



## FINANCIAL OPENNESS AND CAPITAL MARKET DEVELOPMENT IN SUB-SAHARAN AFRICAN COUNTRIES

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### Abstract

*This study investigates the nexus between financial openness and capital market development in sub-Saharan African (SSA) countries from 1990 to 2022. Secondary data collected from the World Development Indicator and Chinn-Ito index for the sampled sub-Saharan African countries were employed in the analysis. To present a robust outcome in the relationships, the data were analyzed using Panel data analysis (the fixed effect and random effect models) techniques. The findings revealed that the capital account openness, foreign portfolio investment, foreign remittance and domestic credit to private sector (proxy for banking sector development) all have significant effect on the development of capital market in SSA countries. The study recommended among others that Open capital account should be maintained by SSA countries, through the removal of restrictions that might hinder the free flow of international financial resources and capital, though caution should however be exercised.*

**Key words:** Financial openness, Capital market development, Capital account openness, Sub Saharan Africa (SSA), Panel data analysis

### 1. Introduction

Capital markets in emerging nations are crucial for domestic financial liberalisation programmes and foreign capital flows. Globalization, financial integration, and improved macroeconomic policies have increased the level of financial openness and foreign capital flows, impacting capital market development. The global quest for sustainable development has prompted the issues of global cooperation, particularly in areas of capital accumulation. Indeed, the significant growth in developing economies has turned out to be a remarkable characteristic of the interconnected economy in recent years, particularly in relation to their engagement with other capital markets across the globe.



The opening and liberalisation of financial systems in developing economies aimed at fostering greater financial development have been the driving factors behind the observed growth (Greenidge & Moore, 2007; Adegboye & Ikponmwoosa, 2013). High cross-border capital mobility has been shown to be a precondition for financial development to take place (Rajan & Zingales, 2003). It is important to highlight, however, that economic conditions and policies have changed over time, with recent developments differing between regions and countries. Geopolitical issues, economic swings, policy changes, and global occurrences, such as the outbreak of coronavirus in 2019, have all influenced the globalised economy's progress and direction.

Since the emergence of financial liberalisation theory, majority of emerging nations have swiftly implemented far-reaching reforms but unfortunately, the experience of many developing countries with financial liberalisation has been predominantly disappointing (Odhiambo, 2010).

The review of the literature showed that a number of studies have attempted to examine financial openness but preponderance of these studies focused on its effect on economic growth (Oyovwi & Eshenake 2013; Nolida, 2017; Naveed & Mahmood, 2019). Therefore, this study represents a significant departure from previous research, as it focused on its effect on capital market development. It was also observed from the extant literature that the few studies that focused on the nexus between financial openness and capital market development were country-specific (Ajao, 2012; Barnor & Waife, 2015; Obayagbona & Igbinovia, 2021). The only study that focused on Sub-Saharan Africa to the best of the researchers' knowledge was the study by Okafor et al. (2021) but this study used just three countries (Nigeria, Zimbabwe and South Africa). As we know studies like this does not allow for a more comprehensive and representative analysis of Sub-Saharan Africa's landscape. In light of the aforementioned, the study aims to investigate the relationship between financial openness and the development of the capital market in SSA region using eight Sub-Saharan African countries.

## **2. Literature Review**

### **Capital Market Development in Sub-Saharan Africa (SSA)**

Capital market development refers to the growth, sophistication, and efficiency of a country's financial markets, where various financial instruments, such as stocks, bonds, derivatives, and commodities, are bought and sold. It involves the expansion and improvement of the infrastructure, regulations, and practises that facilitate the trading and issuance of these financial instruments.

The Johannesburg Stock Exchange (JSE) and Zimbabwe Stock Exchange (ZSE) came into existence in 1887 and 1948, respectively, to support the increased trade that arose as a result of the discovery of natural resources in Southern Africa (Karekwaivenani 2003). The discovery of gold in South Africa's Witwatersrand region in 1886 spurred the growth of mining and finance firms as investors looked for a centralised location to secure primary funding for their endeavours (JSE 2021; SAHO 2021). The establishment of the Zimbabwe Stock Exchange was intended to meet the increasing funding needs of the developing gold-mining sector in what was then known as Southern Rhodesia (now Zimbabwe). Many Zimbabwean companies pursued listings on the Johannesburg and London Stock Exchanges during this time period in order to acquire financing for their mining operations.

These stock markets were critical in facilitating investment and encouraging economic progress in Southern Africa (Njenga et al., 2022). The Johannesburg Stock Exchange, which provides a platform for domestic and foreign companies to participate in capital markets and



encourage investments in South Africa, is currently one of the biggest stock exchanges on the African continent. Despite recent problems such as hyperinflation and political instability, the Zimbabwe Stock Exchange continues to provide a critical avenue for enterprises to raise financing and encourage economic growth in Zimbabwe (Karekwaivenani, 2003).

Originally known as the Nairobi Stock Exchange, the Nairobi Securities Exchange (NSE) was founded in 1954 by a group of European community stockbrokers and incorporated under the Societies Act. Its primary responsibility was to build a securities market and supervise trade in British Kenya (NSE, 2015). The Nigerian Exchange Limited (NGX), formerly known as the Nigerian Stock Exchange, was established in 1961 with the primary goal of acting as a securities exchange (NGX, 2019). In contrast, the Mauritius Stock Exchange was the fifth exchange to begin in 1988 (ASEA, 2021a). Following the 1990s financial crisis, which caused economic recessions in numerous sub-Saharan African economies, additional capital markets in the region began to emerge. As a result, many sub-Saharan African countries conducted comprehensive stabilisation and adjustment programmes targeted at modernising the banking system. These programmes included the rehabilitation of the formal banking system, the decrease of financial repression, and the expansion of capital markets, all with the goal of reviving economic growth (Gakunu, 2007)

In Sub-Saharan Africa (SSA), the majority of stock exchanges are relatively new, with an average age of 32 or less, with the exception of the Johannesburg Stock Exchange, Nigerian Exchange Limited, Nairobi Securities Exchange, and Zimbabwe Stock Exchange. In nations like Zambia, South Africa, and Nigeria, there are numerous exchanges. In addition, there are two regional exchanges for the West and Central African regions: The Bourse Régionale des Valeurs Mobilières (BRVM) and the Bourse des Valeurs Mobilières de l'Afrique Centrale (BVMAC).

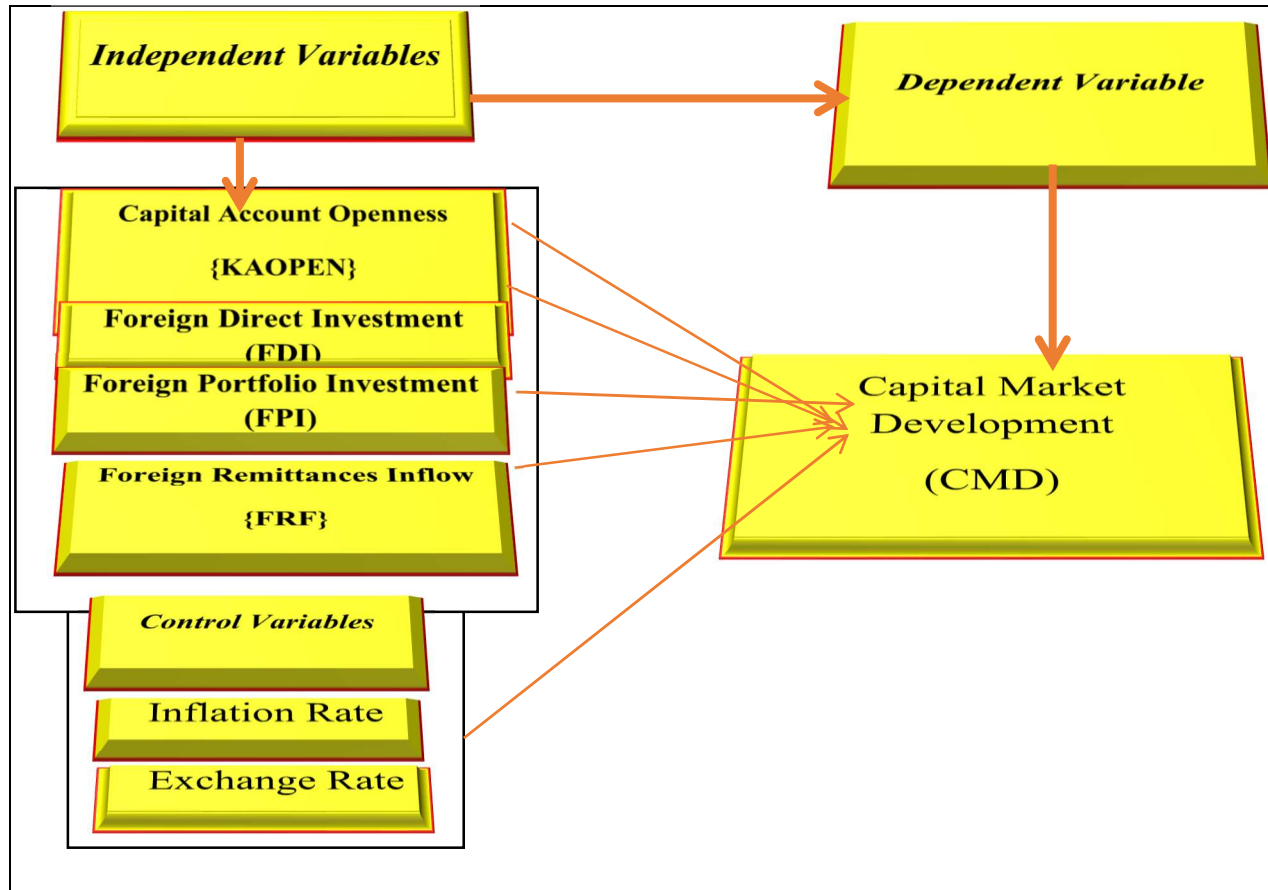
### **Financial Openness**

Financial openness refers to the degree to which a country's financial system allows for the free flow of capital across its borders. It encompasses policies and regulations that influence the ease with which domestic and foreign entities can invest, borrow, and transact in financial markets. A financially open economy typically has fewer restrictions on capital movement, allowing for greater integration with global financial markets. This can lead to increased opportunities for investment, diversification, and access to capital, but it also exposes the economy to potential risks and volatility from external factors. As a result, private sector participation in the economy financial system is encouraged. This openness frequently entails decreasing or removing state control and limitations on the ownership of the means of production. It shows the level of a country's participation in the global financial system and its relationship with other countries of the world (Kannan, 2010; Obayagbona & Igbinoia, 2021).

### **Conceptual Framework**

The conceptual framework shows the link between the dependent and independent variables of the study. The dependent variable in this study is capital market development, while the independent variables are capital account openness, foreign direct investment flows, foreign portfolio investment flows, and foreign remittance flows. Furthermore, the study conceptualised that there are other variables that are not of interest to the study but must be controlled throughout the study because their impact on capital market development cannot be underestimated. As a result, the study kept exchange rate and inflation rate under control. The conceptual framework is shown below.

SOURCE: Researcher’s Sketch, (2024)



## Theoretical Review

This study is supported by a number of financial openness theories, but this paper focused on the two main theories of financial openness; financial liberalisation theory and financial repression theory. These ideas aid in understanding how the expansion of the capital market in sub-Saharan Africa and increased financial openness are related.

### 1 Financial Repression Theory

Repressing the financial system, according to MacKinnon and Shaw (1973), means that the state controls prices and credit. Interest rate controls, credit controls, hurdles to entry into the financial sector, state control of the banking sector, government ownership of banks, and capital flow limitations are the six pillars of financial repression, according to Williamson and Mahar (1998). According to Detrimades and Luintel (2001), these financial restrictive policies have a negative impact on financial deepening, investment, and development. As a result, Khalaf and Sanhita (2009) observed that various policies are implemented to achieve greater financial system development; however, some developing countries have adopted restrictive policies that have dampened financial development by lowering savings and investment levels.



## 2 Financial Liberalisation Theory

Financial liberalisation theory was first proposed by McKinnon and Shaw (1973), who attributed economic success in underdeveloped countries to financial liberalisation. According to McKinnon (1973), achieving high savings and investment rates requires financial deregulation. Shaw (1973) went on to claim that the subsequent real increase in financial institutions gives domestic investors an incentive to borrow and save, allowing them to amass greater equity and lower borrowing costs. Posner and Coleman (2009) agreed, arguing that financial liberalisation is required for financial markets to work properly and to generate new opportunities for financing in the existing economy.

### Empirical Review

Barnor and Wiafe (2015) conducted a study to examine how financial openness affects the development of Ghana's stock market from 1993 to 2013. The study used World Development Indicators' quarterly data for its analysis. A notable association between financial openness and the development of Ghana's stock market was discovered by the study using the Auto-Regressive Distributed Lag methodology.

In a study conducted by Eng and Wong (2016), the relationship between financial liberalization and economic growth was investigated across developing and developed economies from 1980 to 2002. The researchers employed three distinct statistical methods for their analysis: the generalised method of moments (GMM), the least squares method (LS), and the two-stage least square (TSLS). The findings revealed that there was a positive correlation between economic growth and financial liberalisation in developed economies.

Ijaz and Idrees (2016) used the error correction mechanism and co-integration to investigate the impact of financial liberalisation on the growth of the Bangladesh economy from 1994 to 2002. The study's findings showed a notable and statistically significant negative correlation between the growth of Bangladesh economy and financial openness.

Abdullah (2016) investigated the concurrent openness hypothesis on stock market development using annual data from 1996 to 2013 for a panel of 53 developed and developing nations using a dynamic GMM estimator. The findings suggest that market development is negatively impacted by capital account openness, suggesting that as the capital account opens up, the market loses ground.

Norlida (2017) investigated the relationship between financial openness and economic growth in Poland from 1990 to 2002. According to the results of the Granger Causality Test, financial openness and economic growth are positively correlated. This finding implies that there is a consistent correlation between faster economic growth and greater financial openness.

Ashraf (2018) examined the impact of trade and financial openness on the development of banks in 37 emerging nations from 2000 to 2012. The results of the dynamic panel regression techniques show that greater financial openness is positively correlated with bank risk-taking and adversely correlated with the cost and volume of credit granted by banks.

Uwubamwen and Aigbovo (2018) examine empirically the factors influencing capital inflow and their relationship to economic development in Nigeria from 1980 to 2010. The results of the Ordinary Least Squares (OLS) technique show that capital inflows and the other explanatory factors addressed in the model were substantial positive predictors of Nigerian economic



development. The variable "openness," on the other hand, was significant but had a negative sign in the regression results.

Naveed and Mahmood (2019) used ARDL to study the relationship between financial openness and economic growth in Pakistan from 1971 to 2007. Based on the study's findings, financial openness does not have a significant impact on both short-term and long-term economic growth in Pakistan.

Sadalia et al (2019) examined the association between financial openness and economic growth in five ASEA nations from 2000 to 2014 (Thailand, Singapore, Indonesia, Malaysia, and the Philippines). The OLS panel regression technique was used to analyse the data collected for the study. The capital account openness index and net inflows of foreign direct investment, two measures of financial openness used in the study, showed a positive and statistically significant association between economic growth and financial openness.

Obayagbona and Igbinoia (2021) evaluated the relationship between financial openness, foreign portfolio investment, and stock market development in Nigeria from 1986 to 2018. The data were analysed using the vector error correction technique (VECM). The results of the empirical analysis show that foreign portfolio investment in Nigeria has not produced the expected benefits.

Okafor et al. (2021) used the Error Correction Model (ECM) to evaluate the relationship between financial openness and capital market development in sub-Saharan African countries from 1990 to 2019. The results show that market capitalisation in Nigeria is positively and significantly correlated with private capital inflows, the number of listed companies, and per capita income. External financing was discovered to be both negative and significant, while the capital account balance ratio was discovered to have no link with market capitalisation. Market capitalisation in South Africa was found to have a positive and significant association with the capital account balance ratio, private capital inflow, number of listed enterprises, and per capita income, but not with financing from overseas. The findings also demonstrate that in Zimbabwe, market capitalisation has a positive and significant relationship with the number of listed companies, external financing, and per capita income, but a negative and significant relationship with the capital account balance ratio and private capital inflow.

Obomeile and Musa (2023) examined the impact of diaspora remittances on economic growth in Nigeria from 1990-2022. They employed the ordinary least square regression analysis and the findings from the analysis showed the diaspora remittances exert a positive and significant impact on the growth of Nigerian economy.

### 3. Methodology

The longitudinal ex-post facto research design was employed in this investigation. The population of this study comprises all the fifty-four (54) sub-Saharan African countries. However, the sample size for this study is limited to all the countries that established their capital markets on or before 1990. These countries include South Africa (1887), Zimbabwe (1896), Kenya (1954), Nigeria (1960), Mauritius (1989), Botswana (1989), Ghana (1989), and Eswatini (1990). For a cross-section of eight (8) sub-Saharan African countries, the study encompasses a 33-year time series data period from 1990 to 2022.

The data used for this study were sourced from World Development Indicator and the Chinn-Ito Index and analysed using the multivariate panel data analysis.



**Model specification**

The study adapted the linear model by Okafor et al. (2021), who investigated the relationship between financial openness and capital market development in sub-Saharan African countries.

The extended functional model is shown below;

$$MCR = f(KAOPEN, FDI, FPI, REM, EXR, INFR) \text{ -----1}$$

In its explicit form, equation 1 is transformed into;

$$MCR_{it} = \beta_0 + \beta_1 KAOPEN_{it} + \beta_2 FDI_{it} + \beta_3 FPI_{it} + \beta_4 REM_{it} + \beta_5 EXR_{it} + \beta_6 INFR_{it} + \mu_{it} \text{----2}$$

Where;

$MCR_{it}$  = Market Capitalisation ratio (proxy for capital market development)

$KAOPEN_{it}$  = Capital account Openness

$FDI_{it}$  = Foreign direct investment inflow

$FPI_{it}$  = Foreign portfolio investment inflow

$REM_{it}$  = Foreign remittances inflow

$EXR_{it}$  = Official exchange rate

$INFR_{it}$  = Inflation Rate

$\mu_{it}$  = Error term

**Table 3.1: Operationalisation of variables**

Variables	Description of Variables	Definition and Measurement	Sources	A priori Sign
<b>Dependent Variable</b>				
MCR	Market Capitalisation Ratio	MCR is the total number of outstanding shares of listed domestic companies times the share prices divided by GDP	Adegboye and Ikponmwosa (2013); Okafor <i>et al.</i> (2021)	
<b>Independent Variables</b>				
KAOPEN	Capital Account Openness	KAOPEN measures a country's ability to allow free capital flow within its economy. It is measured using the Chinn-Ito Index, which emphasises the intensity of openness rather than just the de Jure level.	Barnor, 2015	+
FDI	Foreign direct investment	FDI involves net inflows of investment to acquire a lasting management interest in an enterprise in an economy other than the investor's. This is measured as net inflows less disinvestment from foreign investors divided by GDP.	Ajayi, Adejayan, and Obalade (2017)	+
FPI	Foreign portfolio investment	Portfolio investment covers transactions in equity securities and debt securities by foreign individuals, institutions, etc. in a country's capital market. This is measured as foreign portfolio investment net inflow divided by GDP	Obayagbona and Igbinovia (2021)	+



REM	Foreign remittances	This consists of personal transfers and compensation for employees received by resident households from non-resident households. REM is measured as total remittances divided by GDP.	Mustapha-Jaji and Adesina-Uthman (2023); Obomeile and Musa (2023)	+
EXR	Exchange rate	The official exchange rate is the rate determined by national authorities or legally sanctioned exchange markets, calculated as an annual average based on monthly averages of local currency units relative to the U.S. dollar.	Barnor and Waife (2015)	+
INFR	Inflation rate	The inflation rate measures the percentage change in prices of goods and services in an economy over a period of time. It is measured using the Consumer Price Index (CPI).	Gbengan and Tajudeen (2020).	-

**SOURCE:** Authors Compilation (2024) from World bank Indicator (2023) and Chinn-Ito index (2022)

#### 4. Interpretation Of Results

**Table 1: Descriptive Statistics of Variables**

	MCR	KAOPEN	FDI	FPI	REM	EXR	INFR
Mean	46.429	-0.354	0.963	0.007	2.284	25466182	116.774
Median	19.040	-0.695	0.325	0.000	1.250	10.445	8.605
Maximum	487.820	2.310	9.470	5.250	14.920	6.72E+09	24411.03
Minimum	0.000	-1.930	-2.600	-2.800	0.000	0.000	-2.430
Std. Dev.	73.010	1.297	1.713	0.635	2.836	4.14E+08	1503.311
Skewness	2.684	0.690	2.613	2.804	1.820	16.156	16.079
Kurtosis	11.042	2.302	10.691	26.542	6.481	262.00	260.32
Jarque-Bera	1028.23	26.285	951.0628	6442.42	279.145	749396.8	739744.0
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Obs.	264	264	264	264	264	264	264

**Source:** Author's computation (2024)

The mean (average) market capitalization ratio is 46.43 percent, with a median value of 19.04. The corresponding mean values of capital account openness (KAOPEN), foreign direct investment (FDI), foreign portfolio investment (FPI), remittances (REM), exchange rate (EXR), and inflation rate (INFR) are -0.35, 0.96 percent, 0.007 percent, 2.28 percent, 25466 (USD), and 116.8 percent, the maximum and minimum values are 487.82 percent and 0.000, respectively.

For each of the variables, the Jarque-Bera (J-B) statistic is significant at the 1 percent level ( $p < 0.01$ ). This implies that the variables are not normally distributed, which further indicates that heterogeneous country-specific effects are exhibited by each variable



**Table 2: Correlation Matrix**

Variables	MCR	KAOPEN	FDI	FPI	REM	EXR	INFR
MCR	1.000						
KAOPEN	-0.101	1.000					
FDI	-0.115	-0.242	1.000				
FPI	-0.077	0.240	-0.247	1.000			
REM	-0.285	-0.048	0.104	-0.059	1.000		
EXRT	0.046	-0.076	-0.028	-0.001	-0.050	1.000	
INFRT	0.061	-0.084	-0.036	-0.001	-0.049	-0.001	1.000

The correlation matrix result in Table 2 shows that a negative and weak association exists among capital market development (proxy by market capitalization ratio), capital account openness (MCR/KAOPEN = -0.101), foreign direct investment (MCR/FDI = -0.115), foreign portfolio investment (MCR/FPI = -0.077), and remittances (MCR/REM = -0.285). On the other hand, there is a positive association between market capitalisation ratio, exchange rate (MCR/EXR = 0.046), and inflation rate (MCR/INFR = 0.061)

**Table 3a: Unit Root Test for Variables in Levels**

Test	MCR	KAOPEN	FDI	FPI	REM	EXRT	INFRT
LLC	-1.34 (0.09)	-1.36 (0.09)	-3.52* (0.00)	-6.27* (0.00)	-3.41* (0.00)	3.08 (1.00)	-4.08* (0.00)
IPS	-2.33* (0.00)	-1.90** (0.03)	-3.73* (0.00)	-7.12* (0.00)	-2.28* (0.01)	4.27 (1.00)	-4.33* (0.00)
Fisher-ADF	30.68* (0.01)	27.06** (0.04)	41.03* (0.00)	82.41* (0.00)	32.86* (0.01)	12.52 (0.71)	48.76* (0.00)
Fisher-PP	39.11* (0.00)	14.82 (0.54)	72.81* (0.00)	144.60* (0.00)	36.57* (0.00)	21.53 (0.16)	64.19* (0.00)

**Source:** Estimated by the Author. *Note:* \*\* and \* indicate significant at 1% and 5 % levels respectively;

*IPS = Im, Pesaran & Shin; LLC = Levin, Lin & Chu*

**Source:** Author's computation, (2024)

In the results above, the null hypothesis of no unit root could not be rejected for KAOPEN using the LLC, PP-Fisher, and exchange rate (EXR) variables using the four methods, an indication that some of the variables are non-stationary at levels and thus possess unit roots. In other words, the variables are time-dependent and would not guarantee a long-run equilibrium relationship unless tested.



**Table 1b: Unit Root Test for Variables in (First Difference)**

Test	D(MCR)	D(KAOPN)	D(FDI)	D(FPI)	D(REM)	D(EXRT)	D(INFRT)
LLC	-8.42* (0.00)	-7.11* (0.00)	-9.71* (0.00)	-12.26* (0.00)	-6.55* (0.00)	-7.99* (0.00)	-8.35* (0.00)
IPS-stat	-10.72* (0.00)	-7.33* (0.00)	-11.15* (0.00)	-15.35* (0.00)	-7.42* (0.00)	-8.04** (0.00)	-11.37* (0.00)
Fisher-ADF	127.0* (0.00)	77.78* (0.00)	133.99* (0.00)	184.44* (0.00)	84.81* (0.00)	98.43* (0.00)	136.62* (0.00)
Fisher-PP	205.9* (0.00)	131.76* (0.00)	233.82* (0.00)	203.29* (0.00)	151.60* (0.00)	108.43* (0.00)	104.99* (0.00)

In line with Levin-Lin Chu (2002) and Im, Pesaran and Shin (2003), unit roots in heterogenous panels may be made stationary by taking their first difference; the first difference is conducted on the respective variables, and the panel unit root test is conducted on the resultant panel series. The results of the panel unit root test on the variables with the first differences are reported in Table 1b. An examination of the four unit root test methods used shows that the variables are now stationary. This implies that the series are difference-stationary, attaining stationarity after first differencing. The variables are thus integrated of order one [i.e.,  $I(1)$ ].

**Table 4: Summary of Hausman Test for Cross-Section Random Effects**

Test cross-section random effects			
Model	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Market Capitalisation Ratio (MCR)	285.805	7	0.000**

\*, \*\*, denotes significance at the 5% and 1% significance level, respectively

In the results, the Hausman test (Chi-Square statistic) for the random effect argument in the financial openness-capital market development model is 285.81, with a corresponding probability of 0.000. This value is statistically significant at the 1 percent level, as it is greater than the associated Chi-square value, implying the rejection of the hypothesis of random effect. The fixed-effect method is therefore used in the estimation of the model and the policy deductions drawn from it accordingly.

**Table 5: Fixed-Effect Results for MCR Model**

Variable	Coefficient	t-Statistic	Prob
C	50.070	23.556	0.000**
KAOPEN	2.8117	4.782	0.000**
FDI	0.617	1.583	0.115
FPI	1.294	2.200	0.029*
REM	-1.044	-2.623	0.001**
EXRT	-1.10E-08	-3.360	0.000**
INFRT	0.0001	0.130	0.897
AR(2)	0.413	8.091	0.000**



<b>Diagnostics</b>			
Adjusted R <sup>2</sup> = 0.785	F –Stat = 61.00 (0.000**)		
D.W = 1.58			

The result of the fixed effect model for the financial openness-capital market development equation is presented in Table 5. An examination of the empirical results reveals impressive goodness of fit and diagnostic statistics compared to the OLS estimates. The adjusted R-squared value of 0.785 indicates that approximately 78.5 percent of the net systematic variation in market capitalization (a proxy for capital market development) of the sampled SSA countries is explained by the regressors in the model. This is an indication of the good predictive power of the model and clearly shows that the variables have a strong influence on the explanation of the capital market development in the SSA region. The explanatory variables of the model are thus relevant factors explaining financial flows in the sub-region, making the predictive power and capability of the model good.

The F-statistic of 61.0 [with a p-value of 0.000] is highly significant at the 1 percent level, validating the hypothesis of the existence of a significant linear relationship between the combined regressors and dependent variable (capital market development) in SSA countries. This suggests that variations in the exogenous variables are jointly significant in explaining capital market development in SSA countries. The Durbin Watson statistic of 1.58 which is approximately 2.00, shows that there is no serial correlation in the model, implying the fitness of the model for policy formulation and implementation purposes.

The capital account openness variable (KAOPEN) is positively related to capital market development and significant at the 5 percent level (i.e. p-value = 0.000 and t-statistics = 4.782). The coefficient of capital account openness indicates that a 1 percent increase in open capital and financial account openness is associated with a 2.81 percent increase in capital market development in SSA countries. Foreign direct investment (FDI) is positively related to market capitalization ratio (a proxy for capital market development) but fails the significance test at the 5 percent level (i.e. p-value = 0.115 and t-statistics = 1.583). Foreign portfolio investment (FPI) assumes a positive direction with capital market development and is significant at the 5 percent level (i.e. p-value = 0.029 and t-statistics = 2.200). The coefficient of foreign portfolio suggests that a 1 percent rise in FPI inflows is associated with a 1.29 percent improvement in the development of the capital markets in SSA countries. The coefficient of foreign remittances has a contrary negative sign and is significant at the 1 percent level (i.e. p-value = 0.001 and t-statistics = -2.623). The coefficient of foreign remittances shows that a 1 percent redirection of international remittances to capital investment purposes leads to the development of the capital market in SSA countries by 1.04 percent. Also, the exchange rate (EXRT) variable is negatively related to capital market development and statistically significant at the 1 percent level (i.e. p-value = 0.000 and t-statistics = -3.360). The coefficient of exchange rate indicates that a 1 percent rise in the rate of depreciation dampens capital market performance in SSA countries by 0.001 percent. The inflation rate (INFRT) is positively related to capital market development, but it fails the significance test (i.e. p-value = 0.897 and t-statistics = 0.130).



**Table 6: Post- Diagnostic Test Results**

Test	Test	Prob.
Multicollinearity Test (Mean VIF)	1.14	-
Heteroscedasticity (Breusch-Pagan-Godfrey )	15.80	0.000

The result in the table shows that the variables in the regression model are relevant to the study since the mean VIF of 1.14 falls within the benchmark of 10. This indicates the absence of multicollinearity in model. In the same vein, the heteroscedasticity using the Breusch-Pagan-Godfrey tests shows that the OLS estimation model has no satisfactory econometric properties as the p-value is less than the 0.05. The significant Heteroscedasticity test result suggests the presence of heteroscedasticity. This further validates the use of panel regression of fixed and random effect as recommended by Greene (2017) and invalidates the OLS estimation result.

### Discussion of Findings

The findings showed that increased financial and account openness to international capital and resource flows have positive and significant impact on the development of the capital markets in SSA countries. This finding is consistent with the findings of Barnor and Waife (2015), Ashraf (2018), and Sadalia et al. (2019), but at variance with the findings of Abdullah (2016).

The study revealed that foreign direct investment has an insignificant positive impact on capital market development in Sub Sahara Africa during the period under investigation. This finding is in consonance with that of Mika'ilu and Yunusa (2018), and Ngobe and Emenike (2020) but negate that findings of Al-Samman and Jamil (2018), Kharakshah and Aldaher (2020), and Wang (2021).

The findings also revealed that foreign portfolio investment has positive and significant positive impact on capital market development in Sub Sahara Africa during the period under investigation. This finding is in agreement with that of Ekein et al. (2019), Azebi and Dein (2020), and Araoye (2021) but contradict the findings of Colombo et al. (2018)

The empirical findings showed that while foreign remittances tend to be beneficial to capital market, the reverse is seen to be the case in SSA countries. The result is in consonance with the findings of Keho (2020), and at variance with the findings of Misati and Kamau (2018), Nyangau (2018), Azizi (2020), and Mustafa et al. (2020).

## 5. CONCLUSION AND RECOMMENDATIONS

The importance of an open financial system to international resource flows and capital is not in contention. Without doubt, removing restrictions and limitations to open capital account and financial system either through qualitative or rule-based policy or by actual (realized) international capital mobility has the capacity to rapidly drive the growth and development of the capital market in SSA countries. Nevertheless, the opening of the financial system and capital account to international resource flows should be done with caution and properly sequenced in the context of SSA's own terms, economic condition and structural peculiarities, as unguarded financial inflow and capital account openness may expose SSA's market to considerable vulnerabilities, especially in the case of economic and financial crisis and other uncertainties. Based on the findings, the following recommendations are advanced;



- (i) Open capital account should be maintained by SSA countries, through the removal of restrictions that might hinder the free flow of international financial resources and capital. Caution should however be exercised.
- (ii) Increased foreign direct investment (FDI) to enhance the development of the capital markets should be encouraged with strong-FDI growth policies.
- (iii) Greater focus on encouraging foreign portfolio investment should be maintained to spur the rapid development of SSA capital markets.
- (iv) Greater proportion of international remittances should be enhanced and redirected to investment purposes in the capital market through diaspora-home-based securities e.g. diaspora bond.
- (v) Greater credit intermediation for productive economic activities that will spur the development of the capital markets in SSA countries should be put in place.

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