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EXPLORING THE RELATIVE SIGNIFICANCE OF BANKING AND STOCK MARKET DEVELOPMENT IN PROMOTING ECONOMIC GROWTH IN DEVELOPING COUNTRIES

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Abstract: This study investigates the relative contributions of banking sector and stock market development on the economic growth of developing countries. Using panel data from 20 developing countries over the period 1989 to 2010, the study adopts panel co-integration and Fully Modified Ordinary Least Squares techniques to analyze the data. The results indicate that intermediated funds have a more significant contribution to the growth process than the stock market, and banks and stock markets are substitutes rather than compliments in financing economic activities in these countries. In addition, the study finds a strong positive influence of financial development on economic growth. The findings highlight the importance of deepening and strengthening the financial systems of developing countries and promoting financial integration locally and across borders.

Keywords: Banks, Stock Market, Development, Developing Countries, Panel Co-integration, Economic Growth

Introduction: The role of financial sector development in enhancing economic growth has been a widely debated issue in recent years. Various studies have explored the nexus between financial sector development and economic growth, and the results have been mixed. While some studies suggest a significant positive relationship, others find no significant relationship or even a negative one. The specifics of the relationship between financial sector development and economic growth vary across countries due to differences in financial systems, institutional frameworks, and economic conditions.

Developing countries, in particular, face significant challenges in financing economic activities, especially through the banking and stock markets. These challenges have prompted policymakers to implement reforms aimed at deepening and strengthening the financial systems of these countries. Nevertheless, there are still unresolved issues in the finance-growth literature, particularly in the context of developing countries. This study seeks to contribute to this literature by examining the relative contributions of banking sector and stock market development to economic growth in developing countries. The study uses a panel dataset of 20 developing countries over the period 1989 to 2010, employing panel co-integration and Fully Modified

Ordinary Least Squares techniques to analyze the data. The study provides insights into the extent to which intermediated funds and stock markets contribute to the growth process in developing countries, as well as the relationship between banks and stock markets in financing economic activities. The findings of this study have significant implications for policymakers and provide insights into the ways in which developing countries can deepen and strengthen their financial systems to promote economic growth.

2.0 LITERATURE REVIEW

In a pioneer work, King and Levine (1993) investigate the finance-growth relationship in a cross-country study involving 80 countries and found that financial development is strongly associated with real per capita GDP growth, the rate of physical capital accumulation and improvements in the efficiency with which economies employ physical capital. This finding is further reinforced by Levine and Zervos (1998) who found that both stock market liquidity and banking development positively predict growth, capital accumulation and productivity even after controlling for economic and political factors. Their results also revealed that stock markets provide different category of financial services from banks.

In another perspective, Rioja and Valev (2003) investigate the effects of financial development on the sources of growth in countries belonging to different income group. The results showed that finance has a strong positive influence on productivity growth primarily in higher income economies, whereas in lower income economies, the effect occurs primarily through capital accumulation. This has revealed that financial intermediaries in the developing countries lack the capacity to effectively select and monitor most profitable investments, rather some social and political parameters are used in providing funding. This might lead to moral hazard and financial instability, which may stifle the contribution of finance to growth or even making financial development to adversely affect growth. This finding is further supported by Dufrenot, Mignon, and Peguin-Feisolle (2010). They found that, while financial intermediation is a positive determinant of growth in developed countries, it acts negatively on the economic growth of developing countries. In contrast, Baliamoune-Lutz (2010) found that there was no strong evidence that finance leads economic development in 18 sub-Saharan Africa (SSA) countries.

On the other hand, Kiran, Yavuz and Güriş (2009) investigate the long-run relationship between financial development and economic growth in 10 emerging countries for the period 1968 to 2007. Employing the panel co-integration technique and fully modified OLS the study finds that financial development has a significant positive influence on economic growth. Similarly, in Africa, Ahmed (2010) employed the same set of techniques and finds a long-run equilibrium relationship between financial development and economic growth; furthermore, financial development is found to cause economic growth. On whether stock markets and banks are compliments or substitute, Dey (2007) found that bank credit and stock market liquidity are inversely related and they substitute each other in providing external financing to firms.

These conflicting findings suggest that there are still unresolved issues in the financegrowth literature, especially in the context of the developing countries. More so, the afore reviewed studies were silent on the relative importance of bank and stock market development to growth and whether the increasing role of stock market in developing countries is at the expense of banks or it is just complimenting it. This study is an attempt to fill the literature gap by using more recent methods and wider dataset involving several developing countries.

3.0 DATA AND METHODOLOGY

Based on the extant literature and insight from the endogenous growth model, the following model is specified to investigate the relationship between financial development and economic growth in developing countries:

$$\ln GDP_{it} = \beta_{0i} + \beta_{1i} \ln FD_{it} + \beta_{2i} \ln GFCF_{it} + \beta_{3i} \ln CV_{it} + \varepsilon_{it} \quad (1)$$

Where GDP is the real GDP, FD is a vector of financial development indicators, GFCF is gross fixed capital formation, CV is a vector of control variables; all are in natural log, the disturbance term ε_{it} is assumed to be white noise and follows a one-way error component model.Eight different specifications of the above model were estimated. The first four measure the independent effects of broad money, bank credit, stock market capitalization and stock market turnover on economic growth. The fifth and sixth specifications measure the contemporaneous effect of banking sector and stock market development on economic growth. The last two specifications, involve the interactive terms of banking and stock market development. It is used to investigate whether they are substituting or complimenting each other.

The financial development indicators used are ratio of broad money to GDP (BMG) and ratio of private credit by the banking sector to GDP (CRD). The BMG is used to measure the overall financial depth of the economy or the level of monetization in the economy. However, in developing countries, where a large component of the broad money stock is currency held outside the banking sector, broad money is less indicative of the degree of financial intermediation by banking institutions (Esso, 2010). McKinnon (1973) hypothesis however, posits that in developing countries, a broadly defined demand for money complements the demand for physical capital. This position is derived from an outside money model in which economic units are constrained to self-finance and there are considerable indivisibilities in investment. Therefore, cash balance holdings are positively related to the propensity to invest, this informs the choice of this indicator in this study. Specifically, banking sector development is measured by the ratio of private credit by deposit money bank to GDP; it is included to reflect the actual financial intermediation activity of commercial banks.

Two indicators of stock market development are employed, namely market capitalization (MCP) and stock traded (STR) both as ratios of GDP, representing the size and liquidity of the stock market, respectively.The first equals the value of the shares of listed companies on domestic exchanges; it reflects the ability to mobilize capital and diversify risk, whilethe second indicator measures the activity of the stock market trading volume relative to the size of the economy, thus,it reflectsthe liquidity that stock market provide to economic agents (Mohtadi & Agarwal, 2004).

Gross fixed capital formation is used as a proxy for capital accumulation. Furthermore, some variables are included in the model to control for the possible effects of other growth determining factorsin order to avoid misspecification bias. These variables are total government expenditure (TGE) and trade openness (OPN). Government expenditure may lead to budget deficit, which if financed by borrowing from the financial system and has the potential of crowding-out private investment and hence negatively affects growth. Alternatively, government spending if effectively carried-out, may contribute positively to growth.Trade openness may contribute positively to economic growth by providing domestic entrepreneurs access to foreign markets. Data utilized in this research is on annual basis and in 2005 constant US dollars (USD), covering the period from 1989 to 2010 for each country, hence constituting a balanced panel. The data is obtained from the World Development Indicatorsand Global Financial Development Databaseof the World Bank.The list of the countries considered in this study and descriptive statistics of the variables are contained in Appendices1 and 2 respectively.

To estimate the long run relationship between financial development and economic growth in the panel of 20 countries over the period 1989 to 2010 panel co-integration test is adopted. Generally, panel co-integration involves three stages; firstly, panel unit root tests panel co-integration test and estimation of long run coefficients. The Levin and Lin (1993) and Levin, Lin and Chu (2002) panel unit root test -LLC, Im, Pesaran and Shin (2003) –IPS, Breitung (2000) and Maddala and Wu (1999) -MW The advantage of MW test over IPS is that its value does not depend on different lag lengths in the individual ADF regressions (Kiran, Yavuz & Güriş, 2009; Bangake & Eggoh, 2010).

Residual-based panel co-integration test by Pedroni (1999, 2000 & 2004) is adopted. The test takes into account the heterogeneity of the cross-section units, by using idiosyncratic parameters, which are allowed to vary across the cross-section unitsThe test considers the following regression equation:

yit □ □i □ □ □it □ 1i x1i,t 2i x2i,t ... □ Mi

xMi,t ei,t (2) t 1...T,i 1...N

Where T is the number of observations over time; N represents number of cross section units (countries); M is the number of the regression variables; y and x are assumed to be integrated of order one and α_i varies across individual countries in the panel. The residual, which is to be tested for stationarity is given by:

eit □ □eit□1 □uit or by the following augmented equation: (3)

pi eit □ □i eit□1 □□□ij □eit□ j □ vit

(4)

j□1

The study adopted the Pedroni (2000; 2001) Fully Modified OLS (FMOLS) estimator, which is based on the correction of the dependent variable using the long-run covariance matrices in order to remove the nuisance parameters and then applies the standard OLS estimation technique to the corrected variables. This method has many advantages, among them are; it accounts for the serial correlation and endogeneity in the regressors that are usually present when long-run relationship exists. In addition, it tackles the problems of nonstationarity in regressors and simultaneity bias as well as generates consistent estimates of the β parameters in small samples (Christopoulos & Tsionas, 2003; Kiran, Yavuz & Güriş, 2009).

4. RESULTS AND DISCUSSIONS

4.1 Results

The results of the panel unit root tests at the levels of the variables are presented in Table 1. Deterministic trend and individual effects (intercept) are included in the tests, going by the plot of the variables, which shows the presence of linear trend and intercept. Generally, the null hypothesis of unit root could not be rejected at 5%, implying that the variables are not stationary at levels. However, there is an exception in the cases of LCRD, LGFCF and LMCP, which were respectively reported to be stationary by the MW, LLC and IPS tests. But given the weaknesses of these tests as highlighted earlier and that in all the three cases, the other three tests reported the variables to be non-stationary, the variables are considered to be non-stationary at levels.

TABLE1.Results of Panel Unit Root Test at Levels

Variables	Common unit root process	Individual unit root process	LLC	Breitung	IPS	MW
LBMG	-0.314	0.482	0.703	35.530		
LCRD	1.227	1.257	-0.251	66.935***		

LGDP	-0.164	1.893	0.438	45.876
LGFCF	-3.482***	-0.837	2.974	29.688
LMCP	-0.244	-1.283	-1.665**	51.354
LOPN	0.170	0.045	-1.042	51.423
LSTR	-0.013	-0.643	-0.914	50.003
LTGE	0.815	-1.311	4.836	15.297

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Selection of lag length is based on Schwarz information criteria.

Upon taking the first difference of the variables, the null hypothesis of unit root was unanimously rejected by all the tests at 1%, thus, the variables turned out to have no unit rootas reported in Table 2. This means that, all the variables are stationary at first difference and hence, integrated of order one. Consequently, the basis toinvestigate the existence of long run relationship through panel co-integration test is provided. TABLE 2.Results of Panel Unit Root Test at First Difference

Variable	Common unit root process		Individual unit root process	
	LLC	Breitung	IPS	MW
LBMG	-11.838***	-8.663***	-12.817***	202.433***
LCRD	-7.465***	-5.086***	-10.615***	172.129***
LGDP	-10.170***	-5.333***	-8.466***	137.850***
LGFCF	-10.162***	-7.345***	-8.458***	136.748***
LMCP	-11.480***	-8.368***	-10.257***	164.668***
LOPN	-13.209***	-3.264***	-10.127***	161.404***
LSTR	-10.513***	-4.723***	-11.344***	187.615***
LTGE	-11.228***	-5.300***	-12.611***	202.262***

Notes: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

Selection of lag length is based on Schwarz information criteria.

The results of the Pedroni panel co-integration tests for the various specifications statedearlier are contained in tables three and four. Like in the case of the unit root tests, deterministic trend and individual effects are also included in the co-integration tests; this is because including time specific effects makes the Pedroni panel cointegration tests more powerful (Carlsson, Lyhagen & Österholm, 2007).

TABLE 3.Results of Pedroni Panel Co-integration Tests for Banking and Stock Market Independent Models

Private Credit		Market Broad Money Capitalisation			Stock Turnover	
Statistic	ρ-Value	Statistic	ρ-Statistic Value	ρ-Value	Statistic	ρ-Value

Panel Statistics					Within-Dimension			
Panel v-Statistic	26.589***	0.000	27.700***	0.000	21.153***	0.000	23.938***	0.000
Panel rho-Statistic	1.997	0.977	1.764	0.961	2.500	0.994	1.602	0.946
Panel PP-Statistic	-3.137***	0.001	-3.733***	0.000	-1.786**	0.037	-3.313***	0.001
Panel ADF-Statistic	-3.006***	0.001	-3.623***	0.000	-2.105**	0.018	-4.256***	0.000
Group Statistics					Between-Dimension			
Group rho-Statistic	3.987	1.000	4.190	1.000	4.443	1.000	3.994	1.000
Group PP-Statistic	-4.340***	0.000	-1.933**	0.027	-1.789**	0.037	-1.720**	0.043
Group ADF-Statistic	-3.588***	0.000	-2.268**	0.012	-2.938***	0.002	-3.774***	0.000

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

The results in Table 3, revealed that three of the five within dimension and two of the three between dimension Pedroni panel co-integration tests, have rejected the null hypothesis of no co-integration. Therefore, we can deduce that a long run equilibrium relationship exists between economic growth on one hand and monetary, banking and stock market development represented by broad money, private credit, market capitalization and market turnover as well as other control variables on the other hand.

TABLE 4.Results of Pedroni Panel Co-integration Tests for Concurrent Banking and Stock Market Models

	CRD*MCP		CRD*STR		CRD & MCP		CRD & STR	
	Statistic	ρ-Value	Statistic	ρ-Statistic	Value	ρ-Value	Statistic	ρ-Value
Panel Statistics				Within-Dimension				
Panel v-Statistic	21.153***	0.000	23.938	0.000	24.375***	0.000	27.301***	0.000
Panel rho-Statistic	2.500	0.994	1.602	0.946	2.845	0.998	2.569	0.995
Panel PP-Statistic	-1.786**	0.037	-3.31***	0.001	-3.188***	0.001	-3.157***	0.001
Panel ADF-Statistic	-2.105**	0.018	-4.26***	0.000	-3.529***	0.000	-3.785***	0.000
Group Statistics				Between-Dimension				
Group rho-Statistic	4.443	1.000	3.994	1.000	4.878	1.000	4.672	1.000
Group PP-Statistic	-1.789**	0.037	-1.720**	0.043	-4.775***	0.000	-3.667***	0.000
Group ADF-Statistic	-2.938***	0.002	3.774***	0.000	-4.687***	0.000	-4.738***	0.000

Notes: CRD*MCP and CRD*STR are models involving the interactive terms (product of) private credit and market capitalisation and stock turnover ratio respectively, while CRD&MCP and CRD&STR are models simultanously involving private credit and each of market capitalisation and stock turnover respectively. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

Similarly, Table 4 shows that majority of the seven Pedroni panel co-integration tests reject the null hypothesis of no co-integration at 1% or 5% level of significance. This means the long run relationship between economic growth and the various measures of financial development in developing countries is robust irrespective of whether banks and/or stock market are considered independently or jointly. However, the results from both tables have shown thatPanel rho and Group rho-tests consistently accept the null of no co-integration. But this is not worrisome; since a Monte Carlo simulation by Pedroni (2004) shows that the two tests tend to underestimate the rejection of the null when N and T are small. Therefore, we conclude that long run relationship exists between the variables and thus proceed to estimate the long run coefficients.

The long run coefficients of the co-integratingvector are estimated using the FMOLS estimator for the various specifications; the results are presented in Table 5. In all cases the dependent variable is real GDP.In the first model (involving bank private credit) presented in panel one of Table 5, it is clear that private credit is significantly contributing to economic growth, with every 1% increase in private credit resulting into 0.36% increase in real GDP. The other variables in the model are equally important for growth, as a percentage increase in gross fixed capital formation and trade openness are causing real GDP to increase by 0.21% and 0.52% respectively. The only exception is government expenditure, which turnout to have negative influence on growth, though in negligible amount compared to other variables in the model.

The positive effect of financial development on growth is even higher when the ratio of broad money to GDP is used as a proxy for financial development. The results in panel one of Table 5, show that a 1% increase in broad money will lead to 0.56% increase in real GDP,which is 0.20% larger than the effect of private credit.The same goes for gross fixed capital formation, which contribute 0.25% to GDP for every percentage increase. These phenomena have implied that to a large extent, investment in developing countries is selffinanced. However, the effect of trade openness is suppressed and government expenditure is no longer having any impact on GDP.

Both indicators of stock market development, that is market capitalization and stock turnover are also significantly influencing real GDP, but to a lesser degree than private credit and broad money. From the results in panel two of Table 5, a 1% increase in market capitalization leads to 0.13% increase in real GDP. On the other hand, stock turnover, brings about only 0.06% increase in real GDP, this is indicative of low activities in the stock market of developing countries. Other variables in the stock market models exhibit about the same pattern as in the broad money and private credit models. Trade openness is still making tremendous positive contribution to GDP (0.40% and 0.57%, respectively) and government expenditure exert negative influence in only the stock turnover model. The effect of gross fixed capital formation is very insignificant in the market capitalization model, but slightly significant in the stock turnover model.

TABLE 5.Long Run Estimates Using FMOLS

		Banking and Monetary Sectors					
Variables	Coefficient	t-stat	ρ-Value	Variables	Coefficient	t-stat	ρ-Value
LCRD	0.361***	8.241	0.000	LBMG	0.564***	7.587	0.000
LGFCF	0.211***	2.775	0.006	LGFCF	0.252***	3.185	0.002
LTGE	-0.116*	-1.836	0.067	LTGE	-0.066	-0.991	0.322

LOPN	0.515***	8.976	0.000	LOPN	0.392***	6.133	0.000
			Stock Markets				
LMCP	0.131***	5.542	0.000	LSTR	0.057***	2.891	0.004
LGFCF	0.000***	2.983	0.003	LGFCF	0.169*	1.848	0.065
LTGE	-0.017	-0.242	0.809	LTGE	-0.172**	-2.385	0.018
LOPN	0.402***	6.036	0.000	LOPN	0.570***	8.658	0.000
			Banks and Stock Market Concurrent				
LCRD	0.291***	6.600	0.000	LCRD	0.364***	8.327	0.000
LMCP	0.093***	4.178	0.000	LSTR	0.018	1.074	0.284
LGFCF	0.153**	2.057	0.040	LGFCF	0.176**	2.258	0.025
LTGE	-0.017	-0.276	0.783	LTGE	-0.125**	-2.032	0.043
LOPN	0.385***	6.319	0.000	LOPN	0.499***	8.865	0.000
			Banks and Stock Market Interaction				
LCRD*LMCP	-0.083***	-8.538	0.000	LCRD*LSTR	-0.065***	-7.049	0.000
LGFCF	0.164**	2.205	0.028	LGFCF	0.060	0.720	0.472
LTGE	0.036	0.566	0.571	LTGE	-0.099	-1.498	0.135
LOPN	0.389***	6.656	0.000	LOPN	0.523***	8.806	0.000

Notes:The coefficient of LGFCF in the LMCP model is 0.000000000010 and cannot be contained in the column, this is why 0.000 is written.

***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

In the above models, roles of banks and stock market to economic growth are treated independently. However, in reality the two runs concurrently in financing real economic activities. In most cases firms do not restrict their sources of external finance to either banks or stock market alone, they rather explore both sources. Based on this assumption, models were estimated that combine bank credit on one hand and market capitalization and turnover on the other hand. The results in panel three of Table 5, revealed that banks still dominate the financing of real economic activities; a 1% increase in bank private credit accounts for 0.29% increase in real GDP as against mere 0.09% by market capitalization. The effect of banks become even more domineering, when stock market development is represented by market turnover ratio, which turn out to have no significant influence on real GDP.

Having been able to ascertain the relative significance of banks and stock market to real GDP, the next task is to find out whether bank and stock market are compliments or substitutes. This is very relevant, because stock markets in many developing countries came into existence much later than banks, which means they either take away some part of the market share of banks or compliment them in providing finance to the private sector. The results in panel four of Table 5, shows thatthe interactive term of both bank private credit and market capitalization as well as stock turnover, are negative and statistically significant. This means that bank and stock market in developing countries are substitutes, rather than compliments.

4.2 DISCUSSIONS OF FINDINGS

From the empirical results presented and analyzed in the previous section, broad money appeared to be the most influential contributor to real GDP, above other financial development indicators. This implied that selffinance still dominates the economies of many developing countries, thereby conforming to the McKinnon (1973) hypothesis. According to this hypothesis, economic units are constrained to self-finance in developing countries, which are characterized by small-sized private firms. Under this condition, money plays an

important role in increasing the amount of physical investment, therefore, cash balances holdings are positively related to propensity to invest.

Moreover, banks appeared to greatly play more roles in influencing real GDP than stock market. This shows that banks still dominate the financial system of developing countries; the obvious reason for this might be that the real sectors in developing countries are dominated by small and medium scale enterprises, which cannot access the stock market. This result confirmed Kronberger (2002) and Baliamoune-Lutz (2010) assertions that the financial systems of developing countries are dominated by banks, hence the bulk of investment financingis sourced from the banking sector.

Market capitalization is also found to be more significant in influencing real GDP than market turnover. This is indicative of the fact that there are low activities in the stock markets of many developing countries. Most of the stock markets in developing countries were established recently, therefore, the stock market capitalisation largely represents initial public offerings by private firms and in some cases by privatized public enterprises. Thus, market capitalisation tends to have more effect on real GDP than stock turnover. The individual contribution of banks to real GDP is not significantly improved when stock market was introduced and vice versa. In the case of stock market, the introduction of banks even reduces its contribution to real GDP. This is indicative to the fact that the two are not compliments. In fact, the results clearly suggest that banks and stock market are substitute rather than compliment. This confirmed the findings of Dey (2007) and contradicts the findings of Boyd and Smith (1998).Overall, the findings of this study revealed that financial development in the form of monetary, banks and stock market development are positively influencing real GDP in developing countries. These results confirmed the findings of Levine and Zervos (1998) and Kiran, Yavuz and Güriş (2009).

CONCLUSIONAND RECOMMENDATIONS

The study concluded that the overall depth of the financial sector represented by broad money is the most significant contributor to growth; meaning that self-finance still largely constitutes the mode of financing real economic activities, which are majorly in the form of small and medium enterprises. On the relative importance of banks and stock market, the study found that the banking sector is to a large extent relatively more significant in financing real GDP than the stock market. This has confirmed the claim that the financial systems of developing countries are dominated by banks, with the stock market gradually catching up. The stock markets of developing countries are also found to have low activities, as market capitalization plays significantly more role than stock turnover. Moreover, banks and stock markets are found to be substitutes, rather than compliments; meaning that they are competing for both savers funds and investment opportunities to finance; this will lead to efficiency in the activities of both. It also suggests that the introduction of stock markets in developing countries is gradually diversifying their financial system and lessening the traditional dominance of the banking system. The policy implication of these findings is that financial reforms should be implemented across the board that is in all the sectors of the financial system as against selective policy. This will ensure that the real economy gets the best from the financial system.

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