemic on stock performances. In determining the effect, the research considered other variables. The control variables are exchange rates, stock trade volumes and the days to 2019 dividends book closure. The study adopted a quantitative approach where quantitative data was collected and analyzed through regression. The study used the natural logarithm of share prices to represent stock performance and the number of company shares traded in a day to represent share trade volume. Number of days to 2019 dividends was used to measure the effect of dividends declaration on share prices while real exchange rates were used to measure exchange rates. The effect of COVOD 19 was measured by number of days since the first case was announced. The data was collected for 30 days since the first case was announced and eliminated weekends as the market closes for the weekend. The study results have indicated that except for the exchange rates, the other variables under study affected share performance negatively. For a unit increase in COVID 19 effect, stock performance reduced by 0.203 while for a unit increase in trade volume, it reduced by 0.136 units. The study also established that for a unit increase in days to 2019 (last trading period) dividends, there was a decrease in stock performance by 0.998, which was the highest absolute effect. In exchange rates, a unit increase in exchange rates increased stock performance by 0.036, which was the lowest absolute effect. Except for the exchange rates, all other variables had a significant effect on stock performance as measured by their p-values. The p-values were 0.000 for both trade volume and days to 2019 dividends but 0.042 for effect of COVID 19 pandemic. The insignificant exchange rate p-value was 0.592. The four variables were found to be responsible for up to 32.36% of the changes in stock performance. This shows that there are other factors, which account for the remaining 67.64% of the changes in stock performance. The study findings are adequate to advice on key matters relating to stock performance. The results are helpful to investors and other interested stakeholders like policy makers and researchers. Using the results, policy makers will be able to develop well-informed policies on reducing effects of pandemics on stock performance and help cushion investors in the NSE. This will also make NSE a safe market to deal with.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Security exchange markets have been a general representation of the market conditions giving an insight on the economic condition in a specific nation. With the new COVID-19 pandemic which initially was traced in China late 2019, and which first case reported in Kenya during the month of March 2020, operations have not remained the same in the market. With the attempt of the government to control the spread of COVID-19, lockdowns of key counties were introduced and policy of social distancing which have influenced the performance of firms negatively. As the security market represents the general conditions of all firms listed in the security market, there is an observation that the pandemic may lower the activity of the security market and hence the performance as per (Baker et al., 2020).

In the attempt of establishing the impact of COVID-19 on the performance of NSE stock in general, the study considered some of the theories relevant to stock performance and predictability. The theory of efficient market was considered as advanced in 1965 by Fama due to its assumption that the stock prices is a representation of the value of firms and their operating conditions in the economy as per (Rossi & Gunardi, 2018). Secondly, the random walk theory as found in the study of Sandev, Metzler and Chechkin (2018) was factored in which assumed that the prices and hence the performance of any security market take a random movement and can shift from one direction to another without a guaranteed forecast. The study also focused on Dow Theory as advanced by Nelson Dow which assumed that the performance of a security market high be shall was influenced by the information available, people's interpretation of such information and how they form expectations based on such interpretation for decisions influencing demand of securities as per (Yadav, 2017).

Studies so far existing had not adequately covered the influence of COVID-19 on the security markets as it was new pandemic to the globe. Most of the studies had shown COVID-19 has impacted the performance of security markets in a negative way, but in different magnitudes. According to Baker et al. (2020) COVID-19 had influenced the US security market in a negative way but the level of infections in US and stability of the economy differs with that Kenyan context. This results were in agreement with those made in China by Zhang, Hu and Ji (2020) and those made in South Africa and Nigeria by (Ozili, 2020; Adenomon & Maijamaa, 2020) respectively and which established negative impact on performance. With less studies being available in the context of Kenya and other developing countries and bearing the fact by Fernandes (2020) that most studies on the COVID-19 did not have information on the virus and relied on information of a similar virus SARS, it was necessary for conducting this study on the NSE stock case.

1.1.1 COVID-19

According to UNICEF (2020), COVID-19 is a novel disease, which is caused by the corona virus, which belongs to the same family with Severe Acute Respiratory Syndrome (SARS). With the initial cases being not very severe as reported in China, different countries had witnessed different levels of severance depending on the resident's immunity and health care facilities available in the states. The disease becoming a real risk threatening the lives of most people worldwide, the virus is contracted through conduct with infected respiratory fluids through conduct with infected individuals or interacting with infected objects. The virus was declared a public health emergency of international concern affecting the way of living and business operations all over the world, since March 2020.

With most of the nations including Kenya being affected by the pandemic, the results in the attempt to control the virus have significantly affected the economic operations within the nation. With

most Kenyan firms, which are listed in the stock market having their markets for the products they make being affected by the COVID-19 pandemic, understanding the virus trends, facts and risks is important for any firm, which expects to be successful. Firms need to know what they can do with the presence of the COVID-19 to regain their operations momentum. With social distancing being at the center of the pandemic, firms needed to improvise new ways of offering their products while still adhering to the social distance with online business transactions being more preferred.

The COVID-19 pandemic effects have become a major focus of the world with several researches recently being initiated with two major approaches for measuring COVID-19. Some of the studies like Fernandes (2020) and Al-Awadhi (2020) used the number of case in the specific nations to measure the impact of the COVID-19 on the stock performance, others used the approach of the number of days when active cases have been in the nation to measure the variable like in the case of (Adenomon & Maijamaa, 2020). As the impact on most of the African nations is as a result of measures taken to control the virus, the current study adopted the measure of days since the announcement of the first case to measure the variable of COVID-19.

1.1.2 Stock Performance

Performance has been defined as the measure of how well or worse a certain entity is doing in a specific endeavor as compared to preset standards. According to Croci (2006), performance can be viewed as a resultant measure of the activities of a given entity in each duration. Stock represents a market where securities for listed companies are traded in as per (Jefferis & Smith, 2005). Therefore, stock performance denotes the level of activeness of a given security markets which is represented by the aggregate activities of the shares traded in the market.

As focused in the Fama theory of efficient market, stock performance aggregates all the issues of

a specific firm and hence it is easy way of communicating the general economic performance briefly. As per Yousuf and Nilsson (2013), a good performing stock market is a general indicator of the wellness of the entire economy as what boost the stock performance is mostly profitability of all the firms listed in the market as well as anticipated future growth of the firms. Assuming that efficient market exist, a significant growth of the stock market in terms of performance shows that in aggregate, most of the companies are performing well and are expected to do better in the near future serving as a reference for decision making for investors within the market (Fama, 1965).

Scholar all over the world has measured the variable of stock performance differently. Some of the studies so far done utilized the GARCH model to measure the general performance of the stock markets, which mostly measures the volatility of the stocks like Lim and Sek (2013), and Adenomon and Maijamaa (2020). Other studies have just focused on a more direct approach to measure the stock performance with the common measures being the general change in the share prices which can be aggregated to represent the entire market as advocated for in the study of (Gul & Javed, 2009). This study used the later approach of the share prices to measure the stock performance.

1.1.3 COVID-19 and Stock Performance

From the current point of the economy, researchers have believed there exists some relationship between the two variables. While mostly researches have indicated a negative influence on the performance of the security markets, the level of the infection significantly differs from one country to another, the measures taken by each nation are different and have different implications to the economy and the economic recovery stands to be unknown phenomenon as per (Zhang, Hu & Ji, 2020).

According to Zhang, Hu, and Ji (2020) the pandemic of COVID-19 has given a very great risk to the investors due to the volatile trends seen in the security market. On the reliability of information according to Fernandes (2020), a lot need to be done to establish the trends of COVID-19 because there is lack of enough information on the virus. While it is expected that at the end of the day, investments should recover at a certain point, stock markets shall still exist after the COVID-19, mixed expectations are expected with some of the normal business activities being expected to change permanently as observed by (Jones, 2020). As the security market plays a critical role in financing the operations of listed firms when they issue prospectus as well as providing investment opportunity for investors, understanding the impact of COVID-19 on such performance of the security market are quite crucial for future planning.

It is expected that the same trend could be exhibited in the NSE security market. However, having little focus so far made in respect of the influence of COVID-19 in Kenyan security market, the current study shall focus on bringing that insight as the magnitude of the influence differs from one nation to another as observed in (Zhang, Hu & Ji, 2020).

1.1.4 Nairobi Securities Exchange

According to the NSE (2020), the stock exchange was incorporated under the societies Act of 1954 that was initially recognized as a voluntary incorporation of stockbrokers. Its main aims were providing a source of capital, allocation of available capital and giving confidence to investors trading in the security market (Nunga, 1974 as cited by Oriwo, 2012). The security market has 62 listed firms from different industries and whose shares are currently trended in NSE.

According to the publication of NSE (2016), such listed firms are closely monitored by the stock authorities on their dealings in the market and in terms of their external contact with the

shareholders. With the recognition of the security markets as a self-regulatory association, NSE is mandated to regulate the issuers, enforcement of market policies and surveillance, supervision of derivative markets and continuous review of rules existing. In the current study, NSE has been the center of the discussion, as the study focused on the impact of COVID-19 on the performance of all 62 securities, which are traded within the NSE stock market.

Listed firms have had their shares lose value consecutively since March when the first COVID 19 case was reported in Kenya. The loss in value has been because of investors selling off their shares due to a dim future of corporate profits because of the pandemic. According to Odhiambo (2020), NSE-20 Share Index has been declining over the days from March 2020 indicating a negative performance of the share prices of the underlying companies. The performance in the stock market in March was observed to be at an exceptionally low level, which was only experienced in 2003 during government transition to former president Mwai Kibaki era (Business Daily, 2020). According to business daily, analysists have determined that foreign investors have been net sellers in the COVID 19 era, and considering that they account for majority of the daily trading in NSE, their selling have had a huge effect on the stock market.

1.2 Research Problem.

Companies' management are concerned with any aspect, which can affect their company share prices. The concern is because share prices are related to the company valuation, which is in turn related to the wealth of its investors and the general outlook of the company. As a result, any company management must become aware of all factors, which can affect the performance of their stocks in the stock market. Among the factors are emergence and announcement of epidemics. Theories have been developed to guide on share piece movement. The key one has been the efficient market theory by (Fama,1965). Although it has been highly effective in reflection of

information, it is currently clear that expectations about the future affect the prices of shares and are the basis for derivatives. It is however known that overpricing and underpricing of shares is the basis for the share price movements and trading. With this existing, it is therefore very slippery to rely on the efficient market theory as share movements suggests that the markets are not efficient. The other theory is random walk theory, which cannot hold water as it is possible to determine share prices, as we just need to be aware of the factors and how they affect the prices. Share prices cannot therefore be a random walk thing. Dow Theory (1902) takes care of expectations, but since they are subjective to the specific investor, it lacks objectivity as there are very many factors, which can affect an investor expectation on share prices.

COVID 19 pandemic has been on a nature of its own due to its effect on all industries. Almost all industries have felt the effect of the pandemic with the hotel and education sectors being hit most. In Kenya, and since it was not the origin of the pandemic, it ought to have been a better off situation as there was enough time to take cushioning measures before the first case was announced. Since the first case, there has been mixed reactions from companies. Some, like Equity Bank, NCBA Bank and the Standard Chartered Bank have been forced to withdraw from payment of 2019 dividends as the pandemic uncertainty increases (Omondi, 2020). Other companies like Kenya Airways have made an emergency bailout application amounting to 7 billion, Andae (2020) indicating the dire situation in the NSE listed firm. This situation where firms are caught up in this kind of a situation indicates the necessity of understanding effects of epidemics on stock performances.

Various scholars and researchers have attempted to explore this area, but it is still not fully covered and that is why we still have the companies experiencing an effect. Baker et al. (2020) established a very adverse effect on the US security market. They purported that the effect was very adverse

than any other which have ever been experienced in the country before. Their research is less reliable in Kenya as the governments' response to the pandemic was diverse between the two economies and security market advancements are also at different stages. It is also notable that the degree of severity in the pandemic are also different. In China, Al-Awadhi (2020) established a significant and negative effect of the COVID 19 epidemic on the country stock market. Since this country was the source of the disease, such an influence was expected, as there was no room for preparations like Kenya. In addition, China being a developed country and with a different regime, COVID 19 study results from the country cannot be accepted in Kenya without reconfirmation through a local study. Other studies like the Fernandes (2020) and Zhang, Hu and Ji (2020) on effect of COVID 19 all tend towards the negative impact, but since they were based in a different economic setup, there are chances that even if they will agree, severity and significance of the results may differ necessitating a local research using local data.

In the African context, Ozili (2020) determined that the lockdowns and quarantine measures adopted in most of the African nations were leading to serious financial crisis and could even lead to recession. The study had however focused on the effect of the pandemic to the general economic performance in the countries. Another related study conducted in Nigeria confirmed indeed that there could be a negative effect on the security markets but what was worrying more was the volatility in the stock prices (Adenomon & Maijamaa, 2020). The effect in Nigeria could have been compounded by oil market crash and therefore though relevant, the results cannot be extrapolated to establish possible effect in Kenya. The studies can however guide on the general effect in any market but not in Kenya specifically.

Research done in Kenya involving similar calamities are the Asongu (2012) and the Koech and Rotich (2013). The studies focused on post-election violence and the 2008 great financial crisis

respectively. They were conducted at times when the stock market was not at its current levels where derivatives can even be used to edge against risk and the strides in reducing the settlement time for stock trading deals. Focusing on the data available currently and locally, the study therefore sought to answer the question; what is the effect of COVID 19 pandemic in the stock performance for the firms listed in the Nairobi Securities Exchange?

1.3 Research Objective

The objective of this study is to determine the effect of COVID 19 pandemic on the stock performance of the companies listed in Nairobi Securities Exchange.

1.4 Value of the Study

This research is beneficial in many ways. Stock performance is understood to be a good indicator of the general situation in the country. Therefore, understanding how different forces can affect the performance of stock prices is akin to understand how the forces affect the economy in general. The study was expected to benefit in terms of practice, policy, and in theory. In practice, there are those players who are in the NSE and others working in the companies listed. Others to benefit in practical aspect are investors and potential investors. For investors, by understanding how COVID 19 has affected the performance of shares, they would understand and be guided on how to make a buy or a sell decision to benefit from movement of share prices. Managers will also understand how they can maneuver through a pandemic without their company stocks being affected so adversely. Players in the NSE will also understand on how to predict effects of pandemics on stock prices and be able to make emergency decisions to prevent panic buying or selling which can crash the market.

In policy, the study will facilitate policy formulations geared towards alleviating the adverse

effects on stock prices. The key policy makers are in the NSE market and the government. Proper policies formulated will facilitate early detection and advice on measures to be taken so that investors and management are not caught by surprise. Government policymakers related to the general economy will also make better informed policies to create a conducive environment for operations of the stock market in the economy. Policy makers in companies will also use the findings of my study to make policies facilitating better performance of their companies and making them to be better prepared for epidemics.

In theory, researchers, students, lecturers, and participants in the entire academic fields will also benefit. Researchers, both current and future will refer to the findings of this study and will also be better informed on effects of epidemics on stock market performance. Students, and especially those in finance, will benefit from the knowledge on the effects on stock performances. They will therefore add more knowledge on the various factors that affect stock performances. Other academic staff like lecturer can inform students better on performance of stock markets as, COVID 19 will not be researched in isolation. It would rather be researched together with other three factors which are expected to have the ability to affect the stock performance. The research was composite, exploring the matter fully for better conclusions and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature review covered the scholarly work so far done in respect of the effects of COVID-19 on the performance of NSE. This section focused on the theoretical literature review focusing on theories in favor of the study variables, determinants of performance of security exchange, empirical review considering so far studies in existence, a summary of the literature review and the conceptual framework.

2.2 Theoretical Literature Review

Under this section, the study considered existing theories which have been advance in respect of the operations for stock markets and which may have some connection with the level of performance of the security market. To achieve the research objectives, the researcher focused on efficient market theory, theory of random walk and the Dow Theory, which were considered relevant for the study objective.

2.2.1 Efficient Market Theory

The efficient market theory has traced its origin from Fama 1965. The theory argues that in the real market operations, the share prices were determined in the most efficient manner to reflect the market conditions for a firm. The theory suggested that the share price should be reflecting the actual value of the firm and no extra returns can be obtained by the firm, outside what was assumed in the determination of the share prices (Rossi, & Gunardi, 2018). Therefore, the theory assumes a fair market where all the information is availed to all the investors in an equality basis. This implies that no investor can secure better information to take advantage of underpriced shares or overpriced shares in the development of their investment portfolio as per (Alam, 2017).

With this theory implication are that the investors rely from the same source of information, which allows them to make informed decision, on how to comprise their portfolio, and will end up operating from the same point of view. In their study Clarke, Jandik and Mandelker (2001), argued that the reason as to why the market prices of security keep on changing were greatly explained by the theory. There are no expectations of insider trade and none of the models used by investors to forecast on price fluctuations has been found smarter to outdo the market pricing. This means that efficient market theory assumptions may hold and share prices will only be determined by the market conditions, which are hard to predict (Clarke, Jandik & Mandelker, 2001).

However, the analysis by Malkiel (2000) established that the concept of efficient market was a theory and that in the real-life situation its assumptions may not hold. With some individuals being in control of some relevant information which may not be available to all investors has been a common thing like was the case of 3Com and Palm Pilot in his study (Malkiel, 2000). The theory however still holds as such instances have been reduced by capital market authorities in their pricing policies and the forces of the market which force the share prices to revert to normal. The theory was considered for the current study due to its implication on the share pricing which affects security exchange performance.

2.2.2 Theory of Random Walk

The theory of random walk was established by Regnault in the publication of 1863 which sought to establish chance and the exchange markets. The theory argues that the security exchange prices are unpredictable and can move towards any direction from the current position. This implies that the share prices are volatile and can move upwards or downwards at any specific moment (Sandev, Metzler & Chechkin, 2018). The evidence of their study established that the security prices are expected to move from any direction and the consistence of such movement was not guaranteed

hence could take any random move (Sandev, Metzler & Chechkin, 2018).

Assuming the market efficiency concept, the theory argued that the security prices were independent to some extent and that there were no inter-dependencies between the market's prices (Fama, 2019). The stock prices do not guarantee any movement weather based on the historical data of the same firm or the trend existing in the market. According to Sandev, Metzler and Chechkin (2018), the fact that the share prices of one firm were increasing or declining was specific to the company condition and that of the entire market. This leaves the investors at a dilemma on the investment options as trends in the stock market could not be forecasted with accuracy to take advantage of the market.

However, Hamid et al. (2017) in their investigation of the random walk theory established contradicting finding which questioned the validity of the random walk theory. The study established that the market prices were somehow steady and little changes were observed in the security markets which could give some hope to investors. This theory has been considered for the current study due to the test of evidence of the security prices changes during the COVID-19 pandemic in the NSE.

2.2.3 Dow Theory

The theory can trace its origin from the Charles Dow in the year 1902 as formulated by Nelson after the death of Dow. According to Yadav (2017), in the attempt to explain and speculate on the trends of security prices as indicated by the theorem, three hypotheses should be tested. These included; the fact that average discounts everything which implied that changes in the market will almost not be felt due to the different movements which cancel each other's effect, the primary market trend is free from violation which was based on the assumption of steady movement and

lastly that Dow Theory is not perfect.

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 have their own perception 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 center of the theory, evidence still exist of manipulated results by firms which affects the share prices forming the basis on which the challengers of the theory build on as per (Kirkpatrick & Julie, 2019). The theory was considered for the current study due to its linkage between the concepts of expectations on the performance of NSE, which influences the level of performance to some extent.

2.3 Determinants of Security Market Performance

Under this section, the study shall consider the factors that influence performance of security markets. To achieve the study objectives, the study shall consider such factor, the way they relate with security market operations and performance and how they are measured. The study focused on trade volume in the NSE, foreign investments, the number of days to payment of 2019 dividends and lastly COVID-19.

2.3.1 Trade Volume

Trade volume indicates the number of shares being traded in the stock market for a specific period. The general expectation has been that there is a direct correlation between the trade volume of a specific stock market and its performance. This implies that with the increase in the volume traded there was an expectation that prices will rise, and this triggers the activity of the security market. The level of trade has been used by investors to decide on the stocks to hold and when to release

them. A good performing firm will attract more investors, which call for more securities to be introduced in the market probably at a higher price. According to the evidence from Gul and Javed (2009), a positive relationship was found in all the measures of the trade volume to the level of performance in security exchange.

According to Stickel (1994) as cited by Aronson (2011), the study indicated that the trade volume has been considered as the fuel for security markets. According to the finding of Stickel, the investors normally make their investment decisions based on the trade in the market trade volume. The study concluded that an increase in the volume traded was automatically accompanied by increase in the performance of the security exchange; otherwise, it will signal the onset of share reversal making investors more cautious on the stock as per (Aronson, 2011). Under the current study, trade volume was measured using the total number of shares traded, which is available at the NSE stock performance website. As was indicated, the number of shares traded has the same influence with the monetary value and number of equities traded hence selected for the current study as observed by (Gul & Javed, 2009).

2.3.2 Foreign Investment

Foreign investments have been considered as a parallel kind of operation, which competes for the same resources with the stock market. With the foreign exchange being a quick game of money, people tend to speculate on the earnings which can be gained from foreign exchange in span of hours even though it is quite risky as compared to security investments. Even though mixed opinions have existed on the relationship between exchange rates and the performance of security markets, the finding of Makori (2017), the is a positive and significant relationship between the foreign exchange rates and the performance of the NSE. This influence could be attributed to the strengthening on the currency, which gives more confidence to both existing and potential

investors on the economy of the nation and end up using the security market as investment vehicle in the nation.

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

2.3.3 Days to 2019 Dividends Payment

A trend that has been common is that people and investors have more appetite to get investments that will give returns soonest. With this concept, the firms will tend to have a more active stock when it nears the dividends payment. This is because more buyers will tend to be willing to invest in such securities and get into the list of members who are eligible to receive dividends. The increase on the demand for the stock may be thought to activate the performance of a security market in the short run. A study by Marekia (2015) established that there exists a positive correlation between dividend announcement and the performance of a specific security. Hence, a firm which has been seen to be profitable and which has always had high dividend payment ratio will experience higher demand for stock towards the payment period.

A study by Muhoro (2016) established supportive results which did realize a negative and significant relationship between the dividends announcement and the volatility of the security

performance. This implied that towards dividends announcements, securities are less volatile especially when expectations of positive dividends announcement are expected. In this study, days to 2019 dividends was measured based on the number of days remaining to the announcement of dividends to be made.

2.3.4 COVID-19

COVID-19 has come as a new and contagious virus which has influenced operations in the global market. With the social distancing requirements, the pandemic has contributed to gross reduction in the real operations of the economy. Lowered performance in normal business operations signify that the level of returns has been adversely affected. The negative performance has been thought to extent into the level of demand for stocks, which contributes to a decline in the performance of security markets. A study by Al-Awadhi et al. (2020) established that a negative and significant relationship exists between the pandemic level and the performance of the security market. The study pointed out that further decline could be expected if the pandemic continued without a permanent treatment or prevention being obtained.

According to Ramelli and Wagner (2020), the emergency of the fever was thought to disrupt the operations of most institutions with the organizational liquidity and debt level becoming a major concern which was affecting the entire globe. With the initiatives of lockdowns in different nations, the study established that a great decline in the security performance was a real evidence of the impact of COVID-19. Their study registered the fear that the pandemic could end up resulting to a serious financial crisis in the globe. The current study has the influence of COVID-19 on the security performance in NSE as its major concern where days after the first case announcement was used to measure COVID-19 in Kenya.

2.4 Empirical Review

Under this section, the study explores the existing studies which have attempted to establish the existing relationship between the COVID-19 and security market performance both locally and in the global market. According to the study by Baker et al. (2020) in the context of the US which followed a text-based method established that there was a negative influence on the security performance brought about by COVID-19. The study established that COVID-19 had given the greatest adverse change on the security market that any other pandemic ever reported in the nation. However, the study in US which had recorded the highest population of infections and with stable government support may differ from the context of Kenya which the focus of the current study was based on.

Another study made in the context of the Chinese stock market by Al-Awadhi et al. (2020) established that the COVID-19 pandemic was influencing the performance of the Chinese stock market not only in a negative way but also significantly. The study which applied descriptive statistics model approach established that as more cases were being reported and deaths increased, the stock market continued to decline in the performance (-Awadhi et al., 2020). However, China context can be seen to have taken control of the spread of the virus whereas Kenya seems to move in to slow tackle of the virus with longer duration and economics recovery being different from that of China and making the current study important.

Another study which focused on the general performance of the economy in the world which considered a case of thirty nations established that the COVID-19 was having an adverse negative influence on the general performance of economies worldwide as per (Fernandes, 2020). The study established that even the real impact of the COVID-19 was yet to be realized as most of the statistical information where historical data of SARS of 2009. With most economies getting into

lockdown, Fernandes (2020) established that in general, the economies were poorly performing impacting of the securities poor performance all over the world and more so to all the service industry listed firms. However, the study highlighted that the real impact had not yet been felt calling for more studies to investigate the impact o0f COVID-19 using its own statistics like in the current study.

A study conducted by Zhang, Hu, and Ji (2020) which adopted a descriptive statistics approach showed that there was a dramatic influence caused by COVID-19 on the performance of the security markets. The study showed that investors have faced quite high risk overnight caused by these dramatic changes. According to Zhang, Hu and Ji (2020), with such volatile markets and factoring the introduction of new policies to restore the market conditions like the case of US Zero-interest rates had caused most volatility which could not be predicted. However, the study focused on the impacts of the pandemic in different nations but established that the conditions differed from one nation to another hence the current study shall focus on a single security market.

In the regional level, a study by Ozili (2020) which sought to establish the condition of African nations, in respect to national economic performance and the COVID-19 influence on them. The study pointed out that most of the nations had adopted complete quarantine and lockdown to control the spread of the virus. The study findings showed that the COVID-19 was bringing serious financial crises and could even result to recession (Ozili, 2020). This significant performance decline was directly connected with the security market performance as good performance originates from initial performance of individual firms. However, his study was too general to keenly observe the movement of the stock prices as it generalized economic performance which the current study was keen enough to establish.

In the Nigerian security exchange, a study conducted by Adenomon and Maijamaa (2020) which adopted a Quadratic GARCH and Exponential GARCH established that the evidence of the COVID-19 was seen in the security markets. The study found out that with the uncertainty on the move of the COVID-19, equality was the uncertainty of the performance of the security market. The study results showed that Nigeria security exchange was negatively affected by the pandemic and high volatility of the stocks was being witnessed. The study duration was, however, a limitation of their study with the current study focusing on the trends in the NSE stocks for three months to obtain conclusive information.

In the Kenyan context, the operations of the markets have been evidenced during hard times like the COVID-19 through the study of Asongu (2012) which focused on performance of the NSE stock market during the post-election violence where almost every activity did freeze within the nation. The study established that the situation of the violence lowered the performance of NSE quite significantly caused unpredictability on the stock market. Similar evidence occurs from the study of Koech and Rotich (2013) which looked at the performance of the NSE stock market during the 2008 great financial crisis using a descriptive study approach. The study established that the security market was not immune to these external factors which so a great decline of the security market to the extent of eroding the previous year's gains. However, as this study referred to just related factors, the current study is quite necessary to establish the impact of the COVID-19 on the NSE stock market were no academic paper has been so far published in Kenya.

2.5 Summary of Literature Review

From the literature, most of the studies in the global market have shown evidence that the COVID-19 pandemic has had varying impact on the performance of the stock markets in the world. As per Baker et al. (2020), their study concluded that the pandemic had a negative influence on the

performance of the security market in the US. Their study was in line with those of Zhang, Hu, and Ji (2020) which established similar negative influence but noted that countries reactions to the pandemic had been totally different causing varying expectations on performance in the short run. The study by Fernandes (2020) established that even though poor performance had already been recorded, the situation was yet to be clear as real data was not available on COVID-19 with most report relying on the SARS statistics to explain the COVID-19. Within the context of the current study, no research publications have been made on the influence of COVID-19 on the performance of the security market.

Even though the conditions in Kenya were almost similar to that of South Africa as established by Ozili (2020) and Nigeria as per Adenomon and Maijamaa (2020) which both had established negative impact, the magnitude of the infection and the significance of the performance influence have been different between the counterpart countries. The measures taken by the nation are also different calling for the current study to investigate the current situation. Even though the security market has been seen to be influenced by the conditions of the global market like seen during the post-election violence performance as per (Asongu, 2012) and the international financial crisis as per (Koech and Rotich, 2013) the COVID-19 impact has been so categorical calling for this study to investigate on the condition.

2.6 Conceptual Framework

Under this section the study shall seek to establish the relationship between the dependent variable and how it is influenced by the other variable of the study including the independent and control variables. The sections looked at the direction of the relationship and how the variables were measured. The figure below represents the conceptual framework.

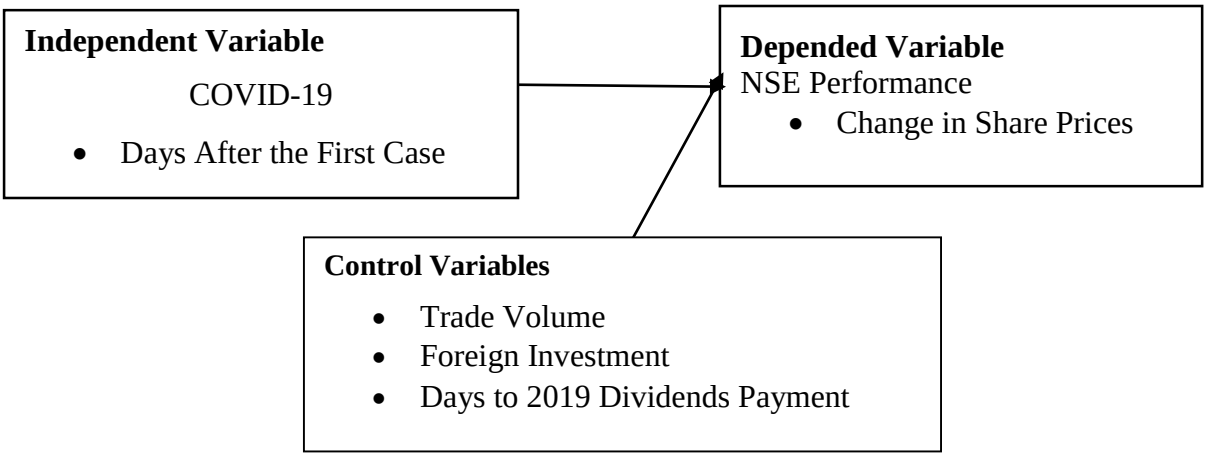

Fig 2.1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Under this section, the methodology which is used to arrive at conclusions about the research objectives are discussed. The chapter gives a step by step analysis of the different activities done to ensure success of the research work. It discloses the research design used and the targeted population. The chapter also indicates the data collection methods adopted in the study and the diagnostic tests done on the data to ensure its reliability. The chapter concludes by indicating the data analysis procedures carried out by disclosing the equation in the study and the tests done for significance.

3.2 Research Design

Not all research questions can be answered the same way (Myers, Well, & Lorch, 2010). Due to this fact, it is necessary that researchers choose a good design that will fit into their research work and that will best facilitate the proper answering of their research questions. A research design acts as a structure and guides investigations aimed at answering research questions (Leavy, 2017). According to Bordens and Abbott (2002), a research design decision should be made early in the research and guides key activities like data collection, analysis, and interpretation. A quantitative research design was used in this study. This design involved collection of quantitative data and analysis using statistical tools. This design has also been preferred, as it does not require a lot of time, its results are more reliable and it minimizes subjectivity in judgement as proposed by (Matveev, 2002).

3.3 Population

According to Mugenda and Mugenda (2003), a population is an aggregate of all those members who fit in to a certain specification, which in this case was firms listed in the NSE. According to

African Markets (n.d), there are currently 62 listed companies in the securities exchange market. Mutua (2019) advocated for a census survey in case the population is not large and therefore the current study shall adopt a census survey. All listed firms in the NSE were analyzed and no sampling was done.

3.4 Data Collection

Data for this study was purely secondary in nature. It collected data from secondary sources, which store the kind of data. COVID-19 data was collected on the number of days from the first case announcement that is quantitative in nature. Data for stock performance were measured using changes in share prices for each firm from NSE data and which is quantitative in nature. The data for announcement of 2019 dividends was obtained from specific companies' websites and from NSE and CMA. Amounts of foreign investments and daily trade volumes, which are quantitative in nature and was obtained from the NSE website. All this data was collected for a period of thirty days from the day when the first COVID 19 case was confirmed in the country. Collecting data for thirty days ensured enough data for analysis and hence, the conclusions was termed to be appropriate to meet the research objective.

3.6 Diagnostic Tests

These tests were performed to confirm suitability of the data collected. It was noted by Riege (2003) that diagnostic tests facilitate determination of data validity. As observed by Gomm (2008), validity and reliability of data are crucial basis for evaluation of a research. Tests were done to evaluate violation of the six underlying assumptions of OLS. The tests are for autocorrelation, missing variables, heteroscedasticity, stationarity, multicollinearity, and linearity. Hausman test was also done to facilitate the choice of the best model between fixed and random effects model as panel data was used.

3.6.1 Test for Stationarity

Stationarity is another requirement for an effective use of OLS. It refers to the existence of constant means and variances of a set of data over a given period (Kantz & Schreiber, 2004). As purported by Mushtaq (2011), failing to account for non-stationarity can lead to spurious regression which obviously leads to fabricated results, where the variables are based on time. In testing for this assumption, ADF was used as proposed by Mushtaq (2011) and interpretation done at 95% confidence intervals. If needed, correction was done through differencing.

3.6.2 Test for Multicollinearity

Multicollinearity is the existence of linear relationships between some variables in the same equation (Neelam, 2012). Its existence in an equation makes it under-identified and complicates its estimation. It can be caused by variables sharing a common trend, some variables being lagged values of others or existence of an approximate relationship between the variables (Kennedy, 2003). According to the scholar, multicollinearity has the effect of inflating the coefficients of the related variables. To prevent this undesirable situation, VIF was used to detect existence of multicollinearity at a confidence interval of 5. If found, some highly related variables were to be omitted from the equation.

3.6.3 Test for Linearity

For regression to be appropriate, there should be a linear relationship between the predictor variables and the dependent variable. As described by Allison (1999), it helps in establishing how values of a certain variable are generated. This is the basic assumption in regression. This test was done through use of scatter diagrams. Independent variables were plotted against the dependent variable and an observation be done as to the pattern of the scatter. Non-linearity was corrected using ratios.

3.6.4 Test for Omitted Variables

The situation of missing variables reduces the reliability in the prediction of the relationship between the dependent and independent variables. It is a situation whereby a relevant factor which could influence the dependent variable is left out in the equation and therefore the analysis of the underlying relationship between variables (Spanos, 1985). This test was done using the Ramsey Reset Test. The existence of omitted variable bias was to be corrected by use of a proxy variable as advised by (Wooldridge, 2016).

3.6.5 Test for Heteroscedasticity

Kaufman (2013) purported that, a series should be homoscedastic, failure to which the confidence intervals in the resulting analysis would be distorted giving misleading conclusions. Homoscedasticity is the property of constant variation in the error term and its violation is the presence of heteroscedasticity which needs to be considered for proper prediction (Wooldridge, 2016). In this study, Breusch-Pagan test was used, and interpretation were done at 95% confidence interval. This test was preferred as it is clearer as compared to the method of plotting the residuals as established by (Brooks, 2019). Correction would be done by use of Robust Standard Errors on need basis.

3.6.6 Test for Autocorrelation

There can be defined as a relationship between error terms of subsequent years in a variable (Berg & Coke, 2004). It can be in either first order or even higher order autocorrelation. In this study, Durbin-Watson was used to test for 1^{st} order autocorrelation while Breusch-Godfrey was used to test for higher order autocorrelations. Robust standard errors were to be used to correct the autocorrelation if interpretation at 95% confidence interval shows existence of the same.

3.6.7 Haussmann Test

Due to use of panel data, there can be two models in the analysis: the fixed effects and the random effects model. Hausman test helps in determining if the two models are statistically significant to facilitate the choice of the most efficient one (Roberto, 2013). Use of Hausman Test as advocated by Hausman (1978) will facilitate the selection of the most efficient model to use in the regression. The test will help in determination of endogeneity characteristics of the selected data.

3.7 Data Analysis

Data analysis involves the actions on data which helps in unearthing underlying characteristics in the data and facilitate the explanation of variations in the dependent variable using the predictor variables (Ramsay & Silverman, 2007). Data collected was summarised in an excel format for easy analysis using statistical packages and to facilitate the screening. The data will then be regresses using the STATA software version 14.2. after regression, the results were interpreted considering the key objective of this study. In the analysis, the equation below was used for the regression.

3.7.1 Analytical Research Model

The equation below was adopted for this study.

$$Y_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \varepsilon$$

Where,

Y, Stock performance for stock *i in time t*

$\beta 0$, Regression equation constant

X_{1it}, COVID 19 effect on stock *i in time t*

X_{2it}, Trade volume for stock *i in time t*

X_{3it}, Foreign investment for stock *i in time t*

X_{4it}, Days to 2019 dividends for stock *i in time t*

ε, Probable residual error

$\beta 1, \beta 2, \beta 3, \beta 4$, the coefficients COVID 19, trade volume, foreign investment in stocks, and days to 2019 dividend payment, respectively.

3.7.2 Test for Significance

In determining the significance of the results of this study, a combination of ANOVA and p-value was used. The interpretation was done at 95% confidence interval for precision. The degree of influence of the predictor variables were determined by the value of R^2 and the correlation in the study was determined by the value of the correlation coefficient R.

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CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter elaborates the findings of the research as per the research objectives. In the chapter, information on response rate and summary statistics of the variables will be reviewed. The chapter will also disclose the results and findings of the various validity tests done on the data to confirm its suitability for regression and drawing of conclusions. The chapter will conclude by discussing the study findings following the regression results.

4.2 Descriptive Statistics

This section discloses the proportion of data collected with respect to how much was intended to be collected. The section also discloses summary characteristics of the data with a view to shedding some light on some key characteristics of the data. The characteristics are to do with averages, minimum values, maximum values, and the standard deviation of the data. There was a 100% data collection for COVID 19 effect, exchange rates and days to 2019 dividends. There was also a 99.92% data collection for both share prices and share trade volumes for the period of study. Overall collection was 100%, which ensured data adequacy. Based on the observations by Mugenda et al. (2013) that above 70% collection is excellent, the collection was excellent and that boosts the credibility of the study findings.

Table 4.1 Response rate table

Variable	Share Price	COVID 19 Effect	Trade Volume	Exchange Rate	Days to 2019 Dividends
Data collected	1301	1302	1301	1302	1302
Unavailable data	1	0	1	0	0
Total	1302	1302	1302	1302	1302
Response rate (%)	99.92%	100%	99.92%	100%	100%

Source: Author

Summary statistics have established that on average, the share price in NSE was **Sh95.39** for the 30-day period of study. It was also established that the share price had a huge standard deviation of **Sh279.851** with the minimum and maximum share prices being **Sh0.25** and **Sh1,650**, respectively. This indicates that potential investors should expect a huge uncertainty in the share prices as indicated by the standard deviation and also a huge variation in company share prices as indicated by the huge range between the minimum and maximum share prices within the period.

In terms of trading volume, the average number of shares traded in a day was 460,880.9 shares with a standard deviation of 2.553 million shares. The minimum and the maximum number of shares traded in a day was 0 and 44.2 million shares, respectively. This variation shows that there are some shares, which trade less, and others, which trade in volumes within a day. Any potential investor needs to be aware of these variations and acquire shares wisely based on their intention to trade frequently or hold the shares. Exchange rate was relatively stable with an average of Sh104.96 for a US dollar and a standard deviation of 1.2988. A potential foreign investor should expect to get Sh104.96 for every dollar in case they need to convert and trade in the NSE. Those who may seek to hold currency, as an alternative investment to the NSE should also know there is little variability and may not yield the returns they may be willing to get. The minimum and maximum US dollar prices were Sh102.42 and Sh106.54, respectively.

COVID 19 was measured by the days since the first case was announced on March 12th 2020 for a period of 30 days since it was not announced as over within the period. In dividend payments for 2019, summary statistics have shown that at an average, the book closure date was 215 days away showing that most firms do not pay dividends too close at the start of the year. There was also a minimum of -41 days indicating that some companies had already paid their dividends and a maximum of 365 days showing that some companies had announced that they were not going to

pay dividends as 365 days was used as a dummy figure to push dividends for such firms further away.

Table 4.2 Data summary statistics table

Variable	Observations	Mean	Std. Dev.	Min	Max
Share price	1301	95.39284	279.851	.25	1650
Trade volume	1301	460,880.9	2,553,920	0	44,200,000
Exchange rate	1302	104.9607	1.298872	102.4235	106.5441
COVID 19 effect	1302	14.38095	8.530411	0	28
Days to 2019 dividends	1302	215.4094	144.1101	-41	365

Source: Test results

4.3 Diagnostic Tests

Diagnostic tests were the tests, which were carried out on the collected data to ensure that it was fit for analysis or inform taking of corrective measures. Tests done included test for omitted variables, heteroscedasticity, autocorrelation, multicollinearity, and stationarity. The results are as follows.

4.3.1 Test for Omitted Variables

Occurrence of omitted variables was tested using the Ramsey RESET test. It was interpreted by comparing the p-value to 0.05. The test was based on a null hypothesis that the model does not suffer from omitted variables bias. The test returned a significant p-value of 0.0000, which indicated occurrence of missing variables. The occurrence however did not cause an alarm as focus was on pandemic and it is expected that there are so many other variables which can affect share prices. Based on that, the regression considered only those variables which were in the model without having to look for more variables to stay focused.

Table 4.3 Ramsey RESET Test Table

Ramsey RESET test
Ho: model has no omitted variables
F (3, 827) = 11.39
Prob > F = 0.0000

Source: Ramsey RESET test results

4.3.2 Test for Heteroscedasticity

Heteroscedasticity in the study was

tested using the Breush-Pagan test. The null hypothesis was that the model was homoscedastic, and interpretation was done at 95% confidence interval. A p-value of 0.0405 was obtained which was significant and the null hypothesis was then rejected. Since the conclusion was that the model was suffering from heteroscedasticity, robust standard errors were used in the final regression to correct the bias.

Table 4.4 Breusch-Pagan Test Results Table

Breusch-Pagan test
Ho: Constant variance
chi2(1) = 4.19
Prob > chi2 = 0.0405

Source: Breusch-Pagan test results

4.3.3 Hausman Test

Hausman test was done by running both the fixed effects model and the random effects model and then running the Hausman test on the stored values of both tests. The null hypothesis tested was that random effects model was efficient compared to the fixed effects model. The test returns an insignificant p-value therefore the null hypothesis was not rejected. Random effects model was then declared efficient and used in the study.

Table 4.5 Results for fixed effects model

Fixed effects (within) regression				Number of obs = 835		
Group variable: Company				Number of groups = 60		
R-sq:				Obs per group:		
within = 0.0145				min = 1		
between = 0.0597				avg = 13.9		
overall = 0.0367				max = 20		
				F (4,771) = 2.84		
corr (u_i, Xb) = 0.1509				Prob > F = 0.0236		
Ln of share price	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Ln of trade volume	-.02588	.0089656	-2.89	0.004	-.0434798	-.0082802
Ln of COVID 19 effect	-.044951	.0298356	-1.51	0.132	-.1035197	.0136174
Ln of 2019 dividends	-.012673	.1190858	-0.11	0.915	-.2464442	.2210975
Exchange rate	.012834	.0180331	0.71	0.477	-.0225658	.0482339
_cons	1.428166	1.917184	0.74	0.457	-2.335354	5.191686
sigma_u 1.8568637						
sigma_e .37748576						
rho .96031251(fraction of variance due to u_i)						
F test that all u_i=0: F (59,771) = 188.19 Prob > F = 0.0000						

Source: Fixed effects regression results

Table 4.6 Results for random effects model

Random-effects GLS regression				Number of obs = 835		
Group variable: Company				Number of groups = 60		
R-sq:				Obs per group:		
within = 0.0121				min = 1		
between = 0.2481				avg = 13.9		
overall = 0.3217				max = 20		
				Wald chi2(4) = 15.57		
corr(u_i, X) = 0 (assumed)				Prob > chi2 = 0.0037		
Ln of share price	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Ln of trade volume	-.0270415	.0089722	-3.01	0.003	-.0446267	-.0094563
Ln of COVID 19 effect	-.0662116	.0293335	-2.26	0.024	-.1237042	-.0087191
Ln of 2019 dividends	-.1995441	.1050244	-1.90	0.057	-.4053881	.0062998
Exchange rate	.0143959	.0181379	0.79	0.427	-.0211538	.0499456
_cons	2.512168	1.925723	1.3	0.192	-1.262179	6.286515
sigma_u 1.6583358						
sigma_e .37748576						
rho .95073746 (fraction of variance due to u_i)						

Source: Random effects regression results

Table 4.7 Results for Hausman test

	Fixed effects	Random effects	Difference	S.E.
Ln of trade volume	-.02588	-.0270415	.0011615	.
Ln of COVID 19 effect	-.0449511	-.0662116	.0212605	.0054504
Ln of 2019 dividends	-.0126733	-.1995441	.1868708	.0561365
Exchange rate	.012834	.0143959	-.0015619	.
Test: Ho: difference in coefficients not systematic				
chi2(4) = 10.78				
Prob>chi2 = 0.0872				

Source: Hausman test results

4.3.4 Test for Multicollinearity

Multicollinearity was tested to ensure that the predictor variables used in the study were not too much related to each other and guide on elimination in case they were found to relate to each other. The study used a significant level of 5% and tested using the variance inflation factor. The valued of the VIF obtained were all below 5 and the variables were then determined not to be suffering from multicollinearity. The highest and the lowest VIFs were 2.8 and 1.05 which were way below the threshold of 5. The mean VIF was 1.92, which was also below 5. As a result, all the variables in the model were used in the final regression and used to predict the dependent variable.

of severe multicollinearity in the variables.

Table 4.8 Multicollinearity Test Results

Variable	VIF	1/VIF
Ln of COVID 19 effect	2.8	0.357675
Exchange rate	2.79	0.358795
Ln of 2019 dividends	1.06	0.942007
Ln of trade volume	1.05	0.948715
Mean VIF	1.92	

Source: VIF test results

4.3.5 Test for Stationarity

Stationarity in the panels was tested using the augmented dickey fuller test. The null hypothesis

tested was that all panels contain unit roots. Interpretation was done at 5% significance level. Apart from exchange rates and the ln of 2019 dividends, all other variables were found to be stationary within the panels. Correction to the bias in the affected variables was done through differencing.

Table 4.9 ADF Test Results

Variable		Statistic	P-value	Number of panels	Average number of periods
Exchange rate	Inverse Chi2(124) P	131.6512	0.3021	62	21
	Inverse Normal Z	-3.1221	0.0009		
	Inverse Logit (314) L*	-2.7709	0.0030		
	Modified Inverse chi2	0.4859	0.3135		
Ln of share price	Inverse Chi2(124) P	537.4231	0.0000	62	20.98
	Inverse Normal Z	-14.6950	0.0000		
	Inverse logit t (299) L*	-18.0978	0.0000		
	Modified Inverse chi2 Pm	26.2524	0.0000		
Ln trade volume	Inverse Chi2(98) P	546.9822	0.0000	61	14.74
	Inverse Normal Z	-15.1802	0.0000		
	Inverse Logit t (244) L*	-20.7818	0.0000		
	Modified Inverse chi2 Pm	32.0702	0.0000		
Ln 2019 dividends	Inverse Chi2(122) P	0.0000	1.0000	61	21
	Inverse Normal Z	.	.		
	Inverse Logit (4) L*	.	.		
	Modified Inverse chi2 Pm	-7.8102	0.0000		
Ln COVID 19 effect	Inverse Chi2(124) P	4,469.4130	0.0000	62	20
	Inverse Normal Z	-63.9833	0.0000		
	Inverse Logit t (314) L*	-156.7221	0.0000		
	Modified Inverse chi2 Pm	275.9340	0.0000		

Source: ADF test results

4.3.6 Normality test

Normality test was done to determine the distribution of the data. The test was done using the Kurtosis and Skewness tests. The study established that the data was well distributed except for COVID 19 effect which was skewed to the right. This was expected as it was measured using the days after announcement of the first COVID 19 case in the country. The skewness was however not a major issue and the data was fit for making of conclusions of effect of pandemics on share performance.

Table 4.10 Normality Test Results Table

Variable	Obs	Pr (Skewness)	Pr (Kurtosis)	adj chi2(2)	Prob>chi2
COVID 19 effect	1,302	0.7654	0.0000	.	0.0000
Share price	1,301	0.0000	0.0000	.	0.0000
Trade volume	1,301	0.0000	0.0000	.	.
Exchange rates	1,302	0.0000	0.0000	.	0.0000
Days to 2019 dividends	1,302	0.0002	.	.	.

Source: Normality test results

4.4 Correlation Analysis

Correlation between the variables under study were tested using the Pearson correlation coefficient. Ln of share price was found to be negatively correlated with all variables except the ln of COVID 19 effect. Trade volume and the days to 2019 dividends were found to be negatively correlated with all variables while exchange rates had only one positive correlation, which was with ln of COVID 19 effect. The test shows that most of the variables under study affect share prices negatively and affect each other negatively which increases the net effect. The highest absolute correlation was between exchange rates and ln of COVID 19 effect while the smallest was ln of COVID 19 effect and trade volume.

Table 4.11 correlation analysis results table

	Ln share price	Ln of trade volume	Ln of COVID 19 effect	Ln 2019 dividends	Exchange rate
Ln share price	1.0000				
Ln of trade volume	-0.0689	1.0000			
Ln of COVID 19 effect	0.0061	-0.0026	1.0000		
Ln 2019 dividends	-0.4302	-0.2210	-0.0833	1.0000	
Exchange rate	-0.0076	-0.0354	0.7968	-0.0704	1.0000

Source: Pearson correlation coefficient test results

4.5 Regression Analysis and Hypotheses Testing

Regression of the data collected have established that the variables do affect share performance. The regression has established that 32.36% of the changes in stock performance can be attributed to occurrence of pandemics, declaration of dividends, exchange rates and trade volumes. This shows that there are many other factors which affect share price performance since 67.64% of such performance is not explained by the four factors studied in this research.

The regression results have also established that trade volume affect stock performance negatively and significantly as established by a significant p-value of 0.000. for every increase in trade volume, there is a corresponding decline in stock performance by 0.14 units. The study has also established a significant negative effect on stock performance by occurrence of pandemics. For every day passed as pandemics are declared, there is a decline in stock performance by 0.20 units. Exchange rates have a positive relationship with stock performance while delay in payment of dividends have a negative effect on share performance. The effect of exchange rates is insignificant as shown by a p-value of 0.592 while the effect of dividends delay is significant with a p-value of 0.000. of the four predictor variables. Delay in dividend payments has the highest absolute impact at 0.998 units for every corresponding unit change

Table 4.12 ANOVA

Source	SS	df	MS	Number of obs = 835
				F (4,130) = 99.25
Model	809.343968	4	202.335992	Prob > F = 0.0000
Residual	1,692.00658	830	2.03856215	R-squared = 0.3236
				Adj R-squared = 0.3203
Total	2,501.35055	834	2.99922129	Root MSE = 1.4278

Source: Panel regression results

Table 4.13 Regression Analysis

Ln of share price	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Ln of trade volume	-.1362735	.0173974	-7.83	0.000	-.1704216	-.1021254
Ln of COVID 19 effect	-.2037487	.0997974	-2.04	0.042	-.3996337	-.0078637
Ln of 2019 dividends	-.9981381	.0509767	-19.58	0.000	-1.098196	-.8980797
Exchange rates	.0360385	.0672823	0.54	0.592	-.0960249	.1681019
_cons	5.26763	6.889114	0.76	0.445	-8.254504	18.78976

Source: Panel regression results

4.6 Discussion of Research Findings

The study results in respect to pandemics, dividends, trade volumes, exchange rates and stock performance agree with some of the findings of past scholars to a great extent. The findings agree with efficient market theory in that it shows how stock prices respond to news. The pandemic made the share prices to go down even before the actual effect on the economy was felt. As a result, the study agrees with the findings of Clarke, Jandik and Mendelker (2001) but disagrees with the observations of Malkiel (2000) that efficient market theory has assumptions, which may not hold water.

On another aspect, the findings do not agree with the observations of random walk, as it is easy to predict movement in share prices. Having established significant relationships with the study variables, it is now easy to predict the movement of stock prices based on the type of news about

the variables that hits the market. The findings do not however support Dow Theory, as there is evidence that share movements largely move to the same direction depending on the news against the theory assumption that different movements will cancel each other. The study results also support the findings by Makori (2017) that there exists a positive relationship between foreign investment activities and stock performance. Based on the findings, the study refutes the claim by Suriani, Kumar, Jamil and Muneer (2015) as the dependence has been established and therefore it is not by chance.

On pandemics, the study agrees with the findings of Al-Awadhi et al. (2020) that there is a negative relationship between pandemics and performance of securities. This is because operations are expected to be disrupted affecting future expected payoffs from a company. Based on these findings, relevant authorities should take measures to mitigate the effect of the COVID 19 pandemic on the stock market and the economy in general, since the main effect is through disruption of operations, governments should take steps to help firms sail through the pandemic and at least experience the least severity possible. Relevant authorities should recognize that apart from operations, there is a financial crisis risk as identified by Ozili (2020). The government should also take steps to foresee pandemics before they are officially announced to facilitate early response to prevent any severe effect on the stock market. This would be better for the economy as it is known that the stock market is the face of the economy.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section of the research focuses on the major findings of the study and their implication to the field of study. It specifically focuses on a summary of the research findings, conclusions made by the researcher based on the findings and the recommendations made by the researcher. In addition, the chapter also discusses the limitations of the study, which were faced, and recommendations for further studies.

5.2 Summary of Findings

The research objective was mainly to determine the effect Covid-19 on the performance of the Nairobi Security Exchange market. In the attempt to realize the research objective, the researcher found other variables, which were relevant for the study, which included the trade volume as measured using the natural log of the shares traded. Foreign investments, which as measured using the exchange rate against the US dollar and the number of days to book, closure, which was used to measure the number of days to dividend announcements. The target population in the study was 62 firms, which are in a good standing in the NSE stock market. The study made observations on the trade of the share performance for 30 days after the announcement of the first Covid-19 case within the state on the twelfth day of March 2020.

The data was collected during the 30-day period for the days in which the security market traded which gave a total of 21 days and which gave a maximum possible data points of 1302. Data on stock performance gave the lowest response rate of 1300 and which was approximately 100% and which is considered quite sufficient for the researcher to conclude on the relationship existing between the variables under consideration. From the summary of statistics, the mean price for shares in the NSE market for the 30 day under consideration was established to be 95.39 sh. per

share, trade volume recording a mean score of 460880.9 shares in a day, with the exchange rates recording a mean of 104.96 sh. per US dollar. In terms of the number of days to the dividend announcement, the study recorded a mean of 215.41 days.

From the regression results, the researcher established that the value of adjusted P squared was 0.3203 which indicated that the variables under consideration of the study accounted for 32.03% of the change in the level of performance of the security market. From the normality test results, the study found out that all the variables where fairly distributed except for the natural long of the stock prices which was highly peaked with a Pr (Kurtosis) of 0.56. The autocorrelation results indicated that all the variables under consideration where negatively related to one another apart from the exchange rates which were positively related to the effect of Covid-19 as indicated by the number of days from the first case announcement in Kenya.

In terms of the variables under consideration, the study results established on the main variables of the study, that the impact of Covid-19 affected the stock performance in a negative manner and which was also considered statistically significant at the 95% confidence level. Further, the study found that the trade volume affected the performance of the security market in a not only negative way, but which was also statistically significant. In the consideration of the days to the closure of business books, a negative and statistically significant influence was found to exist in the NSE market. Lastly, the results on the effect of exchange rates on the performance of the stock market was found to be having a positive influence but which was found to be statistically insignificant.

5.3 Conclusion

Based on the study findings discussed above, I can make several conclusions. The negative impact brought on the performance of the stock market by the effect of Covid-19, leads to the conclusion

that the pandemic was affecting the physical operations of businesses and this was in return lowering the level of performance of the stock market. On the other hand, the exchange rates were found to be influencing the performance of the stock market in a positive way which leads to the conclusion that, higher exchange rates against the US dollar favored the performance of the stock markets as it offered an alternative investment avenue for the foreigners within the country.

The results on the effects of trade volume on the performance of the stock market that indicated a negative and significant effect, the study can therefore make a conclusion that trade volume was a reflection of the appetite to invest and which the low of demand took effect. This implies that investors will have the tendency of trading more at lower prices as opposed to at higher prices as they speculate for future positive price changes. In terms of the dividends announcement, a negative relationship leads to the conclusion that the firms will have better performance towards the announcements of the dividends as more people will be willing to purchase the stocks and get to be listed in the books as bona-fide shareholders to receive the dividends. As a result, the further the date to the announcement of dividend will result to lower performance of the stock market as there is no incentive to purchase the shares based on the principle of time value for money.

On the other aspects of the study, the value of R^2 adjusted of 32.03% implies that there are many other factors which may have contributed to the performance of the security market, and which are not in the current study consideration. Therefore, the study makes the conclusion that even though the variables considered in the study were highly related to the performance of the security markets as indicated by the levels of their significance other factors may be influencing the performance of the NSE as well.

5.4 Recommendations

According to the research findings, the researcher makes a recommendation to all the stake holders including the players in the stock market, the firms that participate in the market and the state departments that they should take all the necessary measures that should contain the pandemic. Laws should be made quickly to arrest the spread of Covid-19 due to the established negative influence and which if it persists may adversely affect the general performance of the entire security market as well as the economy. Regarding to the trade volume, which was also established to be having a negative influence, a recommendation is therefore made for an down-scaling adjustment of stock offered in the market which will create scarcity and hence boost the level of performance for the NSE market.

The positive relationship existing between the exchange rates and the performance of the NSE shares, the researcher recommends that the firms listed in the security markets should be highly cautious of the exchange rates so as to take advantage of the impact they bring about based on the fact that the exchange rates are resulting factor from the general performance of other nations hence beyond the control of the stock market stakeholders. Also, the research makes a recommendation based on the relation between the announcement of dividends and the performance of the stock market, which was negative, that firms should be consisted with the announcement of dividends on annual basis. This in return will boost their performance towards the closure of their books even though this will only be limited as firms can only close their books once in a year.

5.5 Limitations of the Study

The study, which was conducted in the context of Kenya, encountered several limitations, and more so faced by the challenge, which has been posed by the Covid-19 pandemic. While the study

was to be based on the research gap existing regarding the matter of Covid-19 and the performance of the NSE, little literature review was found in the context of Kenya market and which in return implied the study was being ventured in a new field. In terms of general application of the research findings, the study has only be limited to the application in the Kenyan market and may be limited to generalization in other nations based on the fact that different nations approached to the pandemic in different ways hence impact was expected to vary.

The study which was conducted in the county governments of Kenya faced some challenges since county government have been new in Kenya as they were introduced in the year 2013. This means that the data for the current study was only limited to the few years as opposed to other industries where data can be available for as long as even 3 decants. In addition, as the study relied upon secondary data and which is published in the audited format by the auditor general office, the counties where found to be having challenges on meeting the requirements for publication. With most of the counties getting either disclaimer opinion or adverse opinion in the first years of reporting ended up questioning the validity of such data.

Concerning the timing, the study was also limited to the first 30 days after the announcement of the first Kenyan case of Covid-19. However, it is worth noting that during the duration studied, the real impact of the pandemic may not have manifested in the economy. With the assumption that Covid-19 pandemic is not yet at recovery level and with the predictions that the pandemic may take some more time before a vaccine is found, the study would have been a continuous one so as to monitor the trends till the end of Covid-19 and the post Covid-19 era.

5.6 Suggestions for Further Research

Based on the fact that the Covid-19 pandemic is still termed as an ongoing pandemic as at the conclusion of this research work, the researcher suggests that future researchers should consider making an analysis of the real effect of Covid-19 on the NSE stock market after the pandemic is over and establish the general influence for the entire duration. In a Similar manner, as the limitation pointed out that the approaches taken towards the Covid-19 pandemic differed from one nation to the other. The researcher recommends that future studies should consider the trends between the variables in this study in other nations which had total lock down and the counterparts which totally ignored the pandemic and a comparative analysis be done for the three category of nations.

Considering the level of the P^2 in the current study that suggested only 32.03% of the changes in the stock performance was explained by the variables in the study. I recommend future studies should incorporate internal factors related to the specific firms that participate in the NSE stock market and establish if they could be attributing to a greater extend to the changes in performance of the stock market. More emphasis should also be made on the impact of Covid-19 on the general economy and establish whether there may be some other economic influences brought about by covid-19 as the stock market performance is just a single indicator of the economic health in a nation.

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APPENDICES

Appendix I: NSE Listed Companies

1. Absa Bank Kenya
2. ARM Cement
3. B O C Kenya
4. Bamburi Cement
5. BK Group
6. Britam (Kenya)
7. BAT Kenya
8. Car & General (K)
9. Carbacid Investments
10. Centum Investment
11. CIC Insurance Group
12. Co-operative Bank of Kenya
13. Crown Paints Kenya
14. Deacons (East Africa)
15. Diamond Trust Bank Kenya
16. Eaagads
17. East African Breweries
18. East African Cables
19. East African Portland Cement
20. Equity Group Holdings
21. Eveready East Africa

22. Express Kenya

23. Flame Tree Group Holdings

24. HF Group

25. Home Afrika

26. I&M Holdings

27. Jubilee Holdings

28. Kakuzi

29. Kapchorua Tea Kenya

30. KCB Group

31. KenGen Company

32. Kenya Airways

33. Kenya Orchards

34. Kenya Power & Lighting

35. Kenya Re-Insurance Corporation

36. Kurwitu Ventures

37. Liberty Kenya Holdings

38. Limuru Tea

39. Longhorn Publishers

40. Mumias Sugar Co

41. Nairobi Business Ventures

42. Nairobi Securities Exchange

43. Nation Media Group

44. National Bank of Kenya

45. NIC Group

46. Olympia Capital Holdings

47. Safaricom PLC

48. Sameer Africa

49. Sanlam Kenya

50. Sasini

51. Stanbic Holdings

52. Standard Chartered Bank Kenya

53. Standard Group

54. Stanlib Fahari I-REIT

55. Total Kenya

56. TPS Eastern Africa

57. TransCentury

58. Uchumi Supermarkets

59. Umeme

60. Unga Group

61. Williamson Tea Kenya

62. WPP Scangroup

Appendix II: Data Collection Sheet

Name of the Company: …….				
Day	Share Price	Number of equity shares traded	Foreign Exchange rates	Days to book closure date
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