

FINANCIAL EFFICIENCY AND PRIVATE INVESTMENT IN SUB-SAHARAN AFRICA

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ABSTRACT

Investment is considered a strategy for creating jobs and reducing poverty in many economies. Sub-Saharan African's financial efficiency (FE) is still low and cannot be compared to that of the world's industrialized nations. This research investigates the impact of the financial efficiency (FE) (institution and market based efficiency) on investment in Sub-Saharan Africa. The study employed pooled mean group autoregressive distribution lag to analyze the data and discovered that private investment in Sub-Saharan Africa cannot be explained by any of the explanatory factors in the short run at any of the conventional levels of statistical significance. In the long run, variables found to be significant include financial institution efficiency, external debt and debt servicing. This suggests that a rise in financial institution efficiency has a negative impact on private investment. External debt has a negative influence on private investment at the 1% significance level; debt servicing has a positive influence on private investment at the 5% level of significance. Based on findings, the study recommended that sufficiency of capital should be pursued by financial institutions and monitored by regulatory authorities. Regulatory authorities should ensure that the capital base of these institutions is adequate to cover their risk profile to foster investment.

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1. INTRODUCTION

Investment is considered a plan to improve technology, provide employment and alleviate poverty in various economies. Purchasing new machinery that integrates labor productivity with technical innovations can expand production capacity. This increase in production capacity not only enhances the competitiveness of businesses but also leads to greater economic growth. As companies expand and innovate, more

job opportunities arise, contributing to a reduction in poverty levels within communities.

Public investment in economic operations complements the private sector by increasing private investment (Makuyana & Odhiambo, 2014; Zahra et al., 2020). A favorable environment is created for increased output growth and new private sector capital formation when public investment is made in infrastructure projects like those related to education, highways, airports, water supply and electricity generation and transmission. By increasing aggregate demand, public investment and private investment can increase output and employment. According to Abdulai, Ustarz and Boakye (2024), private investment quickly increases the economy's productive capacity, which raises its potential production and ultimately results in the creation of jobs. Investing in the Sub region is crucial and shouldn't be disregarded.

One of the main characteristics that distinguishes developed and developing countries is the rate of investment (Agbarakwe, 2019). Compared to rising nations, developed nations receive greater investment (Agbarakwe, 2019). Low investment reduces production capacity, which impedes growth and the creation of jobs. Additionally, it reduces the opportunities for low-income individuals to improve their quality of life.

Drawing in private capital bring reforms that increase transparency, cut down on red tape and strengthen legal security are necessary to create a business-friendly environment that attracts both domestic and foreign investment. The business environment must therefore be stabilized in order to encourage private investment (Ouedraogo & Kouman, 2014).

Financial institutions and financial markets are said to be efficient if they can minimize risk and increase profits. One indicator of financial efficiency in the banking sector is the net interest margin (Naceur et al., 2017). Previous research has taken the rate of interest spread as a stand-in for bank-based efficiency in terms of financial efficiency (Lwesya & Ismail, 2021; Onisanwa & Adaji, 2020; Okorie & Chikwendu, 2019; Nera & Eze, 2017; Muyambiri & Odhiam, 2018; Ogbuagu et al., 2013).

According to Ibrahim and Nageri (2023), Sub-Saharan Africa's financial efficiency is still low and cannot be compared to that of the world's industrialized nations. Additionally, because of acts of militant terrorism and abuse by security forces, the region has been dubbed the world's most dangerous place to invest and do business (Ignatius, 2020).

Previous studies that prioritize bank-based development above market-based development include Iheonu et al. (2020), Thuy et al. (2020), Okorie and Chikwendu (2019), Alain et al. (2018), Muyambiri and Odhiam (2018) and Omojolaibi and Popogbe (2018). Contrarily, other studies (Onisanwa & Adaji, 2020; Doan & Vo, 2017; Nera & Eze, 2017; Malope et al., 2017) reject bank-based development in favor of market-based development. Unlike the previously mentioned studies, Lwesya and Ismail (2021) and Misati and Nyamongo (2011) take into account the market-based and bank-based components of efficiency. By investigating the impact of the financial efficiency index (bank and market based efficiency) on investment in Sub-Saharan Africa, this study seeks to bridge the gap. The financial efficiency index is more reliable than proxy variables.

2. LITERATURE REVIEW

2.1 Theoretical considerations

Advanced by Aftalion (1909) and Carver (1903), the investment accelerator theory states that expenditure on investment increases when either demand or income increases. Additionally, it implies that excessive demand may force businesses to either raise prices to reduce demand or increase investment to keep up with demand. Thus, a rise in economic growth will result in more investment. When income or consumption increases, investment will increase by a multiple amount. An increase in income, and consequently, in population will necessitate the production of a larger quantity of commodities, requiring more capital to do so if the available capital stock is fully utilized. This type of investment, which is induced by changes in income or consumption, is referred to as induced investment. The connection between a rise in investment and an increase in revenue has a numerical quantity known as the accelerator. If national income rises, the net induced investment will increase; conversely, if output or national income stays unchanged, the induced investment may decrease to zero. The theory assumes that the capital-to-output ratio stays constant at 3. The capital stock depreciation corresponds to one-fifth of the stock that was present in the year prior. It is therefore necessary to replace one-fifth of the capital stock annually.

Kaldor (1957) notes that we cannot presume that the accelerator would remain at a constant value over the course of the trade cycle; in other words, it is untrue that a gain in output or revenue of a certain level will invariably result in a corresponding increase in investment. This is because, rather than racing to buy new equipment, we will attempt to use any idle machines already in place. Investment is inversely correlated with capital stock and directly correlated with income level. The accelerator theories disregard how the firm's investment decisions are influenced by the cost of capital. They believe that the cost of capital for the company is represented by the market rate of interest, which is constant regardless of the amount of investment made.

Financial development increases economic expansion. Investment can be increased through access to financial institutions and markets. Income will increase if investors have access to bank facilities through financial inclusion. Based on this theory, if banks increase credit facilities to investor, there will likely be an increase in investment.

2.2 Empirical review

Both in the short and long term, the financial market efficiency, as measured by the volume of stocks traded, had a positive and significant impact on gross capital formation (Onisanwa & Adaji, 2020). This suggests that a rise in the volume of stocks traded enhances investment and the financial institution, as measured by the interest rate spread, shows that interest rate have a favourable impact on private investment (Onisanwa & Adaji, 2020; Thuy, Anh & Diem, 2020). They contend that investors increase their investments by keeping their profits and that the greater the interest rate, the more they benefit on private investment (Agbarakwe, 2019; Charles & Okoro, 2019; Okorie & Chikwendu, 2019; Onodugo, Anowor, Ukwani & Ibiam, 2014; Misati & Nyamongo, 2011). On the other hand, interest rates have a negative and substantial impact on PRI. The studies argue that increase in interest rate declines private investment, may be investors deter from borrowing funds for investment.

Investment is adversely affected by inflation, and the impact of interest rates on investment decreases with rising inflation rates (Ezeibekwe, 2020). According to Machagua and Naikumi (2022), large levels of external debt tend to stifle private investment over time, while Akpan et al. (2023) observed a favorable correlation between domestic private investment and debt servicing. The main reason for this is that public investments that are funded by debt usually take a long time for the private sector to start benefiting from the infrastructure services. Due to the uncertainties surrounding sustainability and future tax policies, levels of foreign debt may hinder investment in the near time. Private investment will rise in the near term when the quantity of foreign debt is reasonable. But eventually, when debt sustainability declined, private investment would fall.

Private investment is negatively impacted by external debt, according to Akpan et al. (2023) and Jobir (2023). The relationship between Nigeria's government debt and private investment between 1986 and 2017 is examined by Osuoha et al. (2021). It was discovered that both internal and external government borrowing deters investment. Specifically, in Nigeria, debt servicing benefits private investment by increasing the amount of money available to private investors when the government pays back debts or loans. As a result, there is more private investment in the country.

A study by Abubakar and Mamman (2021) examines the relationship between Nigeria's state debt and private investment and finds that while private investment gains more from the reduction of domestic debt, the accumulation of local government debt in Nigeria does not harm private investment. Overall debt, foreign debt and debt servicing payments all have an adverse effect on private investment, while a favourable shock has a negligible positive impact on private investment.

3. DATA AND METHODS

3.1 Model specification

Equation (1) presents the general functional relationship between private investment and its determinants.

$$PRI = f(FIE, FME, LNGDP, EXD, DS) \quad (1)$$

where PRI: Private investment; FIE: Financial institution efficiency; FME: Financial market efficiency; LNGDP: Log of gross domestic product; EXD: External debt; DS: Debt servicing.

In its econometric form, the model is specified as bank-based and market-based efficiency and private investment (PRI):

$$PRI_{it} = \beta_0 + \sum_{n=0}^N \beta_{1n} FIE_{it-n} + \sum_{n=0}^N \beta_{2n} FME_{it-n} + \sum_{n=0}^N \beta_{3n} LNGDP_{it-n} + \sum_{n=0}^N \beta_{4n} EXD_{it-n} + \sum_{n=0}^N \beta_{5n} DS_{it-n} + \varepsilon_{it} \quad (2)$$

where β : Constant term; ε : Error term; β_0 - β_{13} : The explanatory variables' parameters; t: Time period; i: Private and public investment of countries involved; M: Total number of lags of the dependent variable; N: Total number of lags of the independent variable.

Table 1: Summary of variables and measurements.

Variables	Measurement	A Priori Expectation	Sources	Literatures
Private investment (PRI)	Private sector gross fixed capital formation	Dependent Variable	IMF (2023)	Lwesya and Ismail (2021); Okorie and Chikwendu (2019); Muyambiri and Odhiam (2019); Omojolaibi and Popogbe (2018); Malope et al. (2017).
Financial Institution Efficiency (FIE)	Aggregate of net interest margin, lending deposits spread, non-interest income to total income, overhead costs to total assets, ROA and ROE	$\beta_1 > 1$	IMF (2023)	Thuy et al. (2020); Okorie and Chikwendu (2019).
Financial market efficiency (FME)	Stocks traded, turnover ratio of domestic shares (%)	$\beta_2 > 1$	IMF (2023)	Onisanwa and Adaji (2020).
Log of gross domestic product (LNGDP:)		$\beta_3 > 1$	IMF (2023)	Akpan et al. (2023)
External debt (EXD)	Total external debt stocks to gross national income	$\beta_4 > 1$	IMF (2023)	Akpan et al. (2023); Machagua and Naikumi (2022); Abubakar and Mamman (2021); Osuoha et al. (2021); Chinanuife et al. (2018).
Debt servicing (DS)	Total debt service (% of exports of goods, services and primary income)	$\beta_5 < 1$	IMF (2023)	Akpan et al. (2023); Osuoha et al. (2021); Chinanuife et al. (2018).

3.2 Data collection procedure

The information used spans the years 1980–2021 and it was sourced from the IMF. These sources of information are thought to be among the most trustworthy. Relying solely on data gathered from the chosen nations may not yield reliable study results because the majority of them do not maintain sufficient data on their own.

3.3 Estimation technique

Both descriptive and inferential analysis were used to analyze the data, and unit root tests were used to estimate the stationarity of the variables. The regression model is then estimated using Pooled Mean Group Autoregressive Distributed Lag (PMG-ARDL) method to determine the impact of financial efficiency (institution and market) on investment. The estimation methods are employed in this study because they include both pooling and averaging.

The mean group (MG), pooled mean group (PMG) and dynamic fixed effects (DFE) estimators are the main estimate techniques applied in dynamic heterogeneous

models. One helpful method for confirming the homogeneity of long-term coefficients is the Hausman (1978) test. The null hypothesis, which states that there are no regular differences between the coefficients, is the foundation of this test. When the null hypothesis is accepted, the pooled mean group estimator—which was put forth by Arnold et al. (2011)—is more effective than the mean group estimator. The higher efficiency of the pooled mean group estimator compared to the mean group estimator must be considered while verifying the homogeneity of long-term coefficients.

4. RESULTS AND INTERPRETATION

This section reports and interprets the results obtained from the statistical analyses carried out. Specifically, the methods used include descriptive analysis, correlation analysis, unit root test and pooled mean group (PMG) estimator.

Table 2: Descriptive statistics.

Variables	Mean	Median	Std. Dev.	Min	Max
PRI	29.4105	29.4163	6.0003	15.5008	43.4057
FIE	0.5345	0.5900	0.1679	0.1400	0.7200
FME	0.0695	0.0600	0.0336	0.0400	0.1400
LNGDP	22.4474	22.4256	0.9181	20.7381	23.6538
EXD	83.6321	51.2709	129.7199	3.8950	1233.066
DS	15.3589	12.7326	12.3155	0.6286	56.9166

With a mean value of 29.4105, the result shows that overall private investment disclosures in the chosen countries are not very strong. The data are regularly distributed around the mean, as evidenced by the limited scope between the mean value of 29.4105 and the median value of 29.4163. The maximum and minimum values of 43.4057 and 15.5008 respectively show a substantial disparity, indicating a high degree of variation across the chosen nations. The standard deviation of 6.0003 shows a considerable degree of volatility in the private investment disclosure for the chosen countries.

With a mean value of 0.5345, the result indicates that financial institutions' efficiency disclosures from the chosen countries are generally very fair; the data are normally distributed around the centre due to the close range between the mean and median values of 0.5900 and 0.5345; there is a high degree of variation among the chosen countries due to the significant differences between the min and max values of 0.1400 and 0.7200; and the standard deviation of 0.1679 indicates a significant amount of volatility in the disclosure of the chosen nations' financial institution efficiency.

The average value of 0.0695 indicates that overall financial market efficiency disclosures from the selected countries are modest. The data appear to be regularly distributed around the mean, as indicated by the limited scope between the mean and median values of 0.0695 and 0.0600 respectively. There is a great deal of variance among the chosen countries, as evidenced by the huge disparity between the max value of 0.1400 and the min value of 0.0400. The disclosed financial market efficiency of the chosen countries exhibits a notable degree of volatility, as indicated by the Std. Dev. of 0.0336.

The average value of 22.4474 suggests that overall gross domestic product (LNGDP) disclosures from the selected countries are fairly moderate. The data appear

to be regularly distributed around the mean, as indicated by the limited scope between the mean value of 22.4474 and the median value of 22.4256. The minimum and maximum values of 20.7381 and 23.6538 respectively show a low degree of variance across the chosen nations, indicating minimal disparities among them. The disclosed gross domestic product of the chosen countries exhibits a notable degree of volatility, as indicated by the standard deviation of 0.9181.

The average value of 83.6321 suggests that overall external debt disclosures from the selected countries are relatively high. The data appear to be regularly distributed around the mean, as indicated by the limited scope between the mean value of 83.6321 and the median value of 51.2709. Significant variations exist among the chosen countries, as evidenced by the discrepancy between the max value of 1233.066 and the min value of 3.8950. The Std. Dev. of 129.7199 suggests a substantial amount of volatility in the disclosure of the selected nations' external debt.

The average value of 15.3589 indicates that overall debt servicing disclosures from the selected countries are quite low. The data appear to be regularly distributed around the mean, as indicated by the limited scope between the mean value of 15.3589 and the median value of 12.7326. Significant variations exist among the chosen countries, as evidenced by the discrepancy between the max and min values of 56.9166 and 0.6286. A considerable degree of volatility in the disclosure of the selected nations' debt servicing is shown by the standard deviation of 12.3155.

Table 3: Variation inflation factor.

Variable	VIF	1/VIF
FME	2.20	0.454334
LNGDP	1.79	0.559059
FIE	1.43	0.699531
DS	1.41	0.709730
EXD	1.32	0.755285
Mean VIF	1.63	

When there is a robust linear correlation between the explanatory variables in a regression model, multicollinearity problems arise. One technique to gauge the multicollinearity level among variables is to use variation inflation factors (VIFs). To prove that the explanatory variables are not extremely collinear, the value for each one should not be greater than 10, according to the VIF test. According to Gujarati (2007), the tolerance threshold (1/VIF) ought to be nearer to one and the VIF test result should be less than five if the variables are not highly collinear.

The independent variables in the regression model have a VIF value of less than five, as indicated by the VIF outcome displayed in Table 3. A tolerance threshold close to zero means that multicollinearity will not have a major negative impact on the model. While there is no correlation between gross domestic product (LNGDP), financial institution efficiency (FIE), debt servicing (DS), external debt (EXD) and other explanatory factors in the model, there is a low correlation between financial market efficiency (FME) and other explanatory variables. There is absence of multicollinearity, as depicted by the VIF figures.

Table 4: Panel unit root test

Variables	IPS test	Fisher-PP test	Level
PRI	-2.7978*** (0.0026)	3.7937*** (0.0001)	I(0)
FIE	-10.5320*** (0.0000)	23.3515*** (0.0000)	I(1)
FME	-1.8498** (0.0322)	4.9874*** (0.0000)	I(0)
LNGDP	-2.5874*** (0.0048)	4.1173*** (0.0000)	I(0)
LNOER	-9.6394*** (0.0000)	20.6621*** (0.0000)	I(1)
EXD	-6.0906 (0.0000)	10.8126 (0.0000)	I(1)
SD	-10.9022 (0.0000)	26.4546 (0.0000)	I(1)

Note: Automatic lag selection is based on the Bayesian Information Criterion. P-values are reported in brackets. ***, ** and * indicate significance at 1%, 5% and 10% respectively.

The results of the Im-Pesaran-Shin (IPS) and Fisher-type (ADF tests) unit root tests conducted on the variables in the regression model are presented in Table 4. According to the findings, financial institution efficiency, external debt and debt servicing are stationary at first difference or integrated of order one (I(1)), but private investment, financial market efficiency and gross domestic are stationary at level or integrated of order zero (I(0)). The investigation continues by using the pooled mean group and mean group techniques provided by Pesaran and Smith (1995) to assess the long- and short-run correlations because the results indicate a combination of I(0) and I(1). The Hausman test is then used to see how heterogeneity affects the means of the coefficient.

The Hausman test examines the null hypothesis of homogeneity based on the comparison between the mean group and pooled mean group estimators, as well as between the pooled mean group (PMG) and dynamic fixed effects (DFE) estimators.

Table 5: Hausman Test

Variables	MG	PMG	Difference	S.E.
FIE	8.0893	-4.9263	13.0156	36.0098
FME	12.0814	1.5206	10.5608	75.6288
LNGDP	5.2182	1.2037	4.0145	13.6065
EXD	-0.0507	-0.0765	0.0258	0.2111
DS	0.3715	0.0748	0.2967	0.4857
chi2(10)		5.19		
Prob>chi2		0.8785		

The result of the comparison between the mean-group (MG) and pooled mean-group (PMG) estimators reveals PMG as more efficient. Given that in estimated model, the p-value is more than 0.05 (0.8785) in private investment the null hypothesis cannot be ruled out.

4.1 Interpretation of result for all sampled countries

According to the pooled estimate results (Table 6), private investment in Sub-Saharan Africa cannot be explained by any of the explanatory factors in the short run at any of the conventional levels of statistical significance.

Table 6: Pooled mean group estimates (All sampled countries)

All sampled countries DV = PRI		
Variables	Long-run coefficient	Short-run coefficient
FIE	-4.9263** (2.4236)	0.2924 (3.8264)
FME	1.5204 (2.5082)	21.0887 (13.3984)
LNGDP	1.2037 (0.8522)	2.5885 (5.5485)
EXD	-0.0765*** (0.0096)	-0.0377 (0.0432)
DS	0.0748** (0.0353)	-0.0015 (0.0353)
Observations	410	410

Note: The values in parentheses denote the standard error. ***, ** and * indicate significance at 1%, 5% and 10% respectively.

In the long run, variables found to be significant include financial institution efficiency, external debt and debt servicing. This suggests that a rise in financial institution efficiency has a negative impact on private investment. This result is significant at 5%, with a p-value of 0.042 and coefficient of -4.9263. This shows that an increase in financial institution efficiency reduces private investment by -4.9263%. Private investment declines with higher efficiency of financial institutions in the long run. This result may be attributed to the fact that banks fail to focus more on giving out facilities targeted towards private investment. This derives from the desire to finance lucrative projects with less risk. However, the finding contradicts the accelerator theory of investment and the a priori expectation.

In the long run, external debt has a negative influence on private investment at the 1% significance level, with a p-value of 0.000 and coefficient of -0.0765. This suggests that a percentage increase in external debt decreases private investment by \$0.08. The plausible reason for the negative coefficient attached to external debt is that greater government borrowing limits the amount of money that can be invested by individual investors; in other words, debt crowds out private investment in Sub-Saharan Africa. This discovery aligns with earlier results by Akpan et al. (2023) as well as Abubakar and Mamman (2021).

Debt servicing has a positive influence on private investment at the 5% level of significance with a p-value of 0.034 and coefficient of 0.0748. This finding indicates that an increase in debt servicing causes private investment to increase by 0.0748%. The result obtained on how debt servicing enhances private investment defies expectations. Possibly, debt servicing provides more funds for financial institutions to offer private investors. The finding on debt servicing aligns with the earlier results of Akpan et al. (2023) and Osuoha et al. (2021). Abubakar and Mamman (2021) however posit that private investment gains greater advantages from the lowering of domestic debt.

4.2 Interpretation of results for individual countries

Table 7: Pooled mean group (Short-run estimates for each country)

Countries	FIE	FME	LNGDP	EXD	DS
Botswana	1.6044 (11.7587)	87.4765* (50.0784)	0.1168 (9.9920)	-0.3240 (0.2583)	-0.1770 (0.8138)
Cote d'Ivoire	3.9297 (6.4193)	-14.6556*** (3.6756)	8.9063*** (3.7750)	-0.0280 (0.0244)	0.0771 (0.0571)
Ghana	23.8213** (12.2246)	29.4883** (13.9872)	-9.4094* (5.4502)	-0.0897 (0.0772)	-0.1074** (0.0562)
Kenya	-9.3146 (5.9282)	28.8035** (12.5060)	9.9656* (5.3653)	0.1277*** (0.0396)	0.1232** (0.0591)
Mauritius	-5.1323 (6.6535)	-9.3479 (17.6801)	7.1915* (4.4633)	-0.0477 (0.0583)	0.0086 (0.0416)
Namibia	10.0072 (5.0994)	3.1097 (2.0525)	7.1146** (2.0583)	6.1353 (8.2319)	3.9367 (4.7318)
Nigeria	10.5438 (9.6830)	-8.4808 (7.1644)	-5.5134** (2.6801)	0.0026 (0.0034)	-0.0726 (0.1374)
South Africa	-14.4467*** (5.7269)	0.5647 (3.2429)	38.2971*** (9.1374)	0.0980 (0.0709)	0.0818* (0.0481)
Tanzania	-5.0307 (8.3736)	84.4396 (99.2424)	-5.5073*** (2.0294)	-0.0730 (0.0618)	0.1056 (0.1440)
Zambia	-3.3429 (7.0602)	-8.4900 (114.9308)	-20.7511*** (8.1281)	-0.0048 (0.0308)	-0.0524 (0.0578)

Note: The values in parentheses denote the standard error. ***and *indicate significance at 1% and 10% respectively.

Finding from short-run results for individual countries from Table 7 shows financial institution efficiency to be significant in two countries: Ghana and South Africa. Financial institution efficiency has a positive impact on private investment in Ghana with a p-value of 0.051 and a coefficient of 23.8213 at the 5% significance level. This indicates that an increase in financial institution efficiency raises private investment by 23.8213% in Ghana. In South Africa, on the other hand, financial institution efficiency has a negative influence on private investment with a p-value of 0.012 and coefficient of -14.4467. The result shows that private investment decreases by 14.4467% when financial institution efficiency increases. Financial institution efficiency has no significant influence on private investment for all other countries (Botswana, Cote d'Ivoire, Kenya, Mauritius, Namibia, Nigeria, Tanzania and Zambia).

The results of the study show that financial market efficiency significantly explains private investment in four countries: Cote d'Ivoire, Botswana, Ghana and Kenya. In Cote d'Ivoire, financial market efficiency has a negative impact on private investment at the 1% significance level, with a p-value of 0.000 and coefficient of -14.6556. This suggests that an increase in financial market efficiency will result in a 14.6556% decrease in private investment in Cote d'Ivoire. In contrast, financial market efficiency in Botswana has a positive effect on private investment at the 10% significance level, with a p-value of 0.081 and coefficient of 87.4765. This implies that a unit increase in financial market efficiency increases private investment by 87.48% in Botswana. In Ghana, financial market efficiency has a positive effect on private investment at the 5% significance level, with a p-value of 0.035 and coefficient of 29.4883. This result shows that a unit increase in financial market efficiency increases private investment by 29.49% in Ghana. In Kenya, financial market efficiency has a positive effect on private investment at the 5% significance level, with a p-value of 0.021 and coefficient of 28.8035. This result shows that a unit

increase in financial market efficiency increases private investment by 28.8% in Kenya. In the other countries (Mauritius, Namibia, Nigeria, South Africa, Tanzania and Zambia), financial market efficiency has no significant effect on private investment.

Gross domestic product is found to be significant for all sampled countries, except Botswana. In Cote d'Ivoire, gross domestic product has a positive influence on private investment at the 1% significance level, with a p-value of 0.018 and coefficient of 8.9063. This indicates that a 1% increase in gross domestic product increases private investment by 0.08% in Cote d'Ivoire. In Kenya, gross domestic product has a positive influence on private investment at the 10% significance level, with a p-value of 0.063 and coefficient of 9.9656. This indicates that a 1% increase in gross domestic product increases private investment by 0.09% in Kenya.

In Mauritius, gross domestic product has a positive influence on private investment at the 10% significance level, with a p-value of 0.107 and coefficient of 7.1915. This indicates that a 1% increase in gross domestic product increases private investment by 0.07% in Mauritius. In Namibia, gross domestic product has a positive influence on private investment at the 5% significance level, with a p-value of 0.021 and coefficient of 7.1146. This indicates that a 1% increase in gross domestic product increases private investment by 0.07% in Namibia.

In South Africa, gross domestic product has a positive influence on private investment at the 1% significance level, with a p-value of 0.000 and coefficient of 38.2971. This indicates that a 1% increase in gross domestic product increases private investment by 0.38% in South Africa.

In Ghana, gross domestic product has a negative influence on private investment at the 10% significance level, with a p-value of 0.063 and coefficient of -9.4094. The finding shows that a percentage increase in gross domestic product decreases private investment by 0.09% in Ghana. In Nigeria, gross domestic product has a negative influence on private investment at the 5% significance level, with a p-value of 0.040 and coefficient of -5.5134. This finding shows that a percentage increase in gross domestic product decreases private investment by 0.05% in Nigeria.

In Tanzania, gross domestic product has a negative influence on private investment at the 1% significance level, with a p-value of 0.007 and coefficient of -5.5073. The finding shows that a percentage increase in gross domestic product decreases private investment by 0.05% in Tanzania. In Zambia, gross domestic product also has a negative influence on private investment at the 1% significance level, with a p-value of 0.011 and coefficient of -20.7511. The finding shows that a percentage increase in gross domestic product decreases private investment by 0.2% in Zambia.

Gross domestic product influences private investment for all the sampled countries, except Botswana. The GDP (logarithmic) has a favourable effect on investment in South Africa, Namibia, Cote d'Ivoire, Kenya and Mauritius. This finding is consistent with that of Okorie and Chikwendu (2019). It also implies that private investment rises in each of these countries as a result of economic expansion. Thus, in these countries, investment is driven by economic growth. However, gross domestic product has a detrimental effect on private investment in Ghana, Nigeria, Tanzania and Zambia.

External debt is found to be significant in Kenya only. In Kenya, external debt has a positive effect on private investment at the 1% significance level, with a p-value

of 0.001 and coefficient of 0.1277. This result shows that an increase in external debt increases private investment by 0.1277%. External debt however has no effect on private investment for all other countries. External debt is only relevant in explaining private investment in Kenya. The external debt value enhances private investment in Kenya. On the other hand, external debt is irrelevant in explaining private investment for other sampled countries.

Only three countries (Kenya, South Africa and Ghana) show significant results for debt servicing. In Kenya, debt servicing has a positive influence on private investment at the 5% significance level, with a p-value of 0.037 and coefficient of 0.1232. This indicates that a unit increase in debt servicing increases private investment by 0.12% in Kenya. In South Africa, debt servicing has a positive influence on private investment at the 10% significance level, with a p-value of 0.089 and coefficient of 0.0818. This indicates that a unit increase in debt servicing increases private investment by 0.08% in South Africa.

In Ghana, on the other hand, debt servicing has a negative impact on private investment at the 1% significance level, with a p-value of 0.056 and coefficient of -0.1074. This result indicates that an increase in debt servicing lowers private investment by 0.12%. Debt servicing has no significant effect on private investment for other countries, which include Botswana, Cote d'Ivoire, Mauritius, Namibia, Nigeria, Tanzania and Zambia.

Debt servicing promotes private investment in South Africa and Kenya, indicating that servicing of debt improves private investment in these nations. Contrarily, debt servicing substantially reduces funds available to finance private investment in Ghana.

5. CONCLUSION AND RECOMMENDATIONS

This research was necessitated by the dearth of recent literature on the connection between financial institution efficiency and private investment in Sub-Saharan Africa. The period is limited to forty-two (42) years (1980-2021) due to non-availability of data in 2022 and 2023. Analysis of financial efficiency (one of the financial development indicators) is limited to private investment. This is due to non-availability of data as well. Based on these limitations, future studies can consider financial efficiency on public investment as availability of data increases within Sub-Saharan Africa. The major conclusion of this study is that private investment is majorly influenced by the financial institution efficiency, with respect to bank-based indicators for the sampled countries. Thus, the study concludes that financial institution efficiency deters private investment in Sub-Saharan Africa. According to the finding, bank efficiency in Sub-Saharan Africa continent enhances private investment by minimizing risk and maximizing expected return on investment. The study also infers that private investment in the sampled region cannot be explained by financial market efficiency. The study affirms that market efficiency in Sub-Saharan Africa continent does not influence private investment by minimizing risk and maximizing expected return on investment.

The study concludes further that external debt and debt servicing are important factors that could explain both private investment for the sampled Sub-Saharan Africa countries. It can be inferred from the individual country analysis that prominent factors that determine private investment for the sampled countries are external debt and gross domestic product.

Based on individual country analysis, short-run estimates indicate that financial institution efficiency enhances private investment in two countries: Ghana and South Africa. Financial institution efficiency positively impacts private investment in Ghana, In South Africa, on the other hand, financial institution efficiency adversely explains private investment. Financial market efficiency significantly explains private investment in four countries: Cote d'Ivoire, Botswana, Ghana and Kenya. The varied results obtained in the study is a suggested area of interest for future researchers. The study recommends that sufficiency of capital should be pursued by financial institutions and monitored by regulatory authorities. Regulatory authorities should ensure that the capital base of these institutions is adequate to cover their risk profile in order to foster investment.

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