Ali Umar AHMAD, PhD
E-mail: umarahali@yahoo.com
Faculty of Economics and Management Sciences
Universiti Sultan Zainal Abidin, Terengganu, Malaysia
Associate Professor Nanthakumar LOGANATHAN, PhD
E-mail: n4nantha@yahoo.com
Faculty of Management, Universiti Teknologi Malaysia
Skudai Johor, Malaysia
Senior Lecturer Suraya ISMAIL, PhD
E-mail: surayaismail@unisza.edu.my
Faculty of Economics and Management Sciences
Universiti Sultan Zainal Abidin, Terengganu, Malaysia
Professor Dalia STREIMIKIENE
E-mail: dalia.streimikiene@knf.vu.lt
Lithuanian Institute of Agricultural Economics
Kudirkos g. 18, Vilnius, Lithuania
Senior Lecturer Abbas MARDANI, PhD
E-mail: mabbas3@live.utm.my
Faculty of Management, Universiti Teknologi Malaysia
Skudai Johor, Malaysia
Professor Asan Ali GOLAM HASSAN, PhD
Azman Hashim International Business School
Universiti Teknologi Malaysia Kuala Lumpur, Malaysia
E-mail: asanali@utm.my

FINANCIAL INSTABILITY, TRADE OPENNESS AND ENERGY PRICES ON LEADING AFRICAN COUNTRIES SUSTAINABLE GROWTH

Abstract. *This study aimed to examine the effect of financial instability, energy prices and trade openness on economic growth for leading African countries (Egypt, Kenya, Morocco, Nigeria and South Africa). We employed the second-generation cointegration test and the Dumitrescu and Hurlin (DH) heterogeneous panel Granger causality test over the period from 1970 to 2016. The result of cointegration analysis revealed that, there is the existence of a cointegration relationship between the financial instability, oil prices, and trade openness on economic growth sustainability for leading African countries. While, the causality test has revealed a unidirectional causal relationship, which running from financial instability to real economic growth, oil price to real economic growth; and a bidirectional causality running between trade openness and economic growth. The*

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empirical results also showed that, the intervention by leading African country's policymakers could create rigidity or financial repression policies rather than a more stable financial system which could achieve by financial rules and regulations being designed to widen the space for the growth and stability of oriented macroeconomic policies

Keywords*: energy prices, financial instability, growth, trade openness.*

JEL Classification: C01, F43

1. Introduction

In the last two decades, countries throughout the world have experienced severe attacks of financial instability. Banking crises have become so familiar that it is the erratic country that has not experienced, although complete financial crises have struck some economies with overwhelming effects. Financial instability, although a predominant severe problem for emerging countries, which suffer extremely when it happens, has struck industrialized countries just as frequently. If the financial system does not perform this role efficiently, then the economy cannot function well, and the economic performance will be severely hampered. The following Table 1 showed the evolution of the exponential growth rate of real gross domestic product, population and GDP by inhabitant in the leading African economies from 1970 to 2016. Despite the highest annual growth rate of real GDP from 1970 to 2016, the leading African economies experienced very little growth in GDP by inhabitant because of the high growth rate of the population. Furthermore,there are few studies that have directly captured the influences of financial instability on economic growth (Inoue and Hamori, 2016; Kumar et al., 2015; Batuo and Kupukile, 2012). The existing literature, evidently shows that developed economies had explored the two channels through which resource mobilization affects economic growth and development, such as money and capital markets (Demirguc-Kunt and Levine, 1996). Conversely, it is not the case in developing economies such as African countries, where the emphasis placed on money market with little consideration for the capital market. Additionally, none of the previous studies focused on the comparison of the leading economies of African countries. Thus, this study focuses on the analysis of real gross domestic product of the leading African countries in relation to three factors, namely the financial instability, energy prices and trade openness. It is very important to determine the effect of these factors in the real gross domestic product of these countries, so as to formulate better policies to guarantee higher growth in domestic product by inhabitant with a view to improve the economic performance of the countries (Aizenman et al., 2015; Asongu et al., 2015).

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Table 1. Averages leading Africa country's annual growth (in percentage)

Countries	Average GDP Growth	Average Population Growth	GDP by Inhabitant
Kenya	4.55	3.18	1.37
Egypt	5.04	2.19	2.85
Morocco	4.39	1.73	2.66
Nigeria	4.28	2.60	1.68
South Africa	2.53	1.99	0.54

Source: World Bank (2017)

The paper is organized as follows. The following section discusses the brief of literature review, which is relevant to the empirical analysis of this study. The next section sets the data and empirical strategies. The fourth section discusses and describes the empirical findings, and the final section concludes.

2. Brief of literature review

Considerable economic researches have been conducted in investigating the linkages between financial instability, energy prices, trade openness and economic growth. Some of the latest major studies have been reviewed over the past four years, starting withAli and Aamir (2014) investigated the effect of stock markets for economic growth based on panel data 1991-2011 for China, India, Malaysia, Pakistan and Singapore. Their results showed that stock market development significantly explained economic growth. Moreover, Adusei (2014) investigated whether the stock market in Ghana contributes to the growth of the Ghanaian economy and the findings of the cointegration analysis indicated that there is a long-run cointegrating association between stock market development and economic growth. The Granger causality analysis results revealed that there is a unidirectional causality running from stock market development to economic growth. In Nigeria, Judith et al. (2014) explored the effect of bank credit on economic growth over the period from1986 until 2012. The result confirmed that there is a long-run cointegration relationship and revealed a one-way causality is running from economic growth in bank credit and bidirectional causality between bank credit and broad money supply.

Also, Obademi and Elumaro (2014) investigated the link between banks and economic growth in Nigeria over a period of 31 years divided into three regulatory regimes: intensive regulation regime (1970-1985), deregulation regime (1986-1995) and guided deregulation regime (1996-2010). The results revealed that banks have significant positive effects on economic growth in Nigeria under all the regulatory regimes. The economic growth has Grangercause with banks only in the era of guided deregulation. While, Ductor and Grechyna (2014) also explored the

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interdependence between real sector out and financial development and the impact of economic growth using panel data for 101 developing and developed countries. Similarly, Eriemo (2014) studied the effect of the banking sector reforms on economic growth from1980 to 2012 in Nigeria. The result revealed that the minimum capital base, which is at the heart of the banking sector reform, has a significant positive association with the level of economic growth. But, Hailemariam and Guotai (2014) findings revealed that there exists statistically significant link between stock market development and economic growth both directly and indirectly by enhancing investment behavior. Meanwhile, Narayan et al. (2014) revealed evidence of additional out-of-sample predictability with nominal values than real oil prices found in-sample predictability to be independent of the use of real and nominal prices, and indicated better evidence of predictability for developed countries.

Aizenman et al. (2015) compared to countries within the same income level that is; eleven Asian countries and nine Latin Americas. The analysis revealed the negative effects of financial deepening on output growth in several sectors. While, Asongu et al. (2015) found that, the energy consumption has a significant negative effect on economic growth, and there is a unidirectional relation is running from economic growth in energy consumption. Siddique and Majeed (2015) also showed that a feedback causality between economic growth and trade, and one-way causality running from financial development, trade to economic growth. Kumar et al. (2015) has used the role of trade, energy and financial development in explaining economic growth in South Africa. Empirically, this study found unidirectional causality from capital stock and energy consumption to economic growth; and from the capital to stock to trade openness and bidirectional causality between economic growth and trade openness. Consequently, Kyophilavong et al. (2015) investigated the nexus between trade openness, energy consumption and economic growth in Thailand and receive a bidirectional causal relationship exists between energy consumption and economic growth.

Meanwhile, Le (2015) has investigated the dynamic relationship between economic output, energy use, trade and financial development for Sub-Saharan African countries which categories into low and middle-income countries. The cointegration estimation indicates a long-run relationship, while the financial development, energy consumption, and trade openness showed significant effects on economic output for the middle-income countries and there is no specific relation appeared for Sub-Saharan low-income countries. In the case of Jordan, Mugableh (2015) confirmed the existence of a long-run relationship between the economic growth and its determinant, along with a unidirectional causality running between energy consumption to economic growth, and from foreign direct investment to economic growth. While, Inoue and Hamori (2016) study related to the impact of financial access to economic growth for 38 sub-Saharan African countries revealed that, financial services access has contributed to economic growth. Nysha and

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Odhiambo (2016) found that, there is a long-run causal relation from bank-based financial development of economic growth in Australia and theUnited Kingdom; a feedback causality in the case of Brazil; and a neutrality relation in the case of South Africa, Kenya, and the United States of America. In market-based financial development, they found that bidirectional causality in the case of Kenya.

Moreover, Amri (2017) revealed a bidirectional causal relationship between, trade and economic growth, trade and renewable energy consumption, economic growth and renewable energy consumption. Bekhet et al. (2017) found long run and causal associations between financial development, carbon emissions, GDP, and energy use in all Gulf Cooperation Council (GCC) countries except United Arab Emirates. Faisal et al. (2017) confirmed the existence of long-run association among the international trade, financial development and economic growth, along with short run on-way causality from exports to economic growth. Iyke (2017) revealed that rises in trade openness is related to increase in real GDP per capita growth in Central and Eastern European (CEE) countries. Kahia et al. (2017) confirmed the evidence of long-term association between real GDP, real gross fixed capital formation, non-renewable energy use, and renewable energy use and labor force, along with the bidirectional causality between, renewable energy use and economic growth, non-renewable energy use and economic growth. Keho (2017) found that trade openness has a positive impact on economic growth and a positive and strong association among trade openness and capital formation in stimulating economic growth. Pradhan et al. (2017) found a long-run equilibrium association between trade openness, banking sector depth and economic growth as well as a short-run association among these variables.

Thus, using the appropriate empirical analysis, the study will be able to clearly identify the linkages between financial instability, trade openness and energy prices in African economy's growth performance.

3. Data and empirical strategies

This study used annual panel data over the period from 1970 to 2016 toanalyze the effect of financial instability, oil prices and trade openness on economic growth for leading African countries (Egypt, Kenya, Morocco, Nigeria and South Africa). The data are accessed from the World Bank Development Indicators Database (World Bank, 2017). The study used the real gross domestic product (RGDP) as a proxy of economic sustainability and this series is measured based on the deflate values (2010=100). The financial instability's data consisted of commonly used financial instability (FI), that are composites of variables taken from the banking system's balance sheet such as domestic credit, domestic credit provided by the private sector, market capitalization, broad money supply, and lending rates. The creation of the measures of financial instability is a very difficult task due to the variety of financial services catered for in the financial system and this study follows

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the method proposed by Batuo and Kupukile (2012). To create the financial instability indicator by applying factoring analysis on some financial stability indicators. The principal reason for building a composite index is to avoid the problem of multicollinearity that occurs when introducing simultaneously several financial instability variables that are very correlated among them. The oil price (OP) which calculated as a ratio of crude oil prices and consumer price index as been widely used in recent studies (Baumeister and Peersman, 2013); and trade openness (TOPN) measured as the ratio of the summations volume of import and export of goods and services in US dollar currency. Indeed, for the purpose of panel series estimation, we transform all variables into natural logarithm formation and the basic function of this study can be expressed as follows:

$$RGDP_{it} = f(FI_{it}, OP_{it}, TOPN_{it}) \quad (1)$$

First, we begin with the cross-section dependence test, where the cross-section dependence test it is the first test before to examine the order of integration of the series; the most concern is to test for the cross-sectional dependence of the series. Next we employ the traditional Dickey and Fuller (1979) for the ADF-Fisher test, Phillips and Perron (1988) for the PP-Fisher test and Madalla and Wu (1999) panel unit tests to capture the panel unit root integration for all series. Basically, the tests are all categorized by the combining of individual unit root tests to derive a panel-specific outcome. Next, we proceed with the Larsson et al. (2001) cointegration analysis to capture the long-run relationship between the series used in this study. The Larsson et al. (2001) procedure allows for more than one cointegration vector with a heterogeneous panel cointegration condition and the following equation (2) indicate the formulation of capturing Larsson's statistic:

$$LLL^{S}\left(k/x\right) = \frac{\sqrt{N^2 \sum_{i=1}^{N} \left(LR_i^v\left(k/x\right) - E(LR_i^v\left(k/x\right)\right)}}{\sqrt{Var\left(LR_i^v\left(k/x\right)\right)}} \rightarrow N(0,1) \quad (2)$$

where, in the serial limit $Q \rightarrow \infty$ tailed by $N \rightarrow \infty$. $E(LR_i{}^v\left(\frac{K}{x}\right))$ and $Var(LR_i{}^v(\frac{K}{x})$ denote the mean and variance of the asymptotic Trace statistics, respectively found from a stochastic simulation. Next, Pesaran et al. (1999) categorized a number of factors that can be recognized as the homogeneity in the long-run relationship, which was covered by all groups, for examples; common technologies, the institutional development and arbitration condition. In principle similar algorithm can be used to compute the pooled mean group estimates (PMG) estimators regardless of the regressors are integrated either with *I*(0) or *I*(1), which

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underlying asymptotic theories for these two cases is basically diverse and, their derivations necessitate distinct treatments. The lag order was first chosen in every country on the unrestricted model by the Schwarz Bayesian Criterion (SBC). Therefore, the PMG estimates used in this study can express as follows:

$$\Delta RGDP_{it} = \beta_1 + \sum_{j=1}^{p-1} \partial_{ij} \Delta RGDP_{it-j} + \sum_{i=0}^{q-1} \gamma_{ij} \Delta FI_{ij-1} + \sum_{i=0}^{r-1} \delta_{ij} \Delta OP_{ij-1} + \sum_{i=0}^{s-1} \varphi_{ij} \Delta TOPN_{ij-1} + \pi_1 RGDP_{ij-1} + \pi_2 FI_{ij-1} + \pi_3 OP_{ij-1} + \pi_4 TOPN_{ij-1} + \psi_{it-1} + \varepsilon_{1it} \quad (3)$$

where, Δ is the first difference operator, and RGDP, FI, OP and TOPN are the variables selected in the study. The constant coefficient represents by β_1 and the short and long-run coefficients on the trends representing by $\partial_{ij}, \gamma_{ij}, \delta_{ij}, \varphi_{ij}$ and $\pi_1, \pi_2, \pi_3, \pi_4$, respectively. While, *p*, *q*, *r* and *s*indicate the maximum lagged length, andε_{1it} is the error terms. The error correction term indicated by the lagged ψ_{it-1} coefficient, which indicate the speed of panel mean group estimate from the short-run dynamic variations towards the long-run equilibrium condition. Eventually, in numerous economic matters, it is exceptionally likely that if a causal relationship exists for a nation or an individual, it likewise exists for some different country or individual country. Conversely, the utilization of cross-sectional data includes considering the heterogeneity across individual countries in the meaning of the causal relationship (Dumitrescu and Hurlin 2012). Where, β_i are constant throughout the time dimension and *K* signifies the constant lag orders for all cross sections of the panel estimates. This allows the $\partial_i^{(k)}, \gamma_i^{(k)}, \delta_i^{(k)}$ *and* $\theta_i^{(k)}$ as an autoregressive parameter and the coefficients of the slope to differ across the groups.

$$\Delta RGDP_{i,t} = \beta_i + \sum_{k=1}^{K} \partial_i^{(k)} \Delta RGDP_{i,t-k} + \sum_{k=1}^{K} \gamma_i^{(k)} \Delta FI_{i,t-k} + \sum_{k=1}^{K} \delta_i^{(k)} \Delta OP_{i,t-k} + \sum_{k=1}^{K} \theta_i^{(k)} \Delta TOPN_{i,t-k} + \varepsilon_{i,t} \quad (4)$$

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$$\Delta FI_{i,t} = \beta_i + \sum_{k=1}^{K} \gamma_i^{(k)} \Delta FI_{i,t-k} + \sum_{k=1}^{K} \partial_i^{(k)} \Delta RGDP_{i,t-k} + \sum_{k=1}^{K} \delta_i^{(k)} \Delta OP_{i,t-k} + \sum_{k=1}^{K} \theta_i^{(k)} \Delta TOPN_{i,t-k} + \varepsilon_{i,t} \quad (5)$$

$$\Delta OP_{i,t} = \beta_i + \sum_{k=1}^{K} \delta_i^{(k)} \Delta OP_{i,t-k} + \sum_{k=1}^{K} \gamma_i^{(k)} \Delta FI_{i,t-k} + \sum_{k=1}^{K} \partial_i^{(k)} \Delta RGDP_{i,t-k} + \sum_{k=1}^{K} \theta_i^{(k)} \Delta TOPN_{i,t-k} + \varepsilon_{i,t} \quad (6)$$

$$\Delta TOPN_{i,t} = \beta_i + \sum_{k=1}^{K} \theta_i^{(k)} \Delta TOPN_{i,t-k} + \sum_{k=1}^{K} \delta_i^{(k)} \Delta OP_{i,t-k} + \sum_{k=1}^{K} \gamma_i^{(k)} \Delta FI_{i,t-k} + \sum_{k=1}^{K} \partial_i^{(k)} \Delta RGDP_{i,t-k} + \varepsilon_{i,t} \quad (7)$$

4. Empirical findings

Table 2 showed the descriptive statistics for leading African countries. The values of kurtosis and skewness show a lack of symmetry in the distribution. The Jarque-Bera (J-B) statistics show that, the frequency distributions of all series are rejecting the normal distribution hypothesis and this condition is normal for panel data analysis.

Table 2. Summary statistics and the correlation matrix

Variable	Mean	Std. Dev.	Skewness	Kurtosis	J-B (p-values)
$RGDP_{it}$	-1.506	2.094	0.829	3.579	30.270* (0.000)
FI_{it}	-0.015	1.645	-0.407	3.232	7.023** (0.029)
OP_{it}	-0.660	0.260	-0.965	4.606	61.745* (0.000)
$TOPN_{it}$	0.348	1.402	1.128	3.758	55.476* (0.000)

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	Correlation relationship			
	$RGDP_{it}$	FI_{it}	OP_{it}	$TOPN_{it}$
$RGDP_{it}$	**1.000**			
FI_{it}	-0.604*	**1.000**		
	(0.000)			
OP_{it}	-0.291*	0.310*	**1.000**	
	(0.000)	(0.000)		
$TOPN_{it}$	0.805*	-0.518**	-0.143**	**1.000**
	(0.000)	(0.032)	(0.011)	

Note: * and ** significant at 1 and 5% levels, respectively. J-B represents Jarque-Bera normality test and the *p*-values are in parentheses.

The results of the correlation matrix of the leading African countries show that real RGDP decreases along with the increase in FI and OP, and TOPN increases real gross domestic product. However, financial instability increases energy prices, while energy prices decrease as financial instability and trade openness. As far as the relationship between real gross domestic product and other variables are concerned, the following conclusions have been revealed, i.e., financial instability and energy prices significantly deteriorates economic growth; trade openness increase the economic growth in the panel of leading African countries

This study applied two cross-sectional independence tests developed by Pesaran (2007) to assess whether the time series in the panel are cross-section independent. Table 3 reports the results of the CD tests based on these correlations indicate that real gross domestic product, financial instability, energy prices and trade openness are highly dependent on leading African countries. The probability values in parenthesis show that the null hypothesis of independence is strongly rejected at the 1% level of significance, so that cross-section dependence has to be considered when computing the panel statistical data if misleading conclusions are to be avoided and spells that the variables are cross-sectional independent, and the panel data set is statistically significant for empirical tests.

Table 3. Cross-sectional dependence tests

Variable	Pesaran's CD test	Breush-Pagan (LM) test
$RGDP_{it}$	16.289*	268.169*
	(0.000)	(0.000)
FI_{it}	12.304*	174.279*
	(0.000)	(0.000)
OP_{it}	2.957*	45.734*
	(0.000)	(0.000)
$TOPN_{it}$	16.369*	299.161*
	(0.000)	(0.000)

Note: * and ** significant at 1 and 5% levels, respectively. The *p*-values are in parentheses.

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The results of panel unit root test are summarized in Table 4. The results of the ADF-Fisher, PP-Fisher and Madalla and Wu unit root tests revealed the rejection of the unit root hypothesis. Table 4 showed the results of the unit root analysis of the variables for real gross domestic product, energy prices and financial instability at a level were found to be non-stationary at 1, 5 and 10% levels of significance, respectively. Thus, the real gross domestic product, energy prices, trade openness and financial instability were non-stationary and not integrated of the same order. While, at the first difference condition, we found all variables were stationary and integrated of the same order, that is *I*(1) at the 1% level of significance.

Table 4. Panel unit root test results

	ADF-Fisher		PP-Fisher		Madalla and Wu	
Variable	*I*(0)	*I*(1)	*I*(0)	*I*(1)	*I*(0)	*I*(1)
$RGDP_{it}$	9.599	136.471*	10.159	175.521*	9.529	189.266*
FI_{it}	5.539	100.052*	13.051	176.385*	5.617	129.622*
OP_{it}	13.908	83.291*	14.669	149.224*	13.976	102.706*
$TOPN_{it}$	3.261	71.385*	5.473	160.174*	3.270	84.891*

Note: *, ** and *** significant at 1, 5 and 10% levels, respectively.

Table 5. Larsson's heterogeneous panel cointegration estimates

Countries	*r*=0	*r*=1	*r*=2	*r*=3
Egypt	33.094	12.707	4.217	1.953
Kenya	48.658*	17.859	5.341	0.081
Morocco	39.646	19.833	3.909	0.081
Nigeria	52.377**	23.481	6.869	1.246
South Africa	47.554**	20.737	5.098	0.796
LR-NT	44.266***	18.924	5.087	0.831
LR-test	55.496**	24.784	7.675	1.949
$E(Z_k)$	27.729	14.955	6.068	1.137
$Var(Z_k)$	45.264	24.733	10.535	2.212

Note: * denote statistically significant at 1%, which based on Larsson et al. (2001) critical values. The $E(Z_K)$ and $Var(Z_k)$ are captured from Larsson et al., (2001). LR-NT represents the average Trace statistic values and LR-test is the Larsson test statistics.

The panel rank (LR) test results reject the null of no cointegration. Given the existence of panel cointegration with one cointegrating vector, the null hypothesis of a homogeneous cointegrating vector is tested. Table 5 revealed that the null of homogeneous cointegrating vectors is rejected as the test statistic, 55.496, exceeded the critical value of 53.79 at the 1 % level of significance. Hence, the Larsson et al. (2001) panel test for cointegration indicated a common rank, (*r*=0),

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between financial instability, oil prices, trade openness and economic growth of the leading Africa economies. This result is consistent with the previous studies of Aizenman et al. (2015), Mugableh (2015); and Inoue and Hamari (2016).

The following estimated equation represents the PMG results of leading African economies. In the long-run coefficient for TOPN is positive significant (Note: Standard error value in parentheses). However, in the short-run, the coefficients for FI and TOPN are positively insignificant, while the OP series is negative insignificant. In theory, the error correction term must be negative and significant. Moreover, the significant error correction term is further proof of the existence of the stable long-run relationship.The estimated ect_{t-1}coefficients of the of leading African economies is -0.427 at the 1% significant level. This indicates that, in the absence of changes in the independent variables, the deviation of the model for the long-run path is corrected by an average of 43% per year. The implication is that; it will take a little time to return entirely to the long-run equilibrium if there is a shock to the independent variables.

$$\Delta RGDP_{it} = \underset{}{0.768} + \underset{(0.230)}{0.149}\Delta FI_{t-1} - \underset{(0.929)}{0.668}\Delta OP_{t-1} + \underset{(0.385)}{0.207}\Delta TOPN_{t-1}$$

$$\underset{(0.125)^{*}}{-0.565}FI_{t-1} - \underset{(0.509)^{**}}{1.158}OP_{t-1} + \underset{(0.102)^{*}}{0.863}TOPN_{t-1} - \underset{(0.071)^{*}}{0.427}\psi_{t-1}$$

The negative linkage between the RGDP and FI in the long run is consistent with Batuo and Kupukile (2012), who found similar results for African countries. This result showed that, the liberalization appeared to engender greater instability and crises in leading African countries, particularly in the financial sector, which in turns affects the real sector. This negative impact has the potential to cause significant macroeconomic costs, as it interferes with production, consumption, and investment, and, therefore, defeats the leading economies goals of broader economic growth and development in the long run. We found that, the negative relationship between RGDP and OP is in line with Bouzid (2012), and Asongu et al. (2015) empirical findings. The result argued that for leading African countries, an OP increase directly decreases real national income through lower export earnings.

While, the increases in OP will lead to decline, the costs of raw materials and the real effective exchange rate will rise significantly, abridged non-oil demand and lower investment. This long-run positive relationship of TOPN, has been supportedby the works by Awokuse (2008), Faisal et al. (2017), Iyke (2017), Keho (2017) and Pradhan et al. (2017). This result indicated that, the analysis results support the hypothesis that TOPEN will increase the RGDP, which is put forward by endogenous growth theories. When the role of openness in leading economies new technological developments by more efficient production methods and the role

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of the increase in total factor productivity by contributing to an optimal allocation of resources are considered, the importance of policies to increase the openness obviously comes out regarding both achieving integration in the global economy and providing a strong and sustainable economic growth. Therefore, as a result of policies to be implemented in this approach, the rise in trade openness, particularly in exports will support economic growth by increasing the economic performance of the countries.

Furthermore, the DH causality revealed an unidirectional causality running from financial instability to economic growth, and oil prices to economic growth, and bidirectional causality between trade openness and economic growth in the leading African economies (see Table 6). The unidirectional causality running from oil prices to economic growth is consistent with Asongu et al. (2015) and Mugableh (2015) findings. Moreover, the bidirectional causality between trade openness and economic growth indicated that the leading Africa countries trade openness facilitates economic growth by the exploitation of economics of scale, reduce the obligatory constraint to allow increases in the import of capital and intermediate goods enhancing efficiency through increased competition, and encouraging the dissemination of knowledge through learning by doing. The results of this study support the argument that trade openness will continue to be viewed as a key determinant of economic growth. The result has been supported by Siddique and Majeed (2015), Kumar et al. (2015) and Amri (2017).

Table 6. DH causality test results

	Direction of causalities	
	$FI_{it} \rightarrow RGDP_{it}$	$FI_{it} \leftarrow RGDP_{it}$
W^{Hnc}	6.154*	1.431
	(0.000)	(0.579)
Z_{NT}^{Hnc}	7.412	0.555
	$OP_{it} \rightarrow RGDP_{it}$	$OP_{it} \leftarrow RGDP_{it}$
W^{Hnc}	2.201***	1.960
	(0.094)	(0.185)
Z_{NT}^{Hnc}	1.674	1.324
	$TOPN_{it} \rightarrow RGDP_{it}$	$TOPN_{it} \leftarrow RGDP_{it}$
W^{Hnc}	2.592**	6.638*
	(0.032)	(0.000)
Z_{NT}^{Hnc}	2.150	8.119

Note: *, ** and *** significant at 1, 5 and 10% levels respectively. The *p*-values are in parentheses.

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5. Conclusion

Based on the results of the various tests and their discussions, the following conclusions could be drawn. Firstly, this study confirmed the existence of cointegration linkages between the financial instability, energy prices, trade openness and economic growth in leading African region. The intervention by leading African country's policymakers can create rigidity or financial repression policies, rather than realized more on instable financial system, which could achieve by financial rules and regulations being designed to widen the space for the growth and stability of oriented macroeconomic policies. At the same time, it should be kept in mind that regulations could also be problematic not only because they can themselves be the source of instability and can have adverse effects on financial intermediation and development. These aspects of regulation should be taken into account when designing prudential and capital account regimes. Institutions may need to be strengthened or created before new policies, and regulatory measures are introduced. To look into the situation, there should be coordination among the various public authorities responsible for monetary policy, regulation and monitoring of the financial system. Some of these responsibilities may come under the same authority; this applies in particularto the monetary policy. Financial management and supervision should come under the authority of the Central Bank, given their task of attaining stability in the financial system.

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