FINANCIAL MARKET INTEGRATION OF FIVE AFRICAN COUNTRIES

[1]MOHAMED ISSE IBRAHIM, [2]ALI YASSIN SHEIKH ALI

Faculty of Economics, SIMAD University

Abstract - The Purpose of this study is to provide financial integration of five promising economies in Africa region namely South Africa, Tunisia, Mauritius, Zambia, and Egypt. To examine the integration the study utilizes The study utilizes the GARCH model by using co- integration and Granger's Causality Test using Monthly stock market a time series data covering the period from 1998-2015.

The results of empirical analysis show that some countries market integration other four regional markets similarly some others that have not been integration financial market, the analysis also shows that financial integration was particularly this five counties relation each other either direct or indirect. So that this study recommends to develop financial policies also inspire innovation, encourage healthy competition among market operators and foster the overall development of the financial system.The study is limited to only 5 countries in African although there are 54 countries in the Africa.

Keywords - Financial Integration, Financial Institution, Africa and Financial Market.

Contribution/originality - This study is one of very studies which have examined in South Africa, Tunisia, Mauritius, Zambia, and Egypt from 1998-2015. The applied GARCH model by using co- integration and Granger's Causality Test. the main findings are consistent with previous studies on this subject.

I. INTRODUCTION

Financial incorporation is financial markets in bordering countries, regional and/or global economies are closely linked together (Frey, 2011). Various phases of actual financial integration include: sharing information among financial institutions; sharing of best practices among financial institutions; sharing of cutting edge technologies (through licensing) among financial institutions; manufactories borrow and raise funds directly in to the international capital markets; the financiers directly invest in the international capital markets, afresh engineered financial products are domestically renovated and created then sold and bought in the international capital markets, speedy copycat adaptation of afresh engineered financial products among financial institutions in changed economies, cross-border capital; and foreign participation in the domestic financial markets.(Alicia García-Herrero and Philip Wooldridge, 2007)

Most African countries are not directly affected by the global financial crisis because their financial integration with global markets was slow. With the benefit of hindsight, it might be tempting to conclude that this lack of financial integration was a blessing, and that it would serve the continent well not to seek larger integration into global financial markets. However financial development and integration are necessary if Africa is to rise its economic growth rates and decrease poverty (Christensen, 2013).

African financial systems have fewer depth than in other regions in the world, and financial services spreadless people than elsewhere. The question is how to mix the financial systems to the rest of the world and how fast the step of such integration should be if it is to escape the pitfalls of cross-border banking expert by advanced and emerging market countries during the global financial crisis(Shah, 2013)

During the last ten years emerging financial markets of Africa have become increasingly integrated and have received increasing attention. There are several reasons behind this. Most notably, the lower return on investments in companies from the developed markets as well as traditional emerging markets, such as BRIC (Brazil, Russia, India and China) countries, have turned investor's attention to African markets, which can offer higher returns, more favorable return-risk opportunities, and better diversification alternatives. This development has imported a lot of capital to African markets and in turn helped them to develop their economies. This process has not been without problems, though, as the know-how of these markets has been inadequate. In particular, the different risk profile, market pricing, lack of transparency, poor supervision (Saleem, 2013).

Over the past 10 years, sub-Saharan Africa raised 5 percent per year and at this rate the region's economy should dual in size before 2030. Economic growth is projected to increase by at least 6 percent in 2014 and 7 of the world's firmest 10 economies in 2011-2015 will be from the region. This "Africa rising" narrative should not mask the remaining challenges facing the continent. Indeed, rapid economic growth has not resulted in adequate gains in terms of job creation and condensed inequality. Moreover, average continental growth rates mask an uneven progress among countries. Without a uncertainty the financial integration can play the main role in helping to achieve maintainable and inclusive growth in sub Saharan Africa. Hopeful for their countries to benefit from regional integration and 51 heads of state and government signed the Abuja Treaty in 1991. (Amadou, 2014**).**

The issue of market integration and financial crisis has been increasing around the world during the last decades. Though, many regional financial crises and episodes of so-called financial contagion indicate that more open access to international financial markets also brings with it potential risks for individuals and the economy as a whole. (Schmukler, 2005)**.**These crises have shown the significance of having developed strong domestic financial systems with efficient regulatory overview and supervision.

Africa financial integration slows down the process towards the remaining stages of the African Economic Community. Strong common institutions can give policymakers the right inducements to foster integration. Indeed regional integration, especially monetary integration, requires independent institutions with the relevant expertise. Most African countries have financial market but have no or limit relation between in financial markets

This paper provides a clear picture of the integration between the Africa stock markets with selected countries under Tunisia, South Africa, Mauritius, Zambia, and Egypt and also in detail with the latest information. The scope of this paper Africa stock market with selected countries under Tunisia, South Africa, Mauritius, Zambia, and Egypt by measuring financial stock market with primary data obtained from the countries the study is empirical analysis using times series data for the period 1998-2015 in Africa. The Finding of this paper will benefit investors it influences international asset allocation and diversification benefits and significantly to economic growth. Also this finding increasing integration of the domestic financial market with the Africa financial market is one of the most important national policy decisions during the late twentieth century and forepart of this century. The finding of this study will benefit financial integration with the Africa stock market is one of major significance because some studies show that the index price of Africa are considered as global factor and cause mostly every countries index. The Study includes into five parties structured as follows: second reviews related literature, third data and methodology, fourth result and discussion and finally conclusion.

II. LITERATURE REVIEW

Benedicte Vibe Christensen (2012), which explained the financial integration in Africa, implications for monetary policy and financial stability, Most African countries were not directly affected by the global financial crisis because of limitation of their financial integration with the global markets. Through the benefit of reflection it might be tempting to complete that, this lack of financial integration was a consecration, and that it would assist the continent well not to seek greater integration into global financial markets. Then financial development and integration are indispensable if Africa is to increase its economic growth rates and reduce poverty.

In the past, African countries have boarded on many regional integration initiatives as a method of strengthening their economies by gaining the benefits of scale. An outstanding example is the two CFA franc zones. Although the 14 member countries in these zones have appreciated the stability of a common currency related to the euro and small inflation rates, the two zones are also testament to the difficulties in attaining the integration of payments systems and government debt markets, and harmonization of monetary policy instruments despite common overarching objectives.

Kashif (2013)Examined Regional integration: Evidence from Africa where focused to encourage and reinforce the economic development and financial system in today's globalized world regional integration has become unavoidable, in particular, regions where different nations share similarities in history, culture, trade and financial system, such as, Africa. The purpose of this study is to examine the stock market integration among the African financial markets, in a regional setting the stock markets of Tunisia and South Africa.

During the last ten years emerging financial markets of Africa have become increasingly integrated and have received increasing attention. There are several reasons behind this. Most notably, the lower return on investments in companies from the developed markets as well as traditional emerging market , African financial markets and especially Zambia, and Egypt have grown fast during the last few decades. They have become more attractive and accessible for investment due to decreasing restrictions on transactions, a series of reforms, and increasing financial transparency.

Furthermore, the study found no links between Tunisia and South Africa, Egypt and Tunisia no link between them share some common linkage, however, no linkages with other parts of Africa. Kenya seems to be the least integrated market in the region with no links except Nigerian market, as for as the shock transmission is concerned.

Farid(2013)the paper examines the issues of regional financial integration and its impact on financial market development in Africa. So the paper reviews the development of stock market in Africa, and moves towards regional capital market integration.

It is acknowledged that financial integration affect several aspects of economic performance, particularly increases investment rates, technology transfers, stimulates the development of domestic financial system and economic growth. Similarly, financial integration is recognized as a potential source of macroeconomic instability.

Leo Frey el Ulrich Volz (2011) Examined Regional Financial Integration in Sub-Saharan Africa

An empirical examination of its effects on financial market development. Examines the effects of political agreements on regional financial integration (RFI) on financial market development and access to and cost of finance in Sub-Saharan Africa

Suggests that RFI positively affects financial development most of the theoretical literature maintains that financial integration is beneficial because it entails macroeconomic growth and stability.

Eswar Prasad, Kenneth Rogoff, Shang-Jin Wei and M. Ayhan Kose, (2003)direct effects of financial integration: The early literature encompasses four direct benefits of financial integration: increased domestic investment, spill-over effects of foreign direct investment, consumption smoothing and international risk sharing, there are many channels by which financial market could enhance growth. However, a systematic examination of the evidence suggests that it is difficult to establish a robust causal relationship between the degree of financial integration and output growth performance.

Norman(2013) examined four instruments to strengthen financial integration in Sub-Saharan Africa. Over the past 10 years, sub-Saharan Africa grew 5 percent per year and, at this rate, the region's economy should double in size before 2030. Economic growth is projected to rise by at least 6 percent in 2014 and 7 of the world's fastest 10 economies in 2011-2015 will be from the region the pre-crisis period (2003-08).

Growth for both groups remains below pre-crisis levels. Within the resource-rich country group, the gap in growth between oil and nonoil countries has narrowed. Indeed, the nonoil resource-rich countries are averaging growth rates slightly above pre - crisis levels. Within the non-resource-rich country group, there are several countries that have achieved sustained high growth rates for over a decade, such as Ethiopia, Mozambique, and Rwanda. Among countries where growth is lagging pre-crisis levels is South Africa. Weak growth in major trading partners (especially Europe), labor unrest and mining strikes, burdensome regulations, and infrastructure gaps have held back the country's growth, which averaged 3 percent in 2010-12 compared to 4.6 percent in 2003-08.

M. Ayhan Kose, Eswar Prasad, Kenneth Rogoff and Shang-Jin Wei, (2006)examined countries that meet a minimum number of threshold conditions achieve a better balance of the benefits and risks associated with financial globalization. In particular, financial depth, the quality of supervision of the financial sector and institutional capacity appear to be the most important factors. The authors find an inverted U-shape relationship between ratios of credit to GDP and the benefits of financial market.

In particular, ratios of credit to GDP ratios of above 50 percent and below 126 percent are associated with positive marginal benefits of increasing financial market.Financial globalization mainly influences growth through indirect channels has important implications for empirical analysis of its benefits. For one thing, building institutions, enhancing market discipline and deepening the financial sector takes time, and so does the realization of growth benefits from such channels. This may explain why, over relatively short periods, it may be much easier to detect the costs of financial globalization than it is to see the benefits. Indeed, even at long horizons, detecting the benefits may be tricky, because they are indirect and work through improvements in structural, institutional and macroeconomic policy variables. If these variables are included separately in long-run cross country regressions, the catalytic effects of financial globalization may be hidden.

This paper analyzed ideas opinions and concepts of the authors and also the study critically analyzed the empirical studies and also this chapter focused on the relation between financial integration in some African countries. This study investigated different countries through empirical analysis;some of studies have found correlation between financial integration.

III. RESULT AND DISCUSSION

This study employed monthly stock market indices for five countries stock markets in the African region, namely Tunisia, Egypt, Zambia, South Africa and Mauritius. The statistical technique in used in this study is co-integration econometric technique using a time series data covering the period from 1998-2015 has been used which were obtained from World Bank statistical report. First, the study use unit root test, the existence of which could make the regression result spurious. Second, the studyuse Johansen co-integration to examine the long run relationship among the variables. Third, dependence modal the studyto determine effect or influence of all variables. Also we use E. views computer software version 8.

3.1 Descriptive Statistics

Table 3.1 summary statistics of the variables

	TUNISIA	SOUTH AFRICA	Mauritius	Zambia	EGYPT
Mean	1906.354	2483.712	38.53799	452.5869	739.9706
Median	1790.120	2689.025	32.52500	423.6800	783.0000
Maximum	4000.060	4488.150	75.15000	1304.860	2192.800
Minimum	792.6700	620.9700	11.27000	59.98000	96.70000

Std. Dev.	965.5642	1258.792	21.33380	351.7662	504.7427
Skewness	0.258920	-0.037732	0.207533	0.313507	0.414113
Kurtosis	1.452987	1.357287	1.415602	1.714253	2.468981
Jarque-Bera	23.73089	24.11245	23.91981	18.24610	8.630799
Probability	0.000007	0.000006	0.000006	0.000109	0.013361

Source: Author`s calculations using data from the world bank

In the following table, descriptive analysis shows the Maximum, Minimum and Mean average. Mean. Value stands highest average and stander deviation.

The descriptive results in Table 3.1 show that average of Tunisia is (1906.354) unit, and its standard deviation is (965.5642) and the highest Tunisia is (4000.060) unit. With the include South Africa, Mauritius, Zambia and Egypt. South Africa is (2483.712) unit, and its standard deviation is (1258.792) and the highest South Africa is (4488.150) unit. The average of Mauritius, is (38.53799) unit and its standard deviation is (21.33380) and the highest of Mauritius, is (75.15000) unit. The average of Zambia is (452.5869) unit. And its standard deviation is (351.7662) and the highest of Zambia is (1304.860) unit. The average of Egypt is (739.9706) unit. And its standard deviation is (504.7427) and the highest of Egypt is (2192.800) unit. South Africa has the highest average number were (2483.712) while Mauritius has the lowest average number was (38.53799) Highest Stander derivation variable is South Africa (965.5642) While and Mauritius has the lowest Stander derivation (75.15000).

3.2 Correlation

Table 3.2 Multicollinearity (Correlation Matrix)

	TUNISIA	**SOUTH AFRICA**	**Mauritius**	**ZAMBIA**	**EGYPT**
TUNISIA	1				
SOUTH AFRICA	0.89**	1			
MARITUS	0.93**	0.95**	1		
ZAMBIA	0.85**	0.93**	0.96**	1	
EGYPT	0.69**	0.83**	0.79**	0.86**	1

Source: Author`s calculations using data from the world bank
Note: * indicates weak correlation, ** indicates strong correlation

It is evident from the correlation matrices of table 2 that Mauritius and Zambiahave the highest correlation coefficient of 0.96, whereas Tunisia and Egypt have the lowest correlation coefficient of 0.69. All of the five markets have weak and positive relationship with the world market represented by Africa. Overall, the data illustrates that there is strong relationship among the Africa.

3.3 Unit root test

To test the stationary of the data, we tests, ADF (Augmented Dickey Fuller) were conducted. The presences of non-stationary variables might produce false regression result. To test the stationary of the data, two tests, namely, ADF (Augmented Dickey Fuller) and PP (Phillip Peron) were conducted. The existences of non-stationary variables may produce spurious regression result. The value of ADF t-statistic and PP z-statistic was compared to the critical value given by Mackinnon (1996). The result shows that the null hypothesis of non stationary at level for all the time series fails to be rejected. However, all null hypotheses were rejected for every test at first difference. It indicates clearly that all variables are stationary at (1) (first difference).

Table 3.3 Unit root test (stationary test at level and at in difference)

Variables	**ADF**		**PP**	
	At level	1st difference	At level	1st difference
TUNISIA	-1.219072	-13.78852	-1.391848	-13.80908
SOUTH AFRICA	-2.519532	-14.87020	-2.706094	-14.86853
Mauritius	-3.803491	-6.112872	-2.587194	-11.23007
ZAMBIA	-2.919945	-5.011778	-2.253951	-12.01055
EGYPT	-1.938681	-11.39167	-2.140042	-11.71633

Source: Author`s calculations using data from the world bank

3.4 Co integration Test Analysis

After conducting the unit root test and having established the presence of a unit root in the first difference of each variable, the next task is to test whether the linear combination of the series is stationary. The purpose of

this technique is to test whether the series in each country has different unit roots (non-co integrated), or shares the same unit root (co-integrated).

A non-stationary variable tends to drift extensively over time, but a pair of non-stationary variables may have the property that a particular linear combination would keep them together. Under this scenario, the two variables are said to be co-integrated, or possess a long-run (equilibrium) relationship. The Johansen (1990) efficient maximum likelihood test is used to examine the existence of a long-term relationship between markets in Africa region. The tests were based on the 5 and 1 percent levels of significance.

The findings are reported in Tables 4 & 5. Before carrying out the co-integration test, it has been ensured that there is no autocorrelation in the residuals. In Table 4, the co-integration test indicates that, at lag interval equal to 15, there is one co-integration exists at both 1 and 5 percent levels of significance. If there is co-integration, there would be long-run relationship binding the series together among the market stocks in Africa region, which implies that investment across the stock markets of Africa region could not totally enjoy long run diversification benefits.

Table 3.4 Co-integration Test

Hypothesized		**Trace**	**0.05**	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.175254	105.1311	79.34145	0.0002
At most 1 *	0.138822	64.86090	55.24578	0.0056
At most 2	0.072185	33.62494	35.01090	0.0699
At most 3	0.064454	17.96601	18.39771	0.0574
At most 4 *	0.019151	4.041294	3.841466	0.0444
Trace test indicates 2 co-integrating eqn(s) at the 0.05 level				
*** denotes rejection of the hypothesis at the 0.05 level**				
****MacKinnon-Haug-Michelis (1999) p-values**				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.175254	40.27016	37.16359	0.0213
At most 1 *	0.138822	31.23596	30.81507	0.0444
At most 2	0.072185	15.65893	24.25202	0.4414
At most 3	0.064454	13.92472	17.14769	0.1388
At most 4 *	0.019151	4.041294	3.841466	0.0444
Max-Eigen value test indicates 2 cointegratingeqn(s) at the 0.05 level				
*** denotes rejection of the hypothesis at the 0.05 level**				
****MacKinnon-Haug-Michelis (1999) p-values**				

Source: Author`s calculations using data from the world bank

3.5 Granger's Causality Test

To examine the short-run dynamics of the series, a Granger Causality tests was performed. The results, which are summarized in Table 3.5, suggest that the five countries in Africa region are significantly related in the short-run.

Table 3.5: Summary of Bivariate Granger Causality Test

Variables	Decision
TUNISIA —— SOUTH AFRICA	Tunisian stock market is not affected by south Africa stock market and south Africa stock market is not affected by Tunisian stock market
TUNISIA ⟶ MAURITIUS	Tunisian stock market is affected by Mauritius stock market while Mauritius stock market is not affected by Tunisian stock market
TUNISIA ZAMBIA	Tunisian stock market is not affected by Zambia stock market and Zambia stock market is not affected by Tunisian stock market
EGYPT —— TUNISIA	Tunisian stock market is not affected by Egypt stock market while Egypt stock market is affected by Tunisian stock market
SOUTH AFRICA ⟶ MARITUS SOUTH AFRICA ⟶ ZAMBIA	South Africa stock market is affected by Mauritius stock market while Mauritius stock market is not affected by south Africa stock market South Africa stock market is affected by Zambia stock market and ZAMBIA stock market is not affected by south Africa stock market
EGYPT —— SOUTH AFRICA	Egypt stock market is not affected by south Africa stock market and south Africa stock market is not affected by Egypt stock market
MAURITIUS ⟷ ZAMBIA	Mauritius stock market is affected by Zambia stock market and Zambiastock market is affected by Mauritius stock market
EGYPT —— MAURITIUS	Egypt stock market is not affected by Mauritius stock market and Mauritius stock market is not affected by Egypt stock market
EGYPT ⟷ ZAMBIA	Egypt stock market is affected by Zambia stock market and Zambia stock market is affected by Egypt stock market

Source: Author`s calculations using data from the world bank

Note: ⟷ indicates a bidirectional Granger Causality between the stock markets.

Indicates ⟶ unidirectional Granger Causality from one stock market to another

Indicates —— a no directional Granger Causality from one stock market to another

MAIN FINDINGS

1. Tunisian stock market is affected by Mauritius stock market and other four regional markets.
2. Egypt stock market is affected by Tunisian stock market and other four regional markets.
3. South Africa stock market is affected by Mauritius stock market and other four regional markets.
4. South Africa stock market is affected by Zambia stock market and other four regional markets.
5. Mauritius stock market is affected by Zambia stock market and Zambia stock market is affected by Mauritius stock market and other three regional markets.
6. Mauritius stock market is not affected by Egypt stock market and other four regional markets.
7. Egypt stock market is affected by Zambia stock market and Zambiastock market is affected by Egypt stock market and other three regional markets.

CONCLUSION

The aim of this paper is to examines the financial integration and relationship of Africa stock market with selected countries under south Africa, Tunisia, Egypt, Zambia and Mauritius market framework, Beside investigating on these market classification consisting more than 5 countries of major markets in the world, this study will provide an overall clear picture of how each of the individual markets selected co-integrates with the African market and also how the co movement of every individual stock market affects each other in detail and find out whether integration exist among the stock markets of several selected countries. As the financial markets in Africa are strongly co-integrated, the market is not efficient as the stock prices can predicted. Because of the linkage among these markets, creating a portfolio from the region will be risky because of the co movement among the stock markets in the region. The paper of financial integration in Africa, especially south Africa, Tunisia, Egypt, Zambia and Mauritius, is of importance to researchers and policymakers due to its policy relevance.

These financial policies also inspire innovation, encourage healthy competition among market operators and foster the overall development of the financial system.

There is also a need to consider solutions such as swap arrangements or a multi-currency clearing center. In the meantime, innovation is proceeding at a rapid pace and mobile payments can now occur between some African countries with different currencies. Regulators will need to keep pace with such developments without stifling their benefits.

The benefits of regional integration, and indeed globalization, remain a critical part of Africa's workable development strategy. The era of isolated tiny national economies has to give way to strategic alliances that harness knowledge-and-resource-based comparative advantages through integration. This however does not come effortlessly and at no cost: a lot of dedicated planning and hard work must be put in first. Some decent planning has already been going on. The next step should be to expedite implementation through greater resolve, speed and effectiveness in translating the good intentions into concrete, implementable, monitor able and results-oriented actions on the ground. This would hopefully see the African Union realizing the continent's dream of a single currency and central bank by 2025 or soon thereafter, including halving poverty as envisaged.

REFERENCE

[1] Alicia García-Herrero and Philip Wooldridge. (2007). Global and regional financial integration: Progress in emerging markets. BIS Quarterly Review , 5-7.

[2] Amadou. (2014). Four Instruments to Strengthen Financial Integration in SubSaharan Africa. international journal of management and economics , 13.

[3] Christensen, B. V. (2013). Financial integration in Africa: implications for monetary policy and financial stability . BIS Papers , 76.

[4] Eswar Prasad, Kenneth Rogoff, Shang-Jin Wei and M. Ayhan Kose. (2003). Effects of Financial Globalization on Developing Countries: Some Empirical Evidence. International Monetary fund , 4.

[5] Farid, D. S. (2013). Financial Integration in African Emerging Markets. Economic Lecturer at Institute of African Researches and Studies, Cairo University, , 19-25.

[6] Frey, U. V. (2011). Regional Financial Integration in Sub-Saharan Africa – An Empirical Examination of its Effects on Financial Market Development. Conference on Economic Development in Africa , 4.

[7] Kashif, S. (2013). Regional integration: Evidence from Africa. journal of finance , 5.

[8] Leo Frey el Ulrich Volz. (2011). Regional Financial Integration in Sub-Saharan Africa. Freie Universität Berlin German Development Institute , 12.

[9] M. Ayhan Kose, Eswar Prasad, Kenneth Rogoff and Shang-Jin Wei∗. (2006). Financial Globalization: A Reappraisal. Federal Reserve Bank of Atlanta Economic Review , 87.

[10] Norman, L. (2013). An analysis of issues shaping Africa's economic future. world bank , 19.

[11] Saleem. (2013). lower efficiency of these markets has caused problems for investors.

[12] Saleem. (2013). lower efficiency of these markets has caused problems for investors. Journal of Economics , 35-36.

[13] Saleem, K. (2013). Regional integration: Evidence from Africa. African Journal of Business Management , 2,10.

[14] Schmukler, S. L. (2005). Benefits and Risks of Financial Globalization: Challenges for Developing Countries . Development Research Group , 5.

[15] Shah, A. (2013). Global Financial Crisis. global issue Social, Political, Economic and Environmental Issues That Affect Us All , 3.

★★★