EFFECTS OF INTEREST RATE RISK MITIGATION TECHNIQUES ON PERFORMANCE OF FOREX BUREAUS IN NAIROBI COUNTY, KENYA

BY

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UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

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UNITED STATES INTERNATIONAL UNIVERSITY-
AFRICA

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STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any college, institution or university other than the United States International University in Nairobi for academic purpose.

Signed: ___________________________  Date: ___________________________

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This project proposal is presented for examination with my approval as the appointed supervisor.

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Dr. Francis Gatumo

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Dean, Chandaria School of Business
ABSTRACT

The purpose of this study was to investigate the effects of interest rate risk mitigation techniques on the financial performance of forex bureaus in Nairobi county. Specifically, the study sought to evaluate the effects of corporate governance, yield curve and, basis risk on the performance of forex bureaus in Nairobi, Kenya.

Descriptive research design was used to describe the relationship between the variables used in the study. A total of 61 finance managers were targeted using census sampling technique. Thus, each bureau registered and operating in Nairobi county was represented by one finance manager in the survey. Primary data sources were used to gather information using structured questionnaires. Statistical Package for Social Sciences (SPSS) version 22 software was used to analyze the data collected. Results were presented in form of figures and tables. Percentages, frequency, mean, and, standard deviation formed part of the descriptive statistics while the coefficient of determination, coefficient of correlation, analysis of variance (ANOVA) and model summary formed part of the inferential statistics.

Regarding the relationship between corporate governance and firm performance, inferential statistical results showed that the two variables had a strong positive relationship because the adjusted R square was 88.2%. Some of the corporate governance attributes that had a significant effect on firm performance include the argument that forex bureaus roles and responsibilities are clearly defined and do not clash with those of the Board, the contention that forex bureaus Boards are made of both executive and non-executive directors and the argument that forex bureau Boards are accountable to its shareholders.

As regards the effect of yield curve on firm performance, inferential statistical results found out that the independent variable, yield curve had a strong positive association with the dependent variable because the adjusted R^2 was 88.5%. Attributes such as the yield curve changes are dependent on variations in exchange rates and that during periods of economic recession, upward sloping yield curve indicates bad times today and better times ahead and that the slope of the yield curve can be used to predict economic growth had a significant influence on performance of forex bureaus in Nairobi.
Finally, the study established that there was a significant direct link between basis risk and firm performance because inferential statistics measured in terms of adjusted R square value was 78.5%. Some of the basis risk attributes which had a significant effect on the performance of forex bureaus in Nairobi include the argument that opportunistic behavior of market participants may give rise to basis risk and exercise of market power in the derivatives market may cause distortions in the basis.

Pearson correlation analysis results concluded that each of the independent variables namely: corporate governance, yield curve and basis risk had a significant positive correlation with performance of forex bureaus in Nairobi county because their respective coefficient of determination values were 95.1%, 94.2% and 94%. Besides, p value of 0.00 for each of the independent variables was less than 0.01 level of significance hence statistically significant with firm performance. Regression analysis results also concluded that each of the three independent variables had significant positive relationship with the dependent variable because their respective adjusted R square values were 88.2%, 88.5% and 78.5%.

Based on the above findings, it is therefore recommended that to improve performance, forex bureaus in Nairobi may wish to assess their preparedness to adhere to corporate governance issues. Since the two variables exhibit a significant positive link, it is therefore, recommended that forex bureaus in Nairobi should view corporate governance as a major determining factor towards better firm performance. Thus, the two variables should be aligned accordingly to achieve optimal results. As regards yield curve, statistical study results revealed that yield curve has a direct relationship with firm performance. Forex bureaus operating in Nairobi should adhere to all the prevailing yield curve attributes such as yield curve variations to improve firm performance. Finally, the study also established that basis risk exhibited a strong positive relationship with firm performance. Based on this finding, it is recommended that the management of forex bureaus in Nairobi should appreciate that opportunistic behavior of market participants may give rise to basis risk and exercise of market power in the derivatives market may cause distortions in the basis. These arguments carry more weight in improving firm performance.
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DEDICATION

I dedicate this project to my family for encouraging me to pursue my MBA and the faculty of the School of Business at United States International University-Africa for being supportive throughout my study.
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Interest rate risk may be defined as the potential effect changes in interest rate have on a firm’s net asset values and earnings. It forms an integral part of an organization’s source of profit (Wuhan & Khurshid, 2015). Wuhan and Khurshid (2015) further noted that, management of interest rate risk is one element that guarantees business stability because it enables a firm to assess its currency. This may facilitate the achievement of an organization’s financial objectives. Management of interest rates risks is important because it controls the flow of money in an economy. Although high interest rates can control inflation, they can also slow down an economy. On the other hand, low interest rates may stimulate the economy while at the same time could lead to inflation (Harswari & Hamza, 2017). Oteng and Adjei (2014) contend that when interest rates are very high, people shun away from borrowing money from banks because the loans are expensive. This has a negative effect to the economy’s growth. The reverse is true. The effects of a low interest rates in an economy is good news for the consumer.

Dewi, Soei and Surjoko (2019) argue that just like in any other business where speculation is involved, the higher the risks the higher the returns. Low interest rates are sad news for lenders who consider that as being tantamount to low returns on their loans. The reverse is true for the lenders when interest rates are high. Interest rates in simple language is the cost of borrowing money for a given period. It considers changes in the purchasing power of money that takes place in the real world. Dewi et al., (2019) further contend that financial institutions are exposed to adverse interest rate movements mainly because rates on their assets are usually locked in for longer periods of time than rates on their liabilities. Thus, when interest rates rise, banks generally experience losses in their assets economic value because the value of those assets decreases more compared to the value of their liabilities. Tokic (2016) argued that banks have a tendency of elongating the maturity periods of their asset holdings in cases where nominal interest rates have declined. This is aimed at preventing the overall yield of their portfolios’ from decreasing too much.
Interest rate parity theory argues that the exchange rates are usually determined by the market. The theory further argues that effects of high interest rates are compensated for by the expectation of currency depreciation. The reverse is applicable. The law of one price can also be used to explain this parity. This law argues that the purchase an asset in country A should yield the same return in country B. Otherwise, exchange rates should be adjusted accordingly to make up for the difference (Kurihara, 2015). Any adjustment to exchange rates would have either a positive or negative effect on the forex bureaus growth or profitability. In such a scenario, an investor would have no opportunity to benefit from interest rate differentials, hence not motivated to borrow money in a low-interest currency with the intention of investing the proceeds in a high-interest currency. In practice, high-interest currencies are prone to experiencing longer periods of sharp currency appreciation that is prompted by capital inflows (Adow & Ochiri, 2018). It is however worth noting that in the short-term, such interest differentials due to capital flows can highly destabilize an economy. The interest rate parity theory is relevant in this study because it explains the negative effect of high interest loans on a firm’s financial performance. Organizations may also not be motivated to borrow externally at exorbitant interest rates thus unable to undertake projects which would otherwise improve the firm’s performance. By virtue of being able to manipulate interest rates courtesy of a country’s legal provisions, central banks have a direct influence on both inflation and exchange rates. Such influence consequently affects inflation and currency value. Higher interest rates benefit lenders in terms of higher return relative to other countries. This impact is however mitigated if inflation in the affected country is much higher than in other countries or if generally, there are other factors which are intended to drive the affected country’s currency down. On the other hand, lower interest rates tend to decrease exchange rates (Su, Wang, Tao, & Lobonț, 2019). This explains why business enterprises use leading to mitigate interest rate risks.

In the United States of America and the United Kingdom, a study was conducted using two factor model of life insurer security returns to measure interest rate risk of insurers. Study findings indicated that in the United States, interest rate risk had a negative relationship with interest rates movements in recent years. In the United Kingdom however, interest rate risk remained low and remained roughly unchanged from what it was prior to the financial crisis period of 2007-2008 when long-term interest rates exhibited unusual historical ranges. These differences were attributed to the excess use of products that
combined both options and guarantees for policyholders to adjust their behavior by the American life insurers relative to their British counterparts (Hartley, Paulson, & Rosen, 2016). Another study was carried out in the United States to investigate effect of low interest rate on risk taking and profitability of the American banking sector. Using various estimation techniques, static and dynamic modeling approaches, the study found out that low interest rates impaired bank performance. To maintain their overall profit levels, banks have been compelled to lower their provisions for bad debts which essentially is not a wise move to maintain the banks financial stability in the long run. Banks faced more risks because they did not expand their operations wide enough to include higher risk exposure trading activities to compensate themselves for the lower interest income (Bikker & Vervliet, 2017).

In Switzerland, Beutler, Bichsel, Bruhin and Danton (2017) analyzed the gain or loss in a bank’s economic capital due to interest rate movements which has a direct impact on bank lending. The study used panel data set which contained information regarding the repricing maturity profiles of banks in the country. In addition, the data set used provided the researcher with a specific measure of interest rate risk exposure net of hedging. The study concluded that effect of interest rate shock on the financial institution’s lending behavior was significantly dependent on interest rate risk exposure. This means that interest rate risk exposure has a positive effect on the influence of interest rate shock on its lending. The study also concluded that banks’ lending behavior was mainly driven by capital as opposed to liquidity. This implied that a higher capitalized banking system could easily cushion its creditors from interest rate shocks. In China’s Jiangsu Province, a study was conducted to investigate the influence of interest rates on investment. The study findings showed that the two variables had a positive relationship in the short-term but negative relationship in the long-term (Wuhan & Khurshid, 2015).

There is a general understanding that there is a positive relationship between banks’ financial stability and a country’s economic growth. Thus, better understanding of the interrelationship between market and credit risk on contributes to the better functioning of the financial sector. To support this, Ekinci (2016) investigated the interrelationship between credit and market risk on the performance of Turkish banks. Using weekly data for the period 18.01.202-30.10.2015, study findings suggested that interest rate had had an insignificant effect on banks profitability. Credit risk on the other hand had a negative effect
on banks profitability whereas foreign exchange rate had a positive relationship. In Indonesia, interest rate risk was found to have a positive relationship with firm profitability. The study targeted banks operating in the rural areas of Bali for a 3-year period 2013–2015 (Sukadana, Wiagustini, Wardana, & Purbawangsa, 2017).

In South Africa, a study was conducted to investigate the relationship between household credit and household consumption as per the Keynesian interest rate theory. The study focused on three economic periods namely: pre-inflation period 1994–1999, post-inflation period 2000–2007 and the global financial crisis period 2007–2012. It is worth noting that different monetary policy stances existed during these periods. The study findings revealed that household credit and consumption decreased during periods of monetary contraction (inflation) but increased during periods of monetary expansion (global financial crisis). Increase in repo rates has a positive effect on short-term interest rates which worsened existing levels of household debt. Increased cost of borrowing consequently reduces household demand for credit thereby further worsening households’ debt position (Owusu-Sekyere, 2017).

In Western Africa, studies carried out give a positive link between interest rate risk and bank profitability. In Nigeria, Okere, Isiaka and Ogunlowore (2018) investigated the influence of credit risk management measured in terms of credit and liquidity on banks’ financial profitability. The study targeted money deposit banks. Nwude and Okeke (2018) study targeted top 5 commercial banks in terms of asset base using secondary data for the 15-year period 2000-2014. In Ghana, the study targeted six commercial banks for the period 2005-2009 (Boahene, Dasah, & Agyei, 2012). This indicates that banks in West Africa enjoy high profitability despite of the high credit risk. This is inconsistent with the normal view held by most previous studies to the effect that credit risk had a negative relationship with firm profitability. These results can be attributed to the prohibitive rates, fees, commissions, lending/interest rates and other non-interest income charged by these banks. In Tanzania, Magali (2013) conducted a study on 37 rural based savings and credit cooperative societies in Dodoma, Morogoro and Kilimanjaro regions. The aim of the study was to evaluate relationship between credits risk management and profitability of the targeted societies. The study findings showed a significant direct relationship between credit risk management and firm profitability. More than 70% of the targeted societies were found to have made losses due to lack of effective credits risk mitigation techniques.
Foreign exchange bureaus in Kenya owe their existence to the Kenya Gazette Notice No. 150 of January 9, 1995. This Act encourages foreign exchange markets to be more competitive in serving the retail end of the Kenyan foreign exchange market. Initially, Foreign Exchange bureaus were licensed under the Exchange Control Act. However, after the repeal of this Act, the bureaus are now licensed under the Central Bank of Kenya (amendment) Act, 1995. Since then 1995, these institutions have played a significant role in the foreign exchange business in Kenya. Their services are regulated with the aim of curbing money laundering and other illegal activities related with exchange of currencies. Since 1995, several foreign exchange bureaus have been licensed by the Central Bank of Kenya to encourage competition in the market (Cheruiyot, Cheruiyot, & Yegon, 2016).

1.2 Problem Statement

Previous studies on the effect of interest rate risk mitigation techniques and firm performance give varied and mixed study findings. In the United Kingdom, interest rate risk hedging strategies was found to have a positive relationship with firm financial performance. Companies rely heavily on financial derivatives to manage their interest rate risk even though sometimes their corporate governance practices regarding derivatives usage are lacking (Dhanani, Fifield, Helliar, & Stevenson, 2008). In Turkey, although Tuncay and Cengiz (2017) study on 500 largest industrial organizations established a negative relationship between interest rates and firm financial performance, Ekinci (2016) study on the banking sector for the period 18.01.2002-30.10.2015 established an insignificant relationship between interest rate and firm performance.

In Kenya, previous studies which attempted to address the interrelationship between interest rate risk and firm performance have focused much attention on factors such as liquidity, inadequate provision for non-performing loans, failure to owner debt, credit risk management and operational risk management. These studies include Musiega, Olweny, Mukanzi and Mutua (2017) study on commercial banks in Kenya, Mohamed and Onyiego (2018) and Wambari and Mwangi (2017) studies on commercial banks. Other studies such as Kiio and Jagongo (2017) study on firms listed in the Nairobi Securities Exchange laid more emphasis on the effect of hedging on firm performance. The researcher is not aware of any study specifically comparing the effect of the various payment netting techniques on performance of Forex Bureaus. Although Adow and Ochiri (2018) study also paid much attention to hedging, it did not address the issue of the interrelationship between corporate
governance, yield curve and basis risks on firm performance. This posed a knowledge gap worth investigating which this study aims to bridge.

1.3 General Objective
The general objective of this study was to assess the effect of interest rate risk mitigation techniques on the financial performance of foreign exchange bureaus in Nairobi Central Business District.

1.4 Specific Objectives
The study was guided by the following specific objectives:

1.4.1 To determine the effect of corporate governance on performance of forex bureaus within Nairobi County, Kenya.
1.4.2 To evaluate the effect of yield curve on performance of forex bureaus within Nairobi County, Kenya.
1.4.3 To assess the effect of basis risks on performance of forex bureaus within Nairobi County, Kenya.

1.5 Significance of the Study
The beneficiaries and the users of this study will be:

1.5.1 Foreign Exchange Bureaus Management

The study results will provide valuable information to the management of the foreign exchange bureaus on the effect of interest rate risk mitigation techniques on the financial performance of foreign exchange bureaus. Managers will be able to understand some of the key factors that are dominant in their firms that if well utilized, will have a significant positive influence of firm performance.

1.5.2 Foreign Exchange Bureau Employees

Bureau staff will have an insight into the influence of the various elements in forex bureaus financial performance. This will keep them on toes to fully participate in ensuring that they meet their targets so that the firm grows.
1.5.3 Policy Makers

Policy makers such as the central bank and other regulatory agencies will have a clear picture of the effect of interest rate mitigation techniques on the performance of forex bureaus in Kenya. This will help them in formulating policies geared towards assisting bureaus handle challenges hindering their performance.

1.5.4 Future Researchers

The study findings will be expected to contribute to the existing literature on interest rates risk mitigation strategies geared towards improving firm performance. Through a critical analysis of the interrelationship between the variables used in this study, the researcher will identify gaps left in previous studies on interest risk mitigation. This study’s findings will form the basis of future researchers on the link between various interest rate risk mitigation factors and firm performance.

1.6 Scope of the Study

This study focused on the finance management team at each of the 61 forex bureaus operating within Nairobi Central Business District. From each forex bureau, one (1) respondent (finance manager) was picked from the finance department to participate in the study. Data was collected and analyzed within the three-month period between September and November 2020 after the questionnaires had been administered and responded to by the interviewees. One major challenge the researcher encountered is reluctance by some of the interviewees to give out all the necessary information regarding their firms. The researcher assured them of confidentiality in the way their responses were handled.

1.7 Definition of Terms

1.7.1 Interest Rate Risk

Interest rate risk is the risk that money lenders are exposed to due to fluctuations in interest rates. This risk depends on how sensitive the price of a security is to interest rate changes in the market. In case of long-term securities, this sensitivity mainly depends on the security’s time to maturity and the coupon rate (Yüksel & Zengin, 2016).
1.7.2 Interest Rate Risk Mitigation

Interest rate risk mitigation refers to strategies put in place to protect finance lenders against rising interest rates. One of the mitigating strategies include interest rate futures. Sophisticated investors can purchase futures contracts on government bonds or interest rate futures. These trades enable them to lock-in a certain interest rate and hedge their portfolios (Ngalawa & Ngare, 2014).

1.7.3 Corporate Governance

Corporate governance refers to the system of processes and rules by which an organization is directed and controlled. It basically involves balancing the interests of a firm’s stakeholders such as shareholders and its management in some form of principal-agent relationship. Since corporate governance provides the framework within which an organization aims to achieve its objectives, it practically involves every aspect of management, from action plans, performance measurement and corporate disclosure (Reddy & Narayan, 2018).

1.7.4 Yield Curve

Yield curve in finance refers to a curve which shows several yields or interest rates across different contract lengths for a similar debt contract. The curve shows the relation between the interest rate and the time to maturity, known as the "term", of the debt for a given borrower in a specific currency (Chakroun & Abid, 2014).

1.7.5 Basis Risk

Basis risk is the financial risk that offsetting investments in a hedging strategy will not experience price changes in entirely opposite directions from each other. This imperfect correlation between the two investments creates the potential for excess gains or losses in a hedging strategy, thus adding risk to the position. A good example could be, when a two-year bond is hedged with the purchase of a treasury bill futures, there is a risk that these two securities will not fluctuate identically (Lenee & Oki, 2017).

1.7.6 Firm Performance

Al-Matari (2014) defines firm performance as not only the efficiency with which an organization utilizes its resources to grow but also on the market where it operates. In the
financial sector, firm performance is synonymous with financial stability or financial health. Various financial measures can be used to gauge a firm’s performance. Some common examples of these measures are profitability ratios, liquidity ratios and stock price movements in the securities market.

1.8 Chapter Summary

This chapter presented the background of the study. It also highlighted the problem statement, general and specific objectives of the study. The chapter further highlighted the significance and scope of the study. Chapter two focused on the literature review that guided the study. Chapter three discussed the methodology adopted in conducting the study. In chapter four, the study results and findings were presented, whereas chapter five presents the conclusion, recommendations, and discussion of the study.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction
This chapter presents literature review of the previous studies that are related to the topic of discussion in this study. Section 2.2 of the chapter discusses the effect of repricing on performance of forex bureaus within Nairobi County. Section 2.3 evaluates the effect of yield curve on performance of forex bureaus within Nairobi County. Section 2.4 assesses the effect of basis risks on performance of forex bureaus within Nairobi County. Lastly, section 2.5 summarizes the whole chapter.

2.2 Corporate Governance and the Performance of Forex Bureaus

2.2.1 Repricing
Repricing is a strategy used to replace worthless stock options held by employees with new options. Companies use this strategy to deal with “underwater” stock options. These are those stock options whose fair market value is lower than the exercise price of the underlying stock. Repricing became popular around the year 2000 during the internet bubble and again around 2008 during the economic crisis which hit some major world markets. Many companies rely on repricing to attract, retain and incentivize their valued employees. It allows companies to retain their employees during periods of economic crisis by taking back the worthless stocks and issuing new ones which have intrinsic value. During such circumstance, companies always tweak their incentive programs and grant restricted stocks instead of stock options. Others can issue stocks that can be converted into shares immediately thus avoiding any future risks (Beutler, Bichsel, Bruhin, & Danton, 2017).

Decisions regarding repricing stock options in an organization is vested in the Board because it is a matter of corporate governance. Repricing has a direct effect on all the firm’s existing shareholders. It increases the option expenses which must be deducted from a firm’s net income (Saha, Moutushi, & Salauddin, 2018). The strike price of newly issued stock must be based on the current fair market value of the underlying stocks to avoid the effect of tax on the recipient employee. In accounting, if new stock is issued more than six months after the cancellation of an existing stock, then that does not constitute repricing. Companies may avoid variable accounting treatment by following this. In such circumstances, employees are assured that they will be granted new stocks after the expiry
of that time. Companies may also swap worthless employee’s stocks with restricted stocks (Ahmad, 2015).

Stock options are often used as compensation for employees in most organizations. They tend to align the managers and outside shareholders incentives to a greater level better than a situation where managerial stock ownership alone exists. It is important to note that employee options are usually issued at a strike price that is the same as a security’s current stock price. However, in case of large declines in stock price, such options become not exercisable. Some firm boards however may choose to benefit their option-holders through repricing these options (Holderness, Lewis-western, & Huffman, 2019). Iacoviello and Navarro (2018) defines repricing as the process of either lowering the strike price of options, reissuing, or cancelling options with new strike prices altogether, or simply exchanging out-of-the-money options for cash or stock. Repricing is a controversial topic in finance literature. There is divided opinion on whether the practice is beneficial or harmful to stockholders. The issue of repricing remains unresolved although other option controversies which came before it and even after it have been resolved by legislation in various parts of the world. In the United States of America for instance, although well-known firms such as Motorola, Google, Adobe Systems and Apple just to mention a few, have settled their repricing issues, more repricing issues keep on cropping up in other firms. This is a clear indication that the topic is relevant and continues to draw attention of finance scholars as they continue to investigate various governance practices in the corporate world.

In recent past, stock options have been an important aspect of executive compensation in organizations. Firms grant stock options to employees with a view of compensating and providing performance and retention incentives to them. However, when the firm’s security price is lower than the option’s exercise price, then the pay-to-performance sensitivity of the firm decreases. This scenario is commonly known as “out-of-the-money. One way to deal with this situation by reducing the exercise price is through repricing (Cappelli, Conyon, & Almeda, 2019).

In the United States of America, a study was conducted to evaluate the link between executive stock price repricing and employee retention. The research was motivated by previous studies findings which established either no relationship or negative relationship existed between the two variables. The study used a sample of 158 firms and 201 repricing
events. Further, a sample of 201 non-repricing firms was used as the control sample. Executive turnover within a four-year period subsequent to stock option repricing was examined. The study findings revealed consistency with the agency theory and confirmed that stock option repricing had a significant positive relationship with executive retention. Specifically, the study revealed that executive retention was significantly greater in firms that exercised repricing within the first three years following the repricing date relative to non-repricing firms whose executive retention was only significant within the first two years following the repricing date. It is also worth noting that firms use repricing technique to restructure its management. However, for such to happen effectively, such restricting needs to take place during good economic times. During period when the economy is on the decline, it may be difficult to unravel the effects of option repricing on management. Employee option repricing may be used to establish the relationship between shareholder involvement in organizational compensational policies and firm governance. When shareholders approve or reject repricing proposals, the value of previous reprices increases retention (Callaghan, Subramaniam, & Youngblood, 2016).

In China, Ratny, Yat, Gaoliang, Hua and Keo (2019) studied the effects of the managerial stock options on performance of listed Chinese firms. Study results showed that stock option had a significant negative relationship with firm performance. However, the level of influence decreases as the years progress. The study also revealed that chief executive officer’s duality and board size had a significant negative effect on firm performance. However, the performance of state-owned firms which had independent directors in their Boards was positively related. The international financial crisis of between 2007 and 2009 had very little impact on Chinese firm performance. In another study to investigate factors affecting stock option use in China, a sample of 225 stock option grants was used covering the period 2006-2013. Consistent with the optimal contract theory, the study revealed that stock option plan scope was negatively correlated with firm size (performance) but positively related with book-to-market ratio and prior stock returns. However, the coefficients proved significant only when the stock option awards covered senior managers. The study also found out that different types of employees had different risks affecting them. Effect of risk was different when options are targeted to different types of employees (Luo, 2015).
2.2.2 Independence of the Board

Corporate governance may be defined as the system of principles, policies, procedures, and clearly defined responsibilities and accountabilities used by stakeholders to overcome conflicts of interest inherent in the corporate form. Poor corporate governance systems have a negative effect on firm value. Some firms have gone bankrupt because of not adhering to effective corporate governance. Good examples of firms which had to go under because of corporate governance related challenges include Enron Corporation, WorldCom, Tyco, Adelphia and Global Crossings (Deschênes, Rojas, Boubacar, Prud’homme, & Alidou, 2015).

The issue of corporate governance gained prominence since the occurrence of major corporate scandals to happen in the world. Scandals such as Enron and WorldCom that happened in the United States of America sometimes back, have brought into focus the need for firms to adhere to strict corporate governance principles and regulation aimed at improving the firm’s corporate governance environment. Poor corporate governance practices may lead to firm failure. Such practices range from ineffective oversight functions to lack of accountability on the part of the board are some of the corporate governance lapses that may cause corporate failures. Consequently, various corporate governance reforms have been initiated in different parts of the world to limit the recurrence of such scandals. These reforms emphasized the need to change the structure of listed firms' boards (Adebayo, Ibrahim, Yusuf, & Omah, 2014).

In Nigeria and Ghana, a study was conducted to examine the effect of board size on firm performance. The study targeted 137 firms listed in Ghana and Nigeria. The study results showed existence of a positive relationship between board size and firm performance (Appiah, 2017). In another study covering Nigeria alone, Oludele, Oloko and Olweny (2016) targeted manufacturing firms. Using a sample of 34 firms out of a total of 74 targeted manufacturing firms, the study results showed positive relationship between independence of the board and firm performance of listed manufacturing companies in Nigeria.

In South Africa various studies have been done to assess the role of independent boards on firm performance. Research results found out that the higher the proportion of independent non-executive directors in a Board, the higher the performance of the organization. The study concluded that greater independence of boards, larger board size and lower board
share-ownership should be encouraged because it improves firm performance (Meyer & Wet, 2013). Another study targeted 169 firms listed in South Africa for the period 2002-2007. The study investigated corporate board meetings influence on corporate performance. The study findings revealed the existence of a significant positive association between firm performance and the frequency of corporate board meetings. This is consistent with the agency theory assertion that corporate boards which meet frequently can effectively advise, monitor and discipline management on time hence improving the organization’s corporate financial performance (Muchemwa, Padia, & Callaghan, 2016).

2.3 Yield Curve and the Performance of Forex Bureaus

2.3.1 Behavior of the Yield Curve

The behavior of the yield curve keeps on changing depending on the business cycle. During time of economic recession, interest payments in respect of long-term bonds tend to be high while interest payments on short-term bonds tend to be low. Thus, during period of recession, the yield curve will be upward sloping. Interest payments on long-term debt are countercyclical because investors tend to shy away from risk during bad economic times. On the other hand, yields on short term debt tend to be procyclical because the central bank of an economy lowers short yields during periods of recession to stimulate economic growth (Maranga, Mwangi, & Kaijage, 2018). For every 2 percentage points decline in the growth of a country’s gross domestic product, regulatory authorities should lower the nominal yield by 1 percentage point (Khandwala, 2015).

During periods of economic recession, upward sloping yield curve indicates both bad times today and better times ahead. Based on this intuition, many research papers use the slope of the yield curve to predict economic growth. This is usually represented by the difference between the longest yield or interest in the dataset and the shortest maturity yield. The height of the slope or term spread of the yield curve is expected to have a direct relationship with a country’s future economic growth (Tokic, 2019). Churchill and Mensah (2014) contends that the same measure of yield curve slope can be used to predict real rates. The yield curve slope can also be used to predict poor economic times with discrete choice models, where downward trend in economic growth is coded one while other times are coded zero. Although there is empirical evidence to the effect that instability of an economic parameter may weaken a yield curve’s future performance, so far this has not been the case at least in practice. For instance, every recession or downward economic
growth post the mid-1960s has been predicted by a negative slope commonly known as an inverted yield curve. History however has it that there has been only one “false positive” during this period. This is one instance where an inverted yield curve was not followed by an economic recession (Wang & Yang, 2011). Yield curve has been used by economists for a long time to predict future economic activities. There is much more regarding an economy that people can learn from the yield curve when its dynamics are jointly modelled with an economy’s growth (Hvozdenska, 2015).

Government bond yields typically with different maturities and macroeconomic variables are usually characterized by a high degree of co-movement. This is an indication that most of their dynamics are dependent on a few common forces. The yield curve’s curvature, slope and level can explain the shifts and changes of the yield’s entire cross-section. In the United States of America, nominal and real macroeconomic factors summarize the dynamics of a variety of macroeconomic indicators that define the American economy. These factors have a strong interaction with yield curve factors. The short end of the yield curve moves in tandem with policy instrument that is usually under the control of a country’s central bank. This responds to fluctuation in economic activity, changes in inflation and other economic conditions. The yield curve’s average level has a direct link with inflation rate. It also a direct association with the spread between short and long rates under temporary business cycle conditions. For these reasons, such macroeconomic information has proved useful in the forecasting of excess bond returns and future interest rates (Coroneo, Giannone, & Modugno, 2016).

2.3.2 Monetary Policies
Eo & Kang (2019) studied the effect of both conventional and unconventional monetary policies in predicting the performance of individual yield curve models and their mixtures. The individual models used were the arbitrage-free Nelson-Siegel model, the dynamic Nelson-Siegel model, and the random-walk model. Using a sample of American bond yields, the study findings showed that the arbitrage-free Nelson-Siegel model and its mixtures with other models performed well during conventional monetary policy period whereas, the random-walk model performed well during period of unconventional monetary policy. The study revealed that the tightly constrained cross-equation restrictions of the no-arbitrage condition are responsible for the high correlations of long-term security yields across different maturity periods. Further, the study argued that the declining role of
the no-arbitrage restriction in predicting the yield curve since the recession period between 2007-2009 could be attributed to unconventional monetary policy. This is so because such policy involved the direct purchases of long-term securities when short-term interest rates were near zero. The unconventional monetary policy also resulted in low correlations between long and short-term bond yields with very little variation in the short-term bond yields. The random-walk model is ideal in an environment where the yields are less correlated and show very little if any, variation over time (Guo, Han, & Zhao, 2014).

Clark and Baccar (2018) study sought to identify factors affecting credit spreads in the American bonds credit market. The study specifically targeted both macroeconomic and financial factors. The study used probability density functions to overcome the problem of volatility in credit spread data used. Study findings showed that credit spread changes are mainly influenced by the slope of the yield curve, interest rate volatility and the normal interest rate. The volatility of a security’s market has a significant effect on the shape of a yield curve. Patel, Mohamed and Van-Vuuren (2018) did a study on the extent movement of interest rate in the United States of America impacts movement of interest rates in South Africa. The study sought to identify the key fundamental movements present in the two countries yield curves. The study also sought to identify key factors contributing to movements in South African interest rates. The study targeted developed and a developing market represented by the United States and South Africa respectively. Principal component analysis technique was used to classify and quantify the movement of yield curves in both markets in terms of level, slope and curvature shifts. The study concluded that, during certain periods, South African yield curve changes were dependent on variations in the rand/dollar exchange rates and United States interest rates. The study further concluded that market volatility has a significant effect on the shape and smoothness of yield curve movements.

Other factors included liquidity of the corporate bond market and, the foreign exchange rate. In Europe, Becker and Ivashina (2013) argued that insurance companies rely on the yield curve to make investment decisions. Since lower rated long-term securities bear higher capital requirement, insurance companies prefer to hold higher rated long-term securities or bonds. Depending on the conditions of the credit ratings, portfolios in the insurance industry are usually biased towards higher yield bonds. Investors’ propensity to purchase riskier securities in order to achieve higher returns or yields exists both in the
primary and secondary security markets. It is vigorous to a series of issuer controls and long-term security, including bond liquidity and duration, and issuer fixed effects. This behavior is synonymous with business cycle and it is more pronounced during period of economic expansion and in firms with poor corporate governance practices for which binding regulatory capital requirements are necessary.

Reschenhofer and Stark (2019) tested the applicability of the Nelson-Siegel curve in the Romanian context. The research hypothesis was that yield forecasts using the autoregressive models on the Nelson-Siegel curve outperformed the random walk forecasts. The study findings did not support this hypothesis. The study revealed that it was only forecasts based on the autoregressive models for the differenced security returns that outperformed the random walk forecast. The 1-month-ahead forecasts based on the dynamic factors in fact came out worse than those based on the security returns or yields. For the 12-months-ahead forecasting, the study findings showed that all forecasts performed poorly, especially those based on autoregressive models fitted to undifferenced time series.

In South Africa, a study was conducted to investigate factors affecting bond yield spread changes in an emerging economy for the period 2005-2013. The study used a sample of some 106 corporate vanilla bonds that were listed on the South African stock market. For purposes of capturing the effects of the financial crisis that rocked the major security markets of the world between 2007 and 2008, the sample period was split into three sub periods namely; the pre-financial crisis period (2005-2006), mid-financial crisis period (2007-2009) and post financial crisis period (2010-2013). The study results revealed that changes in interest rate level, equity volatility and the yield curve slope had a direct relationship with bond yield spreads. Equity volatility and interest rate level effects were more pronounced during the mid-financial crisis period (Radier, Majoni, Njanike, & Kwaramba, 2016). Chakroun and Abid (2014) study attempted to estimate the dynamics of the interest rates yield curve on the illiquid Tunisian bond market with low trading volume. The study used a 14-year data of Treasury bond prices from 14 July 2004 to 10 September 2012 which was collected from over the counter market. Study findings revealed that the cubic spline method gave an accurate estimate of the average yield curve of interest rates. The study predicted an economic growth in the future characterized by a higher inflation.
2.4 Basis Risk and the Performance of Forex Bureaus

2.4.1 Hedging
The essence of hedging in a financial market is to exchange flat price risk of a commodity or currency for basis risk. Basis risk associated with changes due to price differences between the hedging instrument and the commodity being hedged. These differences arise because in most cases, the characteristics of the hedging instrument are rarely the same as the characteristics of the actual physical commodity being hedged. A firm may for example, hedge a cargo of heavy crude oil with a futures contract. Even though the prices of these two scenarios tend to move in tandem, demand changes for instance of refined products, refinery outages or any other factor for that matter may cause changes in the differential between the two (Yang, Huang, & Yeh, 2018).

In the United Kingdom, Ahmed, Azevedo and Guney (2014) examined the effect of hedging on firm performance. The study used 8-year information for the period 2005-2012 on 288 nonfinancial firms listed in the London Stock Exchange. The study focused on the hedging of the interest rate, foreign exchange and commodity price risks with option, forward, futures and swap contracts. Study results showed that effectiveness of the risk management practices is dependent upon the financial risks and derivatives used for hedging. For instance, interest rate risk hedging had a negative relationship with firm performance for the overall hedging but positive when hedged with forward contracts. The negative results findings of the study contradict previous findings which reported existence of a positive relationship between hedging and firm value and financial performance. The study also found out that the 2008-09 financial crisis that rocked major world security markets did not have a significant effect on established risk management practices and company’s commitment to financial risk hedging with derivatives. Increased volatility in the business in Canada exposed the inadequacy of traditional approaches to risk management. This has played a crucial role in the introduction of a more integrated approach to measuring and managing risks commonly known as enterprise risk management (Quon, Zeghal, & Maingot, 2012).

Liquidity considerations lead firms to accept basis risk. It is possible to find a counterparty that would be willing to enter into a contract that closely matches the exposure that an organization wants to hedge at some price. However, finding such a counterparty can be
time consuming and expensive. In such circumstances, the firm will be forced to accept flat price risk until when a counterparty has been found. It should also be noted that it can be still expensive and time consuming to exit such a contract in case the hedge is no longer needed. This may happen for instance when a firm hedging some cargo say crude oil finds a buyer for that cargo and partly because the expense and time of finding a new other party gives the original other party considerable bargaining power (Trottier, Godin, & Hamel, 2018). Whenever a hedger trades in standardized liquid derivatives contracts such as in crude oil futures, the hedger must accept basis risk. This is mainly because the standardized contract will never match the features of the exposure being hedged. However, the hedger can enter and exit a position quickly at low cost since there are many other hedgers, speculators, or market makers in the heavily traded, liquid market. The speed and flexibility of trading in a market full of heavily traded standardized instruments tends to reduce execution risks of hedging and transaction costs. Such savings may be used by hedgers to offset the costs associated with basis risk (Li, 2017).

A virtuous cycle may exist that may induce market participants to trade in standardized contracts as opposed to customized contracts with higher transaction costs but less basis risk. When many firms trade in a standardized contract, they make the trading in that contract cheaper. Consequently, that contract will attract more trading activity. If this trend persists, it will result in trading activity commonly known as “tipping” to one or at most two contracts for a given commodity. In finance literature, the only heavily traded futures contract commonly known is the corn futures contract. Oil on the other hand is exceptional because two liquid contracts usually exist side-by-side. Since basis risk is a global phenomenon, firms have no option but to accept it by opting to trade in liquid markets with standardized instruments order to achieve the transactions cost savings (Zavadska, Morales, & Coughlan, 2018).

2.4.2 Changes in the Basis

Generally, basis risks arise due to changes in the transformation economics during the life of a hedge. Changes in costs such as processing, storage, and transportation costs just to mention a few, affect relative prices of commodities across different locations, forms, and time zones. When there are large shocks on the economy, these basis changes may be extreme. For example, in the United States of America, the explosion of the natural gas pipeline in the late 2000 dramatically reduced transportation capacity into California. This
led to a massive change in the basis between gas price at the California border and at the delivery point at Henry Hub in Louisiana. The basis between internationally traded crude oils and West Texas Intermediate crude oil has grown over the recent years because of the dramatic increase in the American production of oil and infrastructure constraints. Basis risk varies with commodity. The basis for refined industrial metals for instance tends to be less volatile compared with the basis for metal concentrates for instance, hedged using futures contracts on refined metals. Local, peculiar supply and demand shocks are rare in commodity markets. A drought in one region for instance—changes in the basis—that should induce changes in transformation patterns play a crucial role in identifying and responding to these shocks (Mnasri, Dionne, & Gueyie, 2013).

Opportunistic behavior of market participants may also give rise to basis risk. Exercise of market power in the derivatives market may cause distortions in the basis. This may have a negative effect on hedgers. For instance, it was reported that Glencore, an American company which is one of the largest diversified natural resource companies in the world, lost close to $300 million in the cotton market between May and July 2011 due to extreme movements in the basis attributed to futures contract. Basis and calendar spread movements are responsible for another squeeze that was reported to have occurred in the cotton business in July 2012. Studies have shown that in the last few years, squeezes and corners have occurred with some regularity in virtually all commodity markets including cocoa, coffee, copper, and oil (Mnasri et al., 2013).

Rosa, Luciano and Regis (2015) came up with model of assessing the longevity of basis risk and its influence on Pension Funds hedging strategies and annuity providers. Basis risk is measured in terms of co-movement between reference population’s longevity and the portfolio. The study compared static and customized swap-hedge of an annuity with a dynamic, partial and index-based hedge. The model was then calibrated to the United Kingdom and Scottish populations. The effectiveness of the static compared with the dynamic strategies is dependent on the rebalancing frequency of the second strategy. It also depended on the basis risk and relative costs which have no influence on fully customized, static hedges. The study concluded that dynamic hedging strategies that are well calibrated can still be reasonably effective even at low rebalancing frequencies.
Lenee and Oki (2017) conducted a study in Nigeria to determine the link between use of futures, forwards, swaps, and options to hedge foreign exchange rate risks and interest rate. A sample of 5 financial and 5 nonfinancial firms used was selected from the London Stock Exchange for the period 2005—2014. Study results showed that financial firms tended to hedge more on interest rate risks while nonfinancial firms tended to hedge more on foreign exchange rate risks. The study also revealed that hedging interest rate risks by both financial and non-financial firms using a combination of forwards and futures derivatives had a significant positive relationship with return on assets. However, when swap derivative only is used, the relationship is negative. The study also established that when one or more of any the financial derivatives is used to hedge foreign exchange rate risk, the relationship with capital employed is significantly negative.

In Uganda, one of the greatest challenges faced by banks is the issue of non-performing assets due to lack of accurate client information. The greatest challenge to better performance was also occasioned by huge provisions for bad loans and their subsequent write offs. The study results revealed that a combination of basis risk, variation in maturity gaps and assets and liabilities margins for the targeted commercial banks accounted for approximately 15% variation in their financial performance. In conclusion, the study revealed that interest rate risk exposure had a positive relationship with the banks’ financial performance except basis risk (Odeke & Odongo, 2014).

Basis risk which is also commonly known as remaining uninsured risk is applicable in the insurance industry. In Kenya, a research was conducted targeting livestock insurance in Northern parts of the country inhabited by people who practice pastoralism. The study used longitudinal household dataset to assess basis risk that could be linked with index-based livestock insurance product targeting pastoralists in living in that part of the world since 2010. The research findings showed that index-based livestock insurance has a negative effect on downside risk for most households especially when the insurance is purchased at fair premium rates. Besides, it has net utility benefits even when commercial rates are applied. The study further revealed that index-based livestock insurance has a negative effect by an average of 62.8% on exposure to covariate risk because of high loss events (Jensen, Barrett, & Mude, 2016).
2.5 Chapter Summary
Chapter two reviewed the literature on the effect of interest rate risk mitigation techniques on performance of forex bureaus within Nairobi County in Kenya. The chapter presented literature review based on the effects of corporate governance, yield curve and basis risk on firm performance. The next chapter discusses the research methodology applied in the study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction
This chapter presents the methodology adopted in conducting this study. The chapter also highlighted the research design, population and sampling design adopted by the researcher. In addition, the chapter discusses the data collection method, research procedures and data analysis methods used in the study. The chapter ended with a chapter summary.

3.2 Research Design
According to Rahi (2017), research design refers to the general plan that a researcher intends to use in addressing the specific objectives in a study. Research design also highlights information concerning areas where the researcher intends to use to collect data for the research (Mohajan, 2018). In this study, correlation research design was used because it assisted the researcher describe the causal relationship existing between the study variables. The independent variables in this study were corporate governance, yield curve and basis risk while the only dependent variable was performance of forex bureaus within Nairobi County, Kenya.

3.3 Population and Sampling Design
3.3.1 Population
Goldstein et al., (2015) defines population as the total sum of all elements to be used in a study. These elements usually bear some common characteristics. In research, a population is usually that large collection of objects or individuals that the researcher targets while seeking to address some specific objectives, research questions or testing hypothesis (Gentes, Charles, Ploeg, & McKibbon, 2015). In this study, the target population comprised of the finance managers of all the 61 forex bureaus operating within Nairobi County as indicated in Appendix 1.

3.3.2 Sampling Design
3.3.2.1 Sampling Frame
Sampling frame may be defined as the list of all the population elements from which a sample is drawn. It is a list comprising of population members only (Taherdoost, 2016). In random sampling, the sampling frame comprises the entire list of the targeted
population where the sample is derived (Ishak & Bakar, 2014). In this study, the sample frame was obtained from the Kenya Forex & Remittance Association because it had updated information on the number of registered forex bureaus in Nairobi (Adow & Ochiri, 2018).

3.3.2.2 Sampling Technique
According to Taherdoost (2016), sampling technique may be defined as the process of selecting a sample size proved representative of the targeted population using probability or non-probability sampling. It involves choosing a group of people, sets, elements with similar characteristics to involve in a study. According to the data from the Kenya Forex & Remittance Association (2019), Nairobi County had a total of 61 forex bureaus distributed across the city as of 31st December 2019. For this research, consideration was given to forex bureaus which were easily accessible. The researcher settled on the ones which were located at the Central Business District and its environs.

3.3.2.3 Sample Size
That number of individual pieces of data that is collected in a survey for purposes of conducting research is what constitutes sample size (Singh & Masuku, 2014). In statistics, sample size is important because it enables the researcher to determine the accuracy and reliability levels of the survey findings (Taherdoost, 2016). In this study, since the target population was small, a census survey was used as the sample size.

3.4 Data Collection Methods
Information from primary sources was used in this study. Murgan (2015) defines primary data as information the researcher collects directly from primary sources for the purpose of the study. The data was collected using structured questionnaires which was divided into five sections (Roopa & Rani, 2012). The first section contained questions concerning the respondents’ demographic information. The second section contained questions regarding effect of corporate governance on performance of forex bureaus in Nairobi County. The third section contained questions regarding the effect of yield curve on performance of forex bureaus in Nairobi County. The fourth section was made up of questions regarding effect of basis risk on performance of forex bureaus in Nairobi County. The fifth section comprised of questions regarding measures of performance of forex bureaus in Nairobi County. Sections two, three four and five in the questionnaires contained closed-ended
questions measured using a five-point Likert scale where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= Strongly Agree.

3.5 Research Procedures
The researcher first sought permission from the University then the National Commission for Science, Technology, and Innovation (NACOSTI) to be able to collect data from forex bureaus operating within Nairobi County. Since the target population was small, the researcher delivered the questionnaires to the respondents using their official email addresses. Questionnaires representing 10% of the targeted sample size was pretested to ascertain the reliability of the questionnaire used to collect the primary data using Cronbach’s alpha (Shivaraju, Manu, Vinaya, & Savkar, 2017). Generally, Cronbach’s alpha coefficient of 0.7 and above was considered reliable (Daud, Khidzir, Ismail, & Abdullah, 2018). To establish the validity of the questionnaire, the researcher sought the indulgence of the research supervisor to accordingly align the data collection instrument items to the concept under review. After the pretest, the researcher made necessary corrections to the data collection instrument. The researcher then collected the data by distributing the corrected or revised version of the questionnaires online to the targeted population and waited for their responses. The responses were then entered and coded in Excel awaiting further analysis.

3.6 Data Analysis Methods
The questionnaires issued to respondents were collected online and checked for errors so that necessary corrections could be made. The data was then coded, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) and Microsoft Excel software (Ong & Puteh, 2017). The study adopted qualitative data analysis approach involving both descriptive and inferential statistics. Whereas descriptive statistics were displayed in form of frequencies, percentages and cross tabulation, inferential statistics employed included Pearson correlation analysis at 0.01 level of significance and regression analysis. Study results were finally presented in form of tables and figures.

3.7 Chapter Summary
This chapter focused on the research methodology used in the study. It discussed the research design, population and sampling design, data collection methods, research procedures and the data analysis methods used. The next chapter presented the results and findings arising from the study.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction
This chapter was further broken down into six other sections. Section 4.2 highlights the demographic information regarding study respondents. Section 4.3 presents findings on the relationship between corporate governance and performance of forex bureaus. Section 4.4 provides findings on the interrelationship between yield curve and performance of forex bureaus. Section 4.5 gives findings on the relationship between basis risk and performance of forex bureaus. Section 4.6 was on the study variables composite model. Finally, section 4.7 summarizes the chapter.

4.2 Demographic Information

4.2.1 Response Rate
Out of a targeted population of 61 respondents, the researcher collected 55 (90%) dully filled questionnaires from the respondents. Baruch (1999) argues that a response rate that is greater than 50% of the targeted population is good enough for statistical analysis. Thus, this study results would be deemed representative of the forex bureaus operating in Nairobi, Kenya.

4.2.2 Gender of the Respondents
The study sought to determine the proportion of the study respondents in terms of gender. The study found out that most of the forex bureaus finance experts were male (82%) while female finance experts were only 18% as illustrated in Table 4.1. This is an indication that the finance department in most bureaus operating in Nairobi were manned by male managers. This shows that the performance of male finance experts at the targeted forex bureaus were influenced by interest rate risk mitigation techniques at a higher proportion than their female counterparts.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Bureaus Managed</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>45</td>
<td>82%</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>18%</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100%</td>
</tr>
</tbody>
</table>
4.2.3 Age of the Respondents

In as far as age distribution of finance personnel managing forex bureaus in Nairobi was concerned, the study revealed that most of the respondents were aged over 35 years at 51%, followed by those in the age bracket of between 31 and 35 years at 25%. The third group comprised of respondents in the age bracket of between 26 and 30 years at 16%. The last group of respondents comprised of respondents in the age bracket of between 20 and 25 years at 7% as illustrated in Table 4.2. This is an indication that most of the employees in the finance department in the forex bureaus in Nairobi whose performance was influenced by interest rate risk mitigation techniques were mature people of over 35 years of age.

Table 4.2: Respondents’ Age

<table>
<thead>
<tr>
<th>Age Bracket</th>
<th>Bureaus Managed</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-25 Years</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>26-30 Years</td>
<td>9</td>
<td>16%</td>
</tr>
<tr>
<td>31-35 Years</td>
<td>14</td>
<td>25%</td>
</tr>
<tr>
<td>Over 35 Years</td>
<td>28</td>
<td>51%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

4.2.4 Respondents’ Education Levels

As regards the respondents’ academic performance, the study established that most of them were first degree holders (undergraduates) at 75% followed by graduates at 18%. Diploma holders and below were 7% of the forex bureaus finance experts as illustrated in Table 4.3. Since most of the interviewees were degree holders, it could be concluded that majority of the finance staff working for the forex bureaus in Nairobi had enough knowledge on the effect of interest rate risk mitigation techniques on firm performance.

Table 4.3: Respondents’ Level of Education

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Bureaus Managed</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma and below</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>41</td>
<td>75%</td>
</tr>
<tr>
<td>Graduate</td>
<td>10</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

4.2.5 Work Experience
The study also sought to determine the work experience of the interviewees in business. The study revealed that majority of them had over 10 years work experience at 42%, followed by those with work experience of between 5 and 10 years at 25%. Finance staff with work experience of between 2 and 5 years was 22% while those with less than 2 years’ work experience were 11% of the targeted respondents as illustrated in Table 4.4. This is a clear indication that the performance of respondents with over 10 years work experience at forex bureaus operating in Nairobi Kenya was the most influenced by interest rate risk mitigation techniques.

Table 4.4: Work Experience

<table>
<thead>
<tr>
<th>Work Experience</th>
<th>Bureaus Managed</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 Years</td>
<td>6</td>
<td>11%</td>
</tr>
<tr>
<td>Between 2-5 Years</td>
<td>12</td>
<td>22%</td>
</tr>
<tr>
<td>Between 5-10 Years</td>
<td>14</td>
<td>25%</td>
</tr>
<tr>
<td>Over 10 Years</td>
<td>23</td>
<td>42%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

4.3 Corporate Governance and the Performance of Forex Bureaus

Table 4.5 presents the descriptive on the relationship between corporate governance and performance of forex bureaus in Nairobi in descending order of average respondents’ support. The argument that forex bureaus roles and responsibilities are clearly defined and do not clash with those of the Board received the highest support from respondents with a mean of 4.87 and a standard deviation of 0.35. This was followed by the contention that forex bureaus Boards are made of both executive and non-executive directors with a mean 4.80 and a standard deviation of 0.41.

The argument that forex bureau Boards are accountable to its shareholders received an average support of 4.73 from the respondents with a standard deviation of 0.45. On average, 4.70 of the respondents support the idea that employees in forex bureaus operating in Nairobi are accountable to their Bureau’s Board of Directors with a standard deviation of 0.47. The arguments that repricing stock options decisions in bureaus operating in Nairobi is vested in the Board and the contention that employee options in those bureaus are usually
issued at a strike price that is the same as a security’s current stock price received an average support of 4.67 with 0.66 and 0.48 standard deviations respectively.

The argument that forex bureau Boards practice effective oversight functions was supported by an average of 4.60 respondents with a standard deviation of 0.50. The statement to the effect that repricing strategy is used in forex bureaus to replace worthless stock options held by employees with new options received an average support of 4.57 with a standard deviation of 0.50. An average of 4.53 respondents agree with the statement that managers of forex bureaus operating in Nairobi have used repricing strategy to retain employees by taking back their worthless stocks and issuing them with new stocks which have intrinsic value. Finally, the argument that forex bureaus in Nairobi apply repricing strategy on stock options whose fair market value is lower than its excise price received an average support of 4.43 with a standard deviation of 0.63.
Table 4.5: Corporate Governance and the Performance of Forex Bureaus

<table>
<thead>
<tr>
<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repricing strategy is used in your bureau to replace worthless stock</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>43%</td>
<td>57%</td>
<td>4.57</td>
<td>0.50</td>
</tr>
<tr>
<td>options held by employees with new options.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your bureau applies repricing strategy on stock options whose fair</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>47%</td>
<td>53%</td>
<td>4.53</td>
<td>0.51</td>
</tr>
<tr>
<td>market value is lower than its excise price.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You have used repricing strategy to retain your employees by taking</td>
<td>0%</td>
<td>0%</td>
<td>7%</td>
<td>43%</td>
<td>50%</td>
<td>4.43</td>
<td>0.63</td>
</tr>
<tr>
<td>back their worthless stocks and issuing them with new stocks which have</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intrinsic value.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repricing stock options decisions in your bureau is vested in the Board.</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>23%</td>
<td>73%</td>
<td>4.67</td>
<td>0.66</td>
</tr>
<tr>
<td>Employee options in your bureau are usually issued at a strike price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>that is the same as a security’s current stock price.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your roles and responsibilities are clearly defined and do not clash</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>33%</td>
<td>67%</td>
<td>4.67</td>
<td>0.48</td>
</tr>
<tr>
<td>with those of the Board.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You are accountable to your Bureau’s Board of Directors.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>13%</td>
<td>87%</td>
<td>4.87</td>
<td>0.35</td>
</tr>
<tr>
<td>Your Board practices effective oversight functions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your Board is accountable to its shareholders</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>40%</td>
<td>60%</td>
<td>4.60</td>
<td>0.50</td>
</tr>
<tr>
<td>Your Board is made of both executive and non-executive directors</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>27%</td>
<td>73%</td>
<td>4.73</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>20%</td>
<td>80%</td>
<td>4.80</td>
<td>0.41</td>
</tr>
</tbody>
</table>
4.3.1 Correlation between Corporate Governance and Performance of Forex Bureaus

Pearson correlation analysis was carried out using the Statistical Package for Social Sciences (SPSS). This was aimed at establishing the statistical relationship between corporate governance and firm performance. The study results revealed that the two variables exhibited a strong positive correlation because correlation coefficient was 0.951. Pearson correlation analysis was also intended to determine the extent with which the independent variable could predict the dependent variable. Since p=0<0.01, this meant that corporate governance was a good predictor of the firm performance. This is illustrated in Table 4.6.

**Table 4.6: Correlation between Corporate Governance and Performance of Forex Bureaus**

<table>
<thead>
<tr>
<th></th>
<th>Corporate Governance</th>
<th>Firm Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Governance</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>55</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>Pearson Correlation</td>
<td>.951**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>55</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

4.3.2 Regression between Corporate Governance and Performance of Forex Bureaus

From Table 4.7, the adjusted R² is 0.882. This implies that 88.2% variation in firm performance could be explained by corporate governance. Other external factors not necessarily captured in the model were responsible for 11.8% variation in the dependent variable.

**Table 4.7: Corporate Governance and Performance of Forex Bureaus Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.951a</td>
<td>0.902</td>
<td>0.882</td>
<td>0.16794</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), Corporate Governance
4.3.3 ANOVA between Corporate Governance and Performance of Forex Bureaus

Using the Analysis of Variance (ANOVA) indicated in Table 4.8, both $p$ and $F$ critical values are significant. This indicates that the model is a good predictor of the dependent variable.

Table 4.8: Corporate Governance and Performance of Forex Bureaus Anova

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>18.557</td>
<td>1</td>
<td>18.557</td>
<td>657.947</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>1.974</td>
<td>53</td>
<td>0.028</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20.531</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance
b Predictors: (Constant), Corporate Governance

4.3.4 Coefficients for Corporate Governance and Performance of Forex Bureaus

According to Table 4.9, the regression equation is: $Y_{\text{Firm Performance}} = 0.188 + 0.962 X_1$. The influence of corporate governance on firm performance was significant because $p$ value=0<0.01. Using the $t$-statistic, corporate governance has a statistically significant effect on performance of forex bureaus in Nairobi because a unit increase in the independent variable, corporate governance results to 25.65 increase in performance of forex bureau.

Table 4.9: Coefficients (Corporate Governance and Performance of Forex Bureaus)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>0.188</td>
<td>0.157</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate Governance</td>
<td>0.962</td>
<td>0.037</td>
<td>0.951</td>
<td>25.65</td>
</tr>
</tbody>
</table>

a Dependent Variable: Financial Performance
4.4 Yield Curve and the Performance of Forex Bureaus

Table 4.10 presents the descriptive on the effect of yield curve on performance of forex bureaus. On average, 4.70 of the respondents argued that the yield curve changes are dependent on variations in exchange rates and that during periods of economic recession, upward sloping yield curve indicates bad times today and better times ahead. On the other hand, an average of 4.63 respondents support the argument that the slope of the yield curve can be used to predict economic growth with a standard deviation of 0.49. Similar mean average support was enjoyed by proponents of the argument that depending on the conditions of the credit ratings, forex bureaus are usually biased in favor of higher yield bonds.

An average of 4.57 with a standard deviation of 0.50 of the interviewees support the contention that the short end of the yield curve moves in tandem with policy instrument that is usually under the control of a country’s central bank. On the other hand an average of 4.53 respondents support both the arguments that the behavior of your bureau’s yield curve keeps on changing depending on the business cycle and that the slope of the yield curve can be used to predict real rates.

The contention that yield curve is used to make investment decisions and that lower rated long-term securities bear higher capital requirement, insurance companies prefer to hold higher rated long-term securities or bonds enjoyed 4.50 average support of the respondents. Finally, whereas the argument that the yield curve’s average level has a direct link with inflation rate enjoys 4.43 average support from the interviewees, an average of 3.80 respondents support the argument that the yield curve’s average level also has a direct association with the spread between short and long rates under temporary business cycle conditions.
### Table 4.10: Yield Curve and the Performance of Forex Bureaus

<table>
<thead>
<tr>
<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The behavior of your bureau’s yield curve keeps on changing depending on the business cycle. Yield curve changes are dependent on variations in exchange rates. During periods of economic recession, upward sloping yield curve indicates bad times today and better times ahead. The slope of the yield curve can be used to predict economic growth. The slope of the yield curve can be used to predict real rates. The short end of the yield curve moves in tandem with policy instrument that is usually under the control of a country’s central bank. The yield curve’s average level has a direct link with inflation rate. The yield curve’s average level also has a direct association with the spread between short and long rates under temporary business cycle conditions. Yield curve are used to make investment decisions. Since lower rated long-term securities bear higher capital requirement, insurance companies prefer to hold higher rated long-term securities or bonds. Depending on the conditions of the credit ratings, you are usually biased in favor of higher yield bonds.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>47%</td>
<td>53%</td>
<td>4.53</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>20%</td>
<td>77%</td>
<td>4.70</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>30%</td>
<td>70%</td>
<td>4.70</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>37%</td>
<td>63%</td>
<td>4.63</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>47%</td>
<td>53%</td>
<td>4.53</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>43%</td>
<td>57%</td>
<td>4.57</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>3%</td>
<td>50%</td>
<td>47%</td>
<td>4.43</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>40%</td>
<td>40%</td>
<td>20%</td>
<td>3.80</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>40%</td>
<td>57%</td>
<td>4.50</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>37%</td>
<td>63%</td>
<td>4.63</td>
<td>0.49</td>
</tr>
</tbody>
</table>
4.4.1 Correlation Between Yield Curve and Performance of Forex Bureaus

Pearson correlation analysis was carried out using the Statistical Package for Social Sciences (SPSS). This was aimed at establishing the statistical relationship between yield curve and firm performance. The study results revealed that the two variables exhibited a strong positive correlation because correlation coefficient was 0.942. Pearson correlation analysis was also intended to determine the extent with which the independent variable could predict the dependent variable. Since p=0<0.01, this meant that yield curve was a good predictor of the firm performance. This is illustrated in Table 4.11.

Table 4.11: Correlation Between Yield Curve and Performance of Forex Bureaus

<table>
<thead>
<tr>
<th></th>
<th>Yield Curve</th>
<th>Firm Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield Curve</td>
<td>Pearson Correlation 1 0.942** 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) N 55 55</td>
<td></td>
</tr>
<tr>
<td>Firm Performance</td>
<td>Pearson Correlation .942** 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) N 55 55</td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

4.4.2 Regression Between Yield Curve and Performance of Forex Bureaus

From Table 4.12, the adjusted $R^2$ is 0.885. This implies that 88.5% variation in firm performance could be explained by yield curve. Other external factors not necessarily captured in the model were responsible for 11.5% variation in the dependent variable.

Table 4.12: Yield Curve and Performance of Forex Bureaus Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.942a</td>
<td>0.887</td>
<td>0.885</td>
<td>0.18211</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), Yield Curve
4.4.3 ANOVA Between Yield Curve and Performance of Forex Bureaus

Using the Analysis of Variance (ANOVA) indicated in Table 4.13, both p and F critical values are significant. This indicates that the model is a good predictor of the dependent variable.

Table 4.13: Yield Curve and Performance of Forex Bureaus Anova

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regression</td>
<td>1</td>
<td>18.209</td>
<td>549.066</td>
<td>.000b</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>53</td>
<td>0.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>54</td>
<td>0.033</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance  
b Predictors: (Constant), Yield Curve

4.4.4 Coefficients for Yield Curve and Performance of Forex Bureaus

According to Table 4.14, the regression equation is: $Y_{\text{Firm Performance}} = 0.254 + 0.945 X_2$. The influence of yield curve is significant because p-value=0<0.01. Using the t-statistic, yield curve has a statistically significant effect on the performance of forex bureaus in Nairobi because a unit increase in the independent variable, yield curve results to 23.432 increase in the forex bureau’s performance.

Table 4.14: Coefficients (Yield Curve and Performance of Forex Bureaus)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>0.254</td>
<td>0.169</td>
<td>1.505</td>
<td>0.137</td>
</tr>
<tr>
<td>Yield Curve</td>
<td>0.945</td>
<td>0.04</td>
<td>0.942</td>
<td>23.432</td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance
4.5 Basis Risk and the Performance of Forex Bureaus

Table 4.15 presents the descriptive on the effect of basis risk on performance of forex bureaus operating in Nairobi. The argument that forex bureau experiences basis risk due to price differences between the hedging instrument and the commodity being hedged received an average support of 4.80 with a standard deviation of 0.41. Opportunistic behavior of market participants may also give rise to basis risk. Exercise of market power in the derivatives market may cause distortions in the basis received an average support of 4.70 with a standard deviation of 0.47.

The statement that bureau finds the process of finding a counterparty expensive and time consuming was supported by 4.63 responses on average with a standard deviation of 0.49. On the other hand, the contention that liquidity considerations sometimes compels forex bureaus to accept basis risk by opting to trade in liquid markets with standardized instruments to achieve the transactions cost savings enjoyed similar average support of 4.70 but with a standard deviation of 0.47. The argument that in most cases, characteristics of the hedging instrument are rarely the same as the characteristics of the actual physical commodity being hedged enjoyed an average of 4.57 support from respondent with a standard deviation of 0.50.

On the other hand, however, although the argument that the higher the transaction costs in a customized contract, the less the basis risk enjoyed a similar average support of 4.57, the standard deviation was different at 0.63. The argument that basis risk is a global phenomenon also enjoyed an average support of 4.57 with a standard deviation of 0.68. The support for the argument that basis risks arise due to changes in the transformation economics during the life of a hedge stood at 4.50 just as the statement that forex bureaus sometimes agrees with a counterparty and enters contract that matches the exposure that your bureau wants to hedge at some price with standard deviations of 0.51.
### Table 4.15: Basis Risk and the Performance of Forex Bureaus

<table>
<thead>
<tr>
<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your bureau experiences basis risk due to price differences between the hedging instrument and the commodity being hedged.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>20%</td>
<td>80%</td>
<td>4.80</td>
<td>0.41</td>
</tr>
<tr>
<td>In most cases, characteristics of the hedging instrument are rarely the same as the characteristics of the actual physical commodity being hedged.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>43%</td>
<td>57%</td>
<td>4.57</td>
<td>0.50</td>
</tr>
<tr>
<td>Liquidity considerations sometimes compel your bureau to accept basis risk by opting to trade in liquid markets with standardized instruments to achieve the transactions cost savings.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>30%</td>
<td>70%</td>
<td>4.70</td>
<td>0.47</td>
</tr>
<tr>
<td>Your bureau sometimes agrees with a counterparty and enters contract that matches the exposure that your bureau wants to hedge at some price.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
<td>4.50</td>
<td>0.51</td>
</tr>
<tr>
<td>Your bureau finds the process of finding a counterparty expensive and time consuming.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>27%</td>
<td>73%</td>
<td>4.73</td>
<td>0.45</td>
</tr>
<tr>
<td>The lower the transaction costs in a standardized contract, the higher basis risk.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>37%</td>
<td>63%</td>
<td>4.63</td>
<td>0.49</td>
</tr>
<tr>
<td>The higher the transaction costs in a customized contract, the less the basis risk.</td>
<td>0%</td>
<td>0%</td>
<td>7%</td>
<td>30%</td>
<td>63%</td>
<td>4.57</td>
<td>0.63</td>
</tr>
<tr>
<td>Basis risk is a global phenomenon.</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>33%</td>
<td>63%</td>
<td>4.57</td>
<td>0.68</td>
</tr>
<tr>
<td>Basis risks arise due to changes in the transformation economics during the life of a hedge.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
<td>4.50</td>
<td>0.51</td>
</tr>
<tr>
<td>Opportunistic behavior of market participants may also give rise to basis risk. Exercise of market power in the derivatives market may cause distortions in the basis.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>30%</td>
<td>70%</td>
<td>4.70</td>
<td>0.47</td>
</tr>
</tbody>
</table>
4.5.1 Correlation Between Basis Risk and Performance of Forex Bureaus

Pearson correlation analysis was carried out using the Statistical Package for Social Sciences (SPSS). This was aimed at establishing the statistical relationship between basis risk and firm performance. The study results revealed that the two variables exhibited a strong positive correlation because the correlation coefficient was 0.940. Pearson correlation analysis was also intended to determine the extent with which the independent variable could be used to predict the dependent variable. Since p=0<0.01, this meant that yield curve was a good predictor of the firm performance. This is illustrated in Table 4.16 below.

Table 4.16: Correlation Between Basis Risk and Performance of Forex Bureaus

<table>
<thead>
<tr>
<th></th>
<th>Basis Risk</th>
<th>Firm Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basis Risk</td>
<td>Pearson</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>55</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>Pearson</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correlation</td>
<td>.940**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>55</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

4.5.2 Regression Between Basis Risk and Performance of Forex Bureaus

From Table 4.17, the adjusted R² is 0.785. This implies that 78.5% variation in firm performance could be explained by basis risk. Other external factors not necessarily captured in the model were responsible for 21.5% variation in the dependent variable.

Table 4.17: Basis Risk and Performance of Forex Bureaus Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.940a</td>
<td>0.787</td>
<td>0.785</td>
<td>0.18209</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), Basis Risk
4.5.3 ANOVA Between Basis Risk and Performance of Forex Bureaus

Using the Analysis of Variance (ANOVA) indicated in Table 4.18, both $p$ and $F$ critical values are significant. This indicates that the model is a good predictor of the dependent variable.

**Table 4.18: Basis Risk and Performance of Forex Bureaus Anova**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>18.21</td>
<td>1</td>
<td>18.21</td>
<td>549.238</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>2.321</td>
<td>53</td>
<td>0.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20.53</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance  
b Predictors: (Constant), Basis Risk

4.5.4 Coefficients for Basis Risk and Performance of Forex Bureaus

According to Table 4.19, the regression equation is: $Y_{\text{Firm Performance}} = 0.347 + 0.925X_3$. The influence of basis risk is reported at $p$-value=$0<0.01$ hence significant. Using the t-statistic, basis risk has a statistically significant effect on the performance of forex bureaus in Nairobi because a unit increase in the independent variable, basis risk results to 23.432 increase in the forex bureau’s performance.

**Table 4.19: Coefficients (Basis Risk and Performance of Forex Bureaus)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Std. B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Constant)</td>
<td>0.347</td>
<td>0.165</td>
<td></td>
<td></td>
<td></td>
<td>2.104</td>
<td>0.039</td>
</tr>
<tr>
<td>Basis Risk</td>
<td>0.925</td>
<td>0.039</td>
<td>0.940</td>
<td></td>
<td></td>
<td>23.436</td>
<td>0</td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance
4.6 Study Variables Composite Model

Using multiple regression, the composite model for the four variables used in the study is
\[ Y_{\text{Firm Performance}} = 0.210 + 1.575X_1 - 1.075X_2 + 0.462X_3 \] as illustrated in Table 4.20. The model further indicates that corporate governance was the only independent variable which had a significant effect on the dependent variable, firm performance because its \( p \)-value = 0 < 0.01. The other independent variables (yield curve and basis risk) had insignificant influence on the performance of forex bureaus in Nairobi county because their respective \( p \)-values of 0.035 and 0.123 > 0.01.

Table 4.20: Study Variables Composite Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>0.210</td>
<td>0.156</td>
<td>1.367</td>
<td>0.176</td>
</tr>
<tr>
<td>Corporate Governance</td>
<td>1.575</td>
<td>0.405</td>
<td>1.553</td>
<td>3.882</td>
</tr>
<tr>
<td>Yield Curve</td>
<td>-1.075</td>
<td>0.502</td>
<td>-1.074</td>
<td>-2.148</td>
</tr>
<tr>
<td>Basis Risk</td>
<td>0.462</td>
<td>0.297</td>
<td>0.473</td>
<td>1.561</td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance

4.7 Chapter Summary

This chapter analyzed the primary data collected from the field on the effect of corporate governance, yield curve and basis risk on performance of forex bureaus in Nairobi, Kenya. Study results and findings associated with these variables were presented in form of tables and figures. The next chapter presents discussion, conclusions, and recommendations of the study.
5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
This chapter provides the summary, conclusions, and recommendations regarding the study findings in chapter four.

5.2 Summary
The study evaluated the effects of interest rate risk mitigation techniques on performance of forex bureaus in Nairobi county, Kenya. Specifically, the study sought to determine the relationship between corporate governance, yield curve, basis risk and firm performance. Information was gathered using a structured questionnaire. Out of a sample size of 61 targeted interviewees, 55 questionnaires were duly filled, thus representing 90% response rate. This response rate is considered representative of the targeted population because it is greater than 50% (Taherdoost, 2016).

Descriptive research design was used to describe the cause and effect relationship between the study variables. Census sampling technique was used to select the study sample size because the number of participants was small. The Statistical Package for Social Sciences (SPSS) version 26 software was used to generate descriptive figures such as the mean, media, and standard deviation as well as inferential statistics figures (regression and correlation analysis figures). Descriptive statistic measures explained the extent to which statements attributed to the specific objectives of the study (independent variables) influenced performance (dependent variable) of forex bureaus in Nairobi. Inferential statistics measures (correlation and regression analysis) explained the cause and effect relationship between the study variables. This causal effect could be positive or negative.

The study addressed the three specific objectives. Regarding the relationship between corporate governance and the performance of forex bureaus in Nairobi, inferential statistical study results showed that the two variables exhibit a strong positive relationship because the adjusted R square was 88.2%. Some of the corporate governance attributes measured in terms of descriptive statistics that had a significant effect on firm performance include: the argument that forex bureaus roles and responsibilities are clearly defined and do not clash with those of the Board, the contention that forex bureaus Boards are made of
both executive and non-executive directors and the argument that forex bureau Boards are accountable to its shareholders. Corporate governance attributes which had a low influence on firm performance include the argument that repricing strategy is used in forex bureaus to replace worthless stock options held by employees with new options. The other was the statement that that forex bureaus in Nairobi apply repricing strategy on stock options whose fair market value is lower than its excise price.

As regards the effect of yield curve on firm performance, inferential statistics results showed that the independent variable, yield curve had a strong positive association with the dependent variable because the adjusted $R^2$ was 88.5%. Attributes such as the yield curve changes are dependent on variations in exchange rates and that during periods of economic recession, upward sloping yield curve indicates bad times today and better times ahead and that the slope of the yield curve can be used to predict economic growth had a significant influence on performance of forex bureaus in Nairobi. However, attributes such as the yield curve is used to make investment decisions and that lower rated long-term securities bear higher capital requirement, and the argument that the yield curve’s average level has a direct link with inflation rate had a low influence on firm performance. These attributes were measured using descriptive statistics.

Finally, the study inferential statistics established that there was a significant direct link between basis risk and firm performance because the adjusted R square value was 78.5%. Some of the basis risk attributes (descriptive statistics) which had a significant effect on the performance of forex bureaus in Nairobi include the argument that forex bureau experiences basis risk due to price differences between the hedging instrument and the commodity being hedged. Besides, opportunistic behavior of market participants may also give rise to basis risk and exercise of market power in the derivatives market may cause distortions in the basis. Those basis risk attributes which had low impact on firm performance included the argument that the higher the transaction costs in a customized contract, the less the basis risk, the argument that basis risk is a global phenomenon and the contention that basis risks arise due to changes in the transformation economics during the life of a hedge.
5.3 Discussion

5.3.1 Corporate Governance and the Performance of Forex Bureaus

Statistical study results revealed that corporate governance had a significant positive relationship with firm performance. This was consistent with Callaghan et al., (2016) study findings in a study conducted to evaluate the link between executive stock price repricing and employee retention. The research was motivated by previous studies findings which established either no relationship or negative relationship existed between the two variables. The study used a sample of 158 firms and 201 repricing events. Further, a sample of 201 non-repricing firms was used as the control sample. Executive turnover within a four-year period after stock option repricing was examined. The study findings revealed consistency with the agency theory and confirmed that stock option repricing had a significant positive relationship with executive retention. Specifically, the study revealed that executive retention was significantly greater in firms that exercised repricing within the first three years following the repricing date relative to non-repricing firms whose executive retention was only significant within the first two years following the repricing date. It is also worth noting that firms use repricing technique to restructure its management.

On the contrary, Ratny et al., (2019) studied the effects of the managerial stock options on performance of listed Chinese firms. Study results showed that stock option had a significant negative relationship with firm performance. However, the level of influence decreases as the years progress. The study also revealed that chief executive officer’s duality and board size had a significant negative effect on firm performance. However, the performance of state-owned firms which had independent directors in their Boards was positively related. The international financial crisis of between 2007 and 2009 had very little impact on Chinese firm performance.

In another study to investigate factors affecting stock option use in China, a sample of 225 stock option grants was used covering the period 2006-2013. Consistent with the optimal contract theory, the study revealed that stock option plan scope was negatively correlated with firm size (performance) but positively related with book-to-market ratio and prior stock returns. However, the coefficients proved significant only when the stock option awards covered senior managers. The study also found out that different types of employees
had different risks affecting them. Effect of risk was different when options are targeted to different types of employees (Luo, 2015).

The issue of corporate governance gained prominence since the occurrence of major corporate scandals to happen in the world. Scandals such as Enron and WorldCom that happened in the United States of America sometimes back, have brought into focus the need for firms to adhere to strict corporate governance principles and regulation aimed at improving the firm’s corporate governance environment. Poor corporate governance practices may lead to firm failure. Such practices range from ineffective oversight functions to lack of accountability on the part of the board are some of the corporate governance lapses that may cause corporate failures. Consequently, various corporate governance reforms have been initiated in different parts of the world to limit the recurrence of such scandals. These reforms emphasized the need to change the structure of listed firms' boards (Adebayo et al., 2014).

In Nigeria and Ghana, a study was conducted to examine the effect of board size on firm performance. The study targeted 137 firms listed in Ghana and Nigeria. The study results showed existence of a positive relationship between board size and firm performance (Appiah, 2017). In another study covering Nigeria alone, Oludele, Oloko and Olweny (2016) targeted manufacturing firms. Using a sample of 34 firms out of a total of 74 targeted manufacturing firms, the study results showed positive relationship between independence of the board and firm performance of listed manufacturing companies in Nigeria.

In South Africa various studies have been done to assess the role of independent boards on firm performance. Research results found out that the higher the proportion of independent non-executive directors in a Board, the higher the performance of the organization. The study concluded that greater independence of boards, larger board size and lower board share-ownership should be encouraged because it improves firm performance (Meyer & Wet, 2013). Another study targeted 169 firms listed in South Africa for the period 2002-2007. The study investigated corporate board meetings influence on corporate performance. The study findings revealed the existence of a significant positive association between firm performance and the frequency of corporate board meetings. This is consistent with the agency theory assertion that corporate boards which meet frequently
can effectively advise, monitor and discipline management on time hence improving the organization’s corporate financial performance (Muchemwa et al., 2016).

5.3.2 Yield Curve and the Performance of Forex Bureaus

In this study, regression analysis results revealed that yield curve had a significant positive relationship with firm performance. It is worth noting that the behavior of the yield curve keeps on changing depending on the business cycle. During time of economic recession, interest payments in respect of long-term bonds tend to be high while interest payments on short-term bonds tend to be low. Thus, during period of recession, the yield curve will be upward sloping. Interest payments on long-term debt are countercyclical because investors tend to shy away from risk during bad economic times. On the other hand, yields on short term debt tend to be procyclical because the central bank of an economy lowers short yields during periods of recession to stimulate economic growth (Maranga et al., 2018). For every 2 percentage points decline in the growth of a country’s gross domestic product, regulatory authorities should lower the nominal yield by 1 percentage point (Khandwala, 2015).

During periods of economic recession, upward sloping yield curve indicates both bad times today and better times ahead. Based on this intuition, many research papers use the slope of the yield curve to predict economic growth. This is usually represented by the difference between the longest yield or interest in the dataset and the shortest maturity yield. The height of the slope or term spread of the yield curve is expected to have a direct relationship with a country’s future economic growth (Tokic, 2019). Churchill and Mensah (2014) contends that the same measure of yield curve slope can be used to predict real rates. The yield curve slope can also be used to predict poor economic times with discrete choice models, where downward trend in economic growth is coded one while other times are coded zero.

Although there is empirical evidence to the effect that instability of an economic parameter may weaken a yield curve’s future performance, so far this has not been the case at least in practice. For instance, every recession or downward economic growth post the mid-1960s has been predicted by a negative slope commonly known as an inverted yield curve. History however has it that there has been only one “false positive” during this period. This is one instance where an inverted yield curve was not followed by an economic recession (Wang
& Yang, 2011). Yield curve has been used by economists for a long time to predict future economic activities. There is much more regarding an economy that people can learn from the yield curve when its dynamics are jointly modelled with an economy’s growth (Hvozdenska, 2015).

Government bond yields typically with different maturities and macroeconomic variables are usually characterized by a high degree of co-movement. This is an indication that most of their dynamics are dependent on a few common forces. The yield curve’s curvature, slope and level can explain the shifts and changes of the yield’s entire cross-section. In the United States of America, nominal and real macroeconomic factors summarize the dynamics of a variety of macroeconomic indicators that define the American economy. These factors have a strong interaction with yield curve factors. The short end of the yield curve moves in tandem with policy instrument that is usually under the control of a country’s central bank. This responds to fluctuation in economic activity, changes in inflation and other economic conditions. The yield curve’s average level has a direct link with inflation rate. It also a direct association with the spread between short and long rates under temporary business cycle conditions. For these reasons, such macroeconomic information has proved useful in the forecasting of excess bond returns and future interest rates (Coroneo et al., 2016).

Reschenhofer and Stark (2019) tested the applicability of the Nelson-Siegel curve in the Romanian context. The research hypothesis was that yield forecasts using the autoregressive models on the Nelson-Siegel curve outperformed the random walk forecasts. The study findings did not support this hypothesis. The study revealed that it was only forecasts based on the autoregressive models for the differenced security returns that outperformed the random walk forecast. The 1-month-ahead forecasts based on the dynamic factors in fact came out worse than those based on the security returns or yields. For the 12-months-ahead forecasting, the study findings showed that all forecasts performed poorly, especially those based on autoregressive models fitted to undifferenced time series.

In South Africa, a study was conducted to investigate factors affecting bond yield spread changes in an emerging economy for the period 2005-2013. The study used a sample of some 106 corporate vanilla bonds that were listed on the South African stock market. For
purposes of capturing the effects of the financial crisis that rocked the major security markets of the world between 2007 and 2008, the sample period was split into three sub periods namely: the pre-financial crisis period (2005-2006), mid-financial crisis period (2007-2009) and post financial crisis period (2010-2013). The study results revealed that changes in interest rate level, equity volatility and the yield curve slope had a direct relationship with bond yield spreads. Equity volatility and interest rate level effects were more pronounced during the mid-financial crisis period (Radier et al., 2016). Chakroun and Abid (2014) study attempted to estimate the dynamics of the interest rates yield curve on the illiquid Tunisian bond market with low trading volume. The study used a 14-year data of Treasury bond prices from 14 July 2004 to 10 September 2012 which was collected from over the counter market. Study findings revealed that the cubic spline method gave an accurate estimate of the average yield curve of interest rates. The study predicted an economic growth in the future characterized by a higher inflation.

5.3.3 Effects of Basis Risk on the Performance of Forex Bureaus

Inferential statistic results revealed the existence of a significant positive relationship between basis risk and firm performance. The essence of hedging in a financial market is to exchange flat price risk of a commodity or currency for basis risk. Basis risk associated with changes due to price differences between the hedging instrument and the commodity being hedged. These differences arise because in most cases, the characteristics of the hedging instrument are rarely the same as the characteristics of the actual physical commodity being hedged. A firm may for example, hedge a cargo of heavy crude oil with a futures contract. Even though the prices of these two scenarios tend to move in tandem, demand changes for instance of refined products, refinery outages or any other factor for that matter may cause changes in the differential between the two (Yang et al., 2018).

In the United Kingdom, Ahmed, Azevedo and Guney (2014) examined the effect of hedging on firm performance. The study used 8-year information for the period 2005-2012 on 288 nonfinancial firms listed in the London Stock Exchange. The study focused on the hedging of the interest rate, foreign exchange, and commodity price risks with option, forward, futures and swap contracts. Study results showed that effectiveness of the risk management practices is dependent upon the financial risks and derivatives used for hedging. For instance, interest rate risk hedging had a negative relationship with firm performance for the overall hedging but positive when hedged with forward contracts. The
negative results findings of the study contradict previous findings which reported existence of a positive relationship between hedging and firm value and financial performance. The study also found out that the 2008-09 financial crisis that rocked major world security markets did not have a significant effect on established risk management practices and company’s commitment to financial risk hedging with derivatives. Increased volatility in the business in Canada exposed the inadequacy of traditional approaches to risk management. This has played a crucial role in the introduction of a more integrated approach to measuring and managing risks commonly known as enterprise risk management (Quon et al., 2012).

Generally, basis risks arise due to changes in the transformation economics during the life of a hedge. Changes in costs such as processing, storage, and transportation costs just to mention a few, affect relative prices of commodities across different locations, forms, and time zones. When there are large shocks on the economy, these basis changes may be extreme. For example, in the United States of America, the explosion of the natural gas pipeline in the late 2000 dramatically reduced transportation capacity into California. This led to a massive change in the basis between gas price at the California border and at the delivery point at Henry Hub in Louisiana. The basis between internationally traded crude oils and West Texas Intermediate crude oil has grown over the recent years because of the dramatic increase in the American production of oil and infrastructure constraints. Basis risk varies with commodity.

The basis for refined industrial metals for instance tends to be less volatile compared with the basis for metal concentrates for instance, hedged using futures contracts on refined metals. Local, peculiar supply and demand shocks are rare in commodity markets. A drought in one region for instance—changes in the basis—that should induce changes in transformation patterns play a crucial role in identifying and responding to these shocks (Mnasri et al., 2013). A study was conducted to determine the link between use of futures, forwards, swaps and options to hedge foreign exchange rate risks and interest rate in Nigeria. A sample of 5 financial and 5 nonfinancial firms used was selected from the London Stock Exchange for the period 2005—2014. Study results showed that financial firms tended to hedge more on interest rate risks while nonfinancial firms tended to hedge more on foreign exchange rate risks. The study also revealed that hedging interest rate risks by both financial and non-financial firms using a combination of forwards and futures.
derivatives had a significant positive relationship with return on assets. However, when swap derivative only is used, the relationship is negative. The study also established that when one or more of any the financial derivatives is used to hedge foreign exchange rate risk, the relationship with capital employed is significantly negative (Lenee & Oki, 2017).

One of the greatest challenges faced by banks in Uganda, is the issue of non-performing assets due to lack of accurate client information. The greatest challenge to better performance was also occasioned by huge provisions for bad loans and their subsequent write offs. The study results revealed that a combination of basis risk, variation in maturity gaps and assets and liabilities margins for the targeted commercial banks accounted for approximately 15% variation in their financial performance. In conclusion, the study revealed that interest rate risk exposure had a positive relationship with the banks’ financial performance except basis risk (Odeke & Odongo, 2014).

Basis risk which is also commonly known as remaining uninsured risk is applicable in the insurance industry. In Kenya, a research was conducted targeting livestock insurance in Northern parts of the country inhabited by people who practice pastoralism. The study used longitudinal household dataset to assess basis risk that could be linked with index-based livestock insurance product targeting pastoralists in living in that part of the world since 2010. The research findings showed that index-based livestock insurance has a negative effect on downside risk for most households especially when the insurance is purchased at fair premium rates. Besides, it has net utility benefits even when commercial rates are applied. The study further revealed that index-based livestock insurance has a negative effect by an average of 62.8% on exposure to covariate risk because of high loss events (Jensen et al., 2016).

5.4 Conclusion

5.4.1 Corporate Governance and the Performance of Forex Bureaus

Inferential statistical study results showed that corporate governance exhibit a strong positive relationship with performance of forex bureaus in Nairobi because the adjusted R square was 88.2%. Some of the corporate governance attributes that had a significant effect on firm performance include: the argument that forex bureaus roles and responsibilities are clearly defined and do not clash with those of the Board, the contention that forex bureaus Boards are made of both executive and non-executive directors and the argument that forex
bureau Boards are accountable to its shareholders. Based on the above findings, it may be concluded that Forex bureaus in Nairobi should maintain higher standards of these attributes. Using the regression equation: $Y_{\text{Firm Performance}} = 0.188 + 0.962 X_1$, the regression coefficient 0.962 shows that forex bureau’s performance increases by 0.962 for every additional unit change in corporate governance.

5.4.2 Yield Curve and the Performance of Forex Bureaus
Correlation analysis indicated that yield curve had a significant positive relationship with the performance of forex bureaus in Nairobi because the adjusted R squared was 88.5%. The study further proved that attributes such as yield curve changes are dependent on variations in exchange rates and that during periods of economic recession, upward sloping yield curve indicates bad times today and better times ahead. Thus, it may be concluded that the slope of the yield curve may be used to predict the economic growth of forex bureaus in Nairobi. Using the regression equation: $Y_{\text{Firm Performance}} = 0.254 + 0.945 X_2$, the regression coefficient of 0.945 shows that forex bureau’s performance increases by 0.945 for every additional unit change in yield curve.

5.4.3 Basis Risk and the Performance of Forex Bureaus
The study also established that there was a significant direct link between basis risk and firm performance because the adjusted R square value was 78.5%. Some of the basis risk attributes which had a significant effect on the performance of forex bureaus in Nairobi include the argument that exercise of market power in the derivatives market may cause distortions in the basis. Those basis risk attributes which had low impact on firm performance include the argument that the higher the transaction costs in a customized contract, the less the basis risk. Using the regression equation: $Y_{\text{Firm Performance}} = 0.347 + 0.925 X_3$, it is concluded that the regression coefficient of 0.925 indicates that performance of forex bureaus in Nairobi increases by 0.925 for every additional unit change in basis risk.
5.5 Recommendation

5.5.1 Recommendations for Improvement

5.5.1.1 Corporate Governance and the Performance of Forex Bureaus
To improve performance, forex bureaus in Nairobi may wish to assess their preparedness to adhere to corporate governance issues. Since the two variables exhibit a significant positive link, it is therefore, recommended that management and policy makers of forex bureaus operating in Nairobi should view corporate governance as a major determining factor towards better firm performance. Thus, regulators such as the Central Bank of Kenya (CBK) and the Capital Markets Authority (CMA) should ensure that forex bureaus corporate governance goals are aligned with their objectives for optimal results to be realized.

5.5.1.2 Yield Curve and the Performance of Forex Bureaus
Statistical study results revealed that yield curve has a direct relationship with firm performance. Management of Forex bureaus operating in Nairobi should adhere to all the prevailing yield curve attributes such as yield curve variations to improve firm performance. In addition, policy makers and investors may rely on information regarding yield curve variations to make better investment decisions.

5.5.1.3 Basis Risk and the Performance of Forex Bureaus
The study also established that basis risk had a strong positive correlation with firm performance. Based on this finding, it is recommended that the management of forex bureaus in Nairobi should appreciate that forex bureau experiences basis risk due to the opportunistic behavior of market participants and exercise of market power in the derivatives market which may cause distortions in the basis. All industry stakeholders (policy makers, practitioners, management, investors, and regulators) should appreciate that these arguments carry more weight in improving firm performance.

5.5.2 Recommendations for Further Research
Since this study targeted forex bureaus operating in Nairobi only, future researchers should consider targeting forex bureaus all over Kenya to get a more representative view of the whole sector. In research, some scholars argue that the bigger the sample size, the better the study findings. Future research should consider other interest rate risk mitigation techniques not captured in this study.
REFERENCES


APPENDICES

Appendix 1: Directory of Foreign Exchange Bureaus Within Nairobi County as of 31st December 2019

1) Alpha Forex Bureau Ltd
2) Arcade Forex Bureau Ltd
3) Aristocrats Forex Bureau Ltd
4) Bay Forex Bureau (Nairobi) Ltd
5) Boston Forex Bureau Limited
6) CBD Forex Bureau Limited
7) Central Forex Bureau Ltd
8) Classic Forex Bureau Limited
9) Commercial Forex Bureau Limited
10) Conference Forex Bureau Company
11) Continental Forex Bureau Ltd
12) Cosmos Forex Bureau Ltd
13) Crown Bureau De Change Ltd
14) Downtown Cambio Forex Bureau Ltd
15) Forex Bureau Afro Ltd
16) Gala Forex Bureau Ltd
17) Gateway Forex Bureau Ltd
18) Giant Forex Bureau de Change Ltd
19) Give and Take Forex Bureau Ltd
20) Glory Forex Bureau Ltd
21) GNK Forex Bureau Ltd
22) Green Exchange Forex Bureau Ltd
23) Industrial Area Forex Bureau Ltd
24) Junction Forex Bureau Limited
25) Kenza Exchange Bureau Ltd
26) La’che Forex Bureau Ltd
27) Legacy Forex Bureau Ltd
28) Link Forex Bureau Ltd
29) Magnum Forex Bureau De Change Ltd
30) Metropolitan Bureau De Change Ltd
31) Middletown Forex Bureau Ltd
32) Mona Bureau De Change Ltd
33) Moneypoint Forex Bureau Ltd
34) Morgan Forex Bureau De Change Ltd
35) Mustaqbal Forex Bureau Ltd
36) Muthaiga-ABC Forex Bureau Ltd
37) Nairobi Bureau De Change Ltd
38) Namanga Forex Bureau Ltd
39) Nawal Forex Bureau Ltd
40) Offshore Forex Bureau Limited
41) Pacific Forex Bureau Limited
42) Peaktop Bureau De Change Ltd
43) Pearl Forex Bureau Ltd
44) Pel Forex Bureau Ltd
45) Rand Forex Bureau Limited
46) Regional Forex Bureau Limited
47) Satellite Forex Bureau Ltd
48) Sisi Forex Bureau Limited
49) Sky Forex Bureau Limited
50) Solid Exchange Bureau Ltd
51) Southend Forex Bureau Limited
52) Sterling Forex Bureau Ltd
53) Sunny Forex Bureau Limited
54) Taipan Forex Bureau Ltd
55) Tower Forex Bureau Limited
56) Trade Bureau De Change Ltd
57) Travellers Forex Bureau Ltd
58) Travel Point Forex Bureau Limited
59) Union Forex Bureau Ltd
60) Westlands Forex Bureau Ltd
61) Yaya Centre Exchange Bureau Ltd

Appendix 2: Introduction Letter

National Commission for Science Technology and Innovation
P. O. Box 30623, 00180,
Nairobi, KENYA.

18th February, 2020

Dear Sir/Madam

REF: PERMISSION TO CONDUCT RESEARCH. FARTUN SUNDUS
STUDENT ID NO. 639896

The bearer of this letter is a student of United States International University (USIU) -Africa
pursuing Masters in Business Administration.

As part of the program, the student is required to undertake a dissertation on "Effect of Interest
Rate Risk Mitigation Techniques on Performance of Forex Bureaus in Nairobi County, Kenya" which requires the student to collect data.

Kindly assist the student with the research permit and should you have any queries contact the
undersigned.

 Yours sincerely,

Prof. Amos Njguma,
Dean – School of Graduate Studies, Research and Extension
Tel: 730 116 442
Email: amnjguma@usiu.ac.ke
Appendix 3: Questionnaire

Effect of Interest Rate Risk Mitigation Techniques on Performance of Forex Bureaus within Nairobi County, Kenya

The following questionnaire is divided into three sections for ease of administration and will require approximately 5 to 10 minutes of your time to complete. To ensure that all information remains confidential, please do not include your name. If you choose to participate in this exercise, please answer all questions as honestly as possible and provide as much detail as possible to enhance the survey quality. Participation is strictly voluntary, and you may refuse to participate at any moment.

SECTION 1: GENERAL INFORMATION

Please tick ONE appropriate box below

SECTION A: GENERAL INFORMATION

Please tick ONE appropriate box below

1. Gender:
   - Male ☐
   - Female ☐

2. Age:
   - 20-25 ☐
   - 26-30 ☐
   - 31-35 ☐
   - over 35 ☐

3. Level of Education:
   - Diploma ☐
   - Undergraduate ☐
   - Graduate ☐

4. How long have you worked in the forex bureau business?
   - Less than 2 years ☐
   - Between 2-5 years ☐
   - Between 5-10 years ☐
   - Over 10 years ☐
SECTION B: EFFECT OF CORPORATE GOVERNANCE ON PERFORMANCE OF FOREX BUREAUS WITHIN NAIROBI COUNTY, KENYA.

Please indicate the extent to which you agree or disagree with the following statements by ticking (√) the relevant number. (1=Strongly Disagree, 2=Disagree, 3= Neutral 4=Agree, 5=Strongly Agree).

<table>
<thead>
<tr>
<th>S/No</th>
<th>Corporate Governance</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Repricing strategy is used in your bureau to replace worthless stock options held by employees with new options.</td>
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<tr>
<td>2</td>
<td>Your bureau applies repricing strategy on stock options whose fair market value is lower than its excise price.</td>
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<tr>
<td>3</td>
<td>You have used repricing strategy to retain your employees by taking back their worthless stocks and issuing them with new stocks which have intrinsic value.</td>
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<tr>
<td>4</td>
<td>Repricing stock options decisions in your bureau is vested in the Board.</td>
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<tr>
<td>5</td>
<td>Employee options in your bureau are usually issued at a strike price that is the same as a security’s current stock price.</td>
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<td>6</td>
<td>Your roles and responsibilities are clearly defined and do not clash with those of the Board.</td>
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<td>7</td>
<td>You are accountable to your Bureau’s Board of Directors.</td>
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<td>8</td>
<td>Your Board practices effective oversight functions.</td>
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<tr>
<td>9</td>
<td>Your Board is accountable to its shareholders</td>
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<tr>
<td>10</td>
<td>Your Board is made of both executive and non-executive directors</td>
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</tbody>
</table>
SECTION C: EFFECT OF YIELD CURVE ON PERFORMANCE OF FOREX
BUREAUS WITHIN NAIROBI COUNTY, KENYA.

Please indicate the extent to which you agree or disagree with the following statements by ticking (√) the relevant number. (1=Strongly Disagree, 2=Disagree, 3= Neutral 4=Agree, 5=Strongly Agree).

<table>
<thead>
<tr>
<th>S/No</th>
<th>Yield Curve</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The behavior of your bureau’s yield curve keeps on changing depending on the business cycle.</td>
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<td>2</td>
<td>Yield curve changes are dependent on variations in exchange rates.</td>
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<td>3</td>
<td>During periods of economic recession, upward sloping yield curve indicates bad times today and better times ahead.</td>
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<td>4</td>
<td>The slope of the yield curve can be used to predict economic growth.</td>
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<tr>
<td>5</td>
<td>The slope of the yield curve can be used to predict real rates.</td>
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<tr>
<td>6</td>
<td>The short end of the yield curve moves in tandem with policy instrument that is usually under the control of a country’s central bank.</td>
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<tr>
<td>7</td>
<td>The yield curve’s average level has a direct link with inflation rate.</td>
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<td>8</td>
<td>The yield curve’s average level also has a direct association with the spread between short and long rates under temporary business cycle conditions.</td>
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<td>9</td>
<td>Yield curve are used to make investment decisions. Since lower rated long-term securities bear higher capital requirement, insurance companies prefer to hold higher rated long-term securities or bonds.</td>
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<td>10</td>
<td>Depending on the conditions of the credit ratings, you are usually biased in favor of higher yield bonds.</td>
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</tbody>
</table>
SECTION D: EFFECT OF BASIS RISKS ON PERFORMANCE OF FOREX BUREAUS WITHIN NAIROBI COUNTY, KENYA.

Please indicate the extent to which you agree or disagree with the following statements by ticking (√) the relevant number. (1=Strongly Disagree, 2=Disagree, 3= Neutral 4=Agree, 5=Strongly Agree).

<table>
<thead>
<tr>
<th>S/No</th>
<th>Basis Risk</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Your bureau experiences basis risk due to price differences between the hedging instrument and the commodity being hedged.</td>
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<td>2</td>
<td>In most cases, characteristics of the hedging instrument are rarely the same as the characteristics of the actual physical commodity being hedged.</td>
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<td>3</td>
<td>Liquidity considerations sometimes compel your bureau to accept basis risk by opting to trade in liquid markets with standardized instruments in order to achieve the transactions cost savings.</td>
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<tr>
<td>4</td>
<td>Your bureau sometimes agrees with a counterparty and enters contract that matches the exposure that your bureau wants to hedge at some price.</td>
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<tr>
<td>5</td>
<td>Your bureau finds the process of finding a counterparty expensive and time consuming.</td>
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</tr>
<tr>
<td>6</td>
<td>The lower the transaction costs in a standardized contract, the higher basis risk.</td>
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</tr>
<tr>
<td>7</td>
<td>The higher the transaction costs in a customized contract, the less the basis risk.</td>
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</tr>
<tr>
<td>8</td>
<td>Basis risk is a global phenomenon.</td>
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<tr>
<td>9</td>
<td>Basis risks arise due to changes in the transformation economics during the life of a hedge.</td>
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<tr>
<td>10</td>
<td>Opportunistic behavior of market participants may also give rise to basis risk. Exercise of market power in the derivatives market may cause distortions in the basis.</td>
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</tbody>
</table>
SECTION E: FIRM PERFORMANCE

To what extent do you agree with the following statements as regards to your organization’s performance? Please tick (√) as appropriate on a scale of 1-5 where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree.

<table>
<thead>
<tr>
<th>No.</th>
<th>Firm Performance Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Your firm is flexible to the ever-changing business environment</td>
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<tr>
<td>2.</td>
<td>Your customer base has grown over time</td>
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<tr>
<td>3.</td>
<td>Your firm fully utilizes all its available resources</td>
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<tr>
<td>4.</td>
<td>All your firm’s financial performance ratios are positive</td>
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<tr>
<td>5.</td>
<td>Your firm has invested in technology to improve on service delivery.</td>
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<tr>
<td>6.</td>
<td>Your firm has a competitive advantage over its competitors due to its strategic pricing strategies.</td>
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</tbody>
</table>

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THIS QUESTIONNAIRE