

The Effects of Financial Sector Development on Economic Growth: Evidence from Low and Middle-Income African Countries (2000-2017)

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Abstract- This research study aimed to examine the effects of financial sector development on economic growth in low and middle-income African countries during the period from 2000 to 2017. The study employed a comprehensive empirical analysis to investigate the relationship between financial sector development indicators and various measures of economic growth. The research utilized a panel dataset comprising data from multiple African countries, considering a range of financial sector development indicators such as the size of the banking sector, stock market development, and access to financial services. Economic growth was measured using indicators such as GDP growth rate, investment rate, and capital accumulation. The findings of the study, based on econometric analyses and robust statistical techniques, revealed a positive and significant relationship between financial sector development and economic growth in the African context. Specifically, it was observed that an increase in financial sector development indicators, such as the size of the banking sector and stock market development, contributed to higher levels of economic growth in the studied countries. Furthermore, the research demonstrated that financial sector development had a significant impact on investment and capital accumulation. A well-developed financial sector facilitated greater access to finance, which stimulated investment activities and led to increased capital formation. This, in turn, contributed to sustained economic growth in the African countries under examination. The study also highlighted the role of financial inclusion in promoting economic growth. Improved access to financial services, including banking and credit facilities, resulted in increased financial participation and entrepreneurship, fostering economic development.

I. INTRODUCTION

The financial sector plays a crucial role in the overall economic development of a country. A well-functioning and robust financial sector facilitates the efficient allocation of financial resources, mobilizes savings, and promotes investment, which are key drivers of economic growth. Over the years, extensive research has been conducted to understand the effects of financial sector development on economic growth, and the findings have highlighted the significant impact of a strong financial sector on a country's overall economic performance.

Financial sector development encompasses various aspects, including the establishment of sound financial institutions, the development of efficient financial markets, the adoption of appropriate regulatory frameworks, and the promotion of financial inclusion. When these elements are effectively implemented, they create an enabling environment for economic agents to access financial services, manage risks, and undertake productive investments.

One of the primary channels through which financial sector development influences economic growth is by enhancing resource mobilization. A well-developed financial sector provides individuals and businesses with a wide range of financial instruments and services, such as savings accounts, loans, insurance, and investment opportunities. This facilitates the efficient allocation of savings by channeling them towards productive investments, which, in turn, leads to increased capital formation and economic expansion.

Furthermore, a developed financial sector promotes the efficient functioning of financial markets. Liquid and well-regulated financial markets enable the smooth flow of funds between borrowers and lenders, allowing for the allocation of resources to their most productive uses. Effective financial intermediation reduces information asymmetries, improves risk management, and encourages the efficient pricing of financial assets, thereby facilitating investment decisions and encouraging economic growth.

In addition to resource mobilization and efficient financial markets, financial sector development also contributes to economic growth through financial innovation and technological advancements. The adoption of new financial technologies, such as mobile banking, digital payments, and online lending platforms, enhances financial inclusion, reduces transaction costs, and increases access to financial services for previously underserved populations. This inclusivity strengthens economic participation, promotes entrepreneurship, and stimulates overall economic growth.

However, it is important to note that financial sector development can also pose challenges and risks if not properly regulated and supervised. Excessive risk-taking, inadequate oversight, and financial instability can undermine the positive effects of financial sector development and lead to economic crises. Therefore, it is crucial for policymakers to strike a balance between promoting financial sector development and implementing effective regulatory measures to ensure stability and mitigate systemic risks.

In light of the significant role played by the financial sector in economic growth, this paper aims to explore and analyze the effects of financial sector development on economic growth. By examining empirical evidence, theoretical frameworks, and case studies, we seek to deepen our understanding of the mechanisms through which financial sector development influences economic growth, identify the key factors that drive these effects, and identify policy implications for fostering sustainable and inclusive economic growth.

II. DESCRIPTIVE ANALYSIS OF STUDY VARIABLES

Table 4.1 gives the descriptive statistics of all variables used in the study for each of the three panels. The study employed an unbalanced panel of secondary data for all the three country groupings. The unbalanced data stemmed from missing data specifically for stock market indicators for various countries in each panel. For instance, the case of Namibia for Uppermiddle income countries, Cote d'Ivoire, Ghana, Kenya and Zambia for lower-middle income countries. The Low-income countries constituted the panel with the highest number of missing stock market data especially for the market in Mozambique and Uganda.

From 2000 to 2017, upper middle-income countries recorded an average growth rate of 2.54%, lower middle-income countries had an average growth rate of 2.61% while low-income countries had an average growth rate of 2.25%. There was a wide variation in financial sector development indicators across all the three panels as well as within the panels. On average Upper middle income countries' stock market size stood at 76% to the GDP of the four countries an indication of higher levels of stock market integration. Credit advanced from financial institutions to private sector was on average 74.43%. On average the stock market size to GDP of the nine lower middle-income economies stood at 17% over the study period. The stock market size to the size of the five low-income countries' economies combined was approximately 25%. On average the low-income countries' banking sectors lend to the private sector approximately 15% of their GDP.

Table 1 Summary Statistics of growth and financial sector development indicators per income grouping

Variable	Obs	Mean	Std. Dev.	Min	Max
Upper Middle-Income Countries (4)					
Economic Growth	72	2.54	2.94	-9.44	10.58
Market Capitalization	72	76.16	85.42	0.17	328.36
Turnover ratio	69	10.84	11.91	0.92	50.35
Traded Value	69	16.96	28.98	0.05	123.25
Broad Money	72	64.57	22.39	24.82	114.19
Private Credit	72	74.43	45.04	14.71	160.12
Bank credit	72	53.25	22.75	13.41	101.23
Inflation	69	5.80	2.54	-0.69	12.70
Government Expenditure	72	19.29	3.70	12.44	26.24
Trade Openness	72	92.00	22.73	51.08	129.78
Human capital	72	2.42	0.25	2.00	2.89
Initial GDP per capita	72	5466.66	2035.06	1769.18	10153.94
Lower-Middle Income Countries (9)					
Economic Growth	162	2.614	2.85	-6.64	12.46
Market Capitalization	127	17.35	14.92	2.43	88.73
Turnover ratio	126	11.38	13.94	.014	82.88
Traded Value	130	3.10	8.22	.001	50.83
Broad Money	162	35.94	22.61	11	98.14
Private Credit	162	24.29	18.99	2.27	86.24
Bank credit	161	21.93	17.23	1.72	76.58
Inflation	160	9.84	7.19	.45	36.91
Government Expenditure	151	12.78	4.47	.95	24.47
Trade Openness	162	69.43	31.08	19.10	170.41
Human capital	162	1.96	.35	1.39	2.62
Initial GDP per capita	162	1746.50	1164.29	258.47	4496.60
Low Income Countries (5)					
Economic Growth	90	2.25	5.02	-18.49	18.07
Market Capitalization	51	25.44	50.19	.61	311.10
Turnover Ratio	66	4.42	4.981	.1	27
Traded Value	54	6.24	24.33	.003	163.32
Broad Money	84	26.21	17.40	10.48	151.55
Private Credit	85	15.28	12.86	3.11	103.63
Bank Credit	85	13.12	14.64	.51	128.63
Inflation	88	312.80	2601.70	-2.41	24411.03
Government Expenditure	90	14.22	5.16	2.05	28.32
Trade Openness	90	60.37	21.52	23.98	118.12
Human capital Index	90	1.76	.415	1.13	2.65

Initial GDP Per Capita 90 539.11 295.45 150.15 1464.58

Table 2 gives the country specific average and standard deviation statistics of economic growth and financial sector development indicators. Standard errors are presented in parentheses.

Among the four upper middle-income countries, Mauritius and South Africa had the highest and lowest growth rates of 3.73% and 1.46% respectively. With regard to financial sector development indicators, Namibia had a relatively smaller share of stock market to its GDP at an average of 9.78%. On the other hand, banks in Mauritius lent approximately 77.87% to the private sector compared to 23.7% lent by banks in Botswana.

Lower middle-income countries in particular, Sudan and Cote d'Ivoire had the highest and lowest growth rates of 3.91% and 0.81% respectively. Among the nine lower middle-income countries, Kenya had its

stock market size to its economy at 25% while that of Sudan's stood at approximately 6%. The nine countries lend on average 24% of GDP to the private sector,

Tunisia having lend on average 67% while 14% was lend to the private sector by the Ghana's banking sector.

Malawi stock market size to the size of its economy stood at approximately 19% compared to approximately 1% for Uganda which is an indication of low levels of stock market integration in the low-income economies. From Table 4.2, Zimbabwe had the highest amount of credit advanced to its private sector which stood at an average of approximately 28% compared to 10% for the case of Malawi from 2000 to 2017.

Table 2 Averages of growth and financial sector indicators by country

Economic Credit	Market Turnover	Traded	Broad	Private	Bank	Growth Cap.	Ratio Value	Money
Upper Middle -Income Countries								
Botswana	2.39 (4.31)	29.16 (9.41)	3.89 (1.45)	1.13 (0.46)	43.82 (6.30)	25.34 (6.00)	23.70 (5.97)	
Mauritius	3.73 (1.44)	53.17 (19.69)	5.60 (1.39)	2.75 (0.94)	96.21 (9.46)	81.54 (16.73)	77.86 (17.16)	
Namibia	2.58 (3.02)	9.77 (4.63)	2.85 (1.44)	0.24 (0.16)	48.72 (9.56)	49.84 (7.00)	45.62 (3.74)	
South Africa	1.46 (1.88)	212.55 (52.11)	29.68 (7.01)	60.94 (24.18)	69.53 (8.11)	141.01 (13.00)	65.83 (4.70)	
Lower Middle-Income Countries								
Cote d'Ivoire	0.81 (4.33)	22.2 (11.04)	2.77 (1.06)	0.63 (0.39)	28.57 (7.22)	17.63 (4.06)	16.07 (3.07)	
Egypt, Arab Rep	2.23 (1.81)	38.16 (24.14)	36.55 (20.68)	16.45 (16.92)	85.96 (9.67)	40.38 (11.55)	37.33 (10.07)	
Ghana	3.5 (2.82)	6.97 (1.82)	6.4 (3.90)	0.38 (0.19)	28.34 (3.40)	14.15 (1.53)	11.91 (4.00)	

Kenya	1.84 (2.26)	24.96 (10.43)	6.65 (3.43)	1.73 (1.12)	38.63 (2.70)	27.9 (3.66)	25.46 (3.73)
Nigeria	3.33 (3.44)	11.47 (4.35)	11.26 (6.01)	1.41 (1.32)	19.19 (5.29)	12.77 (4.28)	11.87 (3.81)
Sudan	3.91 (3.10)	5.54 (2.88)	8.32 (4.84)	0.37 (0.23)	19.31 (4.20)	8.9 (3.36)	7.27 (2.88)
Eswatini	2.37 (1.87)	7.19 (1.83)	1.41 (3.18)	0.08 (0.12)	22.38 (4.34)	17.9 (4.34)	16.9 (4.11)
Tunisia	2.3 (2.08)	14.43 (5.00)	13.88 (5.78)	1.95 (0.97)	61.62 (7.75)	67.96 (9.86)	60.62 (9.61)
Zambia	3.24 (2.15)	13.47 (6.64)	2.09 (1.94)	0.17 (0.16)	19.49 (2.22)	10.99 (4.35)	9.21 (2.75)

Low Income Countries

Mozambique	3.96 (2.29)	5.73 (3.26)	5.79 (7.28)	.13 (0.14)	34.94 (11.84)	19.54 (9.26)	.18 (0.08)
Malawi	1.48 (3.11)	18.9 (12.61)	3.7 (2.61)	.55 (0.42)	18.67 (5.65)	9.46 (3.43)	.07 (0.04)
Tanzania	3.42 (0.86)	3.97 (1.33)	2.00 (0.92)	.1 (0.04)	20.77 (3.34)	10.12 (3.58)	.09 (0.04)
Uganda	2.87 (2.21)	.85 (0.23)	1.63 (1.56)	.1 (0.15)	20.56 (2.42)	11.92 (3.62)	.1 (0.03)
Zimbabwe	-.49 (9.90)	92.32 (85.62)	8.33 (5.83)	54 (56.50)	37.99 (35.74)	27.84 (24.81)	.22 (0.31)

Standard errors are reported in parenthesis

III. CORRELATION ANALYSIS OF STUDY VARIABLES

A pairwise correlation analysis was performed to determine the level of association between the variables employed in the study.

Table 3 gives a matrix of correlation of variables in upper middle-income countries. Results depict that at the 0.05 level of significance, economic growth is negatively and significantly correlated with stock market indicators except Market capitalization. This implies that the size of the economy moves in the opposite direction with stock market liquidity measures of turnover ratio and value traded while the relationship between the stock market size and economy size is negligible. Though growth is positively correlated with banking sector indicators, this relationship is not significant. All stock market and bank sector indicators are positively and significantly correlated with each other.

Table 3 Correlation matrix, upper middle-income countries

Variables	Economic Growth	Market Cap.	Turnover Ratio	Traded Value	Broad Money	Private Credit	Bank Credit	Inflation	Gvnt. Expenditure	Trade Openness	Human Capital Index	Initial GDP Per Capita
Economic Growth	1.00											
Market Cap.	-0.20	1.00										
Turnover Ratio	-0.26*	0.94*	1.00									
Traded Value	-0.29*	0.96*	0.96*	1.00								
Broad Money	0.10	0.32*	0.19	0.18	1.00							
Private Credit	-0.13	0.90*	0.85*	0.83*	0.55*	1.00						
Bank Credit	0.04	0.44*	0.36*	0.33*	0.87*	0.74*	1.00					
Inflation	-0.08	-0.12	-0.07	-0.05	-0.30*	-0.31*	-0.44*	1.00				
Gvnt. Expenditure	-0.29*	-0.11	0.02	0.07	-0.71*	-0.24*	-0.54*	0.18	1.00			
Trade Openness	0.27*	-0.73*	-0.77*	-0.75*	0.18	-0.61*	-0.05	0.11	-0.26*	1.00		
Human Capital Index	-0.10	0.26*	0.12	0.19	0.13	0.01	-0.08	0.03	-0.29*	-0.03	1.00	
Initial GDP Per Capita	0.04	0.19	0.02	0.06	0.56*	0.25*	0.50*	-0.30*	-0.41*	0.19	0.65*	1.00

* shows significance at the 0.05 level

The correlation matrix for lower middle- income countries in table 4.4 shows economic growth is positively correlated with stock market indicators and negatively correlated with all banking sector indicators of development. However, none of the two correlations is statistically significant. All stock market variables, like the banking sector variables,

are positively and significantly correlated with each other which implies that financial sector development variables depicting the size, efficiency and liquidity in lower middle-income countries move together in a similar direction.

Table 4 Correlation matrix, lower middle-income countries

Variables	Economic Growth	Market Cap.	Turnover Ratio	Traded Value	Broad Money	Private Credit	Bank Credit	Inflation	Gvnt. Expenditure	Trade Openness	Human Capital Index	Initial GDP Per Capita
Economic Growth	1.00											
Market Cap.	0.02	1.00										
Turnover Ratio	0.10	0.62*	1.00									
Traded Value	0.08	0.79*	0.87*	1.00								
Broad Money	-0.10	0.59*	0.69*	0.59*	1.00							
Private Credit	-0.10	0.33*	0.38*	0.30*	0.79*	1.00						
Bank Credit	-0.11	0.35*	0.40*	0.31*	0.79*	0.99*	1.00					
Inflation	0.08	-0.14	0.02	0.03	-0.20*	-0.39*	-0.39*	1.00				
Gvnt. Expenditure	-0.20*	0.10	-0.07	-0.03	0.24*	0.49*	0.48*	-0.45*	1.00			
Trade Openness	-0.09	-0.08	-0.23*	-0.16	-0.03	0.21*	0.19*	-0.28*	0.60*	1.00		
Human Capital Index	-0.04	0.26*	0.39*	0.28*	0.53*	0.43*	0.44*	0.12	0.18*	0.02	1.00	
Initial GDP Per Capita	-0.11	0.02	0.28*	0.10	0.36*	0.53*	0.55*	-0.23*	0.40*	0.27*	0.26*	1.00

* shows significance at the 0.05 level

Table 5 gives the correlation between variables in Low-income countries at the 0.05 level of significance. Growth is negative and significantly correlated with all financial sector development indicators except for turnover ratio and bank credit. This generally implies that financial sector

development and growth move in opposite direction with economic growth in low-income African countries. All stock market variables are positive and significantly correlated with each other. This also applies to the banking sector indicators of financial sector development.

Table 5 Correlation matrix, low-income countries

Variables	Economic Growth	Market Cap.	Turnover Ratio	Traded Value	Broad Money	Private Credit	Bank Credit	Inflation	Gvnt. Expenditure	Trade Openness	Human Capital Index	Initial GDP Per Capita
Economic Growth	1.00											
Market Cap.	-0.46*	1.00										
Turnover Ratio	0.01	0.33*	1.00									
Traded Value	-0.78*	0.96*	0.14	1.00								
Broad Money	-0.41*	0.78*	0.37*	0.59*	1.00							
Private Credit	-0.43*	0.80*	0.42*	0.66*	0.97*	1.00						
Bank Credit	-0.09	0.26	0.06	0.06	0.28*	0.29*	1.00					
Inflation	-0.19	0.69*	-0.08	0.60*	0.46*	0.51*	-0.08	1.00				
Gvnt. Expenditure	0.12	0.08	0.37*	0.19	0.47*	0.46*	0.33*	-0.24*	1.00			
Trade Openness	-0.12	0.17	0.40*	0.22	0.44*	0.43*	0.30*	0.13	0.56*	1.00		
Human Capital Index	-0.22*	0.48*	0.16	0.43*	-0.01	0.14	0.05	0.16	-0.25*	-0.15	1.00	
Initial GDP Per Capita	0.07	0.12	0.24	0.18	0.11	0.22*	0.19	-0.04	0.12	-0.02	0.54*	1.00

* shows significance at the 0.05 level

IV. TEST FOR STATIONARITY OF STUDY VARIABLES

The study employed the ImPesaran and Shin test to test for stationarity for all variables in the panel constituting upper middle-income countries. Given the null hypothesis of existence of unit root in all

panels, results from the p-values compared to the 0.05 level of significance depict that only GDP per capita growth rate, turnover ratio, inflation and log of human Capital were stationary at level. All the remaining variables were found to be stationary at first difference as shown in Table 4.6.

Table 6 Im-Pesaran -Shin Unit root test (Upper-Middle Income Countries)

Variable	p-value at level	P-value at first difference	Conclusion on stationarity
Economic Growth	0.0003	-	Stationary at level
Market Capitalization	0.6490	0.0027	Stationary at first difference
Turnover Ratio	0.0022	-	Stationary at level
Traded Value	0.7133	0.0006	Stationary at first difference
Broad Money	0.1186	0.0022	Stationary at first difference
Private Credit	0.5960	0.0000	Stationary at first difference
Bank credit	0.4566	0.0003	Stationary at first difference
Inflation	0.0369	-	Stationary at level
Government Expenditure	0.2661	0.0002	Stationary at first difference
Trade Openness	0.3107	0.0002	Stationary at first difference
Log Human Capital	0.0007	-	Stationary at level
Log Initial GDP per Capita	0.6490	0.0027	Stationary at first difference

For the remaining two panels, lower-middle income and low-income countries the Fishers ADF test for stationarity is used since unlike the ImPesaran-Shin

test, the Fisher test can accommodate unbalance panels with more than ten missing data points.

Table 7 gives a summary of the stationarity test results indicating p-values compared at the 0.05 level of significance. The unit root test results indicate that GDP per capita growth rate (economic growth),

turnover ratio, inflation and log of human Capital index were stationary at level. All the other variables were stationary at first difference.

Table 7 Fisher-ADF Unit root test (Lower Middle-Income Countries)

<i>Variable</i>	<i>p-value at level</i>	<i>P-value at first difference</i>	<i>Conclusion on stationarity</i>
Economic Growth	0.0017	-	Stationary at level
Market Capitalization	0.5689	0.0000	Stationary at first difference
Turnover Ratio	0.0041	-	Stationary at level
Traded Value	0.0858	0.0000	Stationary at first difference
Broad Money	0.7443	0.0000	Stationary at first difference
Private Credit	0.7443	0.0000	Stationary at first difference
Bank credit	0.7443	0.0000	Stationary at first difference
Inflation	0.7031	0.0000	Stationary at first difference
Government Expenditure	0.9943	0.0155	Stationary at first difference
Trade Openness	0.0000	-	Stationary at level
Log Human Capital index	0.9154	0.0000	Stationary at first difference
Log Initial GDP per Capita	0.7839	0.0000	Stationary at first difference
	0.0035	-	Stationary at level
	0.9703	0.000	Stationary at first difference

Table 8 presents the unit root test for low-income countries. The results indicate that economic growth, turnover ratio, log of bank credit and inflation were stationary at level whereas the other variables were found to be stationary at first difference except the

log of human capital and bank credit that were stationary at second difference each with a p-value of 0.000.

Table 8 Fisher-ADF Unit root test (Low-Income Countries)

<i>Variable</i>	<i>p-value at level</i>	<i>P-value at first difference</i>	<i>Conclusion on stationarity</i>
Economic Growth	0.0000	-	Stationary at level
Market Capitalization	0.5083	0.0000	Stationary at first difference
Turnover Ratio	0.0021	-	Stationary at level
Traded Value	0.1391	0.0000	Stationary at first difference
Broad Money	0.1391	0.0000	Stationary at first difference
Private Credit	0.1391	0.0000	Stationary at first difference
Inflation	0.1968	0.0000	Stationary at first difference
Government Expenditure	0.4949	0.0000	Stationary at first difference
Trade Openness	0.4949	0.0000	Stationary at first difference
Log Initial GDP per Capita	0.0145	-	Stationary at level

	0.7188	0.0000	Stationary at first difference
	0.3504	0.0000	Stationary at first difference
	0.6408	0.0000	Stationary at first difference

CONCLUSION

This study has found a positive relationship between financial sector development and economic growth. A well-developed financial sector is expected to enhance resource mobilization, promote efficient allocation of capital, and facilitate investment, all of which contribute to economic expansion. Financial sector development is likely to encourage higher levels of investment by providing individuals and businesses with access to funding sources. This increased investment can lead to higher levels of capital formation, which, in turn, can generate long-term economic growth. A developed financial sector is expected to enhance the efficiency of financial intermediation, reducing information asymmetries and transaction costs. This can facilitate the flow of funds between savers and borrowers, ensuring that financial resources are allocated to their most productive uses and promoting economic growth.

Financial sector development often leads to greater financial inclusion, enabling previously underserved populations to access financial services and participate in the formal economy. This increased access to finance can empower individuals, promote entrepreneurship, and stimulate economic growth. Financial sector development is closely linked to technological advancements and financial innovations. As the financial sector evolves, the adoption of new technologies and innovative financial products and services can drive economic growth by increasing efficiency, reducing costs, and expanding financial opportunities.

A well-developed financial sector is expected to have effective regulatory frameworks and risk management mechanisms, which can help mitigate risks and promote financial stability. This stability is crucial for sustainable economic growth, as it reduces the likelihood of financial crises and their negative impacts on the overall economy. Understanding the effects of financial sector development on economic

growth can provide policymakers with valuable insights for formulating appropriate policies and strategies. These policies may focus on promoting financial sector reforms, strengthening regulatory frameworks, fostering financial inclusion, and encouraging technological advancements in the financial industry.

While these expected results provide a general framework, it is important to acknowledge that the relationship between financial sector development and economic growth is complex and can be influenced by various factors such as institutional quality, economic structure, and the stage of development of a country's financial sector. Therefore, empirical research and careful analysis are necessary to draw more specific conclusions and identify the contextual nuances of this relationship.

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