

Economic Growth and the Development of Financial Markets: Some African Evidence

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Abstract

The purpose of this study is to determine if African stock markets have contributed to a better allocation of savings and economic growth in the countries in question. Our results reveal a strong and significant relationship between aggregate economic growth and stock market development indicators. Causality tests indicate that the real sphere involves the financial sphere for relatively new markets.

Keywords: Stock market, stock exchange development, company financing, economic growth, causation.

JEL classification: G15, O16.

1. Introduction

During the 1990s and the first half of the 2000s, liberalization and privatization have become prominent as a developing strategy for Africa. The evolution of these attitudes toward the role of the private sector in the development of African economies has been favorable to the development of capital markets. In the 1990s, many African countries created stock exchanges as a preliminary condition to the establishment of a market economy in the context of structural adjustments programs under the International Monetary Fund (IMF) or the World Bank, and to help in the privatization process of public firms initiated by these institutions.

The African continent possesses 23 stock exchanges, a dozen of which had initiated their activities only in the 1990s. This new trend clearly shows that African countries believe in the importance of such markets for their development. The hope invested in financial markets as capable of bringing about a new impulse for firms, as a means of assembling local

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capital in new ways, and as a way of compensating for the slow development of intermediating institutions, is driven by the obsessive discourse of the IMF and World Bank.

The growth of market capitalization in Africa has been described as more remarkable than that of more advanced economies. However, some observers have doubted the efficiency of the functioning of African stock exchanges and the appropriateness of developing such institutions across the continent in terms of the enormous costs involved and the poor financial structure of the countries involved (Singh, 1999). Critics of the promotion of financial markets in African countries have questioned the advantages of organizing such a market structure, and the role it effectively plays in development and economic growth.

This study examines the relationship between the development of a financial market and the evolution of economic growth for a series of countries (South Africa, Côte d'Ivoire, Nigeria, Ghana, Kenya, and Tunisia). We also discuss, albeit briefly, the destination of the wealth created by this development concomitant to the opening of stock exchanges.

The remainder of the paper is organized as follows: first, we discuss the theory of development, followed by the relationship between the development of stock markets and economic growth, which leads to our theoretical framework. The rest of the paper posits our hypotheses, and presents our analysis of the results, leading to some concluding remarks.

2. Economic Development and Market Development

It is casually believed that a lack of development is related to a lack of investment, which is often expressed in terms of market liquidity. Therefore, if a country can bring in the investment required to finance local projects, this will result in growth. In fact, it is not that simple, as Hagen (1975) has argued, and the theories about development have often been circular. Many factors are at work at the same time in a society, and it is very difficult to isolate one causal chain moving only in one direction. However, it seems that development moves from the primary sector to the tertiary sector, which is less capital-intensive. Consequently, an economy must be less dependent on investment when it arrives at this point. To develop, the primary sector needs considerable capital, however, mainly to acquire the necessary technology that will increase productivity and free workers who will be used more productively in the secondary and then in the tertiary sectors.

Projects need financing and many believe that organizing this financing will produce development (Schumpeter, 1911; Andrianaivo & Yartey, 2010). To increase funding possibilities, it is essential to increase the level of liquidity of the market.

2.1. *Liquidity and Market Efficiency*

Two key instruments are generally available to increase the level of liquidity, depending on the definition provided: banking institutions and stock markets. The first definition of liquidity is that money circulates relatively easily. For this, the intermediating institutions have to be created and to function. The development of the intermediating sector is a problem in Africa. African banks seem to have a limited share in the economy while the banking sector is dominated by foreign institutions (Andrianaivo & Yartey, 2010). Some researchers have proposed that financing the states outside central banks will bring some impetus to the African banking system (Sy, 2010). Second, the liquidity of the market itself is important (Yartey, 2008). African stock markets are structurally quite inefficient: shares are rarely traded, bid-ask spreads are large, and trading clearing and settlement systems are very slow (Andrianaivo & Yartey, 2010).

Since McKinnon's (1973) and Shaw's (1973) arguments in favor of financial liberalization as a strategy destined to contribute to the growth of possibilities for risk diversification by financial institutions, some studies have used the multifunctional approach of the markets to relate financial markets to the efficiency of investments (Andrianaivo & Yartey, 2010; Senbet & Otchere, 2005; Levine & Zervos, 1996; Stiglitz, 1985). According to these studies, financial markets facilitate price fixing; prices are, in turn, invested with informational content and carry signals for different stockholders in the market. As a consequence, these markets facilitate investment decision-making and increase the optimal affectation of financial resources in an economy. Financial markets also aid efficient governance and control mechanisms through pressures and agent disciplining. In a context of uncertainty, parties to a contract may not always observe the relevant parameters or may attempt to control one another, while control mechanisms can be costly. Financial markets, however, provide some control mechanisms, leading potentially to optimal governing behavior and, consequently, influencing the management toward the adoption of correcting measures.

Other studies, however, do not agree with these positions. For them, the spreading of shareholding reduces the power of individual

investors who lack the capacity or incentive to acquire the necessary information to realize an efficient allocation of their resources (Singh, 1993, 1997). Moreover, while stock markets can facilitate collecting information on investment opportunities, they can also make this information accessible to any participant in the market. On the other hand, the availability of free information can discourage investors from paying to acquire such information (Stiglitz, 1985). Therefore, the positive effect theoretically generated by the existence of a stock market and the efficiency of investment coming through the informational efficiency of such a market may never materialize.

A consensus emerging from the empirical literature indicates that the development of financial markets increases investment efficiency. Most of the studies conducted on Africa have tended to be qualitative. Nyakerario (2007) has tried to fill this gap by exploring the relationship between the stock market and investment efficiency. The study has three main conclusions: first, African stock markets potentially possess the ability to increase the efficiency of investments and to favor the creation of wealth and of the long-term capital necessary for long-term development. Second, a small public sector favors the efficiency of investment, and, finally, poor governance, measured by the index of corruption, is prone to discourage productive efforts and to compromise investment efficiency and market efficiency.

2.2. *Stock Market and Economic Growth*

Postulating that stock markets offer another way to mobilize savings in an economy implies that such mobilization would stimulate productive investment and contribute to economic growth. Levine and Zervos (1996), in their international study covering 41 countries, conclude that the effects of the organization of a stock market are positively and significantly associated with economic growth. Bencivenga, Smith, and Starr (1996) and Levine (1991) contend that stock markets that are more liquid reduce the risk and cost of investing in long-term projects, reinforcing growth perspectives.

Following Saint-Paul (1992), who argues that financial markets have a positive impact on firm productivity, Kyle (1984) and Bamba (2001) identify a positive relationship between the development of the stock market and economic growth. They underline that economies with developed stock markets are able to reach a higher degree of development than those with less developed financial markets.

Opposed to these advocates of the positive relationship between stock markets and economic growth, others argue that the development of stock markets can hinder the development of an economy by providing opportunities for counterproductive firm takeovers (Shleifer & Summers, 1988; Morck, Shleifer, & Vishny, 1990). For them, stock markets, by encouraging short-term profits, do not allow the management of firms to concentrate on long-term perspectives, notably investment in long-term projects that are essential for economic development.

Singh and Weiss (1998) are adamant on this question. For them, if it is true that stock markets can attract foreign capital and investors, these flows are mainly speculative and not really related to investment. The OECD estimates the proportion of fund movements in the world destined to speculation at around 90 percent. This conclusion is based on the fact that these amounts do not stay where they have been transferred for more than a week, which is not long enough to be invested, even from a short-term perspective. Others add that the risk sharing integrated in the structure of stock markets can reduce the level of savings and, therefore, decrease economic growth (Devereux & Smith, 1994). Mayer (1988) and Stiglitz (1985) remain convinced of the existence of a negative relationship between stock exchanges and economic growth.

Studying the impact of the creation of the Stock Exchange of Abidjan (BVA) on the Côte d'Ivoire's economy, N'zué (2006) tries to harmonize the opposing positions presented earlier. He concludes that the country's GDP is positively correlated with state investment and public spending, public subsidies to development, foreign direct investment, and the index of stock exchange development (which includes the ratio of market capitalization, market liquidity, and the indicator of concentration of the four firms constituting the index of the stock exchange). It seems that the relationship is not unidirectional and constant across periods. Aka (2010), after studying the African situation, concludes that the main form of the relation is bidirectional. However, this is an average, and many countries, some of them figuring in our sample, exhibit a tendency contrary to the main tendency.

Having studied the development of African markets, we now raise the question of the destination of the wealth that is created from them, since it is implicitly understood that the purpose of this development is to decrease the level of poverty of the countries' populations.

2.3. *Whose Development?*

When natural resources are in large supply, a country can develop itself for a while, relying on the primary sector. There is, however, what is called the “resource curse” (Breisinger, Diao, Schweickert, & Wiebelt, 2010). Assessing such a situation is often a matter of point of view. For some specialists closely associated with the UN, Ghana has successfully fought against poverty. For instance, one could ask if opening a stock exchange in Ghana has pushed the economy forward or if installing an aluminum refining complex in the 1960s created the conditions for opening a capital market two decades later. Whether the wealth created by this development has been used to reduce the level of poverty is debatable. In the ECOWAS countries, which include Ghana, “over 250 million people, half of the population, live with less than one dollar per day” (Diop, Dufrénot, & Sanon, 2010, p. 265). Normally, development is reputed to benefit the population (Rotberg, 2009; Lyakurwa, 2009). The level of revenue per capita is supposed to increase with development.

Unfortunately, this does not seem to be the case. It depends on who is taking advantage of the development of, firstly, the primary sector. For instance, South Africa, which has the first dated stock exchange in Africa, functions in a developed economy. It is one of the very few African countries with a gross national product (GNP) per capita greater than USD 10,000 in terms of purchasing power parity (PPP) in 2006 (United Nations Development Programme [UNDP], 2006). However, while ranking 55th for its gross internal product (GIP) per capita, it stands at 121 in terms of human development. The conclusion is obvious: its wealth is not well distributed. Effectively, if we consult the Gini,¹ it is at 57.8 (the highest score is 63.2). Therefore, South Africa is very near the worst in terms of the unequal distribution of wealth, explaining the huge gap between its rankings in economic and human development.

This problem of redistribution can stem from corruption, which seems to have increased globally as well as in the sub-Saharan countries. While in 1984, 70 percent of these countries were among the most corrupt, this figure rose to 93 percent in 2006. None of these countries were among the less corrupt in 2006 (Bissessar, 2009). For Ghana, the situation is not that extreme, but indicators point moderately in this direction. Its GIP ranks better than its human development. Its Gini, which is over 40, compares

¹ The Gini is a measure produced by the United Nations Development Programme. A score of 1 would indicate perfect equality and a score of 100 would indicate perfect inequality. In its 2006 report, the highest score was 63.2, and the lowest was Azerbaijan at 19, followed by Denmark at 24.7.

only with the US in the first 20 countries in terms of human development. Incidentally, Ghana ranked 136th in 2006. These moderated views come from UN statistics.

It must be added at this point that the relatively high rates of inflation (often over 25 percent) do not help diminish the level of poverty in the country. In Ghana, new mining companies receive five years' tax relief and only have to change their names to renew this relief (Deneault, 2008). In terms of economic institutional development, Ghana has also experienced what seem to be the widest interest rate spreads, evaluated by some observers to be around 15 percent (Aboagye, Akoena, Antwi-Asare, & Gockel, 2008).

Table 1 provides some statistics from the UN for the countries in our sample to which we have added South Africa as the most economically developed country in Africa.

Table 1: Some statistics for sampled countries, including South Africa

	IHD 2006	GIP/person USD	Rank in GIP less rank in IHD	Gini	HPI	GIP rank
South Africa	121	11,192	-66	57.8	53	55
Ghana	136	2,240	-9	40.8	58	127
Kenya	152	1,140	7	42.5	60	159
Nigeria	159	1,154	-1	43.7	76	158
Tunisia	87	7,768	-18	39.8	39	69
Côte d'Ivoire	164	1,551	-15	44.6	82	149

Notes: GIP = gross internal product, HPI = human poverty index, IHD = index of human development. GIP given in PPP in terms of USD per person.

Still, in Ghana, political factors tend to intervene. After the 2000 election, about 50 percent of civil servants were fired (Nwezeaku, 2010), which had negative effects on public management.

The Côte d'Ivoire also has a negative score, with a very low (164) ranking in term of human development and, although also quite low, a better ranking in terms of GIP per capita. Its Gini, near 45, is also relatively high. The human poverty index (HPI) must be adjusted since 45 other countries—mostly the richest in the world—are not included.

Therefore, we have to be very careful when we associate a country with the “development” made on its territory. It may be somebody else's

development, impacting on somebody else's economic growth. This is more systematically analyzed in the results section. However, this comparison between the level of economic and social development is interesting and is a new statistic to be computed by the UN. Symptomatically, the development is measured by country and is, theoretically, associated with the conditions generally prevailing in a country. This view seems not to concretize in reality.

3. Financial Markets in Africa

In Africa, financial markets are relatively recent, entering progressively on the impulse of the Bretton Woods institutions (the IMF and World Bank), and intended to help economically problematic countries to raise the necessary capital and retainers of savings to invest their money locally.

If we number 23 stock exchanges now in Africa, the continent possessed only around 10 of these 20 years ago. The first African stock exchange was created in Johannesburg (the JSE) in November 1887, in the context of the discovery and exploitation of the mining sector. It was not until the 1960s, the period of the declaration of independence for many African countries, that other stock exchange institutions were developed. The main one was the Tunis Stock Exchange, created in 1969. Stock exchanges were, until then, perceived more as a registration of transaction offices than as a reflection of the state of an economy with a capitalization less than 1 percent of the GIP.

Since then, over-the-counter markets have remained important in many countries. This form of market, generally considered a step on the path toward establishing a complete market, remain prevalent in many countries, notably in Rwanda, Gabon, and the Gambia. For a large majority, African stock exchanges (see Table 1) had been created in response to a political movement intended to mobilize national resources, particularly following the privatization programs of state enterprises and the need to finance public infrastructure. Kenya and South Africa are examples of countries where public infrastructure was financed through the bond market. The stock exchanges' aim was, equally, to attract foreign investment.

African markets are not strongly related to other international markets, as is the case in Asia. Although this might appear to be an impediment to their growth, this independence is often seen as an advantage by investors looking for markets that will not be affected in the

same way as the larger international markets, as was the case during the Asian markets crisis in the 1990s. Moreover, investors traditionally look for high-growth potential investments and Africa offers unique opportunities in this domain. Returns on investment in Africa are starting to be quite impressive, the rate of growth of market capitalization being high despite the relative weakness of the capital market. Table 2 lists the stock exchanges in Africa.

Table 2: African stock exchanges

No.	Stock exchange	Year opened	Firms listed	Capitalization
1	Bourse Régionale des Valeurs Mobilières	1998	41	3,171,148,036,455*
2	Bourse des Valeurs Mobilières d'Alger	1997	6	6,500,000,000*
3	Botswana Stock Exchange	1989	23	94,577,000,000
4	Douala Stock Exchange Douala	2001	2	21,445,430,000*
5	Bolsa de Valores de Cabo Verde		20	N/A
6	Cairo and Alexandria Stock Exchange	1883	165	N/A
7	Ghana Stock Exchange	1990	35	17,691,600,000
8	Nairobi Stock Exchange	1954	45	1,900,000,000
9	Libyan Stock Exchange	2007	07	N/A
10	Malawi Stock Exchange	1995	13	1,821,073,300*
11	Stock Exchange of Mauritius	1988	40	36,804,984,087*
12	Casablanca Stock Exchange	1929	77	506,792,126,844*
13	Maputo Stock Exchange	1999	16	400,000,000
14	Namibia Stock Exchange	1992	24	N/A
15	Nigerian Stock Exchange	1960	282	31,500,000,000
16	JSE Securities Exchange	1887	472	182,600,000,000
17	Khartoum Stock Exchange	1994	53	5,000,000,000
18	Swaziland Stock Exchange	1990	05	1,436,416,337*
19	Dar es Salaam Stock Exchange	1998	10	975,820,000,000*
20	Bourse de Tunis	1969	56	8,301,000,000*
21	Uganda Securities Exchange	1997	11	5,178,305,484,326*
22	Lusaka Stock Exchange	1994	21	N/A
23	Zimbabwe Stock Exchange	1993	65	6,000,000,000*

Note: * In local money. All other entries given in USD.

Despite the creation of many stock exchanges in the continent since the end of the 1980s, the capitalization of the African market remains negligible by international standards. This can be attributed to the numerous obstacles constraining the financial system in Africa. Jarislowsky, a renowned business guru, suggested to Canadians wanting to acquire stocks in foreign markets that they concentrate on the New York Stock Exchange:

For the African continent, the only thing we can say is that it is plunged into ethnic dissensions, dictatorial regimes and misappropriation of funds (2005, p. 32).

Such a declaration exemplifies the attitude of foreign investors to African financial markets, which are characterized in Table 3.

Table 3: Characteristics of African stock exchanges

Characteristics	Potential explanation
Low level of liquidity	Small number of transactions Small size (39 firms at the BRVM, 2 at Douala, etc.)
Volatility of prices	Perceived political instability Weak diversity in terms of sectors Lack of information
Isolation from other markets	Few relations with other stock exchanges
Few foreign investors	Economies poorly organized Regulatory constraints and low level of protection for investors

Sources: Bayala (2002), Biitner (1999), and Leslie (1998).

Created in 1998, the Association of African Stock Exchanges has the dual objective of contributing to the development of stock exchanges, and promoting cooperation between existing ones. One of its goals is to create sub-regional structures encompassing the stock exchanges of Kenya, Tanzania, and Uganda in eastern Africa; those of Johannesburg and the Community for Developing Austral Africa (SADC); the stock exchanges of Cairo and Alexandria in northern Africa; and in western Africa, the national stock exchanges of Nigeria, Ghana, and the regional francophone in Abidjan (BRVM). This integrative perspective, more advanced in western Africa, has been sustained by the elimination of obstacles to the free movement of persons, goods, services, and capital

protected by the Economic Community of West African States (ECOWAS) since its creation in 1975.

4. Theoretical Framework

There is no consensus among economists on the nature of the relationship between financial markets and economic growth. The neoclassical approach considers that demographic growth and technology determines economic growth as well as the accumulation of capital. The Keynesian theory of growth is concentrated around the role of investment as a component of global demand and as a complement to the stock of capital (Pearce, 1986). From these traditional causes of economic growth, other economists have studied the multiple sources of growth and tried to measure their discrete contributions for different periods and countries (Ackley, 1970). Among these sources, we find the accumulation of capital, the work offered, production, and many other global variables.

Where stock markets contribute to mobilize savings leading to investment, they can also affect economic growth. Consequently, the development of financial markets can be considered to determine growth. The possibility for a country to mobilize savings appears to be crucial for long-term sustained economic growth. The development of stock markets thus assumes a role in the development of the global economy, stemming from the impact of such markets on firms' financing. For instance, stock markets, due to their liquidity, allow firms to rapidly acquire the necessary financing, facilitating the allocation of financial resources. This channeling of savings allows an optimal allocation of capital and translates into an accelerated growth rate.

Theories of endogenous growth assume that financial markets play this facilitating role through their mobilization of local savings, the acquisition of information, liquidity, and risk management. This, in turn, impacts economic growth through the accumulation of capital and technological innovation (Levine, 1997). Consequently, financial markets channel investments toward the most productive sectors.

On the basis of the preceding discussion, we can raise some questions on the real effect of the emergence of a financial market in a country. Does the liquidity of the market affect economic development?

4.1. Hypotheses

We also have to acknowledge that economic growth has many determinants other than the presence of a stock market. Many factors are exogenous (Venables, 2009). Other explanations or definitions have been proposed for development. Many argue that investment, which they see as highly dependent on financial institutions, is a key factor.

Therefore, we posit our first hypothesis as follows:

H1: There is a positive relationship between the development of a stock market and the economic growth of a country.

Taking into account the fact that the emergence of a financial market necessitates a thick economic membrane, the cost of such implementation, added to the poverty of financial structures in the African continent, we can posit our second hypothesis:

H2: In the first years of a stock market, economic growth has a ripple (driving) effect on the development of the stock market.

5. Method

This section describes the methods we use to conduct our study, starting with a description of the sample and the data used.

5.1. Sample and Data

Our study covers six African financial markets, including South Africa, which had the first stock exchange in the continent and the nineteenth in the world. Our sample also includes the stock exchanges of Ghana (with the strongest growth of capitalization), Kenya, Nigeria, and Tunisia in the Monetary Union of West Africa (UEMOA) zone. The UEMOA zone, comprising eight countries with a francophone majority from West Africa, was created in 1998 with a common stock exchange, the BRVM (Regional Stock Exchange), from the transformation of the Abidjan stock exchange in Côte d'Ivoire. It is the only regional stock exchange in the continent, uniting countries from the same economic community, with the same central bank, monetary unit, and accounting system.

All the data on national financial markets (South Africa, Ghana, Kenya, Nigeria, and Tunisia) is from the World Bank's (2009) World Development Indicators database. For the BRVM, the data is from the

Regional Council of Public Savings and Financial Markets (CREPMF). The macroeconomic data is from information published by the CNUCED and UNDP.

5.2. Variables and Model

The variables chosen to measure economic development are GDP or GNP and GDP or GNP per capita. We use this measure to attenuate the variation of global measures that would be attributed to a change in the population. The GIP used here is expressed in purchasing power units to eliminate the effects of inflation, which can be huge in some African areas, or of deflation over time. Therefore, the indicator is in constant monetary units.

The development of the financial market is measured using variables for market size: market capitalization, its liquidity expressed by volume, and the value of transactions. The variables and their definitions are listed below:

Markepcap	Market capitalization of listed companies (current US\$)
Stocktrade	Stocks traded, total value (current US\$)
Listedcomp	Number of listed companies
Netincome	Net income (balance of payments, current US\$)
Gdpconst	GDP (constant 2000 US\$)
Gdpercapconst	GDP per capita (constant 2000 US\$)
Curr_acc_bal	Current account balance (US\$)
Gni	Gross national income (GNI) (US\$)

The basic model compares indicators of stock market development with indicators of economic growth. GDP, GDP per capita, gross national revenue, and the bottom line of the commercial balance are regressed against market capitalization. These variables being endogenous, we use the two-stage least squares method (2SLS) by selecting the value of the transactions and the number of listed firms as measures of market capitalization. The models are as follows:

1. $Gdpconst = \alpha + \beta \text{Marketcap} + \varepsilon$
2. $Gdpercapconst = \alpha + \beta \text{Marketcap} + \varepsilon$
3. $Gni = \alpha + \beta \text{Marketcap} + \varepsilon$

We will complete our analysis by conducting a Granger causality test (see Odhiambo, 2009; Aka, 2010), to determine which indicator,

between market capitalization and GDP per capita—also endogenous—comes first and has an effect on the other. Developed by Granger (1969), this test allows us to determine if a variable can be seen as the cause of another, taking into account the propensity of past values of Y to explain its actual values, while assessing the amelioration of the estimate when the retarded values of X are integrated in the model. If the variable X determines estimates of Y , or if the coefficients of its retarded values are significantly different from 0, then X can be considered to cause Y .

5.3. Description of the Sample

Table 4 provides some statistics about our sample.

Table 4: Descriptive statistics for the sample

Variable	n	Mean	SD	Min.	Max.
Marketcap	123	53254.14	136298.9	76	833548
Stockstrade	119	18302.32	65600.37	4	425747
Gdpconst	126	37465.94	46155.72	3008.627	183249.1
gdpercapcons	126	1130.919	1096.159	212.382	3763.819
curr_acc_bal	122	-324.4687	4877.741	-20981.38	24202.07
gni	126	44435.14	61186.48	4830.689	274722.9
listedcomp	120	157.25	210.5197	13	754

Note: With the exception of n and GIP per capita, all variables are expressed in USD million.

Our sample constitutes stock exchanges of different sizes, where the Ghana stock exchange is only a few years old, comprising 35 listed companies but which had as few as 18 during the period covered by our study. On the other hand, the large South African stock exchange has a capitalization of USD 888,548 million and 472 listed firms, comparable with some OECD stock exchanges.

6. Analysis of Results

Many factors enter consideration when we attempt to explain the rate of economic growth, and our results must therefore be viewed accordingly. We start with the numerical results and follow with an analysis. Table 5 provides statistics on the correlation matrix.

Table 5: Pair-wise correlations

	marketcap	stockstrade	gdpconst	Gdpercap cons	curr_acc _bal	gni	listed comp
marketcap	1.0000						
stockstrade	0.9113	1.0000					
	0.0000						
gdpconst	0.8576	0.7108	1.0000				
	0.0000	0.0000					
gdpercapcons	0.7076	0.5571	0.7952	1.0000			
	0.0000	0.0000	0.0000				
curr_acc_bal	-0.5452	-0.6450	-0.2589	-0.3447	1.0000		
	0.0000	0.0000	0.0040	0.0001			
Gni	0.8909	0.7741	0.9477	0.7220	-0.2932	1.0000	
	0.0000	0.0000	0.0000	0.0000	0.0010		
listedcomp	0.6331	0.3885	0.8923	0.7364	-0.0651	0.7773	1.0000
	0.0000	0.0000	0.0000	0.0000	0.4875	0.0000	

Source: Authors' calculations.

With one exception, these numbers show a very strong relation between all the indicators of capital market development and the measures of economic development, suggesting the existence of a relationship whose modalities need to be more deeply defined. On the other hand, the very strong correlation between market capitalization and the volume of transactions (0.9113***), and also with the number of firms listed (0.6881***) allow us to choose between these two variables in our 2SLS regression to explain the variance in the economic growth indicators. Table 6 shows the coefficients of correlation for market capitalization (volume of transactions and number of firms listed) and economic growth.

Table 6: 2SLS regression for market capitalization as a determinant of economic growth

	Dependant variables	Market cap.	Constant	Obs.	Adj. R2	p-value
Whole sample	Gdpconst	0.3110362***	2.25e+10	116	0.7283	0.0000
	Gdpercapcont	5.91e-09***	840.0464	116	0.5004	0.0001
	Gni	0.4195876***	2.39e+10	116	0.7895	0.0000
Ghana	Gdpconst	1.327218 ***	3.22e+09	16	0.3151	0.0022
	Gdpercapcont	3.40e-08***	211.4336	16	0.3486	0.0016
	Gni	3.907445***	2.12e+09	16	0.5458	0.0003
Kenya	Gdpconst	0.523715***	1.11e+10	19	0.8028	0.0000
	Gdpercapcont	3.40e-09***	411.1839	19	0.3655	0.0181
	Gni	1.710586***	7.93e+09	19	0.7714	0.0000
Nigeria	Gdpconst	0.5399301***	4.03e+10	21	0.6556	0.0028
	Gdpercapcont	1.86e-09 ***	365.7773	21	0.7344	0.0007
	Gni	2.385856***	2.78e+10	21	0.7566	0.0003
South Africa	Gdpconst	0.1264397***	9.57e+10	21	0.6775	0.0000
	Gdpercapcont	1.24e-09***	2807.704	21	0.6277	0.0000
	Gni	0.2809272***	7.55e+10	21	0.8873	0.0000
Côte d'Ivoire	Gdpconst	0.3733366***	8.93e+09	21	0.3050	0.0189
	Gdpercapcont	-1.54e-08***	628.0826	21	0.3553	0.0366
	Gni	1.794502***	8.60e+09	21	0.8219	0.0000
Tunisia	Gdpconst	2.821906***	1.13e+10	18	0.4542	0.0013
	Gdpercapcont	2.20e-07***	1398.76	18	0.4422	0.0015
	Gni	3.998959***	9.72e+09	18	0.6088	0.0002
Wu-Hausman F test			24.39269 F(1,113)			
p-value			0.00000			
Durbin-Wu-Hausman chi-sq test			20.59463 Chi-sq(1)			
p-value			0.00001			

Note: *** = significant at 0.01. Tests of endogeneity of marketcap H0: regressor is exogenous.

Source: Authors' calculations.

The regression results obtained using the 2SLS method allow us to freeze the endogeneity effect and show the strong relationship between the variables. The coefficients have a high level of significance and some R2 values range from 0.80 to 0.81 for GDP, from 0.78 to 0.85 for GDP per capita, and from 0.55 to 0.89 for gross national revenue (GNR).

To ensure that these results are not spurious, we conduct a test of cointegration (Aka, 2010), which will indicate if the data series is integrated in time. Table 7 gives the results for the cointegration test.

Table 7: Results of cointegration test

Pedroni residual cointegration test				
Sample: 1988–2008				
Included observations: 126				
Cross-sections included: 6				
Null hypothesis: No cointegration				
Trend assumption: No deterministic trend				
User-specified lag length: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Series: MARKETCAP – GDPCONST				
	Statistic	Prob.	Weighted statistic	Prob.
Panel v-statistic	5.362524	0.0000	0.111963	0.4554
Panel rho-statistic	-2.143334	0.0160	-2.007739	0.0223
Panel PP-statistic	-1.790884	0.0367	-2.326249	0.0100
Panel ADF-stat.	-2.958215	0.0015	-1.353587	0.0879
Series: MARKETCAP – GDPERCAPCONS				
	Statistic	Prob.	Weighted statistic	Prob.
Panel v-statistic	3.680373	0.0001	0.248687	0.4018
Panel rho-statistic	-1.758691	0.0393	-1.517582	0.0646
Panel PP-statistic	-2.025705	0.0214	-2.508915	0.0061
Panel ADF-stat.	-3.523942	0.0002	-1.987452	0.0234
Series: MARKETCAP – GNI				
	Statistic	Prob.	Weighted statistic	Prob.
Panel v-statistic	2.661131	0.0039	3.245496	0.0006
Panel rho-statistic	-4.549824	0.0000	-3.488030	0.0002
Panel PP-statistic	-7.617943	0.0000	-4.921595	0.0000
Panel ADF-stat.	-9.751477	0.0000	-5.196987	0.0000

Source: Authors' calculations.

From the results of Table 7, the null hypothesis that there is no cointegration can be rejected at a level of 0.05 in every case, for every relationship. However, the relation is far stronger for GNR. Therefore, GNR is best explained by the development of the market and that for every country except Kenya.

Since the relationship between stock market indicators and economic aggregates can potentially go both ways, we run a Granger test of causality to find out if the relation is oriented instead of transitive. Table 8 provides the results of this test.

Table 8: Results of Granger causality test

Country	Null hypothesis	F-stat.	Prob.
Ghana	GDPERCAPCONS does not Granger-cause MARKETCAP	2.00256	0.1813
	MARKETCAP does not Granger-cause GDPERCAPCONS	0.41518	0.6701
Kenya	GDPERCAPCONS does not Granger-cause MARKETCAP	0.54596	0.5911
	MARKETCAP does not Granger-cause GDPERCAPCONS	3.98274	0.0427
Nigeria	GDPERCAPCONS does not Granger-cause MARKETCAP	0.35128	0.7098
	MARKETCAP does not Granger-cause GDPERCAPCONS	3.65683	0.0528
South Africa	GDPERCAPCONS does not Granger-cause MARKETCAP	0.02330	0.8805
	MARKETCAP does not Granger-cause GDPERCAPCONS	5.70911	0.0287
Côte d'Ivoire	GDPERCAPCONS does not Granger-cause MARKETCAP	1.57697	0.2412
	MARKETCAP does not Granger-cause GDPERCAPCONS	4.17540	0.0378
Tunisia	GDPERCAPCONS does not Granger-cause MARKETCAP	4.82580	0.0255
	MARKETCAP does not Granger-cause GDPERCAPCONS	0.50307	0.6152

Source: Authors' calculations.

The causality tests, executed with data from two years ago, indicate a causality going from stock market performance toward economic development for countries with a well-established stock exchange, such as South Africa or Nigeria. It also applies to Kenya, which has a less well organized system but with a stock exchange dating from 1954, and to the Côte d'Ivoire with a financial market functioning since 1972 and transformed into a sub-regional market in 1998.

The Côte d'Ivoire, where this sub-regional market is located, also has 85 of the 89 listed firms. These strong ties between the developing measures for financial markets and economic growth correspond to the theories of endogenous growth that advocate a more intensive role for the financial system, notably for financial markets. Our first hypothesis is then accepted and corroborated by the cointegration tests.

However, for some countries, the causality goes from the economic system toward stock market performance. These countries are Ghana and Tunisia. Ghana has generated many times the value of the best stock market performance, notably in 2008 (a return of 41 percent), and 2009 (a return of 58 percent) following the Exotix Ltd. Agency. Its stock market is quite new, having been created in 1990, and these impressive performances involve only 85 firms, which may explain the direction of the causality. For Tunisia, the fact that the market was created in 1969 and accounts for a relatively small number of firms listed (56) and also for a small amount of market capitalization (8,801,000,000 dinars in 2009) may be part of the explanation. These exceptions show that the relationship can go both ways, depending most likely on the level of the country's development when the stock exchange began activity.

If we look at the BRVM of Abidjan, we see that the bond market strongly drives the results by a volume of transaction near nine times the volume of share trading (90 percent of the value of transactions). Of the 90 percent, 76 percent was made by national or local administrations and state-owned companies. There are many kinds of markets. This one brings a very low level of new money into the system.

If we look at economic indicators in comparison with market indicators, we see that growth is far from being evenly distributed. In the Côte d'Ivoire, over the first ten years of the BRVM's existence, GDP increased by 75 percent while GDP per capita increased only by 7 percent, which does not take into account the distribution of this wealth, only for instance the increase in population, which, at 27 percent, is quite high.

Following the UNDP's statistics, the Côte d'Ivoire is 119 out of 135 countries for which the poverty index was calculated. More than 50 percent of adults are illiterate, around 20 percent of the population has no improved source of water, and the level of human development is far below its level of GDP per capita. Consequently, we can understand that development in Africa is more involved with taking natural resources out of the continent rather than improving the living standards of the population. Statistics such as GDP or GDP per capita—a simple division (GDP/number of citizens)—must be tempered by other statistics such as the poverty index, the human development index, and the Gini index, which measure the degree of wealth distribution in a country. Although imperfect, these latter statistics show that development is not a unique front and that what may look like an advance on the economic front has little impact, if none at all, on other essential aspects of what would be development if these principles are applied.

7. Conclusion

The African stock exchanges were created to sustain economic growth beside the monetary market, which had become inadequate to sustain privatization alone over a long period. This required considerable liquidity so that, in principle, stocks could be issued and acquired by a large population. This was the path the African financial markets were supposed to follow: to facilitate the access to long-term financing by African companies that were supposed to generate, in turn, economic growth.

The bottom line is not clear. Some countries have now developed over time, a stock market tradition and a financial market with a sound level of liquidity able to facilitate economic development. The Côte d'Ivoire, although not high-performing, has been able to reach a certain level of development by offering a financial market to a series of countries. However, people do not seem to be better for it.

We have seen that the activities at the BRVM had been centered widely on financing states' activities and only marginally on financing private firms and developing activities. Therefore, the objective of opening some stock exchanges remains unmet. Many local firms are state-owned for the better part and capitalization is far lower for local firms.

Our first hypothesis concerning the positive relationship between the development of a stock market and economic growth can be accepted. Such a relationship is not really surprising, although it remains difficult to say which drives which. It is probably recognizable at the end of the day that organizing a financial market in a country is, at least, an accelerator for some kind of economic development.

All these markets, doubtless, have the potential to increase the efficiency of investment, and to create wealth and the necessary long-term capital for the development of their countries. However, only the implementation of a financial market is not enough to improve economic growth. Efforts must be made to develop a stock-exchange culture in African countries and gradually bring companies to perceive the necessity of financing by the stock market.

It is also the joint effect of a well-organized stock market, an adapted tax system, a legal framework favorable to business, an increase in national public and private investments, and an increase in international

direct investments that will stimulate this economic growth. Development policies must thus be global and integrated.

However, using other statistics, the results go in the same direction, showing that a good part of this development benefits people outside Africa, or a limited number of people. The fiscal policies of these countries, notably toward mining companies, are criticized as being too lenient, allowing those companies to take their benefits out of the countries in which they operate without having much positive impact on the population.

Further research would trace the wealth produced in Africa to the destination and explain why all that remains is ever-increasing debt and despairing populations.

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