SALIH TURAN KATIRCIOGLU*

Financial Development, International Trade and Economic Growth: The Case of Sub-Saharan Africa

Introduction

Among the main issues of development economics is to investigate the major determinants of economic growth. The relationship and the direction of causality between financial development and economic growth have been empirically tested in the literature. After the extensive studies in this field, it is now well recognized that financial development is crucial for economic growth [Calderon, Liu 2003] as it is a necessary condition for achieving a high rate of economic growth [Chang 2002] and has a strong positive relationship with economic growth [Mazur, Alexander 2001]. However, according to De Gregorior and Guidotti [1995] financial development significantly reduces economic growth for countries (especially in Latin America) experiencing relatively high inflation rates. Thus, this causal relationship generally remains unclear [Calderon, Liu 2003].

In the early studies of economic development, relatively little attention was paid to the financial aspects of the process and the role of the financial sector was underestimated by economists. In the 1960s, however, the relationship between financial development and economic growth started to be explored in the pioneering studies of Gurley and Shaw [1955, 1967] and Goldsmith [1969]. Following these studies a substantial amount of work has been done by different writers, such as Patrick [1966], Khatkhate [1972, 1988], McKinnon [1973], Shaw [1973], Fry [1978, 1986, 1988], Gupta [1984] and Wijnbergen [1982, 1985]. The relationship between financial development and economic growth has been further researched in the recent studies of Mazur and Alexander [2001], Chang [2002], Calderon and Liu [2003], Jenkins and Katircioglu [2009], and Katircioglu et. al [2007].

Patrick [1966] developed two hypotheses testing the possible directions of causality between financial development and economic growth, that is, *the supply-leading hypothesis*, assuming a causal relationship from financial development to economic growth, and the *demand-following hypothesis*, which it postulates a causal relationship from economic growth to financial development. In the empirical literature, McKinnon [1973], King and Levine [1993], Neusser and Kugler [1998] and Levine et al. [2000] support the supply-leading hypothesis while Gurley and Shaw [1967], Goldsmith [1969], and Jung [1986] support the

* Salih Turan Katircioglu, Ph.D – Department of Banking and Finance, Eastern Mediterranean University, Famagusta, Nort Cyprus; e-mail: salihk@emu.edu.tr

demand-following hypothesis. On the other hand, Soukhakian [2007] supports the supply--leading hypothesis for Japan.

On the other hand, many studies in the literature proved the importance of international trade for economic growth. Some of these studies support *export-led hypothesis* while others support *import-led hypothesis* for particular countries. Although results on the direction of relationship between international trade and economic growth are still inconclusive [Balaguer, Cantavella-Jorda 2002], these studies have shown that international trade is crucial for economic growth of many countries [Shan, Sun 1998; Xu 1996; Jin 1995; Bahmani--Oskooee, Alse 1993, Marin 1992; Chow 1987]. Recent theoretical literature provides two main mechanisms through which international trade may affect growth. The first is its effect on the rate of innovation. The second is its effect on the adoption rate of technologies from more advanced countries that also increases the economy's rate of total factor productivity growth [Proudman et al. 1998].

Financial development and international trade are identified as macroeconomic variables as being highly correlated with economic growth performance across countries in the empirical growth literature [Beck 2002]. There are also empirical studies in the literature searching the channels through which both financial development and openness affect economic growth. Kletzer and Bardhan [1987] incorporate a financial sector into the Heckscher-Ohlin trade model and show that financial sector development gives countries a comparative advantage in industries that rely more on external financing. According to Baldwin [1989], financial markets are a source of comparative advantage. As Beck [2002] mentions, many economists argued that the development of the financial sector follows rather than leads the development of the real sector due to the fact that the specialization of countries in particular industries would create a demand for a well-developed financial sector. Jenkins and Katircioglu [2009] use the bounds test to cointegration and Granger causality tests to investigate the empirical relationship between financial development, international trade and economic growth in Cyprus. They find that money supply, exports and imports are stimulated by growth in the long-run period; however, they did not find any long-run equilibrium relationship between financial development (as measured by money supply and domestic credits provided by banking sector) and international trade (exports and imports of goods and services), except the relationship between exports and money supply in the case of Cyprus. Furthermore, the results of Jenkins and Katircioglu [2009] do not suggest any direction of causality between financial development and international trade in Cyprus. On the other hand, Katircioglu et al. [2007] also investigated the relationship between financial development, international trade, and economic growth in India. They suggest that long-run equilibrium relationship exists between these variables. Their further results from causality tests reveal that (1) economic growth in India stimulates a growth in international trade (exports and imports of goods and services), (2) financial development is stimulated by exports while imports are stimulated by money supply, and (3) there is feedback relationship between financial development and economic growth in the case of India. Finally, Soukhakian [2007] finds that a long run equilibrium relationship exists between financial development, international trade and economic growth in Japan, except between domestic credit (second measure of financial development), trade and growth. The results of Soukhakian [2007] suggest that financial development as proxied by broad money gives causation to economic growth that supports the supply-leading growth hypothesis for the Japanese economy and supports the growth-driven trade (GDT) hypothesis, which claims that economic growth causes "more efficient imports and exports" for Japan.

Having the fact that further attention for the relationship between financial development, international trade, and economic growth is still needed, this study empirically investigates

the possible co-integration and the causal link between financial development, international trade (including exports and imports) and economic growth in Sub-Saharan Africa, whose population is about 800 million and has a developing economy with 1,053.9 USD per capita income as of 2007 figures [World Bank 2008]. Therefore, the findings of this study are expected to give very important messages to academics and policy makers in the region.

The paper proceeds as follows. Section 1 defines data and methodology of the study. Section 2 provides results and discussions and the paper ends with conclusion.

1. Data and methodology

Data used in this paper are annual figures covering the period 1960–2007 and the variables of the study are real gross domestic product (GDP), real broad money (M2) as ratio to GDP, real domestic credit provided by banking sector (DC) as ratio to GDP, real exports of goods and services and real imports of goods and services. Data were gathered from World Bank Development Indicators [World Bank 2008]. Real GDP, real exports, and real imports are at 2000 constant US $ prices.

The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP)[1] Unit Root Tests are employed to test the integration level and the possible co-integration among the variables [Dickey and Fuller 1981; Phillips and Perron 1988]. The PP procedures, which compute a residual variance that is robust to auto-correlation, are applied to test for unit roots as an alternative to ADF unit root test.

To investigate the long-term relationship between the variables under consideration, the bounds test for level relationship within ARDL (the autoregressive distributed lag) modeling approach was adopted in this study. This model was developed by Pesaran et al. [2001] and can be applied irrespective of the order of integration of the variables (irrespective of whether regressors are purely I(0), purely I(1), or mutually co-integrated). The ARDL modelling approach involves estimating the following error correction models under bivariate system:

$$\Delta \ln Y_t = \alpha_{0_r} + \sum_{i=1}^{n} b_{i_r} \Delta \ln Y_{t-i} + \sum_{i=0}^{n} c_{i_r} \Delta \ln X_{t-i} + \sigma_{1_r} \ln Y_{t-1} + \sigma_{2_r} \ln X_{t-i} + \varepsilon_{1t}, \quad (1)$$

$$\Delta \ln X_t = \alpha_{0_x} + \sum_{i=1}^{n} b_{i_x} \Delta \ln X_{t-i} + \sum_{i=0}^{n} c_{i_x} \Delta \ln Y_{t-i} + \varpi_{1_x} \ln X_{t-1} + \varpi_{2_x} \ln Y_{t-i} + \varepsilon_{2t}. \quad (2)$$

In equations (1) and (2), Δ is the difference operator, $\ln Y_t$ is the natural log of the dependent variable, $\ln X_t$ is the natural log of the independent variable, and ε_{1t} and ε_{2t} are serially independent random errors with mean zero and finite covariance matrix.

Again, in equations (1) and (2), the *F*-test is used for investigating a (single) long-term relationship in a bivariate system. In the case of a long-term relationship, the F-test indicates which variable should be normalized. In equation (1), when ln*Y* is the dependent variable, the null hypothesis of no level relationship is H_0: $\sigma_{1Y} = \sigma_{2Y} = 0$ and the alternative hypothesis of a level relationship is H_1: $\sigma_{1Y} \neq \sigma_{2Y} \neq 0$. On the other hand, in equation (2), when ln*X* is the dependent variable, the null hypothesis of no level relationship is H_0: $\varpi_{1Y} = \varpi_{2Y} = 0$, and the alternative hypothesis of level relationship is H_1: $\varpi_{1Y} \neq \varpi_{2Y} \neq 0$.

In the case of level relationships, the conditional ECMs using the ARDL approach will be employed in this study. As suggested by Pesaran et al. [2001], the time series properties

[1] PP approach allows for the presence of unknown forms of autocorrelation with a structural break in the time series and conditional heteroscedasticity in the error term.

of the key variables in the conditional ECMs of the present study can be approximated by the double-log EC (p) (error correction at p lag levels that might be different for each explanatory variable) models under the ARDL approach, augmented with appropriate deterministics such as intercepts and time trends. Then, the conditional ECM of the interest using the ARDL approach can be written as:

$$\Delta \ln Y_t = \Delta\beta_0 + \sum_{j=1}^{p-1} \varphi_J \Delta \ln Y_{t-1} + \sum_{i=1}^{k} \beta_{i_0} \Delta \ln X_{it} + \sum_{i=1}^{k} \sum_{j=1}^{q-1} \beta_{ij} \Delta X_{i,t-j} + \\ + \phi \Delta Z_t + \gamma(1, p) ECT_{t-1} + \mu_t \tag{3}$$

where ϕ_j, β_{ij}, and φ are the coefficients for the short-run dynamics of the model's convergence to equilibrium. The coefficient of $\gamma(1, p)$ denotes the speed of adjustment and is expected to be negative.

In the case of level relationships based on the bounds tests, conditional Granger causality tests should be carried out under the vector error correction model (VECM). By doing so, the short-run deviations of series from their long-run equilibrium path are also captured by including an error correction term [see also Narayan and Smyth 2004]. Therefore, conditional vector error correction models for Granger causality under the bivariate system in this study can be specified as follows:

$$\Delta \ln Y_t = \alpha_0 + \varphi_{11}^p(L) \Delta \ln Y_t + \varphi_{12}^q(L) \Delta \ln X_t + \delta ECT_{t-1} + \mu_{1t} \tag{4}$$

$$\Delta \ln X_t = \alpha_0 + \varphi_{21}^p(L) \Delta \ln X_t + \varphi_{22}^q(L) \Delta \ln Y_t + \delta ECT_{t-1} + \mu_{2t} \tag{5}$$

Where

$$\varphi_{11}^p(L) = \sum_{i=1}^{P_{11}} \varphi_{11,i}^p L^i \qquad \varphi_{12}^p(L) = \sum_{i=0}^{P_{12}} \varphi_{12,i}^p L^i$$
$$\varphi_{21}^p(L) = \sum_{i=1}^{P_{21}} \varphi_{21,i}^p L^i \qquad \varphi_1^p(L) = \sum_{i=0}^{P_{22}} \varphi_{22,i}^p L^i$$

In equations (4) and (5), Δ denotes the difference operator and L denotes the lag operator where $(L)\Delta \ln Y_t = \Delta \ln Y_{t-1}$. ECT_{t-1} is the lagged error correction term derived from the long-run co-integration model. Finally, μ_{1t} and μ_{2t} are serially independent random errors with mean zero and finite covariance matrix. Finally, according to the VECM for causality tests, having statistically significant t-ratios for ECT_{t-1} in equations (4) and (5) would meet conditions to have long-run causations.

2. Results and discussions

Table 1 gives ADF and PP unit root test results for the variables of the study. Real GDP, domestic credit, exports, and imports seem to be non-stationary at their levels as justified by both ADF and PP tests. On the other hand, M2 is stationary according to the ADF and PP tests. Thus, real GDP, DC, exports, and imports in the Sub-Saharan Africa are said to be integrated of order one, I(1) while M2 is integrated of order zero, I(0).

Unit root tests provided mixed results for integration order of the variables in the present study; therefore, long-run equilibrium relationship will be now investigated by using the bounds test within the ARDL modelling approach. Since M2 in is I(0), it will not be included as dependent variable in the further models such as bounds tests, conditional

Table 1

ADF and PP Tests for unit root

Statistics (level)	ln*y*	Lag	ln*M*2	Lag	ln*DC*	lag	ln*X*	lag	ln*M*	lag
τ_T (ADF)	–2.50	(1)	–2.73	(0)	–2.19	(3)	–2.66	(0)	–0.82	(0)
τ_μ (ADF)	–0.93	(1)	–0.40	(0)	–2.07	(3)	–0.39	(2)	0.57	(0)
τ (ADF)	3.08	(1)	–1.67***	(0)	–1.49	(3)	4.13	(2)	4.14	(0)
τ_T (PP)	–1.89	(3)	–2.73	(1)	–2.49	(4)	–2.74	(1)	–0.94	(2)
τ_μ (PP)	–0.99	(3)	0.09	(5)	–2.26	(5)	0.05	(10)	0.60	(4)
τ (PP)	7.20	(4)	–1.94***	(6)	–1.59	(6)	5.51	(11)	4.19	(3)
Statistics (first difference)	Δln *y*	Lag	Δln *M*2	lag	Δln *DC*	lag	Δln *X*	lag	Δln *M*	lag
τ_T (ADF)	–3.45***	(0)	–6.51*	(0)	–5.33*	(2)	–4.96*	(3)	–5.34*	(1)
τ_μ (ADF)	–3.45***	(0)	–6.57*	(0)	–5.35*	(2)	–5.00*	(3)	–5.77*	(0)
τ (ADF)	–1.40	(0)	–6.23*	(0)	–5.42*	(2)	–5.65*	(0)	–1.46	(3)
τ_T (PP)	–3.45***	(0)	–6.39*	(2)	–5.61*	(13)	–7.67*	(9)	–5.72*	(6)
τ_μ (PP)	–3.45***	(0)	–6.45*	(4)	–5.52*	(13)	–7.80*	(9)	–5.71*	(5)
τ (PP)	–0.92	(5)	–6.20*	(2)	–5.62*	(13)	–5.67*	(3)	–4.50*	(0)

Note: *y* represents real gross domestic product; *M*2 is broad money or money supply; *DC* is domestic credit provided by banking sector; *X* is total real exports; and *M* is total real imports. All of the series are at their natural logarithms. τ_T represents the most general model with a drift and trend; τ_μ is the model with a drift and without trend; τ is the most restricted model without a drift and trend. Numbers in brackets are lag lengths used in ADF test (as determined by AIC set to maximum 3) to remove serial correlation in the residuals. When using PP test, numbers in brackets represent Newey-West Bandwith (as determined by Bartlett-Kernel). Both in ADF and PP tests, unit root tests were performed from the most general to the least specific model by eliminating trend and intercept across the models [see Enders 1995, pp. 254–255]. *, **, *** – denote rejection of the null hypothesis at the 1%, 5% and 10% levels respectively. Tests for unit roots have been carried out in E-VIEWS 5.1.

error correction models and conditional Granger causality tests, all under the ARDL approach. This is due to the suggestion of Pesaran et al. [2001] that dependent variables are needed to be I(1) in bounds and conditional error correction models. Critical values for *F* and *t* statistics to be used in the bounds tests are presented in Table 2 as taken from Narayan [2005] and Pesaran et al. [2001] respectively. Table 3 gives results of the bounds tests for possible level relationships between GDP, M2, DC, exports, and imports of the Sub-Saharan Africa under three different scenarios as also suggested by Pesaran et al. [2001] with restricted deterministic trends (F_{IV}), with unrestricted deterministic trends (F_{V}), and without deterministic trends (F_{III}). Intercepts in these scenarios are all unrestricted[2].

[2] For detailed information, please refer to Pesaran et al. [2001, pp. 295–296].

Table 2

Critical values for ARDL modelling approach

	0.10		0.05		0.01	
$k = 2$	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
F_{IV}	3.57	4.29	4.23	5.03	5.81	6.79
F_{V}	4.38	5.35	5.25	6.30	7.34	8.64
F_{III}	3.33	4.31	4.07	5.19	5.82	7.30
t_{V}	–3.13	–3.63	–3.41	–3.95	–3.96	–4.53
t_{III}	–2.57	–3.21	–2.86	–3.53	–3.43	–4.10

Note: k is the number of regressors for dependent variable in ARDL models, F_{IV} represents the F statistic of the model with unrestricted intercept and restricted trend, F_{V} represents the F statistic of the model with unrestricted intercept and trend, and F_{III} represents the F statistic of the model with unrestricted intercept and no trend. t_{V} and t_{III} are the t ratios for testing $\sigma_{1Y} = 0$ in equation (1) and $\varpi_{1Y} = 0$ in equation (2) respectively with and without deterministic linear trend.

Source: Narayan [2005] for F-statistics and Pesaran et. al [2001] for t statistics.

The results in Table 3 suggest that the application of the bounds F-test using the ARDL modeling approach generally suggests a level relationship among the variables. However, the bounds test even does not suggest the existence of a level relationship for some other pairs of dependent variable and its regressor since the null hypotheses H_0: $\sigma_{1Y} = \sigma_{2Y} = 0$ and H_0: $\varpi_{1Y} = \varpi_{2Y} = 0$ cannot be rejected. The bounds test does not suggest a level relationship neither between real income and exports only when real income is dependent variable nor between exports and M2. Bound test for the relationship of (DC/Y) is inconclusive since the null hypotheses neither can nor cannot be rejected. On the other hand, the results from the application of the bounds t-test in each ARDL model do not generally allow the imposition of the trend restrictions in the majority of the models since t-ratios are not statistically significant as presented in Table 3 [see Pesaran et al. 2001, p. 312]. If summarized, real income, international trade, and financial development proxies are generally in long run equilibrium relationship in the case of Sub-Saharan Africa. This depends on the variables and the model selected as presented in Table 3.

Having long-term relationships in bounds tests, the ARDL approach can be now adopted to estimate the level relations as discussed by Pesaran and Shin [1999] and to run conditional ECM regressions associated with those level relationships, and conditional Granger causality tests. Summary results of level coefficients, coefficients of ECTs, and t-ratios for ECTs in conditional Granger causality tests as long-term estimations are provided in Table 4.

Results from Table 4 show that real income, international trade variables, and financial development proxies in the Sub-Saharan Africa converge to their long-term equilibrium level generally at some medium and high levels with two exceptions: (Y/M2) and (Y/DC); but they are at expected signs and statistically significant. Table 4 shows exports have positive, elastic and statistically significant impact on real income in the level equation. The other level coefficients have not been found statistically significant.

Findings of this study obtained from conditional Granger causality tests (as also can be seen from Figure 1) reveal that there are unidirectional causalities that run from M2 and DC to real income, from M2 to imports, and from real income to exports. Three feedback relationships have been obtained between real income and imports, DC and imports, and DC and exports.

Table 3

The bounds test for level relationships

Variables	With deterministic trends			Without deterministic trend		Conclusion H0
	F_{IV}	F_V	t_V	F_{III}	t_{III}	
(1) y and M2						
F_y (y/M2)	4.66[c]	3.09[a]	2.21[a]	3.57[b]	–1.87[a]	Rejected
(2) y and DC						
F_y (y/DC)	4.25[b]	1.39[a]	–0.87[a]	6.52[c]	–3.56[c]	Rejected
F_y (DC/y)	3.58[b]	4.91[b]	–2.65[a]	2.15[a]	–1.65[a]	Inconclusive
(3) y and X						
F_y (y/X)	1.91[a]	0.30[a]	0.02[a]	2.47[a]	–0.89[a]	Accepted
F_X (X/y)	3.14[a]	4.53[b]	–2.96[a]	4.86[c]	–3.04[b]	Rejected
(4) y and M						
F_y (y/M)	6.62[c]	6.95[c]	–1.58[a]	10.14[c]	–4.36[c]	Rejected
F_M (M/y)	7.12[c]	10.45[c]	–4.57[c]	10.87[c]	–4.61[c]	Rejected
(5) M2 and X						
F_X (X/M2)	0.31[a]	0.28[a]	–0.19[a]	0.44[a]	0.23[a]	Accepted
(6) M2 and M						
F_M (M/M2)	4.10[b]	2.10[a]	–1.88[a]	5.64[c]	–1.91[a]	Rejected
(7) M2 and DC						
F_{DC} (DC/M2)	3.76[b]	5.51[c]	–2.54[a]	4.42[c]	–2.85[b]	Rejected
(8) DC and X						
F_{DC} (DC/X)	3.71[b]	5.55[c]	–2.91[a]	5.27[c]	–3.22[c]	Rejected
F_X (X/DC)	5.71[c]	7.48[c]	–3.86[c]	0.71[a]	–1.07[a]	Rejected
(9) DC and M						
F_{DC} (DC/M)	4.07[b]	6.11[c]	–2.78[a]	5.28[c]	–3.17[b]	Rejected
F_M (M/DC)	4.26[b]	2.10[a]	–2.03[a]	5.93[c]	–3.20[b]	Rejected
(10) X and M						
F_X (X/M)	5.60[c]	8.33[c]	–3.99[c]	3.07[a]	–2.48[a]	Rejected
F_M (M/X)	4.07[b]	3.11[a]	–2.49[a]	6.16[c]	–2.52[a]	Rejected

Note: Akaike Information Criterion (AIC) and Schwartz Criteria (SC) were used to select the number of lags required in the bounds tests. F_{IV} represents the F statistic of the model with unrestricted intercept and restricted trend, F_V represents the F statistic of the model with unrestricted intercept and trend, and F_{III} represents the F statistic of the model with unrestricted intercept and no trend. t_V and t_{III} are the t ratios for testing $\sigma_{1Y} = 0$ in equation (1) and $\varpi_{1Y} = 0$ in equation (2) respectively with and without deterministic linear trend. [a] indicates that the statistic lies below the lower bound, [b] that it falls within the lower and upper bounds, and [c] that it lies above the upper bound.

Findings of this study also reveal that the supply-leading hypothesis can be inferred about the Sub Saharan region since both M2 and *DC* precede a change in real income. Exports of the Sub-Saharan Africa are output driven. The import-led growth hypothesis can be also inferred for this region since there is feedback relationship between real income and imports. On the other hand, imports are also money supply driven. In summary, both the supply--leading and the import-led growth hypotheses are confirmed for the Sub-Saharan Africa region according to the results of the present study while the export-led growth is not confirmed.

Table 4

Conditional error correction estimations and conditional Granger causality tests under the ARDL approach

Null hypothesis	Distibuted lags	ECT coefficient	F-stat for Granger causality in the short run	t-stat for ECT in Granger causality for the long run	Level coefficient
(1) *y* and M2					
(*y*/M2)	2,0	–0.03*	0.69	–2.79*	–2.11
(2) *y* and *DC*					
(*y*/*DC*)	2,1	–0.06*		–2.91*	0.12
(*DC*/*y*)	–	–	4.95**	–	–
(3) *y* and *X*					
(*y*/*X*)	–	–	–	–	–
(*X*/*y*)	2,4	–0.59*	2.90***	–3.60*	1.18***
(4) *y* and *M*					
(*y*/*M*)	5,5	–0.20*	0.87	–1.78***	1.22***
(*M*/*y*)	5,5	–0.90*	2.64***	2.36**	0.87*
(5) M2 and *X*					
(*X*/M2)	–	–	–	–	–
(6) M2 and *M*					
(M/M2)	3,1	–0.26*	0.11	–3.21*	–1.91
(7) M2 and *DC*					
(*DC*/M2)	3,1	–0.31*	6.41*	–2.80*	0.58
(8) *DC* and *X*					
(*DC*/*X*)	3,0	–0.39*	0.94	–3.13*	0.20
(*X*/*DC*)	2,1	–0.75*	2.65***	–2.85*	0.03
(9) *DC* and *M*					
(*DC*/*M*)	3,0	–0.40*	1.65	–3.26*	0.27
(*M*/*DC*)	3,2	–0.35*	13.61*	–4.48*	0.12
(10) *X* and *M*					
(*X*/*M*)	5,3	–0.49*	2.45***	–2.79*	1.32*
(M/*X*)	1,3	–0.31*	3.69**	–2.75*	0.46*

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

Conclusion

This study empirically investigates long-run equilibrium relationship and direction of causality between international trade, financial development and real income growth in the Sub-Saharan African economy. Results of the bounds test reveal that long-run equilibrium relationship is confirmed between real income, exports, imports and financial development proxies as scaled by M2 and domestic credits in this region. Real income in the Sub-Saharan Africa converges to its long run equlibrium levels at reasonably high levels in the existence of international trade and financial sector. The main finding of this study is that both the

finance-led (supply-leading) growth and the import-led growth hypotheses are confirmed for the case of the Sub-Saharan African economy. Additionally, exports from this region is output-driven. Imports are also money supply driven. There are feedback relationships between domestic credits and exports, and domestic credits and imports. Thus, it can be said that money supply and domestic credits (financial development) is a catalyst for international trade in this region.

The authorities in the Sub-Saharan Africa should be aware of the fact that financial development is a major catalyst for real income and international trade according to the results of the present study. This shows that banking and finance sectors in this region are major actors of the economy and should be promoted as international trade and national income will be positively influenced from these sectors.

Received: 14 November 2011.

Bibliography

Bahmani-Oskooee M., Alse J., *Export Growth and Economic Growth: An Application of Co-Integration and Error Correction Modelling*, "The Journal of Developing Areas" 1993, No. 27.

Balaguer J., Cantavella-Jorda M., *Tourism as a Long-run Economic Growth Factor: the Spanish Case*, "Applied Economics" 2002, No. 34.

Baldwin R.E., *Exporting the Capital Markets: Comparative Advantage and Capital Market Imperfections*, in: *The Convergence of International and Domestic Markets*, ed. D. Audretsch, North-Holland Press, New York 1989.

Beck T., *Financial Development and International Trade: Is There a Link?*, "Journal of International Economics" 2002, No. 57.

Calderon C., Liu L., *The Direction of Causality between Financial Development and Economic Growth*, "Journal of Development Economics" 2003, No. 72.

Chang T., *Financial Development and Economic Growth in Mainland China: A Note on Testing Demand--following or Supply-leading Hypothesis*, "Applied Economic Letters" 2002, No. 9.

Chow P.C.Y., *Causality between Export Growth and Industrial Development: Empirical Evidence from the NICs*, "Journal of Development Economics" 1987, No. 31.

De Gregorio J., Guidotti P., *Financial Development and Economic Growth*, "World Development" 1995, No. 23.

Dickey D., Fuller W.A., *Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root*, "Econometrica" 1981, No. 49.

Enders, W., *Applied Econometric Time Series*, John Wiley & Sons, Inc., U.S.A., 1995.

Fry J.M., *Money and Capital or Financial Deepening in Economic Development*, "Journal of Money Credit and Banking" 1978a, No. 10(4).

Fry J.M., *Monetary Policy and Domestic Savings in Developing DSCAP Countries*, "Economic Bulletin for Asia and Pacific" 1978b, No. 29(1).

Fry J.M., *Financial Structure, Financial Regulation, and Financial Reform in the Philippines and Thailand, 1960–1984*, in: *Financial Policy and Reform in Pacific Basin Countries*, ed. H.S. Cheng, Lexington Books, Lexington, Mass., 1986a.

Fry J.M., *Turkey's Great Inflation*, "METU Studies in Development" 1986b, No. 13(1–2).

Fry J.M., *Money, Interest and Banking in Economic Development*, the John Hopkins University Press, Baltimore, London 1988.

Goldsmith R.W., *Financial Structure and Development*, Yale University Press, New Haven 1969.

Gupta K.L., *Finance and Economic Growth in Developing Countries*, Croom Helm Ltd., London 1984.

Gurley J., Shaw E., *Financial Structure and Economic Development*, "Economic Development and Cultural Change" 1967, No. 34.

Gurley J., Shaw E.S., *Financial Aspects of Economic Development*, "American Economic Review" 1955, No. 45(4).

Jenkins H.P., Katircioglu S., *The Bounds Test Approach for Cointegration and Causality between Financial Development, International Trade and Economic Growth: The Case of Cyprus*, Applied Economics (iFirst Content, DOI: 10.1080/00036840701721661), 2009.

Jin C.J., *Export-led Growth and the Four Little Dragons*, "The Journal of International Trade and Economic Development" 1995, No. 4.

Jung W.S., *Financial Development and Economic Growth: International Evidence*, "Economic Development and Cultural Change" 1986, No. 34.

Katircioglu S., Kahyalar N., Benar H., *Financial Development, Trade and Growth Triangle: The Case of India*, "International Journal of Social Economics" 2007, No. 34(9).

Khatkhate D.R., *Analytic Basis of the Working of Monetary Policy in Less Developed Countries*, "IMF Staff Papers" 1972, 19(3).

Khatkhate D.R., *Assessing the Impact of Interest Rate in LDCs*, "World Development" 1988, No. 16(5).

King R.G., Levine R., *Finance and Growth: Schumpeter Might be Right*, "Quarterly Journal of Economics" 1993, No. 108.

Kletzer K., Bardhan P., *Credit Markets and Patterns of International Trade*, "Journal of Development Economics" 1987, No. 27.

Levine R., Loayza N., Beck T., *Financial Intermediation and Growth: Causality Analysis and Causes*, "Journal of Monetary Economics" 2000, No. 46.

Marin D., *Is Export-led Hypothesis Valid for Industrialized Countries?*, "Review of Economics and Statistics" 1992, No. 74.

Mazur E.A., Alexander W.R.J., *Financial Sector Development and Economic Growth in New Zealand*, "Applied Economic Letters" 2001, No. 8.

McKinnon R.I., *Money and Capital in Economic Development*, "Brookings Institution", Washington 1973.

Narayan P.K., *The Saving and Investment Nexus for China: Evidence from Cointegration Tests*, "Applied Economics" 2005, No. 37.

Narayan P.K., Smyth R., *The Relationship between the Real Exchange Rate and Balance of Payments: Empirical Evidence for China from Co-integration and Causality Testing*, "Applied Economic Letters" 2004, No. 11.

Neusser K., Kugler M., *Manufacturing Growth and Financial Development: Evidence from OECD Countries*, "Review of Economics and Statistics" 1998, No. 80.

Patrick H.T., *Financial Development and Economic Growth in Underdeveloped Economies*, Economic "Development and Cultural Change" 1966, No. 14.

Pesaran M.H., Shin Y., Smith R.J., *Bounds Testing Approaches to the Analysis of Level Relationships*, "Journal of Applied Econometrics" 2001, No. 16.

Pesaran M.H., Shin Y., *An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis*, Chapter 11 in: *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, ed. S. Strom, Cambridge University Press, Cambridge 1999.

Phillips P.C.B., Perron P., *Testing For a Unit Root in Time Series Regression*, "Biometrica" 1988, No. 75.

Proudman J., Redding S., Bianchi M., *Openness and Growth, Proceedings of the Bank of England Academic Conference on the Relationship between Openness and Growth in the United Kingdom*, September 15th, 1997, Bank of England, Martins Printing Group, London 1998.

Soukhakian B., *Financial Development, Trade Openness and Economic Growth in Japan: Evidence from Granger Causality Tests*, "International Journal of Economic Perspectives" 2007, No. 1(3).

Soukhakian N., *Financial Development and Economic Growth in Iran: Evidence From Co-Integration and Causality Tests*, "International Journal of Economic Perspectives" 2007, No. 1(2).

Shan J., Sun F., *Export-led Growth Hypothesis for Australia: an Empirical Re-investigation*, "Applied Economics Letters" 1998, No. 5.

Shaw E.S., *Financial Deepening in Economic Development*, Oxford University Press, New York 1973.
Wijnbergen V., *Stagflationary Effects of Monetary Stabilization Policies: A Quantitative Analysis of South Korea*, "Journal of Development Economics" 1982, No. 10(2).
Wijnbergen V., *Macroeconomic Effects of Changes in Bank Interest Rates: Simulation Results for South Korea*, "Journal of Development Economics" 1985, No. 18(2–3).
World Bank, *World Development Indicators*, CD-ROM database, 2008.
Xu X., *On the Causality between Export Growth and GDP Growth: An Empirical Re-investigation*, "Review of International Economics" 1996, No. 4.