


**HISTORICAL DEVELOPMENT OF FRONTIER STOCK MARKETS IN SUB-SAHARAN AFRICA**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 03 April 2023</p> <p><b>Accepted</b> 04 July 2023</p>	<p><b>Purpose:</b> The purpose of this research is to review and compare the development of the three major frontier stock markets in Sub-Saharan Africa over time. The study provides some narrative around the historical development of each market as well as a theoretical backdrop for stock market development studies.</p>
<p><b>Keywords:</b></p> <p>Stock Market Development; Frontier Market; Adaptive Market Hypothesis; Stock Market Reforms.</p>	<p><b>Theoretical framework:</b> The adaptive market hypothesis was used as the theoretical backdrop for the study. The adaptive market suggests that stock markets develop in an evolutionary manner (similar to natural selection). This evolution of stock market development is influenced by changes in investors' behavior and regulatory standards.</p> <p><b>Design/methodology/approach:</b> Data was collected from 1993 to 2020 on the IMF market efficiency score, the value of stocks traded, aggregate market capitalization, and the number of listed companies for the sample markets. The study used descriptive statistics and trend analysis to discuss and compare the stock market development indicators across the different selected frontier markets.</p>
	<p><b>Findings:</b> The study discovered an improvement in stock market performance across the sample period. The Johannesburg Stock Exchange was found to be the most developed of the three stock exchanges. The Nigerian Stock Exchange was second while the Nairobi Stock Exchange was third. Some factors that erode the performance of these stock markets were also discussed.</p> <p><b>The practical and social implications:</b> The sample stock markets are the major frontier markets, and so are often the first stop for foreign investors that want to penetrate the Sub-Saharan African markets. The performance of these markets often determines the level of foreign direct investment (FDI) and foreign portfolio investment (FPI) that flow into Africa.</p> <p><b>Originality/ Value:</b> Few studies have investigated the performance of stock markets in Sub-Saharan Africa. Also, the few studies that investigate the performance of these markets rarely proceed to discuss the market-wide factors that erode the performance of these markets compared to those of developed economies. Some factors like the size of the economy, low financial literacy, misplaced government policies, poor investment culture, buy-and-hold-tight attitude, and high transaction costs were identified and discussed.</p> <p>Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i7.2659">https://doi.org/10.26668/businessreview/2023.v8i7.2659</a></p>

**DESENVOLVIMENTO HISTÓRICO DOS MERCADOS DE AÇÕES DE FRONTEIRA NA ÁFRICA SUBSAARIANA**

**RESUMO**

**Objetivo:** O objetivo desta pesquisa é analisar e comparar o desenvolvimento dos três principais mercados de ações de fronteira na África Subsaariana ao longo do tempo. O estudo fornece uma narrativa sobre o desenvolvimento histórico de cada mercado, bem como um pano de fundo teórico para estudos de desenvolvimento de mercados acionários.

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**Estrutura teórica:** A hipótese do mercado adaptativo foi usada como pano de fundo teórico para o estudo. O mercado adaptativo sugere que os mercados de ações se desenvolvem de forma evolutiva (semelhante à seleção natural). Essa evolução do desenvolvimento do mercado de ações é influenciada por mudanças no comportamento dos investidores e nas normas regulatórias.

**Projeto/metodologia/abordagem:** Foram coletados dados de 1993 a 2020 sobre a pontuação de eficiência de mercado do FMI, o valor das ações negociadas, a capitalização de mercado agregada e o número de empresas listadas nos mercados da amostra. O estudo utilizou estatísticas descritivas e análise de tendências para discutir e comparar os indicadores de desenvolvimento do mercado acionário entre os diferentes mercados de fronteira selecionados.

**Conclusões:** O estudo constatou uma melhora no desempenho do mercado acionário durante o período da amostra. A Bolsa de Valores de Johannesburgo foi considerada a mais desenvolvida das três bolsas de valores. A Bolsa de Valores da Nigéria ficou em segundo lugar, enquanto a Bolsa de Valores de Nairóbi ficou em terceiro. Alguns fatores que prejudicam o desempenho dessas bolsas de valores também foram discutidos.

**Implicações práticas e sociais:** Os mercados de ações de amostra são os principais mercados de fronteira e, portanto, muitas vezes são a primeira parada para investidores estrangeiros que desejam penetrar nos mercados da África Subsaariana. O desempenho desses mercados geralmente determina o nível de investimento estrangeiro direto (FDI) e de investimento estrangeiro de portfólio (FPI) que flui para a África.

**Originalidade/valor:** Poucos estudos investigaram o desempenho dos mercados acionários na África Subsaariana. Além disso, os poucos estudos que investigam o desempenho desses mercados raramente discutem os fatores de todo o mercado que prejudicam o desempenho desses mercados em comparação com os das economias desenvolvidas. Foram identificados e discutidos alguns fatores, como o tamanho da economia, baixa alfabetização financeira, políticas governamentais equivocadas, cultura de investimento deficiente, atitude de comprar e manter e altos custos de transação.

**Palavras-chave:** Desenvolvimento do Mercado Acionário, Mercado de Fronteira, Hipótese do Mercado Adaptativo, Reformas do Mercado Acionário.

## EVOLUCIÓN HISTÓRICA DE LOS MERCADOS DE VALORES FRONTERIZOS EN EL ÁFRICA SUBSAHARIANA

### RESUMEN

**Objetivo:** El objetivo de esta investigación es analizar y comparar el desarrollo de los tres principales mercados de valores fronterizos del África subsahariana a lo largo del tiempo. El estudio ofrece un relato sobre el desarrollo histórico de cada mercado, así como un marco teórico para los estudios sobre el desarrollo de los mercados de valores.

**Marco teórico:** La hipótesis del mercado adaptativo se utilizó como base teórica del estudio. El mercado adaptativo sugiere que los mercados bursátiles se desarrollan de forma evolutiva (similar a la selección natural). Este desarrollo evolutivo del mercado de valores se ve influido por los cambios en el comportamiento de los inversores y las normas reguladoras.

**Diseño/metodología/enfoque:** Se recopilaron datos de 1993 a 2020 sobre la puntuación de eficiencia del mercado del FMI, el valor de las acciones negociadas, la capitalización agregada del mercado y el número de empresas cotizadas en los mercados de la muestra. El estudio utilizó estadísticas descriptivas y análisis de tendencias para discutir y comparar los indicadores de desarrollo del mercado de valores en los distintos mercados fronterizos seleccionados.

**Conclusiones:** El estudio constató una mejora del rendimiento del mercado bursátil durante el periodo de la muestra. La Bolsa de Johannesburgo resultó ser la más desarrollada de las tres. La Bolsa de Nigeria ocupó el segundo lugar y la de Nairobi el tercero. También se analizaron algunos factores que dificultan el rendimiento de estas bolsas.

**Implicaciones prácticas y sociales:** Las bolsas de muestras son importantes mercados fronterizos y, por lo tanto, suelen ser la primera parada para los inversores extranjeros que desean penetrar en los mercados del África subsahariana. El rendimiento de estos mercados suele determinar el nivel de inversión extranjera directa (IED) y de inversión extranjera de cartera (IEF) que fluye hacia África.

**Originalidad/valor:** Pocos estudios han investigado el rendimiento de los mercados de renta variable en el África subsahariana. Además, los pocos estudios que investigan el rendimiento de estos mercados rara vez analizan los factores que afectan a todo el mercado y que merman el rendimiento de estos mercados en comparación con los de las economías desarrolladas. Se identificaron y analizaron algunos factores como el tamaño de la economía, la escasa cultura financiera, las políticas gubernamentales erróneas, la escasa cultura de inversión, la actitud de comprar y mantener y los elevados costes de transacción.

**Palabras clave:** Desarrollo del Mercado de Valores, Mercado Fronterizo, Hipótesis del Mercado Adaptativo, Reformas del Mercado de Valores.

## INTRODUCTION

Stock markets are financial markets where shares (stocks) are bought and sold. Shares are financial assets that give buyers a right to the assets and earnings of the firm (Parameswaran, 2022). They represent fractions of the entire company (like slices to a loaf of bread). Stock markets create an avenue for participants (listed companies) to source capital and diversify risk (Brown, 2011). They also provide opportunities for company owners to earn returns and cash out of their investments. For these reasons, stock market performance is a critical indicator of economic development. The performance of a stock market is reflected in the transparency of the stock prices of its listed companies, the frequency with which its stocks are being traded as well as the overall capitalization of the market (Demirgüç-Kunt & Levine, 1996; Hoang & Mateus, 2023). The performance of stock markets is crucial to the development of any economy (Bohl, Ehrmann, & Wellenreuther, 2019). In an efficient stock market, the changes in stock prices reflect new information about the company. Thus, investors can allocate their resources in a manner that optimizes their returns. In a liquid stock market, equity investments are in heavy demand, and so stocks are traded frequently (Malo-Alain, Aldoseri, & Melegy, 2021). Where stocks are traded frequently, investors are sure of being able to cash in and cash out of investment opportunities and threats. Thus, they have more confidence in the market. Large stock markets also give investors more confidence since it signifies a relatively diverse pool of equity investment choices (Elmghaamez et al., 2022).

The stock markets in Sub-Saharan Africa have been underperforming across the different market development measures even before the global financial crisis in 2008 (Kumeka, Ajayi, & Adeniyi, 2022). The Nigerian Stock Exchange (NGSE), the Johannesburg Stock Exchange (JSE), and Nairobi Stock Exchange (NSE) have been identified as the major frontier markets in Sub-Saharan Africa as they are often the first stop for foreign investors who want to penetrate the Western, Southern, and Eastern African stock markets respectively (Nellor, 2008). Also, these three markets are the largest markets in Sub-Saharan Africa on the basis of GDP and market capitalization as of 2020 (World Bank, 2021a; World Bank, 2021b). At the end of 2020, South Africa had a nominal GDP and market capitalization of US\$415.32 billion and US\$1.05 trillion respectively, Nigeria had a nominal GDP and market capitalization

of US\$480.48 billion and US\$56.6 billion respectively, and Kenya had a nominal GDP and market capitalization of US\$ 109.49 billion and US\$21.4 billion respectively.

There have been significant shrinkages in the number of listed companies and initial public offerings over the years (Okumu, Olweny, & Muturi, 2022; Stangroom, 2021). Between 1998 and 2020, the Johannesburg Stock Exchange experienced a decline in the number of listed companies of about 59.38% (from 650 to 264) while Nigerian Stock Exchange experienced a reduction of about 4.84% (186 to 177). The Nairobi Stock Exchange has long had a surprisingly low number of listed companies with a maximum number of listed companies of 65 since its inception in 1954. Equity investments in Sub-Saharan Africa are often treated like passive saving schemes (similar to the treatment of landed properties) and this has led to long periods of inactivity and general illiquidity of the stock markets (Oteh, 2009). This study tries to review and compare the development of these frontier stock markets over time using descriptive statistics and trend analysis. To achieve this, the theoretical backdrop for stock market development as well as the historical development of each market were briefly discussed. The descriptive statistics and trend of development were also analyzed and compared to deduce areas for future research.

## **THEORETICAL FRAMEWORK**

Some empirical works in the field of stock market development have suggested that some market reforms tend to have both short and long-run effects on stock market development (Elbakry, Nwachukwu, Abdou, and Elshandidy, 2017; Gao, Jiang, & Zhang, 2019). The nature of the relationship between these reforms and the performance of stock markets can be explained by the adaptive market hypothesis. The adaptive market hypothesis links stock market performance to evolutionary principles and suggests that stock prices reflect as much information as dictated by market participants, environmental conditions, and institutional regulations (Al-Khazali & Mirzaei, 2017; Lo, 2004; Noda, 2016). It suggests that stock price movements are predictable and that stock market performance is influenced by the changes in investors' behavioral patterns and institutional regulations (Lo, 2004; Tran & Leirvik, 2019). The adaptive market hypothesis also affirms that these behavioral patterns of investors and institutional regulations evolve over time and across markets in a way that is similar to natural selection, and thus the performance of stock markets experiences similar evolutions over time (Hiremath & Kumari, 2014; Trung & Quang, 2019). These changes in institutional regulations suggested by the adaptive market hypothesis can take the form of innovations like changes in

accounting standards (as in the case of IFRS adoption), changes in trading regulations, and changes in investors' appetites. Following the suggestions of the adaptive market hypothesis, market regulators in Sub-Saharan Africa may need to implement active and purposive stock reforms that target some of the identified indicators of to enhance the development of their stock market.

### **The Role of Stock Markets in Economic Development**

Stock markets create an avenue for participants (listed companies) to source capital and diversify risk. They also provide opportunities for company owners to earn returns and cash out of their investments (Brown, 2011). The development of stock markets is crucial for any economy because it helps to multiply resources (Mbengue, Ndiaye, & Sy, 2023). Where investors put their money in high-performing stocks, the profitability of the companies they invest in helps to multiply their resources by creating value that customers are willing to pay for (Dabwor, Iorember, & Yusuf Danjuma, 2022). This resource optimization will only be possible where the performance of the listed stocks (as well as the market) improves. The development of stock markets is reflected in the transparency of the stock prices of companies listed on it, the frequency with which its stocks are being traded as well as the overall capitalization of the market (Demirgüç-Kunt & Levine, 1996; Hoang & Mateus, 2023). These aspects of stock market development are captured in the efficiency, liquidity, and size of the stock market respectively.

The transparency of the stock prices in the market is equivalent to the degree to which such prices reflect all the available information about the companies listed in it. This characteristic of stock markets is referred to as 'informational efficiency' or simply called 'efficiency' (Almujamed, Fifield, & Power, 2018; Ardalan, 2018; Bohl et al., 2019). In an efficient market, the stock prices are transparent. The stock prices reflect all available information (i.e. both present and past information) that can affect the performance and position of the companies listed on such markets (Chan & Hameed, 2006; Qiu, Yu, & Zhang, 2019; Roll, 1988).

The frequency with which stocks are traded in a particular stock market reflects the liquidity of such markets. Wuyts (2007) suggests that a market is liquid if investors can quickly buy or sell large numbers of shares without large price effects. This definition is similar to that of Naik and Reddy (2021) who define the liquidity of stock markets as the quality of a market that enables investors to be able to trade a large number of stocks without any delay, at lower

transaction costs, and with minimal price impact. Market liquidity is a desirable feature for any stock market because it reduces investors' trading risk. When an investor makes a poor decision with regard to stock selection, such an investor can easily undo the damage by quickly selling off such stocks at little or no loss from price differences (Pastor & Stambaugh, 2003; Sklavos, Dam, & Scholtens, 2013).

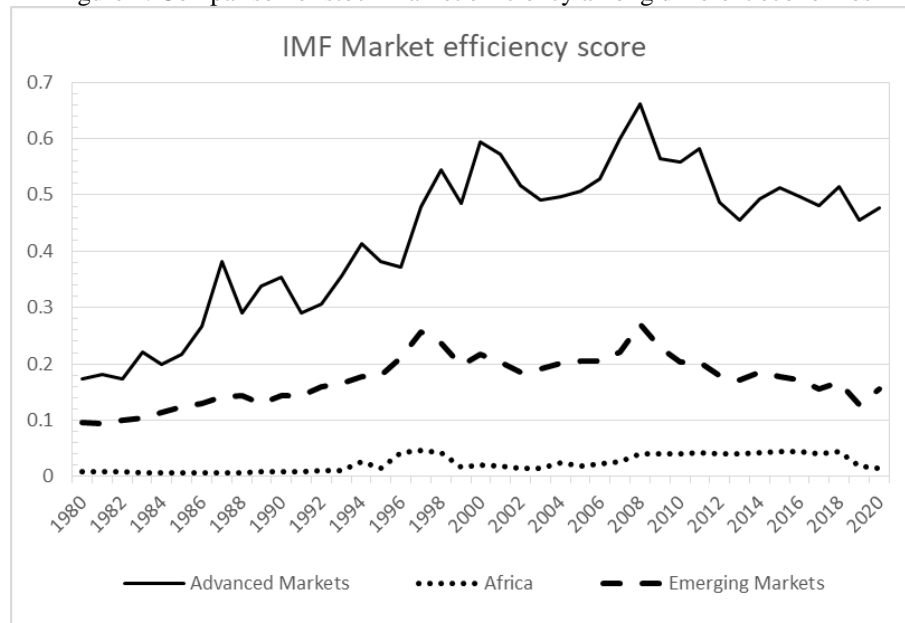
The market value of all the stocks listed in a stock market is commonly referred to as market capitalization (Adjasi & Biekpe, 2006). The overall capitalization of the stock market is often used as an indicator to signify the size of a stock market. The capitalization of a stock market is very important for economic growth because an increase in the stock market capitalization directly feeds into the wealth of individual and corporate investors who own the listed stocks in such markets (Kuvshinov & Zimmermann, 2018). Also, a firm's market capitalization is an important component for corporate valuation measures like Tobin's Q (Bhargave & Tandon, 2023).

### **Stock Markets Development in Sub-Saharan Africa**

African stock markets have historically been falling behind in terms of the different stock market development measures compared to those of other advanced and emerging economies (**Fig. 1**). According to studies like Jefferis (1995) and Mbengue et al. (2023), this underperformance can be traced to factors like the size of the overall economy, lack of experience in trading a variety of securities, and government policies that encourage debt financing as opposed to equity investment. African economies are relatively small, making stock market development a relatively laborious process. Market participants invest from their savings which is a subset of their disposable income. Where the overall national income is relatively small, it is expected that the size of the stock markets will be affected negatively. Many market participants in Africa also lack the basic financial expertise and experience required to make optimal investment decisions, making them treat equity investments like landed properties (Afego, 2015; Oteh, 2009). Government policies in African economies focus more on manipulating monetary economic variables like interest rate and inflation which have a more direct impact on the fixed-income market rather than the equities market (Chindengwike, 2022; Hoong et al., 2023; Mosley & Singer, 2008; Naczyk & Hassel, 2019). The different stock markets in Sub-Saharan Africa are not exempt from these challenges. Shares quoted on most exchanges in Sub-Saharan Africa are rarely traded and have turnover ratios that are much below the international standard (Yartey & Adjasi, 2007). As of 2020, the three

biggest stock markets in Sub-Saharan Africa based on market capitalization include the Johannesburg stock exchange, the Nigerian Stock Exchange, and the Nairobi Stock Exchange (The Global Economy, 2022). The combined market capitalization of these three markets amounted to about 2.77% of that of the New York Stock Exchange (NYSE). Also, their average number of listed companies amounted to about 15.4% of that of the NYSE.

Figure 1. Comparison of stock market efficiency among different economies



Source: Author's design

### The Nigerian Stock Exchange

The Nigerian Stock Exchange, initially called the Lagos Stock Exchange, was set up on 1st March 1959 but began operations on 5th June 1961 under the Exchange Act of 1962 (Nwankwo, 1988). It was renamed the Nigerian Stock Exchange on 2nd December 1977. It has its head office in Lagos with branches established in some of the major cities in Nigeria (Olowe, Matthew, & Fasina, 2011). The Exchange started operations in 1961 with 19 securities listed for trading. Today there are 262 securities listed on The Exchange (made up of about 11 Government Stocks, 49 Preference Stocks, and 174 Equity shares of listed Companies across several sectors) all with an aggregate market capitalization of approximately \$56.57 billion, as of December 31, 2000 (Nigerian Exchange Group, 2021; The Global Economy, 2022). Transactions in the stock market are guided by the following stock market legislations: Investments & Securities Decree No. 45 of 1999, Companies and Allied Matters Act of 1990 (now CAMA 2020), Nigerian Investment Promotion Commission Decree of 1995, and Foreign

Exchange (Miscellaneous Provisions) Decree of 1995. The stock exchange currently trades from Mondays to Fridays between 10 am to 2:30 pm.

The Nigerian stock exchange is the second biggest stock market in Africa (World Economic Forum 2008). As of 2021, the Nigerian Stock Exchange (NSE) accounted for about 80% of the total market capitalization of West Africa (World Bank, 2021c). The main objective of the stock market is to create an appropriate mechanism for capital formation and provide efficient allocation of resources among competing alternatives. Although the market set out to facilitate the efficient mobilization of capital for economic development, the Nigerian stock exchange has experienced several challenges since its inception. Challenges like poor savings and investment culture, buy-and-hold-tight attitude of investors, lack of transparency in the management of financial resources, high transaction costs, and the 2008 global financial crisis have been identified in existing literature (Olowe, Matthew, & Fasina, 2011; Sabina, Nwanne, & Oleka, 2015). Many markets in Sub-Saharan Africa are also subject to these challenges (Afego, 2015). Also, the Exchange Act of 1962 and the Nigerian Enterprises Promotion Decree of 1989 included some laws that restricted the participation of foreign individuals and corporate investors. These laws, coupled with the lack of transparency and comparability of financial statements of listed companies, hindered the growth and development of the stock exchange since they significantly excluded foreign capital. In 1995, the federal government tried to rectify this by internationalizing the stock exchange and retracting those laws that excluded foreign participation. As of 2001, foreigners accounted for about 47% of the number of both individual and corporate investors on the stock exchange (Ndanusa, 2005). The deployment of the Automated Trading System in 1999 to match sellers and buyers and the extension of the trading duration in 2010 from 11 am - 1:30 pm to 9:30 am - 2:30 pm are two of the biggest steps that the Nigerian Stock Exchange had taken towards improving the informational efficiency of the market and improving investors' confidence (Olowe et al., 2011).

### **The Johannesburg Stock Exchange**

The Johannesburg Stock Exchange, one of Africa's oldest stock exchanges, was founded on 8th November 1887. This period was the peak of the South African gold rush and thus the most listed companies at this early stage were mining companies (Lukasiewicz, 2017). The Johannesburg stock exchange is the biggest stock market in Africa with its headquarters at Sandton, Johannesburg (World Economic Forum 2008). The stock exchange is regulated by the Security Services Act of 2004 (which replaced the Stock Exchange Control Act of 1985) and



became part of the World Federation of Exchanges in 1963 (Johannesburg Stock Exchange, 2019).

Several measures have been enacted to improve the size of the stock exchange. In 1979, the stock exchange control act was amended to allow the incorporation and listing of stockbroking firms. In 1995, the Act also allowed foreign stock broking firms to participate in the exchange. In 2003, the Johannesburg stock exchange created an alternative exchange (Alt X and Yield X) to encourage stock market participation. The Alt X was created to encourage the possibility of small and medium-scale companies getting listed while the Yield X was created for the listing of interest rate and currency-based financial instruments. The Johannesburg stock exchange also acquired the South African Futures Exchange in 2001 and the Bond Exchange of South Africa in 2009 to control the derivatives and bond market respectively. Thus, as of 2020, the Johannesburg stock exchange offers five financial instruments namely equities, bonds, financial derivatives, commodity derivatives, and interest rate derivatives (Johannesburg Stock Exchange, 2019).

Several measures have also been enacted to protect and improve the efficiency and liquidity of the stock exchange. In 1966, the clearing and settlement rule was enforced which required that trades had to be cleared and settled within seven business days of the transaction. This improved the efficiency of transaction processing. Also in 1974, they began implementing investment competitions in schools to improve their awareness and skills for stock market investment. This reduced the skepticism of school leavers about the benefits of investing in the stock market. Foreign participation had been relatively high in the South African stock market, especially for shares in mining companies during the era of the gold rush (about 60% foreign ownership among mining companies). However, in 1987, the financial rand rule was enacted which restricted the amount of South African rands that foreigners could bring into the country to about R25,000. The enforcement of this rule meant that foreign investors had to sell their existing investments in rands and at a lower exchange rate, thus increasing their transaction costs. This led many foreign investors to sell off their shares to local institutions (De Beer, Keyser & Van der Merwe, 2015). The financial rand rule was later abolished in 1995. In 1996, the Johannesburg stock exchange began implementing an automated trading system for transaction clearing and settlement. This helped to improve market efficiency and liquidity by reducing unnecessary delays and improving the volume of transactions (Thompson & Ward, 1995). The inclusion of the Johannesburg stock exchange in the International Finance Corporation's Investable (IFCI) in 1994 also saw the inclusion of the Johannesburg stock

exchange in the global market. This inclusion had some unintended consequences. Although this reform opened the exchange to more participants, the 1997-1998 period saw many financial assets being undervalued (especially those of the mining houses). Despite the abolishment of the financial rand rule in 1995, this undervaluation of assets and the lack of comparable accounting standards for the peer-to-peer valuation of companies exposed the significant level of information asymmetry in the market. So far, the South African government has implemented some policies to reduce the information asymmetry and improve the performance of the stock market by improving foreign equity participation and adopting International financial reporting standards (IFRS) for the preparation of financial statements in 2005 (Meyer, Stiglingh & Venter, 2006; Sherman & De Klerk, 2015).

### **The Nairobi Stock Exchange**

The Nairobi stock exchange was established in 1954. The Capital Markets Authorities Act of 1989 established the Capital Markets Authority, the body primarily responsible for the regulation of listed companies and the entire stock exchange (Nairobi Stock Exchange, 2006). The Nairobi stock exchange became part of the East African Securities Exchanges Association (EASEA) in 2000. The market had about 60 listed companies under the equities section as of 2021. The Nairobi stock exchange accounts for about 90 percent of stock market activities in the Eastern Africa region and is a reference point in terms of setting standards for other markets in the region (Njiinu, 2007). The market is divided into three main segments: main investment market segment (for main listed stocks), fixed income securities segment (for bonds), and alternative investment market segment (for small and medium scale enterprises).

The Kenyan government had enacted several reforms to the Nairobi Stock Exchange shortly before IFRS adoption in 1999. One of these reforms was the first-time opening of the exchange to foreign investors in January 1995 with a maximum limit of 20% shareholding for foreign institutional investors and 2.5% for foreign individual investors (Ndung'u, 2003). This limit was later increased to about 40%. They also removed capital gains tax and stamp duty charges on share transfers (Ngugi & Njiru, 2005). The Nairobi stock exchange also established the Central Depository and Settlement Corporation (CDSC) as a subsidiary of the exchange in 2002. The CDSC set up the central depository and settlement system (an automated electronic trading system for delivery and settlement of trade transactions) that became operational in November 2004 (Kibuthu, 2005). All these reforms were aimed at fulfilling the contemporary demands of the investors and improving the overall liquidity of the market (Njiinu, 2007).

Although these reforms were enacted before 1999, their impact on liquidity was not realized until the adoption of IFRS in Kenya (Kimeli, 2017). This is because foreign investors needed to be able to compare the financial statements of companies in Kenya with those of other foreign companies using an international standard, and this was made possible via IFRS adoption. Thus, the stock market reforms came at a time that enabled the market to optimize the liquidity benefits of IFRS adoption.

## METHODOLOGY

Descriptive statistics for some stock market performance measures were obtained from the World Bank database for 31 years ranging from 1993 to 2020 (**Table 1**). The figures for the three frontier markets are in US dollars.

Table 1. Descriptive statistics for the stock market performance

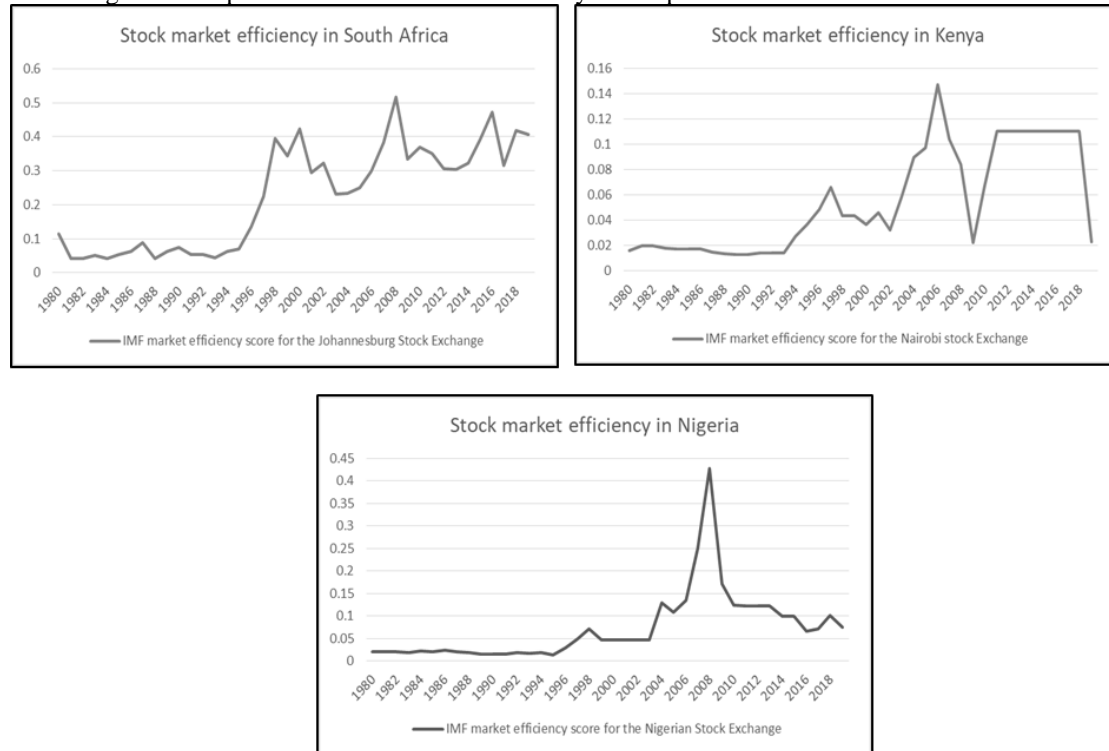
	South Africa		Nigeria		Kenya	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<b>IMF Market Efficiency score</b>	0.320	0.085	0.085	0.059	0.069	0.039
<b>Value of Stocks Traded (\$' bn)</b>	149.303	122.685	3.033	4.300	0.507	0.520
<b>Stock Market Capitalization (\$' bn)</b>	545.236	355.154	27.407	23.368	8.064	6.173
<b>Number of Listed Companies</b>	444.333	139.876	190.097	13.982	54.333	7.107
<b>Real GDP Growth</b>	0.024	0.025	0.050	0.061	0.039	0.022

Source: Author's design

### Comparison of Trends in Stock Market Efficiency

The average IMF stock market efficiency scores for South Africa, Nigeria and Kenya were 0.320, 0.085, and 0.069 respectively (**Table 1**). The graph of the market efficiency scores from 1980 to 2019 can be seen below (**Fig. 2**).

Figure 2. Graphs of the stock market efficiency of sample countries in Sub-Saharan Africa

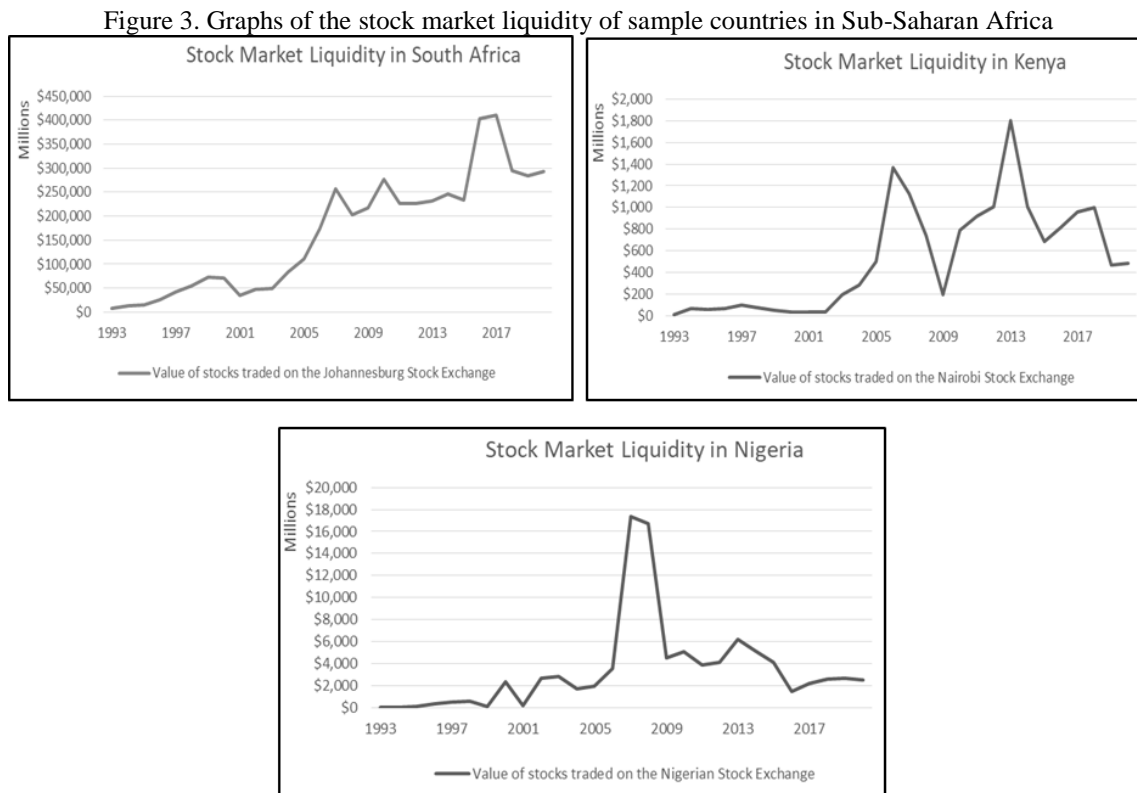


Source: Author's design

There was a general spike in the efficiency of most stock markets in the world following the 2008 global financial crisis (except for Kenya). This increase in efficiency was attributed to the fact that stock prices tend to react more to bad news than to good news (Kothari, Shu, & Wysocki, 2009). This is partly because, as a convention of prudence in accounting, expected future losses are recognized immediately while the recognition of expected gains is often delayed. In 1998, South Africa also experienced a rise in market efficiency which was caused by investor nervousness about emerging markets. South Africa is an emerging market and exported goods that were similar to those of Russia. Thus, the economic crisis in Russia affected South Africa and crashed the rand (McNeil, 1998). On the other hand, the 2008 political crisis and elections in Kenya led to an abnormal increase in the money supply. Banks were faced with high liquidity and low credit demands, thus the government had to increase the interest rates. This pushed investors to invest more in government bonds and other fixed-income instruments, thus reducing the efficiency and liquidity of the Nairobi Stock Exchange (World Bank, 2008).

### Comparison of Trends in Stock Market Liquidity

The average value of stocks traded for South Africa, Nigeria and Kenya were \$149.303billion, \$3.033billiion, and \$507million respectively (**Table 1**). The graph of the total value of stocks traded for different stock markets from 1993 to 2019 can be seen below (**Fig. 3**).



Source: Author's design

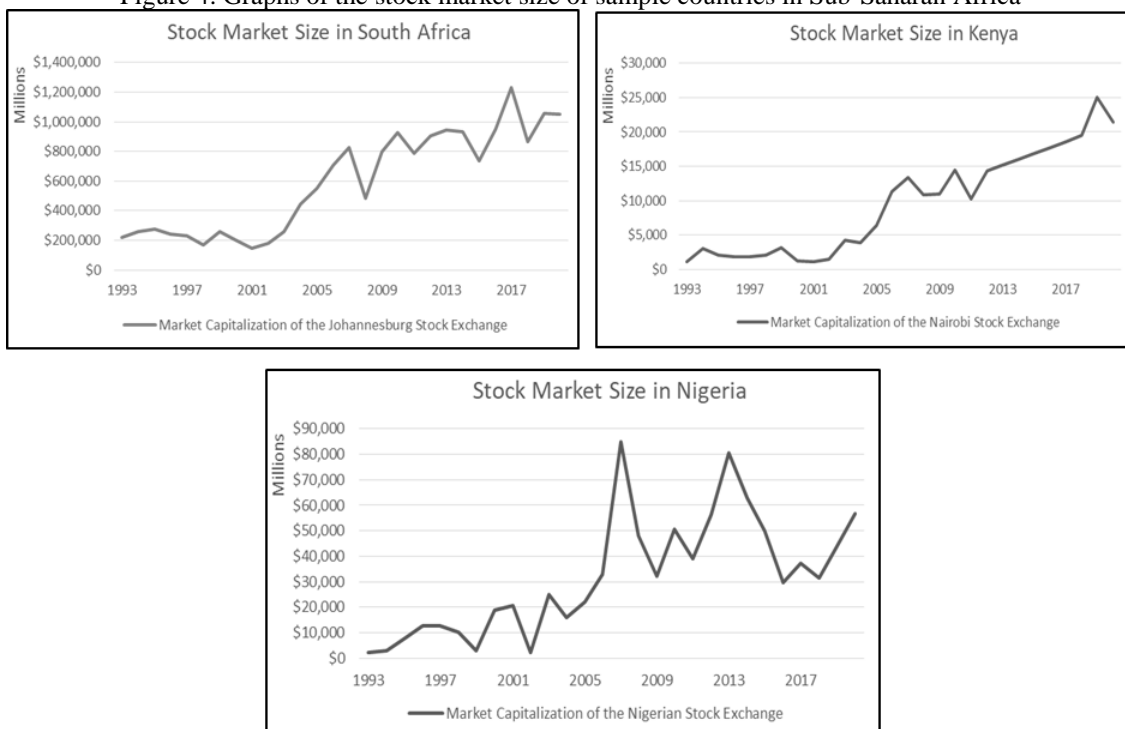
The abolishment of the financial rands rule in 1995 and the implementation of the automated trading system for transaction clearing and settlement in 1996 saw an increasing trend in the value of stocks traded in the Johannesburg stock exchange. Although many foreign investors returned to the market after the abolishment of the financial rands rule, there was still no benchmark international accounting standard to reduce the information asymmetry and help these investors make optimal decisions. The adoption of IFRS in 2005 may have provided a solution to this problem, causing a further increase in the overall value of stocks traded after 2005 (**Fig. 3**). The Kenyan government had enacted several reforms to the Nairobi Stock exchange that coincided with the adoption of IFRS in 1999. Some of these reforms include the first-time opening of the exchange to foreign investors in 1995, the increase in the limit of foreign participation to 40%, the removal of capital gains tax and stamp duty charges on share

transfers, and the setting up the automated electronic trading system for delivery and settlement of trade in 2002 (Kibuthu, 2005; Ndung'u, 2003; Ngugi & Njiru, 2005). All these reforms were implemented with the range of 4 years before to 4 years after IFRS adoption. The reforms (alongside the adoption of IFRS) were aimed at improving the overall liquidity of the market. Their impact on liquidity began to take effect in 2002 (**Fig. 3**). Meanwhile, the 'buy and hold tight' attitude of Nigerian investors can be observed in the stable trend of market liquidity in Nigeria, excluding the 2007-2008 financial crisis period that experienced several market irregularities.

### Comparison of Trends in Stock Market Size

The average stock market capitalization from 1993 to 2020 for South Africa, Nigeria and Kenya were \$545.236billion, \$27.407billiion, and \$8.064billion respectively (**Table 1**). The graph of the total market capitalization for different stock markets from 1993 to 2019 can also be seen below (**Fig. 4**). In general, the three stock markets have experienced a positive growth over time albeit at different rates. This increase in market capitalization can be traced to the increase in shares subscription (i.e. in form of increase in volume of authorized share of existing companies or increase in number of listed companies) as well as the overall economic growth over time.

Figure 4. Graphs of the stock market size of sample countries in Sub-Saharan Africa



Source: Author's design

The different market reforms explained in the previous sections also affect the overall market capitalization of the three stock markets. Just as these reforms improve the efficiency and liquidity of the stock markets, they also have an impact on the aggregate market capitalization albeit with different time lags (**Fig. 4**). Where markets are more efficient, more companies will get listed and this will increase the number of listed companies as well as the aggregate market capitalization of the entire market. Also, an increase in liquidity will encourage new companies to get listed and existing companies to expand their number of shares in issue. The volatility of the stock market size for all three sample countries can be seen from the relatively high standard deviation of the data for the number of listed companies as well as the other performance measures (**Table 1**). Also, the differences in the timing of impact of the market reforms on the different measures of stock market performance may indicate presence of short and long run impacts on the different measures.

## RESULTS AND DISCUSSION

As suggested by Yartey and Adjasi (2007), the performance of stock markets in Sub-Saharan Africa has consistently been below those of advanced and emerging economies (**Fig. 1**). This underperformance has been traced to factors like the low overall economic performance, lack of investment literacy, and misplaced government policies (Afego, 2015; Chindengwike, 2022; Jefferis, 1995; Oteh, 2009). The relatively low income and lack of financial expertise reduces the level of funds available for investment as well as the willingness to invest such funds. Also, government policies in these countries often focus more on managing currency and inflation risks using interest rate (Chindengwike, 2022; Hoong et al., 2023; Mosley & Singer, 2008; Naczyk & Hassel, 2019).

Meanwhile, studies like Afego (2015) and Kelikume, Olaniyi, and Iyoha (2020) have confirmed that the efficiency of African stock markets is not static but changes over time. Upon observation of the different stock market development indicators, an overall improvement in the efficiency of the selected stock markets over time can be detected (**Fig. 2**). The improvement in market efficiency in the three countries indicates that the increase in flow of new information and reduction in information asymmetry in the markets. This is in line with the adaptive market hypothesis which suggests that market performance evolves over time as new market reforms and regulatory policies are introduced and investors' behavior changes. In particular, the Johannesburg stock exchange was the most efficient of the selected markets across the sample

period with an average score of 0.320. The Nigerian stock exchange was the second most efficient with a score of 0.085 while Kenya had a score of 0.069 (**Table 1**).

Similar to the result of Okoye et al. (2014), an increase in the volume of stocks traded can be observed from the descriptive statistics and trend analysis of the selected stock markets over time (**Fig. 3**). The improvement in the volume of stocks traded suggests enhanced market liquidity. This is also in line with the adaptive market hypothesis. The graph of volume of stocks traded in Nigeria was relatively stable over time (except during the period of the global financial crisis in 2008). Several authors have attributed this inactivity to the factors like poor investment culture, buy-and-hold-tight attitude to investment, poor comparability of companies' financial statement across borders, lack of transparency in the management of financial resources, and high transaction costs (Olowe et al., 2011; Sabina et al., 2015). The low level of income and uncertainty of the business environment often leads to a risk averse attitude to equity investment among Nigerian investors. On the other hand, reforms like the opening of the exchange to foreign investors in 1995, the increase of the maximum shareholding for foreign investors, and the removal of capital gains tax and stamp duties on share transfers may have stimulated the increase in market liquidity in Kenya (Njiinu, 2007). Overall, the Johannesburg stock exchange was the most liquid of the selected markets across the sample period with an average traded stock value of \$149.303billion. The Nigerian stock exchange was the second most liquid with an average traded stock value of \$3.033billiion while that of Kenya was \$507million (**Table 1**).

Similar with the results of Othman and Kossentini (2015), an increase in the aggregate stock market capitalization can be observed from the descriptive statistics and trend analysis of the selected stock markets over time (**Fig. 4**). This is despite the decrease in number of listed companies and initial public offerings between 1998 and 2020 (Stangroom, 2021). The improvement in market capitalization indicates enhanced market size, which is also in line with the adaptive market hypothesis. The increase in the market capitalization coupled with the decrease in number of listed companies across the selected stock markets suggests that the increase in market capitalization can be attributed to increase in the value of existing stocks (i.e. positive stock returns) as opposed to additional value of new stocks. Overall, the Johannesburg stock exchange was the largest of the selected markets across the sample period with an average market capitalization of \$545.236billion. The Nigerian stock exchange was the second largest with an average market capitalization of \$27.407billiion while that of Kenya was \$8.064billion (**Table 1**).



## CONCLUSION

The study set out to investigate and compare the development of the major frontier stock markets in Sub-Saharan Africa. The results showed that, in general, stock markets in Africa have been found to be largely underperforming compared to the advanced and emerging markets. The stock markets in South Africa, Nigeria and Kenya constitute the major frontier markets in Sub-Saharan. These markets are the first stop for foreign investors seeking to penetrate the stock markets in Sub-Saharan Africa. Giving their status as frontier markets, the development of these market has a significant influence on the flow of foreign direct investment (FDI) and foreign portfolio investment (FPI) into Africa. The development of stock markets is reflected in the transparency of the stock prices of companies listed on it, the frequency with which its stocks are being traded as well as the overall capitalization of the market (Ben Cheikh & Ben Rejeb, 2020; Demirgüç-Kunt & Levine, 1996; IMF, 2020; Hoang & Mateus, 2023). These aspects of stock market development are captured in the efficiency, liquidity, and size of the stock market respectively. Data was collected for the three sample markets to captures each of these three dimensions of stock market development. Data for IMF market efficiency score, total value of stocks traded, and aggregate market capitalization were collected to measure stock market efficiency, liquidity and size respectively. Data on number of listed companies was also collected. The data was summarized and observed using descriptive statistics and trend analysis. The development indicators of the different countries were reviewed and compared. Overall, an increase in market performance was observed across the sample period, thus indicating some level of development across the three markets. In particular, the Johannesburg Stock Exchange was found to be the most developed of the three sample countries. The Nigerian Stock Exchange was the second most developed while the Nairobi Stock Exchange was third.

The underperformance of these stock markets compared to those in advanced and emerging economies were traced to some market-wide factors (Afego, 2015; Jefferis, 1995; Olowe et al., 2011; Sabina et al., 2015). Some of the factors include the size of the overall economy, low financial literacy, and misplaced government policies. Where per capita income is low, investors will have less funds to set aside for savings and investment. The low level of financial literacy reduces the ability of investor to take advantage of relevant financial information to optimize their investment portfolio. Also, where government policies are focused on manipulating interest rates to manage inflation and exchange rate risks, investors tend to focus on the debt market. This is because interest rates have a more direct effect on the

debt market compared to the equity market. Other factors like poor investment culture, buy-and-hold-tight attitude to investment, low transparency in the management of financial resources and high transaction costs were also identified. Where income levels are low, investors are more risk averse. This reduces their willingness to take investment risks and can be observed in their reluctance towards changing investment position. The high level of corruption and low transparency often leads to mismanagement of financial resources, thus reducing the confidence of investors in the market.

These results reveal some gaps for further studies. The descriptive analysis and trend analysis have thrown some light on the state of the three major frontier markets in Sub-Saharan Africa. The performance of these markets has also been observed to have improved over the sample period. Theories like the adaptive market hypothesis have suggested that these improvements are often caused by changes in investors' behavior and regulatory standards across the stock markets. Thus, there is a need to investigate which of the changes in the investor behavior pattern (e.g. Risk appetite and attitude, investment holding period, etc.) and regulatory standards (e.g. Accounting standards, corporate governance codes, trading regulations, etc.) have contributed significantly to the observed improvements of the frontier markets in Sub-Saharan Africa.

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