

**Collective Influence of Financial Sector
Development and Economic Growth on
International Trade****Kitera Mlaudzi¹**

Abstract: The purpose of this paper is to investigate the influence of financial sector development on international trade in upper-middle-income countries. The paper focuses on financial stability as a key element of the financial system and investigates whether economic growth is a conduit through which banking sector development and stock market development influence international trade. Thus far, the impact of financial sector development on international trade has received limited attention. The study adopts the generalized method of moments (GMM) approach, employing balanced panel data from 13 upper-middle-income countries for a period ranging from 2006–2017. Using the Z-score as a proxy for financial stability, evidence suggests that banking sector development has a positive and significant influence on international trade, while stock price volatility as a proxy for financial market stability, was found to have had an insignificant influence on foreign trade. The researcher recommends that upper-middle-income countries implement policy measures that enhance financial stability. This could have currency stability implications. A stable currency benefits international trade by reducing exchange rate volatility. Stable exchange rates offer foreign trade participants a predictable environment for trade activities. Further research should be conducted to investigate other channels as possible transmission mechanisms. This paper contributes to the global discourse on whether economic growth is the conduit through which financial sector development can influence international trade. The researcher observed that financial sector development is an integral part of economic growth, and its influence is premised on the financial proxies employed, which yield unique outcomes based on regional economic circumstances.

Keywords: stock market; banking sector; financial stability; trade openness; comparative advantage

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1. Introduction

Financial sector development is a key element of economic development (Çetin, Ecevit, Seker & Günaydın, 2015). Financial development refers to a country's decision to promote economic activities; such improvements have the potential to enhance foreign trade, increase foreign direct investment (FDI) activities and promote stock market activities (Çetin et al. 2015, p. 299). Industrial growth, new infrastructure, access to capital and increased stock market activities are some advantages of a developed financial system (Islam, Shahbaz, Ahmed & Alam, 2013). The study incorporates both the banking sector development and stock market development. Thus far, the effect of financial development on international trade has not been studied sufficiently. Studies that have investigated the nexus between financial development, international trade, and economic growth suggest that other factors explain the nexus between financial development and international trade (Tsauroi, 2017). Yakubu, Aboagye, Mensah and Bokpin (2018, p. 931) investigated the relationship between financial sector development and international trade in Africa and they contend that a well-functioning financial market creates trade opportunities. However, their study did not examine the collective influence of economic growth and financial development on international trade. Therefore, the importance of financial sector development in enhancing economic growth, as well as its role in influencing international trade, has not yet received adequate attention.

The influence of financial development on trade yielded mixed results since the findings depend on the proxy used (Yakubu et al., 2018). Financial development can enhance the allocation of resources, improve trading, ease the exchange of goods and services and change the economy's trajectory. However, the influence of financial sector development on international trade remains unclear. Studies that focused on financial development focused individually on foreign direct investment (FDI) or on economic growth but did not consider trade openness, especially in upper-middle-income countries.

Studies that investigated the subject matter focused on developing and emerging countries; therefore, less is known about the impact of financial sector development on international trade in upper-middle-income countries. No study thus far has investigated the subject matter from an income perspective, nor investigated economic growth as a conduit through which financial development can exert an influence on international trade. Unlike studies that focused on private sector credit, which is widely used in financial literature, the current study focuses exclusively on upper-middle-income countries (Yakubu et al., 2018, pp. 921). The study employed Z-score and stock price volatility as indicators of financial stability for both the banking sector and the stock market, respectively. Existing studies that investigated the impact of financial development failed to consider the dynamic characteristic of international trade (lag). Since there is limited empirical evidence on the impact of

financial development on international trade, this study contributes to the literature by investigating the impact of financial sector development on international trade using the GMM approach in the context of upper-middle-income economies.

The remainder of the paper is organised into six sections. Section 2 discusses both the theoretical and empirical literature on the impact of financial development and economic growth on international trade. Section 3 covers the research methodology adopted in the paper (data description, econometric model and diagnostics tests). Data analysis and interpretation of results are covered in section 4, while section 5 summarises the study and provides recommendations. The reference list is outlined in Section 6, while the appendices are provided in section 7.

2. Literature Review

2.1. Finance, Growth and Trade Nexus: Theoretical Rationale

The impact of financial development on international trade is underpinned by two classical theories of international trade namely factor endowment and comparative advantage. The factor endowment theory pioneered by Eli Heckscher and Bertin Ohlin (the Heckscher-Ohlin model) in the 20th century, is an extension of the comparative advantage theory that was developed by David Ricardo (Ricardian theory) in the 19th century. The factor endowment theory suggests that each country should export goods in which it has a generous quantity of scarce resources and only import goods in which the country has limited resources (Rugman & Collins, 2006, p. 163). Comparative advantage concentrates on the nation's level of production by suggesting absolute advantage is not a prerequisite for international trade because a country that does not have an absolute advantage can still benefit from trade by specialising in the production of goods in which it has the lowest opportunity cost (Peng & Meyer, 2019, p. 127). The paper builds on the work of Kletzer and Bardhan (1987), who postulate that countries with developed financial sectors have a comparative advantage in industries and sectors that rely on external finance. Beck (2002:129) supports the narrative and contends that countries with a high level of financial development result in a high share of manufactured exports.

On the other hand, the impact of financial development on international trade can be discussed under two contrasting views, namely the supply-leading and demand-following hypotheses. The supply-leading hypothesis, as postulated by Schumpeter (1912), suggests that financial institutions induce economic growth through improved financial services such as facilitating the exchange of goods and services by easing transaction costs, mobilising and pooling capital towards productive investments and risk management (King & Levine, 1993; Levine, 1997).

On the contrary, the proponents of the demand-following hypothesis contend that economic growth precedes financial development, implying that economic growth provides a means for financial development to occur through increased demand for financial services (Gurly & Shaw, 1967; Patrick, 1966; Demetriades & Hussein, 1960). However, there is also a feedback hypothesis that postulates bidirectional causality, where financial development may induce economic growth (supply-leading), but the focus gradually shifts from financial development to economic growth because of accelerated economic activities, which subsequently creates a greater need for financial services, thus resulting in a developed financial sector and increased productivity (Patrick, 1966).

2.2. Empirical Perspective

The empirical results showed inconsistencies in the causal direction between financial developments and international trade. The empirical evidence revealed that the relationship between financial sector development and international trade is ambiguous. Rehman, Ali and Nasir (2015), and Gokmenoglu, Amin, and Tasinar (2015) argue that financial sector development Granger caused international trade in Australia and Pakistan, respectively when vector error correction model (VECM) was adopted. Bayar, Akyuz and Erem (2017) and Tsauroi (2017) argued for a unilateral causal relationship running from international trade to financial sector development, using a causality test and VECM respectively. Caporale, Sova and Sova (2022), and Abidin, Haseeb, Azam and Islam (2015) contend that there is a reverse causal relationship between the variables under discussion. On the other hand, Rehman et al. (2015) studied the finance-trade nexus using the VECM in Saudi Arabia and the outcomes of the study nullified any relationship between the variables in question.

Kohn, Lebovici and Szcup (2020) and Lebovici (2021) investigated the relationship between financial development and international trade using a general equilibrium model of international trade. Their findings revealed that financial frictions have a statistically significant impact on international trade at industry level. Bédi and Ange-Patrick (2016), Fang, Gu and Li (2015) and Jamel and Maktouf (2017) agree that financial development has an impact on international trade when ordinary least squares (OLS) is employed. Conversely, Altowaim (2016) and Jamel and Maktouf (2017) state that there is a bi-directional relationship between financial development and trade. Ahad (2017), Bilas, Bosnjak and Novak (2017) and Shahbaz and Rahman (2014) employed the autoregressive distributed lag (ARDL) model and agreed that any developments within the financial sector directly influence international trade.

Yakubu et al. (2018) and Caporale et al. (2022) examined the finance-trade nexus in Africa and Central and Eastern Europe, respectively, using GMM estimation. Their findings showed that financial development has a positive influence on international

trade. It would be interesting to determine the finance-trade nexus using GMM in upper-middle-income countries, consistent with Yakubu et al. (2018), who adopted a unidirectional specification. Polat, Shahbaz, Rehman and Satti (2014) and Wamboye and Mookerjee (2014) also contend that there is a bi-directional relationship between finance and trade when using Bayer-Hench cointegration and panel method in South Africa and Africa, respectively.

Different methods and measurements were used to capture the finance-growth nexus with divergent views on the effect or causal direction between financial development and economic growth. Depending on developments in the size, efficiency and stability and access to the financial sector, the study found unidirectional causality running from financial development to economic growth (Puatwoe & Piabuo, 2017; Durusu-Ciftci, Ispir & Yetkiner, 2017; Asteriou & Spanos, 2019; Wang et al. 2019; Yang, 2019; Ibrahim & Alagidede, 2018; Adeyeye et al., 2015; Mhadhbi, 2014; Jedidiya, Boujelbene & Helali, 2014; Ono, 2017). On the contrary, Nyasha and Odhiambo (2018) found that financial sector development and economic growth Granger caused each other in Brazil, while a bidirectional causal relationship was observed in the short run in Australia, with the unidirectional causal relationship observed in the long run. A neutral relationship was observed, indicating no relationship between financial development and economic growth (Nyasha & Odhiambo, 2018; Wang et al., 2019; Jedidiya, Boujelbene & Helali, 2014). These results are contrary to Nută, Nută, Roman and Pusca (2015), who posited that there is a relationship between various public expenditure levels and economic growth.

A plethora of studies that investigated the impact of financial development failed to consider the dynamic characteristics of international trade (Bilas et al., 2017; Rehman et al., 2015; Tsaourai, 2017; Polat et al., 2014; Wamboye & Mookerjee, 2014; Altowaim, 2016; Choi, Lugovskyy, & Ahad, 2017; Gokmenoglu et al., 2015; Shahbaz & Rahman, 2014; Rehman, 2015; Abidin et al., 2015; Bedi & Ange-Patrick, 2016; Jamel & Maktouf, 2017; Fang, 2015; Ehigiamusoe & Lean, 2018).

3. Research Methodology

3.1. Data Description

Owing to data limitations, the researcher used short balanced panel data from 13 upper-middle-income countries for a period of 12 years, running from 2006 to 2017. The countries observed were Argentina, Brazil, Bulgaria, China, Colombia, Costa Rica, Lebanon, Malaysia, Mauritius, Mexico, Russia, Thailand and South Africa. Data were sourced from the World Bank databases, particularly World Development Indicators (WDI) and Global Financial Development, in addition to International Financial Statistics (IFS), which is an International Monetary Fund (IMF) database. The Z-score and stock price volatility are used as indicators of banking sector

development and stock market development, respectively. Similarly, control variables such as economic growth, exchange rates, foreign direct investment (FDI), remittances and natural resources were proxied by GDP per capita, USD per domestic currency, a ratio of net FDI inflows as a percentage of GDP, a ratio of total natural resources rent as a percentage of GDP and a ratio of remittance inflow to GDP, respectively.

3.2. Econometric Models

Consistent with Yakubu et al. (2018), trade (equation 1) is specified as a function of its lag, finance and other relevant factors that may influence trade. The main objective of this paper is to investigate the effect of financial development on international trade in upper-middle-income countries using economic growth as a transmission mechanism with two proxies of financial development as indicators of financial stability. The model is specified as follows:

$$ITRD_{i,t} = \beta_0 + \beta_1 ITRD_{i,t-1} + \beta_2 FIN_{i,t} + \beta_3 ECG_{i,t} + \beta_4 (FIN_{i,t} \cdot ECG_{i,t}) + \sum \beta_5 X_{i,t} + \mu_t + \varepsilon_{it} \quad (1)$$

Where $ITRD_{i,t}$ represents the trade flow of country i at time t ; $ITRD_{i,t-1}$ represents the lag term of trade from the initial condition; $FIN_{i,t}$ is financial development proxied by Z-score and stock price volatility as an indicator of financial stability in the financial system; $ECG_{i,t}$, represents economic growth; $FIN_{i,t} \cdot ECG_{i,t}$, represents the interactive term between financial sector development and international trade; $X_{i,t}$ is a vector of control variables comprising economic growth, exchange rates, FDI, remittances and natural resources; μ_t represents the time-variant effects while ε_{it} is an error term. Using the two proxies of financial development as indicators of financial stability, the 2 step GMM approach can be expressed as follows:

$$\Delta ITRD_{i,t} = (a - 1) \Delta ITRD_{i,t-1} + \beta_1 \Delta ZS_{i,t} + \beta_2 \Delta ECG_{i,t} + \beta_3 \Delta (ZS_{i,t} \cdot ECG_{i,t}) + \sum \beta_4 \Delta X_{i,t} + \mu_t + \varepsilon_{it} \quad (1a)$$

$$\Delta ITRD_{i,t} = (a - 1) \Delta ITRD_{i,t-1} + \beta_1 \Delta SMV_{i,t} + \beta_2 \Delta ECG_{i,t} + \beta_3 \Delta (SMV_{i,t} \cdot ECG_{i,t}) + \sum \beta_4 \Delta X_{i,t} + \mu_t + \varepsilon_{it} \quad (1b)$$

Where Δ is the first-difference operator; ZS is an indicator of financial stability for bank-based development and SMV stands for stock market volatility a measure of financial liquidity for market-based development.

3.3. Pre-estimation Diagnostics, Panel Root and Co-integration Tests

Descriptive statistics (table 3 in the Appendices) shows that the data for financial development, FDI, natural resources, remittances and exchange rates are not normally distributed as the Jarque-Bera probability is equal to zero, as indicated by the statistical significance. To address the abnormally distributed data, a robust statistical method - the generalised method of moments (GMM) - was adopted which is not sensitive to outliers and extreme values. Correlation analysis (table 4) in the appendix shows that the correlation between the volume of trade and control variables is in line with theoretical predictions except for economic growth. Panel unit test results under individual intercepts showed that Levin, Lin and Chu (LLC) and Phillips Perron (PP) results are stationary across all specifications, while under Im, Pesaran and Shin (IPS) and augmented Dickey-Fuller (ADF) results are also stationary, except remittances and exchange rates. The Kao cointegration test (table 6 in the Appendices) showed a long-run relationship between variables being studied, which enables the authors to proceed with the main data analysis.

4. Data Analysis and Results Discussion

Five panel data estimators were employed, namely pooled ordinary least squares, fixed effects, random effects, system generalised method of moments and generalised least squares. However, only the system GMM results are presented under the main method of analysis. The estimations were conducted to determine the most accurate predictions for robustness and comparison purposes.

Table 1 below presents the system GMM models 1 and 2 results. The results show the correlation between the measures of financial sector development, control variables and international trade. International trade was found to have been consistently, positively and significantly influenced by its lag in both models. The findings implied that an increase in current net trade is influenced by a change in the previous trade balance. Financial stability as proxied by the Z-score indicated a positive and statistically significant effect on international trade in upper-middle-income countries.

The findings on the table 1 below, suggest that a stable financial system with a low probability of default enhances international trade in upper-middle-income countries. In contrast, international trade was found to have been significantly and negatively influenced by stock market development as proxied by stock price volatility. The results suggest that stock market efficiency dampens international trade. International trade was found to have been significantly and negatively influenced by FDI across both models.

Table 1. The Impact of Finance on Trade in Upper-Middle-Income Countries

Variable	2-step system GMM ITRD (Model 1)	2-step system GMM ITRD (Model 2)
L.ITRD	0.589*** (0.0148)	0.532*** (0.0971)
ZS	3.514*** (0.110)	
SMV		-0.289* (0.123)
FDI	-4.168*** (0.214)	-5.174*** (0.502)
LGDP	-55.41*** (1.774)	-61.19*** (10.67)
NTR	6.161*** (0.183)	3.355*** (0.142)
REM	2.956*** (0.240)	4.078*** (0.195)
XCHA	0.00632*** (0.000576)	-0.00542*** (0.000280)
_cons	175.8*** (7.478)	280.2*** (39.57)
<i>Observations</i>	143	143
<i>No. of countries</i>	13	13
<i>F-stats/Wald chi2</i>	6231.63***	158725.57***
<i>Arellano-BondAR (1)</i>	-0.16	0.15
<i>Arellano-BondAR (2)</i>	-0.95	-0.53
<i>Sargan test of overid</i>	0.97	2.43
<i>Hansen test of overid</i>	6.41	3.69

Standard errors in parentheses: * P < 0.05; ** P < 0.01; *** P < 0.001

Source: Author's compilation

The results indicated a negative relationship between FDI and trade in the primary sector, consistent with Kottaridi and Fillipaios (2015). Economic growth was found to have had a negative and significant influence on trade in both models. The results suggest that increased levels of income lead to increased import values and subsequently create a trade imbalance (Tung, 2018:80). An important implication of these findings is that economic growth does not promote trade. However, according to Bhojani (2012) and Rehman et al. (2015), trade promotes economic growth. This result contrasts with a priori expectations and the literature which suggest that economic growth promotes international trade. Natural resources, as measured by total natural resource rents (% of GDP) were found to have significantly and positively influenced international trade in both models. The results suggest that environmental quality should be preserved to mitigate environmental degradation (Shahbaz, Nutā & Mishra, 2023:3). The results are consistent with the literature that

suggests that natural resources generate economic rents that cannot be produced thus encouraging exports (Krugman, Obstfeld & Melitz, 2018). Consistent with Tung (2018) and the a priori expectations, model 1 showed that remittances had a non-significant negative impact on trade. Both models showed that remittances positively and significantly influenced trade in upper-middle-income countries. The findings suggest that remittances promote trade (Letsoalo & Ncanywa, 2020). The results are contrary to those of Farzanegan and Hassan (2020), whose study suggests that remittances trigger trade deficits in labour-abundant countries. Exchange rates had a positive and statistically significant impact on international trade in model 1. The results conform to Tung (2018), Nicita (2013), Abendin and Duan (2021), who contend that currency depreciation improves trade balance through increased exports because goods tend to be cheaper in the international market. On the contrary, model 2 showed that international trade was negatively and significantly influenced by exchange rates in upper-middle-income countries. The results suggest that currency appreciation enhances the trade deficit by encouraging imports and discouraging exports (Nicita, 2013).

The results in table 2 below are consistent with the results in table 1, international trade was found to have been consistently, positively and significantly influenced by its lag in both models. Similarly, the Z-score (table 2) was found to have had a positive and statistically significant effect on international trade, thus suggesting that the relationship between financial stability and international trade is not influenced by economic growth. The interaction term supported this claim as it was found to have had a negative but non-significant influence on trade. The findings implied that economic growth is not a conduit through which financial development influences international trade. Relative to model 2 in table 1 stock market development was found to have had an insignificant positive influence on trade. The results suggest that stock market efficiency may enhance international trade.

In contrast, the conditional impact of finance on trade via economic growth (table 2) was found to be negative but not significant. This finding suggests that stock market development impedes trade despite economic growth. Although Nută and Nută (2020) found a positive relationship between exports, FDI and government deficit, in this study, FDI (table 2) was found to have had a significant negative influence on international trade in both models. These results confirm the output in table 1, thus proving that there is no evidence that economic growth is a conduit through which FDI influences trade. Much like the results in table 1, economic growth was found to have had a significant and negative influence on international trade across both models. These results are contrary to Yakubu et al. (2018) and Abendin and Duan (2021), whose studies implied that economic growth stimulates international trade through increased income levels and high demand for local goods and services.

Table 2. The Conditional Impact of Finance on Trade in Upper-Middle-Income Countries

Variable	2-step system GMM ITRD (Model 1)	2-step system GMM ITRD (Model 2)
L.ITRD	0.720*** (0.0840)	0.608** (0.179)
ZS	10.27* (4.561)	
ZCGDPPC	-1.378 (0.946)	
SMV		1.090 (2.333)
SMVGDPPC		-0.389 (0.665)
FDI	-5.831*** (1.062)	-5.350*** (0.620)
LGDPPC	-50.26*** (4.885)	-60.97*** (10.83)
NTR	7.408*** (0.791)	3.485*** (0.297)
REM	3.847*** (0.613)	4.126*** (0.224)
XCHA	0.00855*** (0.00154)	-0.00438 (0.00207)
_cons	132.0** (33.52)	275.5*** (39.70)
Observations	143	143
No. of countries	13	13
F-stats/Wald chi2	5346.70***	140489.17***
Arellano-BondAR(1)	-0.02	0.08
Arellano-BondAR(2)	-0.66	-0.49
Sargan test of overid	0.97	2.43
Hansen test of overid	3.51	3.41

Standard errors in parentheses: * P < 0.05; ** P < 0.01; *** P < 0.001

Source: Author's compilation

Natural resources were found to have significantly and positively influenced international trade. The results are consistent with the findings in table 1 and confirm that economic growth and natural resources have a direct impact on international trade. This implies that government should promote financial regulation frameworks that promote green economy, consistent with Cigu et al. (2020:12). Remittances had a significant positive influence on trade in both models. Exchange rates had a positive and statistically significant impact on international trade under model 1, albeit negative and insignificant under model 2.

5. Conclusion and Recommendations

In this paper the researcher aimed to determine the impact of financial sector development on international trade, in addition, examined if economic growth is a transmission mechanism through which financial sector development influences international trade. Using the Z-score as a measure of financial stability in the banking sector, the findings revealed that there is a statistically significant positive relationship between financial stability and international trade. Firstly, the results showed that financial stability is a single indicator of banking sector development that promotes trade activities in upper-middle-income countries. Secondly, although the results revealed a positive relationship between stock market development as measured by stock market volatility and trade, the association was statistically insignificant. Finally, the researcher found a negative relationship between economic growth and financial stability as measured by both Z-score and stock market volatility. This implies that, collectively, financial stability and growth do not enhance foreign trade activities, thus suggesting that economic growth is not a channel through which financial development influences international trade in upper middle-income regions.

Policymakers should implement measures that prioritise financial stability. This could have currency stability implications. As evident from the results, a positive relationship exists between exchange rates and international trade. A stable currency benefits international trade by reducing exchange rates volatility. Stable exchange rates offer foreign trade participants a predictable environment for trade activities.

The study indicates that the impact of financial sector development on international trade is not dependent on economic growth. Future research should explore other dimensions (financial depth, financial efficiency, financial access), proxies and components (bond market) of the financial sector to capture a broader perspective of financial sector development. In addition, it would be interesting to examine the causal relationships, given the conclusion of a long-run relationship between variables being studied, relative to a unidirectional approach adopted by this study.

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Appendices

Table 3. Descriptive statistics

Variables	Mean	Median	Max.	Min.	Standard deviation	Skew	Kurtosis	Jarque-Bera
ITRD	76.48	64.34	202.58	22.11	40.90	0.68	2.63	13.04**
ZS	14.55	14.15	37.27	4.76	8.02	0.96	3.54	25.75***
SMV	19.55	18.65	67.98	2.21	11.27	1.06	4.84	51.19***
FDI	4.04	3.32	31.25	0.06	3.77	4.06	24.61	3463.15***
ECG	8,004.36	7,723.95	15,974.64	2,099.23	2,642.71	0.59	3.29	9.55**
NTR	4.38	3.18	18.95	0.00	4.28	1.40	4.66	68.55***
REM	2.34	0.59	24.57	0.00	4.79	3.23	12.72	885.62***
XCHA	345.30	15.14	3,149.47	1.33	709.69	2.17	6.76	214.09***

*** ** * denote significance at 0.05, 0.01 and 0.001

Source: Author's compilation from EViews

Table 4. Correlation Analysis

Variable	ITRD	ZS	SMV	FDI	ECG	NTR	REM	XCHA
ITRD	1.000							
ZS	0.044	1.000						
SMV	-0.387***	-0.230**	1.000					
FDI	0.213	0.230**	-0.014	1.000				
ECG	-0.247	-0.075	0.072	-0.237**	1.000			
NTR	-0.080	-0.343***	0.187*	-0.212**	0.240**	1.000		
REM	0.146	0.671***	-0.127	0.500***	-0.161*	-0.335***	1.000	
XCHA	-0.201*	0.164*	-0.073	0.241*	-0.255**	-0.114	0.488***	1.000

*** ** * denote significance at 0.05, 0.01 and 0.001

Source: Author's compilation from EViews

Table 5. Panel Unit Root Tests – Individual Intercept

Variable	First difference			
	LLC	IPS	ADF	PP
ITRD	-7.6109***	-4.5487***	70.5679***	134.458***
ZS	-9.3751***	-3.9659***	58.6709***	98.8817***
SMV	-7.6245***	-4.2515***	67.3773***	96.0266***
FDI	-6.72706***	-6.64672***	96.2313***	193.867***
ECG	-6.8007***	-2.9830**	51.7992**	64.8519***
LECG	-7.4447***	-3.4464***	57.1860***	67.1666***
NTR	-16.4284***	-8.1727***	109.743***	184.852***
REM	-2.7046**	-1.0050	32.6330	54.5890***
XCHA	-2.1693*	-1.5389	34.0604	68.0119***

*** ** * denote significance at 0.05, 0.01 and 0.001

Source: Author's compilation from EViews

Table 6. Kao Residual Co-Integration Test – Individual Intercept

Series	ADF t- statistic
ITRD ZS FDI ECG NTR REM EXCH	-2.320925**
ITRD SMV FDI ECG NTR REM EXCH	-2.122568*

* ** *** denote significance at 0.05, 0.01 and 0.001