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A STUDY ON SUKUK AS AN ALTERNATE INVESTMENT TO CONVENTIONAL BONDS IN KENYA;

Evidence from emerging markets

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Project contains no material previously published or written by another person except where due reference is made in the Research Project itself.

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This research project has been submitted for examination with my approval as the Supervisor

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ABSTRACT

Islamic finance through products such as sukuk has become a popular source of financing especially in project finance. Unlike its substitute, the conventional forms of financing, such as conventional bonds, it has experienced slow development based on multiple factors ranging from political, economic to social factors. The study aims to identify the potential Sukuk has to offer in the Kenyan economy such as on Public Private Partnerships initiatives in the development of infrastructure by analysing its financial performance such as on yield/return on a global stage versus the performance of conventional bonds listed in Kenya. The research is based on yields of sukuk from markets in Malaysia, Indonesia and Saudi Arabia and bond prices in the Kenyan listed market. The researcher will point out the advantages, disadvantages and challenges of the sukuk system with illustrations from the Kenyan context.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

According to Moisseron & Moschetto (2015), Islamic thought is very deep, enriched with information that over the years addressed the problems that were faced by Islamic societies. In the course of time, Islamic thoughts have been refined, embraced and ultimately assimilated into non-Islamic societies. Hassan & Zaher (2001) state that the attention towards Islamic finance intensified following the global financial crisis in 2008.

Islamic banks, based on scientific research, were well placed than classical banks to absorb external shocks were more financially stable (Beck, Demirgüç-Kunt & Merrouche; Hasan & Dridi, 2010; Chapra, 2008, 2013; Cihak & Hesse, 2008). The key driver of Islamic finance today, is the development of the sukuk (MIFC, 2017).

According to MIFC (2017) & AFK Insider (2015), there exists obvious potentials under which Islamic finance can play a part, specifically in Africa, in diversification of their sources of funding. Islamic banking development in some countries may end up facilitating risk sharing and improve financial inclusion (Gelbard, Hussain, Maino, Mu & Yehoue, 2014).

According to Tahmoures (2013), sukuk is referred to commonly an Islamic bond despite its correct meaning of Islamic Investment Certificates. Sukuk are Islamic investment certificates that can be contrasted to conventional bonds regarding the principle of allowing corporate organizations/firms to create funds through capital markets but in adherence to the Sharia principles. Sharia principles dictate that money is not a tradable commodity hence attaching a "price" or 'interest' to money owed is forbidden.

According to (Islamic Finance Development Indicator, 2019), Islamic financial assets are projected to hit approximately $3.4 trillion by 2024 with the Sukuk product, second largest sector in Islamic finance, leading the growth amongst all industry sectors in 2019. In 2018, sukuk was valued at US$ 469.7 billion crossing the cumulative issuance of sukuk of US$ 1 trillion mark since its first issuance in 1996 (IFDI, IIFM, 2019). Moody's report goes further to state that sukuk issuance will hit around $180bn in 2020, following a 36% significant rise.

African Islamic bonds so far make up only 0.5 per cent of the global sukuk market. According to Moody's, issuance of Sukuk together with Islamic banking assets are expected to grow rapidly in Africa. IIFM (2018) stated that total Sukuk issuance in Africa stood at a mere 5% as of 2018 when compared globally and indicated that the African region remains the main force in maintaining the appeal and growth of the Sukuk market globally. Moody's (2019) states that Africa has a large Muslim population, that is significantly unbanked and under-served will offer a solid foundation for growth of Islamic banking assets. Moody's (2019) explains that there was USD 400 billion of corporate, financial institution and sovereign sukuk outstanding at the end of 2017.

Sukuk are developing at a faster pace due to competitive prices and better risk when compared to government or conventional bonds (Bey, 2007; Renaissance, 2005; Wahdy 2007; Ramasamy, Munisamy & Helmi, 2011). Sukuk has proved to provide a larger return with greater financial security unlike its counterpart, conventional bonds (Ramasamy, Munisamy & Helmi, 2011). Africa's demography may prove to offer a possibly strong need for Islamic financial services such as on credit or savings and insurance (MIFC, 2017). The MIFC (2017) report also states that access to financial services through Islamic finance could facilitate the financing needs and also increase ownership of accounts in areas characterized by low-income, vulnerable households, high poverty levels and inequality through provision of enough opportunity for the vulnerable or neglected groups in order to improve their standards of living.

Islamic finance can contribute to countering the power of the pandemic and generally recessions as put out by the United Nations Development Program (Rehman, 2020). In the 2008 financial crisis, Shariah principles protected Islamic Banks from investment into financial instruments such as the case of collateralized debt obligations which ended up adversely affecting their conventional competitors (Hasan & Dridi, 2010). Islamic banks had on average 4% higher profits before the 2008 global crisis and shared on average similar profits of 20-25% between 2008 to 2009 to that of convectional banks, indicating better cumulative (pre- and post-crisis) profitability. This is despite Islamic banks having on average credit growth that doubled that of conventional banks throughout the financial crisis period, indicating that the higher profits before the crisis were not driven by an approach of bigger and indicating a growing market share and more responsibility in supervision (Hasan & Dridi,2010).

COVID 19 has developed into a pandemic powerhouse (Bedford et al., 2020; Koonin, 2020). The virus has had catastrophic events that have ruptured the normalcy of economies on a global scale that has brought economies into a near standstill (McKibbin and Fernando,2020). According to Almarri & Meewella (2015) recent research into Islamic teachings has developed an interest pertaining social instruments that can prove to solve the economic and financial sectors troubles.

Islamic finance could be part of the COVID 19 response in solving the pandemic during and after the period such as through offering a range of financing instruments with different objectives at each stage such as sukuk (Islamic bonds) and zakat (charity). Through development of Sukuk retakaful, which is different from any regular sukuk since they are uncorrelated with the financial markets and are not affected by economic conditions, hence, making them more attractive to investors. Sukuk retakaful offer a better alternative to pandemic bonds which are categorized under catastrophe bonds and are more popular in African countries which offer insurance securitization, structured over short periods of up to 5 years and can modify risk of loss using a sharia compliant model, thus shielding investors from substantial losses when the CAT(Catastrophe) Bond are triggered (Buana, 2020; The European Journal of Islamic Finance, 2020).

1.2 Problem Statement

According to Gondo (2018), Abdullahi (2013), in Africa, the need for increased speed in development of infrastructure is of key importance to achieve sustainable social and economic development milestones. The responsibility for providing infrastructure can no longer be achieved by African governments solely. According to Ahmed and Karim (2012), AFDB is seeking for Islamic finance products mainly sukuk to boost its infrastructural projects across the continent. AFDB (2012) considers Sukuk as pivotal in achieving a wider investor base and more competitive prices. Unfortunately, only Sudan has fully assimilated the sharia law and principles of Islamic financial instruments (Ahmed and Karim, 2012). Africa can include Sukuk as part of their portfolios to enhance their portfolio in terms of diversification plans (Oakley, 2011). If African investors include sukuk in their portfolio then their diversification of the portfolio will contribute to the reduction of risk when compared portfolios primarily consisting of conventional bonds (Cakir & Raei, 2007; Hassan, 2012).

The main challenge in Africa, is to understand how Sukuk are different from conventional bonds, the lack of awareness on the advantages of sukuk as an alternate investment which has led to little or no development of sukuk in Africa despite a strong Muslim population of 38% (Faye, Trikki & Kangoye, 2013). Based on the structure of conventional bonds, whereby the underlying asset is in monetary terms while that of Sukuk is an underlying asset, leads to difference in religious opinions but practically no financial differences.

Kenya through section 12 of the Banking Act, gave recognition to Islamic banking by restricting conventional banks from undertaking precise trading and investment activities. Despite the Banking Act assisting in the introduction of Islamic banking in Kenya, there still exists barriers that hinder further grow industry. The absence of Shariah compliant liquidity management instruments provisions, weak technical capacity to define and regulate the environment of Islamic banks and shortage of skilled manpower ranging from the Central Bank of Kenya and even the practitioners has led to little or stunted growth of Islamic finance. The National Treasury of Kenya in January of 2016 announced its intention to issue an Islamic bond within the year.

In 2017, Standard and Poor's (S&P) report on Islamic finance report tipped Kenya as one of the markets in Africa best positioned to finance infrastructure projects using Sukuk because it has a relatively developed capital market by regional standards. Treasury secretary Henry Rotich had in the past said the Sukuks were some of the options the government was considering funding infrastructure projects in the country.

The past researcher's studies did not address the potential effect-upon adoption and implementation- of Sukuk yields or its performance vs the conventional bonds in Kenya or Africa in general. Oundo (2009), Ndungu (2010) agreed that there is high demand for Islamic financial products against a negligible supply. Therefore, the opinions in global studies such as Afshar (2013), Fathurahman & Fitriat (2012), Godlewski et. al., (2010) and Boutti & Mossaid (2014) on Sukuk vs bond performance in different countries and the shortcomings of local studies form the research gap that the researcher wishes to address. Plans for issuance of the bond have been in the works since 2014.

1.3 Research Objectives

1. To analyze the performance of sukuk in emerging markets as an alternate investment to conventional bonds in Kenya and emerging markets based on yield performance.
2. To examine the return and risk performance of sukuk in comparison with the conventional financial instrument, particularly the bond in terms of their market performance.
3. To determine the correlation and causality effect between sukuk and conventional bonds return on each other's performance.

1.4 Research Questions

The research was carried out to provide the following answers.

1. What is the return of Sukuk from emerging markets compared to conventional bonds from Kenya and emerging markets?
2. What is the risk versus return of Sukuk from emerging markets compared to conventional bonds in emerging markets and Kenya?
3. What is the causality effect between conventional bonds and sukuk?

1.5 Scope of the study

The choice of the Sukuk was based on availability of data on sukuk. Sukuk markets chosen shared some similar characteristics to Kenya since they are all categorized as developing countries. The researcher used data sourced from secondary sources both locally and internationally. The data mainly comprised of information on sukuk from a global market perspective such as on monthly prices and returns and bond data listed on secondary sites in Kenya. The researcher used countries such as Malaysia and Saudi Arabia Sukuk markets by obtaining data from online platforms such as investing.com for comparison purposes.

1.6 Significance of study

1.6.1 To researchers and academicians:

The researcher hopes to contribute to the already existing empirical studies on the Islamic finance particularly in Sukuk. The study may also assist current academicians in advancing the study on Islamic finance and sukuk market in Kenya.

1.6.2 To policymakers:

The researcher also hopes that the research findings will assist and guide policymakers such as Kenya's Capital Market Authority and Central Bank of Kenya in developing and fast-tracking development of Sukuk market in Kenya.

1.6.3 To investors:

The research clearly highlights the comparison between bond and sukuk financial performance, thus investors will be able to determine the best form or mix that they would want to have by investing in Sukuk if fully incorporated in the Kenyan market.

CHAPTER TWO

LITERATURE REVIEW

2.1 Sukuk definition and principles

Sukuk is derived from the Arabic term 'sakk' which translates to 'Islamic Investment Certificates' generally known as 'Islamic Bonds' (Tahmoures, 2013). Securities Commission Malaysia (2011) described sukuk as certificates of equal value that evidence undivided investment or ownership of the assets using Shariah principles. Sukuk can also be defined as securities of equal denomination that represent undivided pro rata ownership of tangible assets in a portfolio (Accounting and Auditing Organization for Islamic Financial Institution, 2002 & Malaysian Institute of Accounts, 2020). Sukuk, is a sharia compliant 'bond' that is used as an alternative to the conventional fundraising financial instrument. It is commonly known as an 'Islamic Bond'. Sukuk circumvents fixed interest that is forbidden in Islam but generates a return closer to the conventional bond.

Islamic Finance derives its principles from Sharia law, which is formed based on the teachings of the Quran and Sunnah which forms the basis of equitable contracts by linking finance to productivity and prohibition of payment of unearned income and the prohibition of payment of any predetermined amount over (Njogu, 2011). There are three Sharia law requirements that Sukuk need to adhere to be considered. The first requirement is that the certificates must signify ownership in form of tangible assets, usufructs or services from revenue-generating firms. Secondly, is that disbursements to the investor should come from profit after tax (PAT). The last requirement being the value repaid at maturity date should adhere to the current market price of the underlying asset not the initial amount that was invested (Godlewski, 2013).

Islamic principles based on the Quran (2:275) dictate that an investment- in this case Sukuk- whose return is based on interest or 'riba' is forbidden (Ahmed et al, 2014). Islam states that the basic characteristics of investment generally known as an equal proportion of weightage between risk and profit of which the absence of either aspect-risk or profit- is not considered an investment, which is expressed as a one-sided beneficial contract between two units (Abdel-Khaleq and Richardson, 2006). The implications require sukuk to be asset linked and its profit payment can be either fixed or predetermined according to the financial institution and the investors.

Sukuk gives the holder the right to change the ownership by selling securities such as on the capital market. The Sukuk issuer can generate funds from investors based on an underlying asset whereby the returns (profit/loss) upon utilization of the asset are shared among the two parties. (Bidabad, Hassan, Ali and Allahyarifard, 2011).

According to Maurer (2010) who further elaborated according to the Islamic principles, that sukuk issuance is forbidden for any organization that engages in non-sharia compliant activities or activities that are forbidden in Islamic Sharia law such as the production/sale of alcohol or pork products.

In conclusion, bonds are characterized as a mutual agreement between two parties who agree on certain terms and conditions such as the proportion of profit and intervals of requesting profit by investors, the alternatives of managing the risk, the maturity aspect & withdrawal of the invested capital after a specific period (Tariq and Dar, 2007). Sukuk bonds are an integrated vision of the Islamic principles and the characteristics of capital markets which enhance the image of sukuk bonds and depicts the offering of capital bonds that are based on Islamic principles of expressing profits.

2.2 Sukuk Structure

According to AAOFI (2008), there are 14 distinct sukuk structures. Sukuk can be broken down into multiple types based on the contractual agreement such as Musharakah, Murabahah, Mudarabah and Ijarah. The idea behind it is that sukuk are mainly asset backed, are tradable, have stable income and are shari'ah-compatible investment certificates that have partial beneficial ownership of underlying asset (Hossain, Uddin & Kabir, 2018).

Sukuk can exist in two forms; as an asset based, or asset backed unit. The asset based sukuk offers the Sukuk holders' beneficial ownership of the asset with recourse to the originator in case of shortfall in payments (Waziri, 2019). The sukuk holders' beneficial ownership implies specific property rights such as on the assets use and title which belongs to a person despite the legal title of the property belonging to another person. In our case, the researcher will only analyze a few of the sukuk types based on popularity and usage.

The most widespread are Sukuk Al Murabaha (Kamil, Abdullah & Ismail, 2010) which are equivalent to zero coupon bonds. Their peculiarity lies on the requirement of a tangible asset purchased such as by a special purpose vehicle in project finance which is resold to the sukuk issuer on the due date. This can be considered as a deferred sale whereby receivables are securitized (Assava, 2016). Islamic finance forbids gains that originates from the debt. (Razak, Siti & Dinc, 2018)

Ijara is a form of sukuk which is like conventional leasing contracts. In Ijara income that is created from the originator is passed on to the holder of the sukuk. At default or maturity of the sukuk, the originator will buy back the underlying leased asset at a fixed rate based on their initial fixed agreement between the two parties.

Sukuk al Musharaka is a form of sukuk that is derived and shares similar characteristics to joint venture, whereby, the sukuk is structured through a contract of co-ownership between the sukuk holder and originator into which both parties take part in financing the project. Upon generation of income from the sukuk, the returns are shared according to each party's share of investment. The sukuk originator recovers the proceeds that may be generated from the sale of the assets as a result of the sukuk issuance. Sukuk originators are responsible for the management of the asset during the project's lifetime.

Sukuk al Mudharaba is a form of financing contract whereby one-party awards money to another party. Hence, the owner of the capital subscribes for the sukuk by giving money to the SPV, or management of the sukuk who utilize the money to generate income. It is a form of sukuk that is based on partnership trust. The investors are silent partners while the working partner is the one who issues the sukuk.

In conclusion, Sukuk are a form of investment in which there must be permissible assets or transactions for which the investment is made. Sukuk do not represent a claim of debt in a pure monetary sense, however, depending on its structure, sukuk's risk and return characteristics are often like bonds, hence the common reference to sukuk as a form of debt securities (Kusuma & Silva, 2014). Sukuk are asset-based rather than asset-backed securities, with the underlying being Sharia-compliant in its nature and use.

Sukuk are defined as having a maturity date whereby the holders are entitled to a steady stream of income over the life of the Sukuk and includes a balloon payment at maturity. Jobst et al. (2008) suggests that, despite the global financial crisis, there is a strong demand from both Muslim countries and conventional global institutions for Sharia-compliant securities in the form of Sukuk. Sukuk avail a new area of cooperation between various international stakeholder (Abdel-Khaleq & Richardson, 2007).

2.3 Empirical evidence

Islamic investment came into practice from 1970's and has later been absorbed into different systems of the world (Adam and Thomas, 2004). Sukuk were effectively brought into light by the Malaysian government in 1983 through the launch of Malaysian Investment issue (Ariff and Safari, 2012). The sukuk worked under the simple principle whereby the sukuk issuer creates funds from investors centered on an underlying asset. Based on the utilization of the asset, the outcome will either be a profit or loss. The returns are then shared on the agreed proportion (Bidabad, Hassan, Ali and Allahyarifard, 2011).

Najeeb, Bacha, & Masih (2014) also studied sukuk and its potential in diversification. They concluded that the diversification is expressed due to differences in foreign exchange. The also concluded that there is a weak correlation between two markets in their regions of study. This constitutes an opportunity for diversification for investors.

Ariff & Safari (2012) looked into sukuk by assessing whether there existed a relation between sukuk and conventional bonds on their performance. They concluded that there was no relationship between the two.

Fathurahman & Fitriati (2013) based their analysis of sukuk from and Indonesian perspective by investigating the performance of sukuk versus that of conventional bonds based on mature yields. They concluded that the yields were substantially different. The study also concluded that the maturity of sukuk were higher.

According to Ramasamy et al., (2011), sukuk had lesser risk, better returns and better sensitivity than that of conventional bonds. El-Mosaid & Boutti (2014), confirmed that the performance of the sukuk was higher than that of bonds.

Godlewski et al., (2013) concluded that the sukuk market is unaffected by announcement of conventional bonds and pointed out that his findings were based on higher demand for Islamic investment certificates.

The studies indicated above were attempted in a domestic perspective, as such the researcher proposes to address this issue of sukuk performance and base it on the Kenyan context.

2.4 Potential benefit of Sukuk to Kenya

In January 2016, National Treasury Cabinet Secretary Henry Rotich, through the Islamic Finance and Investment Summit held in Nairobi, noted that Sukuk offered Kenya with an alternate and access to lower cost finances to finance the budget deficit of the country as they are cheaper. This is but one of the added advantages of sukuk. With many countries struggling to meet their infrastructure needs and banks have tightened their regulations on lending, there is a growing need for diversification. This has raised demand for Sukuk, which provides an opportunity to bridge down the infrastructure gap (Kammer, Piñon, Prasad, Towe & Zeidane, 2015).

Sukuk can be used in the financing of infrastructures since they are like project finance whereby a group of private investors finance a project which may be cut out as an SPV specifically set aside for the project and upon maturity is transferred to the government (Kammer et al. 2015). Like project finance, sukuk are capable of spreading the risk of investment among the different investors. Sukuk can be effective since its payments are flexible and upon realization of 'profit' such that the payments are pinned to the returns of the asset and are not based on fixed timings or schedules such as those found in conventional bonds (Kammer et al. 2015).

2.5 Challenges

The shortcoming of sukuk is based on majorly religious differences. Sukuk's return is hinged to or compared to the LIBOR rate which may indicate factoring in sukuk return as a proxy to interest rate-based returns, hence indicating riba, which has proved to be a controversy among shari'ah scholars (Ahmed et al., 2014).

According to Jobst et al. (2008), Najeeb et al. (2014), Rusgianto & Ahmad (2013), sukuk trading are mostly limited in terms of their diversity in different sectors and investors are of the theory to "buy-and-hold" an investment, whereby investors cling onto one sukuk thus may result into an illiquid secondary market which has less trades thus impacting the efficient price discovery when making financing and investment decisions. Liquidity has proved to be a serious problem in sukuk (Safari et al, 2014).

Across the globe, most sukuk markets struggle with illiquidity with some markets facing up to 70% of listed sukuk fail to be publicly traded since their inception up to their maturity. Oseni (2014) attributed the illiquidity problem to lack of legal clarity around default mechanisms that pertain legal uncertainties thus limiting the number of sukuk transactions. Sukuk being a relatively new product faces debates and constant discussions such as illiquidity which has led to further discussions on sukuks' restructuring, governance, dispute resolution mechanisms, valuation mechanisms, asset securitization, among many others Oseni (2014).

The key challenges of sukuk have had an impact on determining the risk structure and scale of sukuk. The controversies need to be addressed to solve the issues if sukuk is to continue to thrive on a global scale (Zaheer & Wijnbergen, 2013; Oseni, 2014). Kenya included, has delayed in the development of sharia principles, code of governance and multiple factors that have seen slow development of sukuk market in Kenya. The researcher identified problems such as those faced by the current two Kenyan Islamic banks who have different sharia boards to formulate and create principles that govern their Islamic products in the market based on what suites their own criteria. This creates a problem due to lack of centralized systems such as those found in Malaysia who have a Sharia board advisory council. Kenya also lacks sukuk issuance programs as part of their public debt management strategy. Legislative gaps on Islamic Finance could delay issuance of sukuk.

2.6 Sukuk vs Bonds

Literatures have differed on determining the similarity between sukuk and bonds. The school of thought stating that the two financial instruments are different base their case on multiple contractual aspects such as provision of ownership stake in sukuk unlike bonda which are a mere document representing debt. According to Zin et al., (2011), the researchers state that sukuk are not any certificate but a trustee certificate pinpointing an asset exchange with the ability to receive profits from the transaction. There exist multiple studies to back this case and have concluded that sukuk offer greater return and performance, significantly (Afsar, 2013; Kamso, 2013; Hanifa et al., 2014; Ahmed et al., 2014; Bacha et al., 2015; Ramasamy et al., 2011). A number of studies also point to a greater return of sukuk (Fathurahman & Fitriati, 2013; Abedifar et al., 2013; Krasicka & Nowak, 2012; Abdullah et al., 2007; & Ahmad & Radzi, 2011).

The school of thought based on past literatures advocating that sukuk and traditional bond are similar financial instruments are based on the interpretation that the two financial instruments share many similar features (Ariff and Safari, 2012; Alam et al., 2013; Ahmed et al., 2014; Zakaria et al., 2013; Ulus, 2013; Trad and Bhuyan, 2015). The authors argued that both instruments have a fixed term to maturity and offer a contractual profit at a certain rate. They further argue that, both trades in the financial market thus preserving a yield-price relationship.

Multiple empirical studies were done, and they all concluded that there is no significant difference in the return and yield between the two instruments (Fathurahman and Fitriati, 2013; Ariff and Safari, 2012; Krasicka and Nowak, 2012; Abdullah et al., 2007; Ahmad and Radzi, 2011). The researchers also concluded that both instruments are substantially correlated based on their yields (Mosaid and Bouti, 2014; Naifar, 2016; Maurer, 2010; Alam, 2009; Miller et al., 2007). They further went ahead to identify a considerable causal relationship (Naifar, 2017; Safari et al., 2013; Nursilah et al., 2012).

In conclusion, the difference narrows down to religious belief, principle and mode of study as the conclusions are pegged based on different regional studies or studies that relate to different markets globally.

2.7 Valuation of sukuk

Sukuks' valuation has been argued differently and according to Uddin Hossain & Kabir (2018), the past literatures that discuss the theory on sukuk valuation argue that sukuks' pricing model is not simple and forthright largely due to the issue of an underlying Islamic financial contract which addresses the diversity in the forms of relationship between a sukuk holder and sukuk issuer. This has led to many researchers describe Sukuk as being equivalent to conventional bond certificates (Safar, Ariff & Mohamad, 2013). The conventional theory suggests that Sukuk should be priced as per the bond valuation theory (Williams 1938). Ramasamy (2011) further argues that the pricing model of sukuk should be derived from financial instruments.

The key challenges in sukuk pricing, according to Ahmed et al (2014), are attributed to lack of an Islamic benchmark rate and relatively small number of participants globally thus translating to a low market depth and liquidity, the absence of a standardized price validation mechanism and lack of risk mitigation measures (Safari et al., 2013; Ramasamy, 2011; Najeeb & Vejzagic, 2013). Multiple researchers mentioned above, claimed that some shari'ah considerations restricted the ability of sukuk to be traded at values other than par coupled with the insufficient infrastructural facilities to create growth for sukuk to be traded and lack of benchmark yields to explore the correct pricing models for sukuk (Naifar & Mseddi, 2013).

The concept of held-to-maturity is of importance in sukuk pricing. There also exist numerous variances between the conventional and Islamic way of calculating cash flows with factors such as profit rate based on length of time period and in cases of default as a result of unforeseen circumstances, the amount due will not be added to the principal unlike in conventional finance when computing compound interest (Hossain, Uddin & Kabir, 2018).

Scholars have differed on how to value sukuk with those stating that they should be priced at historical cost and not fair market value. They further go ahead and state that disclosure requirements should be done by the sukuk issuer in order to assess compliance with shari'ah law which advocates sukuk transparency (Sukor et al., 2008; Muhamed & Radzi, 2011).

Godlewski et al. (2016) concluded that the type of sukuk contractual mechanism factored in together with the choice of scholar's engagement to endorse the shari'ah compliant securities will directly and significantly the market valuation of the sukuk issuer. Hossain, Uddin & Kabir (2018) argue that there may exist arbitrage opportunity if sukuks' pricing mechanism is diverged from conventional bonds. They further argue that proficient fair pricing is necessary to avoid arbitrage.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Data analysis and sampling

The researcher intends to analyse the sukuk and bond market between period 2018 and 2020 due to the newness of sukuk in the market and availability of data. The S&P Dow Jones Global Sukuk Index (SPSK) and Franklin Global Sukuk Fund were used as a proxy for measurement of Sukuk performance. In the bonds market segment, the JP Morgan Global Emerging Market Bond index and the S&P Kenya Sovereign Bond index were chosen as proxies for bond performance. The data analysed was formatted into weekly. The JP Morgan Global Emerging Market Bond Index is used as it represented the best replica of bond performance in emerging countries ranging from African countries to other continents. This served as a good benchmark in analysing both the Kenyan bond performance as an emerging market and Sukuk performance in emerging markets.

The S&P Dow Jones Global Sukuk is a representative of Sukuk issuance on a global stage with majority of the issuance arising from emerging markets since the selection of sukuk from developed countries would skew results making it undesirable. The S&P Kenya Sovereign Bond acting as its first of its kind was used as a proxy for the Kenyan bond market performance as a foreign bond in USD currency. Adjustments were made to the S&P Kenya Sovereign Bond by adjusting for inflation and indexing to have a risk adjusted return similar to that of Sukuk. The choice of Sukuk and Bonds selected for the analysis were solely based on exposure to similar characteristics and others were adjusted for inflation in order to share similar characteristics for efficiency in comparison. The JP Morgan bond index was adjusted for indexing to make it comparable to the Sukuk index. Data was obtained from Thomson Reuters, S&P Dow Jones sites and investing.com. The researcher aims to compare the Sukuk performance on a global stage versus the bond performance in the Kenyan local market. The choice of the Sukuk was based on availability of data on sukuk. The countries chosen are based on a criterion that they are developing countries like Kenya. The researcher used monthly prices due to the restriction of accessibility of the daily prices for the case of sukuk.

3.2 Methodology

Literature review on bond markets has outlined models for the term structure of interest rates on conventional bonds. The application of term structure has been developed and improved to adapt to the term structure analysis on floating rates bonds using advanced analytical tools (Adejoke, 2015).

In regard to Sukuk, there currently lacks models derived to measure the term structure of 'profit' rate, by virtue that sukuk forbids interest, the researcher sought to address the sukuks' term structure of interest rate as 'profit' rate. Based on recent findings, Athern (2009) proposed that simple models are appropriate as they are vaguely sensitive to the type of variables used when calculating returns. Hence, the researcher opted for simple models based on the complexity offered by Sukuk.

Based on the findings and teachings of Ashhari et al. (2009), Modirzadehbami and Mansourfar (2011) and Rahim and Ahmad (2014), we use a market model approach that assumes linear relations between the bond market returns and the return on markets. Return on bond is the source of income for investors who allocate their money to buy bonds. Before investment, the investor considers the bond yield as an indicator to identify annual rates of return. There are two terminologies in calculating yield, current yield and yield to maturity. (Fabozzi, 2000).

We first calculate the returns of the two financial instruments by calculating the daily returns, then we convert them to monthly returns.

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Equation 1

The bond yield will be calculated as follows:

$$P_b = \frac{I_1}{(1+Y)^1} + \frac{I_2}{(1+Y)^2} + \cdots + \frac{I_N}{(1+Y)^N} + \frac{M}{(1+Y)^N}$$

Equation 2

Yield to maturity (YTM) is computed in the same way as the yield (internal rate of return); the cash flows are those that the investor would realize by holding the bond to maturity.

$$P = \sum_{t=1}^{n} \frac{C}{(1+Y)^t} + \frac{M}{(1+Y)^n}$$

Equation 3

The yield is the return on bond expressed as a percentage. Yield to maturity is the compounded rate of return that an investor is eligible to when they purchase the bond at the current price and hold it until maturity date. Yield to maturity is measure of yield reflects return and compounded rate of return which is expected by investor (Tendelilin, 2007). The researcher intends to calculate the bond yield and returns of the listed bonds in the Kenyan market.

The general concept of pricing in sukuk is like bonds. The researcher intends to use time value of money whereby the present value is the price of sukuk when the sukuk will be redeemed at future value upon maturity. The coupon payment of the sukuk will determine whether the yields incomes are fixed or variable (Krichene, 2013).

When the coupon of a sukuk is fixed, the sukuk is called fixed-income security. The yield to maturity (y) is also called the internal rate of return (R). If we consider the present value of the sukuk as 'V', the coupon payment as 'C', and 'n' to represent the maturity. The researcher will compute the value of the sukuk given (y).

Therefore, the sukuk price will be computed as follows.

$$S = \frac{C}{(1+R)} + \frac{C}{(1+R)^2} + \cdots + \frac{C+A}{(1+R)^n} = \sum_{t=1}^{n} \frac{C}{(1+R)^t} + \frac{A}{(1+R)^n}$$

Equation 4

The researcher will then compute the rate of return, par yield as the sukuk price equals its face value. If the face value 'A' is equal to the price, and 'R' is the rate of return the researcher will calculate 'A' as follows (Krichene, 2013).

$$A = \frac{C}{(1+R(0,1))} + \frac{C}{(1+R(0,2))^2} + \cdots + \frac{C+A}{(1+R(0,n)^n} = \sum_{t=1}^{n} \frac{C}{(1+R(0,1))^t} + \frac{A}{(1+R(0,n))^n}$$

Equation 4

3.3 Sukuk vs Bond yield comparison

A graph will be plotted to identify the relationship between the yields of bonds and sukuk (Ariff et al 2009). A Time series will be done and plotted to describes the bond and sukuk relationship by showing the effects of performance, trend, seasonal effects and the randomness in the time series which can be closely compared.

Non-parametric tests were used due to their simplicity when comparing two variables thus compare the relationship between Sukuk and bond performance, determine the variance, hence, indicate the risk structures. This nullified any assumptions based on the underlying distribution of the data (Koch, 2016). This allows for powerful results and inference to be drawn as the assumptions that returns are independent across time is nullified hence, returns today are highly correlated with that of yesterday's and tomorrow's returns. This implicates the selection of paired t test. However, the researcher will also use paired t tests to investigate the possible existence of differences in yield to maturity as set out by other researchers (Ott & Longnecker, 2000; Rubin 1973)

The Wilcoxon signed rank test, as a non-parametric test will be used to test if Sukuk outperformed bonds. The null hypothesis is formulated as: there is no statistically significant difference between the mean yield of sukuk and bonds.

An equality of variance test will be used to check the homogeneity of variances between sukuk and bonds. The null hypothesis as: Sukuk has less variation than bond yields with the alternate hypothesis as: sukuk has greater variation than conventional bonds.

These non-parametric tests do not rely on the assumption of normality and will tell if the two assets are statistically different with good power and no violation of any assumptions. Further checks will be done to see how much correlation lies between bonds and Sukuk. Tests will be done to compare the two assets and whether the trend of the two assets in question are equal or if one asset is moving significantly faster than the other. The dataset was downloaded and analyzed using Stata.

An Augmented Dickey Fuller test is done to test for stationarity of Sukuk and bonds as data variables. The null hypothesis is presence of a unit root in variables and the alternative as variables are stationary.

A paired t test is done to test the systematic difference between yields of Sukuk and conventional bonds. This formulates our null hypothesis of there is no difference between the yields of Sukuk and bonds.

Granger causality tests will be done to test if there exists a causal relationship between Sukuk and Bonds and whether there exists causality in either direction. Based on the theoretical interpretation on the possibility of Sukuk affecting bond performance and vice versa (Ariff and Safari, 2012). Two equations were developed namely:

Equation one: Yield of sukuk does not affect yield of bonds.

Equation two: Yield of bonds does not affect yield of sukuk.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Results and analysis

The researcher starts out by presenting descriptive statistics of the tested variables based on the sample mean are presented in Table 1. The statistics suggested that the mean yield of Sukuk at 2.13% is higher than that of bonds at 1.531%. Sukuk presented a maximum of 4.8% vs bond is 8.9%. The highest yield was by the S&P Dow Jones Sukuk at 16.4% for Sukuk, while JP Morgan Emerging markets bond posted 8% as the highest yield for bonds. An average of yields from the selected sukuk's (AVB) and an average of the selected conventional bonds in the analysis was calculated and included (AVS) in the analysis.

Variable	Obs	Mean	Std. Dev.	Min	Max
WEEK	115	21913	233.3917	21514	22312
FRANKLIN	115	.0010817	.010337	-.0521	.0228
JPMBK	115	.0012744	.0195373	-.1221094	.0803843
SPKENYA	115	.0017875	.0063179	-.0246227	.0264683
SPSUKUK	115	.0031754	.0171253	-.0346572	.164623
AVB	115	.0015309	.0113275	-.073366	.0485778
AVS	115	.0021286	.0109576	-.0433786	.0893615
Week	115	3120	33.34167	3063	3177

Table 1

The Augmented Dickey Fuller test (Table 2 & 3) for stationarity in the variables concluded that all the variables are stationary at 5% significance level.

Augmented Dickey-Fuller test for unit root Number of obs = 113

	Test Statistic	Interpolated Dickey-Fuller 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-7.067	-3.506	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

Table 2

```
. dfuller JPMBK, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       113

                                 ------------ Interpolated Dickey-Fuller ------------
                 Test         1% Critical       5% Critical      10% Critical
               Statistic         Value             Value            Value
------------------------------------------------------------------------------
 Z(t)            -7.516           -3.506            -2.889           -2.579
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000
```

Table 3

Paired t-tests (Table 4-7) were then conducted between the variables with the assumption that the variables are measured at constant intervals in terms of yield, there are no significant outliers in the dataset. The results indicate a p-value of more than 0.05, hence we fail to reject the null hypothesis implying that there is no significant mean difference between the variables returns. Hence the mean difference between Sukuk and Bonds is zero.

```
Paired t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     AVS |     115    .0021286    .0010218    .0109576    .0001044    .0041528
     AVB |     115    .0015309    .0010563    .0113275   -.0005616    .0036235
---------+--------------------------------------------------------------------
    diff |     115    .0005976    .0010997    .0117931   -.0015809    .0027762
------------------------------------------------------------------------------
    mean(diff) = mean(AVS - AVB)                                  t =   0.5435
Ho: mean(diff) = 0                         degrees of freedom =      114

 Ha: mean(diff) < 0           Ha: mean(diff) != 0           Ha: mean(diff) > 0
 Pr(T < t) = 0.7061         Pr(|T| > |t|) = 0.5879          Pr(T > t) = 0.2939
```

Table 4

```
Paired t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
 SPSUKUK |     115    .0031754    .0015969    .0171253    .0000119     .006339
   JPMBK |     115    .0012744    .0018219    .0195373   -.0023347    .0048835
---------+--------------------------------------------------------------------
    diff |     115     .001901    .0020786     .022291   -.0022168    .0060188
------------------------------------------------------------------------------
    mean(diff) = mean(SPSUKUK - JPMBK)                            t =   0.9146
Ho: mean(diff) = 0                         degrees of freedom =      114

 Ha: mean(diff) < 0           Ha: mean(diff) != 0           Ha: mean(diff) > 0
 Pr(T < t) = 0.8188         Pr(|T| > |t|) = 0.3624          Pr(T > t) = 0.1812
```

Table 5

Paired t test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
SPSUKUK	115	.0031754	.0015969	.0171253	.0000119	.006339
SPKENYA	115	.0017875	.0005892	.0063179	.0006204	.0029546
diff	115	.001388	.001585	.0169972	-.0017519	.0045278

mean(diff) = mean(SPSUKUK - SPKENYA) t = 0.8757
Ho: mean(diff) = 0 degrees of freedom = 114

Ha: mean(diff) < 0 Ha: mean(diff) != 0 Ha: mean(diff) > 0
Pr(T < t) = 0.8085 Pr(|T| > |t|) = 0.3830 Pr(T > t) = 0.1915

Table 6

Paired t test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
FRANKLIN	115	.0010817	.0009639	.010337	-.0008278	.0029913
SPKENYA	115	.0017875	.0005892	.0063179	.0006204	.0029546
diff	115	-.0007057	.0009853	.0105658	-.0026575	.0012461

mean(diff) = mean(FRANKLIN - SPKENYA) t = -0.7163
Ho: mean(diff) = 0 degrees of freedom = 114

Ha: mean(diff) < 0 Ha: mean(diff) != 0 Ha: mean(diff) > 0
Pr(T < t) = 0.2376 Pr(|T| > |t|) = 0.4753 Pr(T > t) = 0.7624

Table 7

A time series plot is drawn to back up the conclusion drawn for the paired t test, thus indicating a mean difference equating to zero.

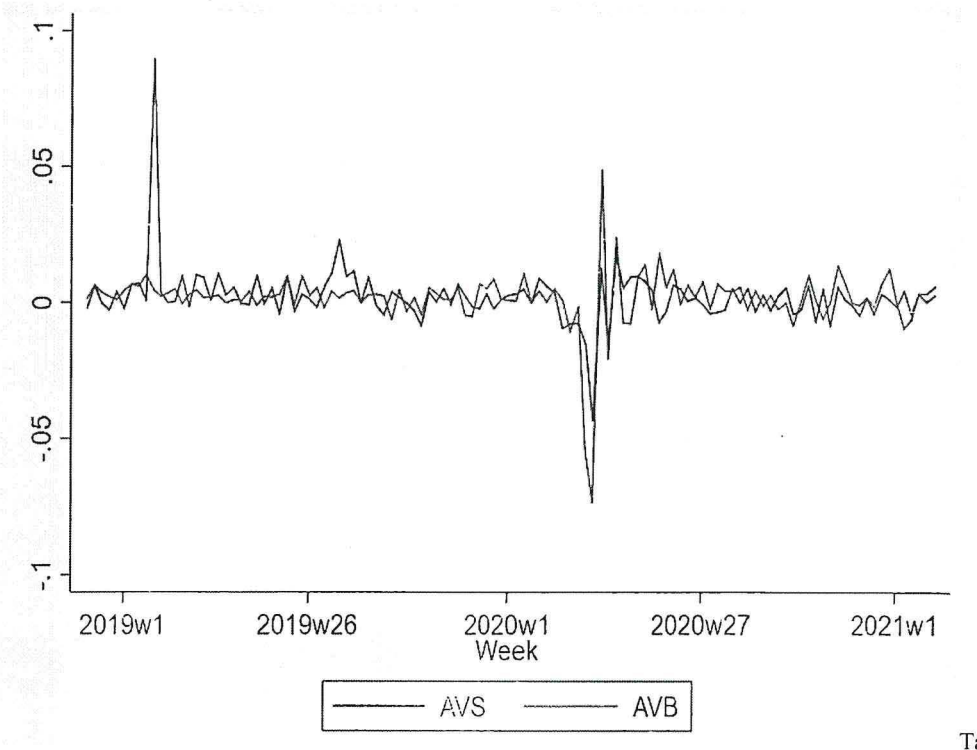

Table 8

A Granger causality test (Table 9) is done with the results indicating a probability of 0.342 for Sukuk affecting bonds and a probability of 0.262 for Bonds affecting Sukuk which are both higher than the p value of 0.05 indicating that both do not cause an effect on each other's performance, hence independent.

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
AVB	AVS	2.1457	2	0.342
AVB	ALL	2.1457	2	0.342
AVS	AVB	2.6783	2	0.262
AVS	ALL	2.6783	2	0.262

Table 9

The Wilcoxon test (Table 10) was carried out and 65 comparisons for which the average yield from bonds was greater than the average yield from sukuk, while there were 50 comparisons where the average yield from bonds was less than the average yield from sukuk and zero comparisons where the two were equal. We fail to reject the null hypothesis as the p value is greater than 0.05 at 0.661 and conclude that there is no statistically significant difference between the mean yield of sukuk and bonds.

Wilcoxon signed-rank test

sign	obs	sum ranks	expected
positive	65	3572	3335
negative	50	3098	3335
zero	0	0	0
all	115	6670	6670

unadjusted variance	128397.50
adjustment for ties	0.00
adjustment for zeros	0.00
adjusted variance	128397.50

Ho: AVB = AVS

z = 0.661

Prob > |z| = 0.5084

Table 10

The results from testing of the equality of the variances (Table 11 & 12) leads to a rejection of the null hypothesis in favor of the alternate hypothesis that Sukuk has greater variation than conventional bonds. The test concludes that sukuk and bonds are correlated.

```
Determinant of the correlation matrix
Det                 =      0.806


Bartlett test of sphericity

Chi-square          =             24.246
Degrees of freedom  =                  1
p-value             =              0.000
H0: variables are not intercorrelated


Kaiser-Meyer-Olkin Measure of Sampling Adequacy
KMO                 =      0.500
```

Table 11

Vector autoregression

Sample: 2018w50 - 2021w6			Number of obs	=	113
Log likelihood =	711.4013		AIC	=	-12.41418
FPE =	1.39e-08		HQIC	=	-12.31624
Det(Sigma_ml) =	1.17e-08		SBIC	=	-12.17282

Equation	Parms	RMSE	R-sq	chi2	P>chi2
AVB	5	.011479	0.0257	2.984823	0.5604
AVS	5	.010921	0.0566	6.780972	0.1479

Table 12

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AVB						
AVB						
L1.	-.0063972	.1040927	-0.06	0.951	-.2104151	.1976207
L2.	.020956	.1043103	0.20	0.841	-.1834885	.2254004
AVS						
L1.	-.070388	.1082153	-0.65	0.515	-.2824861	.1417101
L2.	.1409456	.1070271	1.32	0.188	-.0688237	.3507148
_cons	.0013244	.001096	1.21	0.227	-.0008238	.0034725
AVS						
AVB						
L1.	.1433407	.0990369	1.45	0.148	-.0507679	.3374494
L2.	.0866704	.0992439	0.87	0.382	-.1078442	.2811849
AVS						
L1.	-.0434182	.1029593	-0.42	0.673	-.2452146	.1583783
L2.	.1540049	.1018287	1.51	0.130	-.0455758	.3535856
_cons	.0015521	.0010428	1.49	0.137	-.0004917	.0035959

Table 13

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATION

5.1 Discussion

5.1.1 Performance of Sukuk and conventional bonds

The results point towards the favor of Sukuk over conventional bonds. Sukuk have a higher average yield when compared to bonds in the short run, however, there is no significant difference in the long term based on the time series line plot, and the paired t test. Sukuk and conventional bonds have a low correlation between returns. However, based on the time series plots, sukuk are more stable in periods of low returns unlike bonds who have a higher reaction during low return periods.

5.1.2 Risk versus return of sukuk compared to bonds

Sukuk have a higher variance than conventional bonds indicating that they are riskier in the Kenyan context. This could be due to the relatively young age of sukuk and lower trade volumes compared to bonds indicating a higher bond price volatility. The higher risk of sukuk can be narrowed down to the perception of the "profit earning" concept and not interest earning concept of sukuk making it lean towards more of equity than debt. It may also be attributable to the common public attraction of sukuk leading to over subscription, that may impact issuers by offering lower yields despite higher risk in the early stages of issuance.

5.1.3 Causal relationship between bonds and sukuk

The independence of sukuk and bonds based on the tests conducted, indicating that both have no effect over the other in terms of yield, can be narrowed down to the structure of sukuk that follows profit sharing principles. This implies that the performance of the underlying asset in the sukuk has a significant impact over the sukuk performance unlike bonds which are more vulnerable to other forces of the market such as the performance of other bonds.

5.2 Conclusion

The study found that sukuk have a higher yield than bonds. The Kenyan government and the private sector at large should consider the fast tracking of the development of sukuk in the Kenyan market. This will primarily provide other avenues for sourcing fund both to the government-initiated projects and private sector companies in search of capital or debt financing.

Consequently, sukuk is a relatively new area that has proved to have conflicting results in the analysis of sukuk vs conventional bonds based on emerging markets with primary focus in Kenya, and other research papers. This leads to the conclusion that despite the differences in opinions on the treatment of sukuk as bonds or not, it is acceptable by all that sukuk can serve as an alternative to bonds thus open more doors for emerging markets such as Kenya to use it for financing purposes.

5.3 Recommendation

This paper puts focus on the evaluation of sukuk vs conventional bonds by using proxies. The average between the JP Morgan Global Emerging Market index and S&P Kenya sovereign Bond index were used as a benchmark for testing the performance of bonds. S&P Dow Jones Global Sukuk index together with Franklin Global Sukuk were used as proxies for measurement of sukuk performance. The research variables were selected based on availability of data. However, more research needs to be done with the use of the locally issued sukuk in the private sector in the Kenyan market to get a more accurate depiction on the viability of listed and traded sukuk in Kenya.

5.3 Limitations of study

The study focused on sukuk which has limited data availability hence the short period this may limit the conclusions and judgments made. The research focuses on sukuk and bond returns issued abroad in emerging markets that are adjusted for inflation in order to level the comparison with the Kenyan bond on a risk adjusted return basis without including other financial constraints that may affect the returns. The inclusion of other financial constraints may help the outcome of the sukuk and bond performance.

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