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# FINANCIAL MARKET DRIVERS AND HUMAN DEVELOPMENT IN SUB-SAHARAN AFRICAN (SSA) COUNTRIES (1990-2023)

## *FATORES MOTIVADORES DO MERCADO FINANCEIRO E DESENVOLVIMENTO HUMANO NOS PAÍSES DA ÁFRICA SUBSARIANA (1990-2023)*

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**Abstract**
The study examined financial market drivers and human development in SSA Countries. The study employed a panel data that spanned between 1990-2023. The study made used of ex-post facto research design. Panel Autoregressive Distributed Lag Model (PARDL) formed the main estimation technique. Findings showed that cointegration of financial market indicator has positive (∂=0.131) and significant (0.000) effect on human development index in SSA countries while financial market efficiency has negative (∂=-0.008) and insignificant (0.5506) effect on human development index in SSA countries. The study recommended that policymakers should strengthen mechanisms for monitoring and mitigating risks that may destabilize financial markets. This includes establishing robust risk management frameworks and implementing macro-prudential policies that balance financial stability. Policymakers should ensure that efforts to enhance financial market efficiency are aligned with developmental goals and also focus on the equitable distribution of financial resources.

**Keywords:** Financial Market Drivers. Financial Market Efficiency. Financial Market. SSA. Human Development and Human Development Index.

***Resumo***
*O estudo examinou os fatores determinantes do mercado financeiro e o desenvolvimento humano em países da África Subsaariana. O estudo utilizou dados em painel que abrangem o período de 1990 a 2023. O estudo empregou um delineamento de pesquisa ex-post facto. O Modelo Autorregressivo de Defasagem Distribuída em Painel (PARDL) foi a principal técnica de estimação. Os resultados mostraram que a cointegração do indicador do mercado financeiro tem um efeito positivo (∂=0,131) e significativo (0,000) sobre o índice de desenvolvimento humano nos países da África Subsaariana, enquanto a eficiência do mercado financeiro tem um efeito negativo (∂=-0,008) e insignificante (0,5506) sobre o índice de desenvolvimento humano nesses países. O estudo recomendou que os formuladores de políticas fortaleçam os mecanismos de monitoramento e mitigação de riscos que possam desestabilizar os mercados financeiros. Isso inclui o estabelecimento de estruturas robustas de gestão de riscos e a implementação de políticas macroprudenciais que equilibrem a estabilidade financeira. Os formuladores de políticas devem garantir que os esforços para aprimorar a eficiência do mercado financeiro estejam alinhados com os objetivos de desenvolvimento e também se concentrem na distribuição equitativa dos recursos financeiros.*

***Palavras-chave:*** *Fatores Determinantes do Mercado Financeiro. Eficiência do Mercado Financeiro. Mercado Financeiro. SSA. Desenvolvimento Humano e Índice de Desenvolvimento Humano.*

## 1 INTRODUCTION

Over the past few decades, the global debate on human development has greatly evolved towards realizing the interaction that prevails between the dynamics of the financial markets' drivers and the outcomes of human development. Scholars on financial markets are the main supports in the mobilization of savings, allocation of resources, facilitation of investment, which are the requirements to human development. The emergence of efficient financial market is viewed to trigger economic transformation across many countries around the world especially in terms of improving access to capital, lowering transaction costs and the efficiency of financial resources allocation (Levine, 2022). Those markets significantly contribute to the concept of inclusive growth in terms of providing risk diversification opportunities, increasing liquidity, and favoring business activities. The efficiency of the financial market that is mostly defined by the real-time impact of all available information on the asset prices is thought to be critical in the process of capital allocation (Mishkin & Eakins, 2021).

However, the relationship that exists between the drivers of financial markets and human development is challenged in empirical studies. Although some scholars have asserted that the efficiency and growth of the financial markets are important factors of better human development indicators some have believed that there is no automatic and unidirectional relationship between the two. Demirguc-Kunt and Levine (2020) have claimed that having well-developed financial systems will add value to poverty reduction and enhanced living standards by helping the growth of the private sector and creation of jobs. On the contrary, Stiglitz (2022) argued that unless accompanied by the associated regulatory measures, a thriving financial market can increase inequality, oppress vulnerable populations and enforce practices of speculation that can jeopardize human progress. Such different views demonstrate the contextual and complicated picture of the influence of financial markets on welfare outcomes.

Whether the financial markets can be an asset of human development or not, has never been fully investigated or even realized in some instances. Though a number of countries in the Sub-Saharan Africa have already started to implement the reforms in the direction of deepening financial markets by utilizing liberalization, digital financial inclusion, and innovation in their regulation. Structural challenges that the region has to overcome include poor financial literacy, institutional weaknesses, political volatility and lack of infrastructural development among others (Allen et al., 2023). Such limitations tend to impede the transmission channels by which forces of the financial sectors may be converted into real human development pay-offs. Moreover, the problem of limited access to financial services is still widespread, and a considerable part of the population has not entered the formal financial system, which weakens the developmental prospect of financial markets (Beck & Maimbo, 2021).

The empirical research of the subject is inconsistent. On the one hand, Odhiambo (2023) discovers that financial market development that is enhanced by the increase in efficiency can be positively related to human development indices in the East African countries. Conversely, Asongu and Odhiambo (2022) have supposed that the positive effects associated with financial markets depend on the quality of the institutions and governance with the data of the authors indicating that the benefits of financial markets could not be achieved in the case of a lack of these amplifying variables to the drivers of financial markets. The implication of this dichotomy is that the influence of the financial market drivers on the human development of SSA is neither straight forward nor is it consistent and therefore advisable to be analyzed on a more contextual level.

Given these considerations, it becomes imperative to re-evaluate the role of financial market drivers in influencing human development in Sub-Saharan Africa, with a specific focus on financial market efficiency and overall financial market.

The hypotheses are therefore presented in null forms to achieve the stated objectives as follows:

**$H_{01}$:** Cointegration of financial market indicator does not positively and significantly affect HDI in SSA countries.

**$H_{02}$:** Financial market efficiency does not positively and significantly affect HDI in SSA countries.

## 2 LITERATURE REVIEW

### 2.1 Theoretical framework

Based on human development in relation to the drivers of the financial market, the Financial Market Liberalization Theory provides a logical and theoretically feasible background on the drivers of the financial markets. It was hypothesized that liberalization of financial markets and elimination of financial market restrictions and distortions would stimulate efficient operations of financial institutions, introduce competition, increase access to credit, and improve financial resources flow allocation in the entire economy. It is assumed that these consequences can encourage an investment, a productivity, and eventually, a long-term development (McKinnon, 1973; Shaw, 1973). The main theme in the theory of Financial Market Liberalization is that liberalized financial markets enable the market forces to distribute the resources efficiently as compared to state-dominated or suppressed systems. With this strategy, financial resources are directed to their best welfare, which will involve promotion of entrepreneurship, growth of the private sector and creation of new workplaces all of which are important channels towards nurturing in development outcomes of human beings.

In their turn, efficient financial markets are in a better position to cater to the needs of households or firms, assist with risk management, and financial inclusion. The principles of financial liberalization carry a lot of meaning in other regions where formal financial services are not readily available and financial repression historically has served to weaken economic dynamism as in the case of SSA. Financial Market Liberalization Theory concurs with the empirical evidence, which showed that financial openness and elimination of structural barriers within finance systems to result to the achievement of lasting development gains. An example to this is that liberalized financial markets can generate foreign investment and develop deep capital markets and increase innovation in financial services.

### 2.2 Empirical review

Bello and Aniekwe (2024) analyzed the role of the financial market efficiency on gender equality in Nigeria during 2010-2023. Their cross-sectional analysis using the

OLS regression demonstrated that presence of efficient financial market positively contributes to gender equality given that efficient financial market was seen to increase the access to women regarding financial resources and opportunities. On the same note, Chukwuma and Ezeani (2022) concluded the influence of financial market efficiency on the infrastructure development of Nigeria in 2007-2021. In their cross-sectional study work through OLS regression, they stated that efficiency in financial market yields positive significant outcomes in infrastructure-building because it increases the capital available to the infrastructure projects. Equally, Bello and Idowu (2021) focused on the implication of the financial market efficiency on the achievement of social equity in Nigeria in 2010-2020. Their OLS regressions, cross section study noted that the effect of financial market efficiency on social equity is positive because it increases the availability of financial resources among the disadvantaged populations. Also on the same note, Janet and Samuel (2021) did a study on the implication of financial market efficiency on industrial growth in Nigeria in the period between 2010 and 2021. This is as demonstrated in their cross-sectional work that used the OLS regression which arrived at the conclusion that the financial market efficiency has a positive effect on industrial growth as the industries can easily acquire investment capital.

Diallo (2024) was able to look at the influences of financial market innovations on human development in Mali during the period beginning 2011 to 2023. Using ARDL Bounds Testing Approach. The review found that the finance market innovation has a beneficial effect on human advancements. The paper was concluded that financial market innovations should be encouraged to contribute significantly to human development and some policy recommendations were given. On the same note, Bah (2024) did a study to understand the effects of financial market reforms on human development in Guinea in 2022-2024. On application of ARDL Model. The analysis revealed that the reforms in the financial market positively affect the human development. Coincidentally, Diop (2019) carried out a study on the impact of financial market reforms on human development in Senegal in 2003-2018. The study applied a model known as the Autoregressive Distributed Lag (ARDL) Model. The findings disclosed that financial markets reforms bear positive effect on the human development. The study has shown that the reforms being done are in good terms and there is an indication to further on with the current reforms to achieve even better results of human development. In analogous research, Ncube (2021) has examined the relationship between financial development and human

development in Southern Africa during 2000 2020. The research used ARDL Model. This finding was very encouraging meaning that, financial development enhances human development.

### 2.3 Gaps in literature

Most of the current studies on financial market drivers and human development have been done in either developed economies or have been on general cross-regional studies that ignore the special conditions of the Sub-Saharan Africa countries. One of the major gaps that are notable in this respect in studying the impact of financial market drivers and human development in the Sub-Saharan African countries between 1990-2023 is that there are no specific studies that focus on it. In addition, they have both mingled results regarding financial market propellers and human development. Therefore, the necessity of more research. All the reviewed works did not mix two proxies as financial market efficiently and co-integration of financial market in order to identify their combined effect on human development at the level of the Sub-Saharan African countries.

## 3 METHODOLOGY AND MODEL

The study made used *of ex-post* factor research design. Using a secondary panel data that spanned for a period between 1990-2023. The data for the study were sourced from WDI database. Panel Autoregressive Distributed Lag (PARDL) was used as the main estimation for the study.

In order to juxtaposed the financial market drivers and human development in Sub-Saharan African countries (1990-2023). The models summarised the impact of Financial Market and Financial Market Efficiency on Human Development Index in Sub-Saharan Africa. The model was adopted from studies such as Robinson (2024), Diallo (2024), Mukasa (2024), White (2023) and Johnson (2023).

The structural form of the model is stated as equation 1 below;

$$Y = f(x) \qquad (1)$$

where

Y is the dependent variables, $f$ is the functional and X represents independent variables.

The model was further expressed in mathematical equation (2) below;

$HDI_{it} = f(FNMEI_{it}, FNME_{it})$ (2)

To make the mathematical expression estimable, it is transformed as equation (3) below:

$HDI_{itt} = \beta 0 + \beta_1 FNMEI_{it} + \beta_2 FNME_{it} + \mu_{it}$ (3)

where:

HDI = Human Development Index
FNMEI = Financial Market
FNME = Financial Market Efficiency
$\beta_o$ = interpret
$\beta_1 - \beta_2$ = Coefficient of the explanatory variables
$u_{it}$ = error terms of the model.

The model above was modified to reflect that this study is Panel which includes many Sub-Saharan Africa Countries and also the inclusion of more explanatory variables. Based on this the general model for employed for this study is specified in a Panel form which is presented below;

$$HDI_{it} = \delta_o + \delta_1 FNMEI_{it-1} + \delta_2 FNME_{it-1} + \mu_{it}$$

All the variables are defined in equation 2 nevertheless the coefficients and other notations are explained below:

$\delta_o$ = constant or the intercept

$\delta_o$ - $\delta_2$ = coefficients of the parameters or explanatory variables

$\mu_{it}$ = the residual or error term

Applying a panel estimation technique such as the Panel-ARDL would make the model to be rewritten in an estimable form which is presented as follows:

$$HDI_{it} = \delta_o + \sum_{t=1}^{k} \delta_1 HDI_{it-1} + \sum_{t=1}^{k} \delta_2 FNMEI_{it-1} + \sum_{t=1}^{k} \delta_3 FNME_{it-1} + \vartheta_1 HDI_{it-1} + \vartheta_2 FNMEI_{it-1} + \vartheta_3 FNME_{it-1} + \mu_{it}$$

$\delta_o$ = constant or the intercept

$\delta_o$ - $\delta_2$ = coefficients of the short-run parameters or explanatory variables

$\vartheta_1$ - $\vartheta_2$ = coefficients of the short-run parameters or explanatory variables

$\mu_{it}$ = the residual or error term

All the variables are as defined above. The general model is uncoupled to show the respective models for testing the two (2) formulated hypotheses as presented below:

$$HDI_{it} = \delta_o + \sum_{t=1}^{k} \delta_1 HDI_{it-1} + \sum_{t=1}^{k} \delta_2 FNMEI_{it-1} + \sum_{t=1}^{k} \delta_3 FNME_{it-1} + \vartheta_1 HDI_{it-1} + \vartheta_2 FNMEI_{it-1} + \vartheta_3 FNME_{it-1} + \mu_{it}$$

**Table 1**

*Measurement of Variables*

| Variable | Proxy | Data source |
|---|---|---|
| **Human Development Index (HDI)** | It is measured by this study as the average achievement in key dimensions of human development such as health, education and income levels. | WDI database |
| **Financial market (FNMEI)** | Calculated using number of listed companies per 1,000,000 people and stock market return (%, year-on-year). | WDI database |
| **Financial Market Efficiency (FNME)** | Computed as using Stock Market Turnover Ratio. | WDI database |

Source: Authors' compilation (2025)

## 4 RESULTS AND DISCUSSION

To examine the impact of financial market drivers on human development in SSA, Panel Autoregressive Distributed Lag (PARDL) was used as the main estimation technique.

### 4.1 Descriptive Analysis

Table 2 gives an account of the panel descriptive statistics of the variables giving their basic properties. Panel descriptive statistics such as mean, median, maximum, minimum, standard deviation, kurtosis and Jarque-Bera statistic were used to analyze the construct. The JarqueBera statistic is a combination of skewness (a computation of the level of symmetry) and kurtosis (an evaluation of the level of peakedness) of the data set.

**Table 2**

*Panel Descriptive Statistics*

| Variables | Mean | Median | Max | Min | Std. Dev | Skewness | Kurtosis | JB Stat |
|---|---|---|---|---|---|---|---|---|
| **HDI** | 0.476 | 0.469 | 0.804 | 0.197 | 0.116 | 0.458 | 3.175 | 49.254 |
| **FNMEI** | 0.078 | 0.036 | 0.544 | 0.000 | 0.103 | 2.079 | 7.696 | 2229.125 |
| **FNME** | 0.346 | 0.390 | 0.826 | 0.000 | 0.229 | -0.155 | 1.608 | 115.296 |

Source: Author's Computation (2025).

### 4.2 Panel Correlation Analysis

Table 3 indicates that a test on the linear relationship between the respective variables was conducted employing panel correlation matrix. Based on the table above, it can be deduced that a great majority of the variables have a positive correlation with each other but of varying strengths.

**Table 3**

*Panel Correlation Matrix*

| | **Correlation** | | | |
|---|---|---|---|---|
| | **T-Statistics** | | | |
| | **Probability** | | | |
| | **HDI** | **FNME** | **FNMEI** | **FNMS** |
| **HDI** | 0.013555 | | | |
| | 0.0000 | | | |
| **FNME** | -0.005130 | 0.052455 | | |
| | -7.224031 | -------- | | |
| | 0.0000 | -------- | | |
| **FNM**EI | 0.005433 | -0.003105 | 0.010663 | |
| | 18.66701 | -4.880272 | -------- | |
| | 0.0000 | 0.0000 | -------- | |

Source: Author's Computation (2025)

### 4.3 Panel unit root

The above table 4 reveals the panel unit root test conclusion summary presented in the table. In the study, three panel unit root tests were applied, which presupposed cross-sectional independence of the stationarity test, and the finding gives that all the research variables are stationary at the levels order of integration, thus giving very good reasons as to why panel-ARDL was used as the principal method of estimating in the research in testing the hypotheses of the study.

**Table 4**

*Summary of Panel Unit Root*

| Variable | IPS | | | ADF Fisher | | | PP | | |
|---|---|---|---|---|---|---|---|---|---|
| | Test Stat | Pvalue | Inference | Test Stat | Pvalue | Inference | Test Stat | Pvalue | Inference |
| **HDI** | -18.082 | 0.000 | I(0) | 469.267 | 0.000 | I(0) | 866.105 | 0.000 | I(0) |
| **FNME** | -18.159 | 0.000 | I(0) | 469.138 | 0.000 | I(0) | 818.421 | 0.000 | I(0) |
| **FNMEI** | -18.705 | 0.000 | I(0) | 492.624 | 0.000 | I(0) | 814.472 | 0.000 | I(0) |

Source: Author's Computation (2025)

### 4.4 Hausman's Estimation

The Hausman test is depicted in Table 5 and it was applied in determining which one of the fixed and the random effect models can be applicable in this research. The outcome of the Hausman Test result demonstrates that the variation exists among entities which is regarded as random.

**Table 5**

*Estimation Output*

| | First Model | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pooled | | | Fixed Effect | | | Random Effect | | |
| | Coefficient | Std. Error | P.value | Coefficient | Std. Error | P.value | Coefficient | Std. Error | P.value |
| **C** | - | - | - | 0.42 | 0.00 | 0.000 | 0.42 | 0.00 | 0.000 |
| **FNME** | - | - | - | -0.02 | 0.01 | 0.059 | -0.02 | 0.01 | 0.074 |
| **FNMIE** | - | - | - | 0.07 | 0.03 | 0.006 | 0.07 | 0.02 | 0.006 |
| **Haussmann Test** | | | | | | | | | |
| 2.026616 (0.8455) | | | | | | | | | |

Source: Author's Computation (2025)

### 4.5 PARDL baseline estimates

In this part, we estimate the model following the result that was reported in Table 6 above. To examined the impact of financial market drivers and Human Development in SSA Countries

**Table 6**

*Summary of PARDL Estimation Result*

| Variable | Coefficient | T-Statistic | Prob.* |
|---|---|---|---|
| **FNMIE** | 0.131140 | 3.764972 | 0.0002* |
| **FNME** | -0.007976 | -0.597010 | 0.5506 |

Source: Author's Computation (2025)

In Table 6 the result obtained revealed that cointegration of financial market (FNMIE) and HDI in SSA countries result as ($\partial$ = 0.131, t-stat of 3.765, p-value of 0.002) which implies that the cointegration of financial market has a positive and significant impact on HDI in SSA countries. We confirm part of what has been theoretically anticipated in terms of the connection between financial market and human development based on our empirical findings. The results are aligned with the findings of Osei (2022) and Tchokou (2020) who reported significant effect. Moreover, the outcome indicated that the Financial Market Efficiency (FNME) was found to be negatively and insignificantly related to HDI in SSA countries ($\partial$ =-0.007976, t-stat of -0.597010, p-value of 0.5506). This is not in line with the study by Adeola and Ikenna (2023) and Kemi and Tunde (2023) which recorded insignificant effect.

## 5 CONCLUSION

On the basis of the results obtained empirically, the study can confirm that the cointegration of financial markets may assume the significant and statistically relevant role in terms of the facilitation of human development in the countries of Sub-Saharan Africa (SSA). Whilst the wider implications it holds, the existence of positive and significant correlation between the financial market integration and the Human Development Index (HDI) and the negative and insignificant correlation between the statistical efficiency of financial markets with human development found throughout SSA

with regard to the theoretical importance it would play as far as proper allocation of resources is concerned.

## 6 RECOMMENDATIONS

The study recommended the following;

i. Policymakers should strengthen mechanisms for monitoring and mitigating risks that may destabilize financial markets. This includes establishing robust risk management frameworks and implementing macro-prudential policies that balance financial stability.
ii. Policymakers should ensure that efforts to enhance financial market efficiency are aligned with developmental goals and also focus on the equitable distribution of financial resources.

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**Authors' Contribution**
Both authors contributed equally to the development of this article.

**Data availability**
All datasets relevant to this study's findings are fully available within the article.

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