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TRADE OPENNESS, OIL PRICES, FINANCIAL INSTABILITY ON ECONOMIC GROWTH IN ASIAN COUNTRIES: EVIDENCE OF SECOND-GENERATION TECHNIQUES

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Abstract:
Asian economic growth experienced a great increase in their real growth domestic product (RGDP). Consequently, very few countries reached a high level of income and wealth, as well as the majority of them, were below the world average. The study aimed to investigate the influence of financial instability, oil prices and trade openness on economic growth in Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore. The study employed Westerlund cointegration techniques and found that there is the existence of cointegration linkages among the variables in the all six countries. Moreover, the results of Wald test Granger causality test revealed a bidirectional causality between financial instability and economic growth in Jordan, Philippines, Indonesia and Singapore. However, the result showed one-way causality running from economic growth to financial instability, economic growth to trade openness index in Malaysia, from economic growth to trade openness index in Jordan, from economic growth to oil prices in Philippines, from economic growth to financial instability in Thailand, from oil prices to economic growth in Indonesia, from trade openness index to economic growth in Singapore. In addition, the Panel Dumitrescu and Hurlin heterogeneous causality showed unidirectional causality running from financial instability to economic growth, and from trade openness index to economic growth. Consequently, the government should provide sufficient institutions that can generate relationships among macro stability and economic growth to decreases uncertainty reinforces reliability and increases the general macroeconomic environment.

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Keywords: real gross domestic product, financial instability, oil prices, trade openness index, Westerlund cointegration test, Panel Dumitrescu and Hurlin heterogeneous

1. Introduction

Over the years, the real gross domestic product (RDGP) experienced a very significant increase in Asia where average growth rates in the period 1970 to 2016 were higher than the world average. It is in this regard that the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies experienced a great increase in their RGDP consequently, very few countries reached a high level of income and wealth, as well as the majority of them, were below the world average (World Bank, 2018). However, the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies showed positive growth in their gross domestic product which was above the World average of gross domestic product (GDP).

Table 1 shows the evolution of exponential growth rate of RGDP, population, and gross domestic product by inhabitant (GDPH) in the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies from 1970 to 2016. It revealed that the highest increases in the real GDP during 1970 to 2016 was from Singapore at the average annual rate of 7.155% followed by Malaysia with the average annual rate of 6.269%. The third, fourth and fifth countries were Thailand, Indonesia, and Jordan with the average annual rate of 5.716%, 5.592% and 5.462% respectively. The sixth country was the Philippines with the average annual rate of 4.134%. Similarly, the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies experienced positive growth in their gross domestic product (GDP) by inhabitant compared to that of African economies. Based on table 1, some fluctuations in the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies are related to international influences although in the next decade the correlation may be higher because of their openness to international trade such as exporting mineral resources and agricultural product. These countries' growth has priority over financial stability (Guisan, Aguayo, and Exposito, 2001).

Table 1: Averages of Annual Growth (%)

Countries	Average GDP Growth (%)	Average Population Growth (%)	GDP by inhabitant
Jordan	5.462	3.759	1.452
Malaysia	6.269	2.306	2.718
Philippine	4.134	2.316	1.785
Thailand	5.716	1.390	4.111
Indonesia	5.592	1.804	3.098
Singapore	7.155	2.149	3.329

Source: World Bank Development Database, 2018.

Accordingly, this study overcomes a few deficiencies of past and as often as possible utilised econometric techniques to expand the time arrangement measurement by utilizing board information and, consequently, misuse extra data. The power can

fundamentally enhance as board construct tests depend concerning a more extensive informational collection, and tests are more precise and solid. Studies utilizing board information, by and by, additionally give questionable outcomes. Roughly, by 2050, developing economies will represent half of worldwide GDP (Ndiko, 2010) and the lion's share of financial development. Rising economies go about as an essential motor of the improvement of worldwide economy recuperation. In the vicinity of 2008 and 2013, developing markets have added to around 80% of the world monetary development. With the pace of better stream of capital around the world, the possibility of nearby money thankfulness and vulnerabilities of industrialized economies, an ever-increasing number of financial specialists turn their eyes to developing markets. Among numerous determinants of financial development, three factors are picked given their execution measures of the economy, hypothetical significance and furthermore got from the discoveries of the past observational writing. It comprehended that this examination would help dealers and also the speculators to comprehend this dynamic causal connection which will help them to dispense their portfolio and picks the best for the venture to expand their arrival that they already had. The first section discusses the introduction; the second section discusses the literature reviewed, the third section discusses the methodology, the last section discusses the findings and recommendation.

2. Literature Review

The several empirical studies reviewed in this study showed mixed results and conclusions. In some studies, strong positive and bidirectional relationships are found to exist between the economic growth and its determinants, and in some, the relationships are unidirectional and weak. Other studies report different results. This mixture of findings and conclusions comes from differences in methodology, variables used, and the period of study. This disparity of the study area fundamentally affects the behavior of the economic growth. The magnum opus of this study, thus, will be on these four fronts. This research fills the gap created by the reviewed studies to analyze the dynamic causal relationships between economic growth and financial instability for Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore countries for the period 1970-2016. To the knowledge of the researcher, this is the first study using these countries and heterogeneous panel error correction model to analyze the relationship between economic growth and financial instability. The conclusion of this study will apply to a broad range of the countries.

Table 2: Summary of the Literature Review

S/N	Authors	Country And Data	Method	Major Findings
1	Demetriades and Hussein (1996)	16 developing countries	recently developed time series techniques	↔
2	Ahmed and Ansari (1998)	India, Pakistan, and Sri Lanka 1973 to 1991	Granger causality tests	←
3	Asafu-Adjaye (2000)	Indonesia, India, the Philippines, and	Cointegration and Error-Correction Modelling	← (Indonesia and India)

		Thailand	Techniques	↔ (Philippines and Thailand)
4	Al-Yousif (2002)	30 developing countries 1970–1999	Granger-causality tests approach	↔
5	Andersen and Tarp (2003)	less developed countries 1965 to 1995	GMM estimation	←
6	Bhattacharya and Sivasubramanian (2003)	India 1970–1971 to 1998–1999	Cointegration analysis and Granger causality test	Cointegrated ←
7	Caldero´n and Liu (2003)	109 developing and developed countries 1960 to 1994	Geweke decomposition test	Cointegrated ↔
8	Cun˜ado and Gracia (2003)	European countries 1960–1999	Cointegration allowing for structural breaks and Granger causality test	~
9	Thangavelu, Jiunn, and James (2004)	Australia 1960 to 1999	Vector Autoregressive Model	←
10	Chang and Caudill (2005)	Taiwan 1962 to 1998	Vector Error Correction Models (VECM)	←
11	Cunado and Gracia (2005)	Six Asian countries 1975Q1–2002Q2	Cointegration test and Granger causality	← (Japan, South Korea, and Thailand)
12	Lee and Chang (2005)	Taiwan 1954–2003	Cointegration allowing for structural breaks and Granger causality test	↔
13	Mahadevan and Asafu-Adjaye (2007)	20 net energy importers and exporters countries 1971 to 2002	Panel error correction model (VECM) and Granger causality	↔
14	Abu-Bader and Abu-Qarn (2008)	Algeria 1965–2003 Egypt 1960–2004 Israel 1960–2004 Morocco 1960–2004 Syria 1965–2002 and Tunisia 1961–2004	Quadrivariate Vector Autoregressive framework and Toda and Yamamoto to test for Granger causality	← (Algeria, Egypt, Morocco, Tunisia, and Syria) → (Israel)
15	Abu-Bader and Abu-Qarn (2008)	Egypt over 1960–2001	Trivariate vector autoregressive (VAR) framework and Granger causality approach	↔
16	Adam and Siaw (2010)	Ghana 1970 to 2007	Cointegration and Granger causality test	↔
17	Ake and Jin (2010)	5 Euronext countries 1995 Q1 to 2008 Q4	Granger causality test approach	~
18	Ake and Ognaligui	Cameroon	Granger causality test	~

	(2010)	2006 to 2010	approach		
19	Hossain (2011)	Newly industrialized countries 1971 to 2007	Johansen Fisher panels cointegration techniques		←
20	Kakar and Khilji (2011)	Malaysia and Pakistan 1980-2010.	Johansen cointegration test and Granger causality Approach	~	
21	Arshad (2012)	Pakistan 1965 to 2005	Co-integrating Vector Autoregressive (VAR) approach	~	
22	Adusei (2013)	24 African countries 1984-2010	GMM model		↔
23	Dristsaki and Dritsaki (2014)	Greece 1960-2009	Autoregressive Distributive Lag (ARDL) and VECM Granger causality approach		←
24	Farhani, et al. (2014)	Tunisia 1971 to 2008	Granger causality test and cointegration test		←
25	Linh and Lin (2014)	Vietnam 1980-2010	Cointegration, Environmental Kuznets curve approach, and Granger causality		↔
26	Shahbaz, Rehman, & Muzaffar (2014)	Bangladesh 1976 to 2012	Combine Bayer-Hanck cointegration approach		↔
27	Bhattacharya, et al. (2016)	38 countries 1991-2012	Panel cointegration and causality		←
28	Sharma and Bardhan (2016)	Indian states 1980-2011	Panel FMOLS and panel Granger causality		↔
29	Sharma and Bardhan (2016)	India 1980 to 2011	A two-step approach for cointegration test and Dumitrescu and Hurlin causality test		↔
30	Tang, et al. (2016)	Vietnam 1971-2011	Granger causality test		←
31	Pradhan, et al. (2015)	Eleven countries	Panel-Vector Autoregressive Model		↔

→ Means that the causality runs from economic growth to its determinants;
← Means that the causality runs from the determinant of the economic growth to economic growth;
↔ Means that bi-directional causality exists between economic growth and its determinants;
~ Means that no causality exists between economic growth and its determinants.

3. Methodology

3.1 The Theoretical Model and Data

Economic performance is estimated using the natural logarithm of real gross domestic product growth (RGDP) as a measure of economic growth. This study followed the neo-classical enhanced Solow growth model, which initially proven by Mankiw, Romer, and Weil (1992) on the eve of Islam's (1995) panel data framework. The analysis of the

economic growth factors, academician and researchers were commonly used the Cobb-Douglas production function model to determine the effect of several indicators on economic growth (Demetriades and Law, 2006).

$$X_{it} = K_{it}^{\varphi}(A_{it}L_{it})^{1-\varphi} \quad (1)$$

Where, X_{it} is the output, K_{it} is the capital L_{it} is the labour force; meanwhile, A_{it} is the level of technology and efficiency, country and time are denoted by i and t respectively. Greenwood and Jovanovic (1990), Bencivenga and Smith (1991) and Berthelemy and Varoudakis (1996) argued that through research collection, risk pooling and analysis of information on competing technologies of production, financial intermediations can improve the flow of resources and enhance economic growth. Conversely, Robinson (1952) argued that finance does not affect economic growth; rather it is financial development that follows economic growth since expansion of the the real economy means more demand for financial services and institutions (Ndiko, 2010).

Furthermore, The Construction of the measures of financial instability is a very difficult task due to the variety of financial services catered for in the financial system. What represents an appropriate measure of financial instability seems to be controversial in the literature. Herrero, Alicia, and Lopez (2003) used banking crises as a proxy for financial instability. Guillaumout and Kpodar (2004) and Loayza and Ranciere, (2004) constructed an indicator of financial instability as the standard deviation residual for each seven year period issued from the estimate of the financial development indicator trend over the period of study. Therefore, this study followed the method proposed by Klomp and Haan, (2009) to construct 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 with them. The study's data consists of commonly used financial instability indicators that are composites of variables taken from the banking system's balance sheet such as domestic credit provided by Bank, domestic credit provided by the private sector, Market Capitalization, broad money supply, and lending rate (real interest rate).

The trade openness and oil prices also included in the model as control variables. Trade openness measures as the ratio of the summations of import of goods and services in US dollar and export of goods and services in US dollar to Gross Domestic Product (GDP). The oil price calculated as a ration of consumer prices index and crude oil prices. This study used the annual time series panel data over the period from 1970 to 2016 to analyze the financial instability, oil prices, and trade openness on economic growth in ASEAN-5 regions. The countries incorporated in this study are Indonesia, Thailand, Malaysia, Philippines, and Singapore.

3.2 Cross-Section Dependence Test

The cross-section dependence test was established by Pesaran (2004). 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. Therefore, it is the first test of analysis to decide appropriate unit root tests. The Cross-sectional independence stated that error terms are not cross-correlated, and zero error covariance is a very significant issue in panel unit root test and cointegration test. The recommended tests of the ordinary least squares (OLS) residual from the panel regressions are as follow:

$$Z_{it} = \varphi_i + \omega_i y_{it} + \theta_{it} \ (2)$$

Where $\varphi_i \ and \ \omega_i$ are the intercepts and slope, $i = 1,2,3,\ldots\ldots$N is an indexes of the cross section dimension and t=1,2,3,……Q is the time series dimension. For each $i, \vartheta_{it}, \sim iid(0, \sigma_{i\theta}^2)$ and for all t, while they could be cross sectional interrelated. The dependence of θ_{it} across i could arise in a various ways. It could be due to unobserved common components of $\theta_{it} \ and \ \theta_{ij} \ for \ i \neq j$. The regressors could have lagged values of Z_{it}, be either stationary or non-stationary. The CD test is as follows:

$$CD = \sqrt{\frac{2Q}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \check{R}_{ij}} \ (3)$$

Where $\check{R}_{ij}$ is the simple estimate of the Pair-wise correlation of the residuals.

$$\check{R}_{ij} = \check{R}_{ij} = \frac{\sum_{q=1}^{Q} \pi_{ij} \pi_{ij}}{\left(\sum_{q=1}^{Q} \pi_{iq}^2\right)^{1/2} \left(\sum_{q=1}^{Q} \pi_{jq}^2\right)^{1/2}} \ (4)$$

$and \ \pi_{ij}$ is the ordinary least square estimate of θ_{it} in equation (2) above, it is defined as

$$\pi_{it} = Z_{it} - \breve{\varphi}_i - \breve{\omega}_i y_{it} \ (5)$$

3.3 Panel unit root test

In the second step to know the stationarities property of the variables, the panel unit root test must be taken. There are two groups of panel unit root tests developed in the literature. The first group includes of first generation unit root tests that ignore cross-sectional dependence, while the second group contains second generation unit root tests that allow for cross-sectional dependence (Moon and Perron, 2004 and Pesaran, 2007). There are various methods for panel unit root test. This study chose four-panel unit root tests such as Levin-Lin-Chu (LL) test (2002), Im-Pesaran-Shin (IPS) test (2003), and Breitung.

3.3.1 Levin-Lin-Chu panel unit root test

This is feasible for the panel data which is moderate in size. The segment, however, it has little power in tests of the serial connection, can't be wiped out. Also, the test is performed under the null hypothesis that the time series are non-stationary against the alternative hypothesis that all series in the panel is stationary. LLC restricts correlation across individuals and correlation cannot be removed by ejecting the cross-sectional averages.

$$Z_{it} = \tau_i x_{i,t-1} + v'_{it} x + \theta_{it} \ (6)$$

Where v'_{it} are the deterministic variables, θ_{it} is $iid(0, \sigma^2_{i\theta})$ and $\tau_i = \tau$. The t-statistic on τ given by:

$$t_{LL} = \frac{(\check{\tau} - 1)\sqrt{\sum_{i=1}^{N} \sum_{t=1}^{Q} \check{X}^2_{i,t-1}}}{M_e} \ (7)$$

Where

$$M_e^2 = (NQ)^{-1} \sum_{i=1}^{N} \sum_{t=1}^{Q} \check{\theta}^2_{it}$$

$$\check{Z}_{it} = Z_{it} - \sum_{M}^{Q} y(t,m) Z_{it}\,, \check{\theta}_{it} = \theta_{it} - \sum_{M}^{Q} y(t,m) Z_{it} \ y(t,m) = v'_t (\sum_{t-1}^{Q} v_t \, v'_t) v_m$$

3.3.2 Im-Pesaran

This is known as IPS. The IPS unit root test is used to examine the stationary properties of the variables. IPS criticized Levin and Lin and extended it by allowing heterogeneity on the coefficient of the lagged dependent variable and recommends the consistent t-bar test statistic based on the averaging Dickey-Fuller statistics across the groups. The null hypothesis of the IPS test can be measured using the following equation

$$Z_{it} = \partial_{1i} + \partial_{2i} Z_{it-1} + \varepsilon_{it} \ (8)$$

$$U_{IPS} = \frac{\sqrt{N}(\hat{t} - [E\, \hat{t}_i / \rho_i = 0])}{\sqrt{var[\hat{t}_i / \rho_i = 0]}} \rightarrow N(0,1) \ (8)$$

Where$\hat{t} = N^{-1} \sum_{i=1}^{N} t_i$ the moments of $E[t_i / \rho_i = 0]$ $var[t_i / \rho_i = 0]$ can be found by Mante Carlo Simulation and tabulated in IPS.

3.4 Westerlund and Edgerton (2008)

This test is very flexible enough to allow for serially correlated error and heteroskedastic, cross-sectional, unit-specific time trends and unknown structural breaks of the cointegration test in both slope and intercept. It also allowed the structural breaks to be located at different dates. Also, the distribution of the test is found to be normal and free of nuisance parameters under the null hypothesis. This Panel cointegration has some advantages over the first generation cointegration test. Westerlund established four new Panel cointegration tests as G, G, P and P that depend on ECM. If the null of no error correction is rejected, this implies that the null hypothesis of no cointegration is also rejected. Meanwhile, the tests depend on structural rather than residual dynamics; there is no basic element limitation. H_G and H_P are panel statistics which depend on pooling the data on the error correction along the cross-sectional units. The basis of Westerlund and Edgerton (2008) is based on Lagrange multiplier unit root test techniques developed by Schmidt and Phillips (1992), Ahn (1993), and Amsler and Lee (1995). The models under consideration are as follows:

$$y_t = \gamma_i + \delta_i t + \rho_i D_{it} + x'_{it}\pi_i + (D_{it}\pi_{it})'\sigma_i + q_{it} \quad (9)$$

$$x_t = x_{it-1} + v_t \quad (10)$$

Where the indices $i = 1,\ldots,N$ and $t = 1,\ldots,T$ denote panel data and the time period, respectively. The k-dimensional vector x_{it} contains the regressors and is specified as a random walk. The variable D_{it} is a scalar break dummy such that $D_{it} = 1\ if\ t > T_i$ and zero otherwise. Hence, γ_i and π_i represent the cross unit-specific intercept and slope coefficient before the break, while ρ_i and $\sigma_i$represent the change in these parameters after the break. v_t is an error term with mean zero and independent across i The disturbance term q_{it} is generated by the following model that allows cross-sectional dependence through unobserved common factors

3.5 Long-run and Short-run Estimates

The short run and long-run coefficients determine by Pooled mean group (PMG) techniques developed by Pesaran et al. (1999). The PMG estimators highlight both the pooling implied by the homogeneity limitations on the long-run coefficients and the averaging across groups used to acquire method for the assessed the other short-run parameters of the model and error-correction coefficients. Pesaran et al. (1999) categorized numbers of factors that can be recognised as the homogeneity in the long-run relationship which was covered by all groups, for examples; common technologies, the institutional development and arbitration condition. The PMG estimator assumed homogeneous long-run coefficients, which gives a valuable intermediate option between assessing separate regressions, which allows all the error variances and coefficients to vary over across the groups, and traditional fixed-effects estimators, who accept that all slope coefficients and error variances are the same. It has the viable preferred advantage in permitting the short-run dynamics to be data determined for

every country, considering the number of time series observations available in each case.

Pesaran et al. (1999) stated that to drive the asymptotic distribution of the PMG estimators, it is very necessary to distinguish between the cases of stationary and nonstationary regressors. In principle similar algorithm can be used to compute the PMG estimators regardless of whether the regressors are I (0) or I (1), the underlying asymptotic theories for these two cases are basically diverse and, their derivations necessitate distinct treatments. The main advantage of the PMG over the traditional dynamic fixed-effect (DFE) model is that it can permit the short-run dynamic specification to differ from country to country. The lag order was first chosen in every country on the unrestricted model by the Schwarz Bayesian criterion (SBC), subject to a maximum lag of 1.

However, there are many requirements for the reliability, efficiency, and validity of this methodology. First, the presence of a long-run linkage among the variables of interest needs the coefficient on the error correction term to be negative and not lower than -2. Second, a significant assumption for the consistency of the ARDL model is that the explanatory variables are treated as exogenous, and the subsequent residuals of the error-correction model are serially uncorrelated. Third, the similar size of T and N is significant: both of them should be large to use the dynamic panel procedure to evade the bias in the average estimators. Eberhardt and Teal (2011) argue that the treatment of heterogeneity is crucial to understanding the growth process. Hence, failing to satisfy these conditions will create different estimation in PMG (Samargandi, Fidrmuc, & Ghosh, 2015). In line with the Pesaran et al. (1999) methodology, the Pooled Mean group Model including the long-run relationship between variables may follow as:

$$\Delta LNRGDP_{it} = \beta_1 + \gamma T + \sum_{j=1}^{p-1} \partial_{ij} \Delta LNRGDP_{it-j} + \sum_{1=0}^{q-1} \gamma_{ij} \Delta LNFI_{ij-1} + \sum_{1=0}^{r-1} \delta_{ij} \Delta LNEP_{ij-1} + \sum_{1=0}^{s-1} \varphi_{ij} \Delta LNTOP_{ij-1} + \pi_1 LNRGDP_{ij-1} + \pi_2 LNFI_{ij-1} + \pi_3 LNEP_{ij-1} + \pi_4 LNTOP_{ij-1} + \mu_{1it} + \varepsilon_{1it} \quad (11)$$

Where: Δ is the first difference operator, and $LNRGDP, LNFI, LNOP, LNTOP, and\ T$ are the variables. The constants are $\beta_1, \beta_2, \beta_3, \beta_4\ and\ \gamma$, the short run and long run coefficients on the trends are $\partial_{ij}, \gamma_{ij}, \delta_{ij} \varphi_{ij}, and\ \vartheta_{ij}\ and\ \pi_1, \pi_2 \pi_3 \pi_4\ and\ \pi_5$ respectively. $p, q, r, s\ and\ z$ represents the maximum lag length, ε_{1it} is error terms,.

3.5 Causality Test

The co-integration analysis found that the causal relationship subsists among the cointegrated variables, but it fails to explain the direction of the causal relationship. According to Engel and Granger (1987), whenever the variables cointegrated afterward,

there always exists an error correction sign. This error correction representation is the short-run dynamics of the variables tested that were influenced by the variance from equilibrium. Engel and Granger (1987) recommend that if cointegration exists among the variables, in the long-run, afterward, there must be either bidirectional or unidirectional association among the variables. The short-run causal relationship between the real gross domestic product, financial instability, oil price, energy used and trade was analysed using Wald test and Dumitrescu and Hurlin heterogeneous panel Granger causality test. The Wald test Causality estimate is:

$$\Delta lnrgdp_t = \alpha_1 + \sum_{i=0}^{a} \beta_{1i} \Delta lnrgdp_{t-i} + \sum_{i=0}^{b} \beta_{2i} \Delta lnfi_{t-i} + \sum_{i=0}^{c} \beta_{3i} \Delta lnop_{t-i} + \sum_{i=o}^{d} \beta_{4i} \Delta lnopp_{t-i} + \theta_1 \varepsilon cm_{t-1} + \mu_{1i} \quad (12)$$

$$\Delta lnfi_t = \alpha_2 + \sum_{i=0}^{b} \beta_{1i} \Delta lnfi_{t-i} + \sum_{i=0}^{a} \beta_{2i} \Delta lnrgdp_{t-i} + \sum_{i=0}^{c} \beta_{3i} \Delta lnop_{t-i} + \sum_{i=0}^{d} \beta_{4i} \Delta lnopp_{t-i} + \theta_1 \varepsilon cm_{t-1} + \mu_{2i} \quad (13)$$

$$\Delta lnop_t = \alpha_3 + \sum_{i=0}^{c} \beta_{1i} \Delta lnop_{t-i} + \sum_{i=0}^{b} \beta_{2i} \Delta lnfi_{t-i} + \sum_{i=0}^{a} \beta_{3i} \Delta lnrgdp_{t-i} + \sum_{i=0}^{d} \beta_{4i} \Delta lnopp_{t-i} + \theta_1 \varepsilon cm_{t-1} + \mu_{3i} \quad (14)$$

$$\Delta lnopp_t = \alpha_4 + \sum_{i=0}^{d} \beta_{1i} \Delta lnopp_{t-i} + \sum_{i=0}^{c} \beta_{2i} \Delta lnop_{t-i} + \sum_{i=0}^{b} \beta_{3i} \Delta lnfi_{t-i} + \sum_{i=0}^{c} \beta_{4i} \Delta lnrgdp_{t-1} + \theta_1 \varepsilon cm_{t-1} + \mu_{4i} \quad (15)$$

And, the Dumitrescu and Hurlin heterogeneous panel Granger causality test estimates are:

$$\Delta LNRGDP_{it} = \beta_1 + \sum_{k=1}^{p} \partial_{ik} \Delta LNRGDP_{it-k} + \sum_{k=1}^{q} \gamma_{ik} \Delta LNFI_{it-k} + \sum_{k=1}^{r} \delta_{ik} \Delta LNOP_{it-k} + \sum_{1=0}^{s} \theta_{ik} \Delta LNTOP_{ij-1} + \varphi ECM_{it-1} + \varepsilon_{1it} \quad (16)$$

$$\Delta LNFI_{it} = \beta_2 + \sum_{k=1}^{q} \gamma_{ik} \Delta LNFI_{it-k} + \sum_{k=1}^{p} \partial_{ik} \Delta LNRGDP_{it-k} + \sum_{k=1}^{r} \delta_{ik} \Delta LNOP_{it-k} + \sum_{k=1}^{s} \theta_{ik} \Delta LNTOP_{it-k} + \omega ECM_{t-1} + \varepsilon_{2it} \quad (17)$$

$$\Delta LNOP_{it} = \beta_3 + \sum_{k=1}^{r} \delta_{ik} \Delta LNOP_{it-k} + \sum_{1=0}^{s} \theta_{ik} \Delta LNTOP_{it-k} + \sum_{k=1}^{p} \partial_{ik} \Delta LNRGDP_{it-k} + \sum_{k=1}^{q} \gamma_{ik} \Delta LNFI_{it-k} + \rho ECM_{t-1} + \varepsilon_{3it} \quad (16)$$

$$\Delta LNTOP_{it} = \beta_4 + \sum_{k=1}^{s} \theta_{ik} \Delta LNTOP_{it-k} + \sum_{k=1}^{p} \partial_{ik} \Delta LNRGDP_{it-k} + \sum_{k=1}^{q} \gamma_{ik} \Delta LNFI_{it-k} + \sum_{k=1}^{r} \delta_{ik} \Delta LNOP_{it-k} + \sigma ECM_{t-1} + \varepsilon_{4it} \quad (18)$$

From the equations (12-18) above, Δ represent change, ε_{it} are residual terms, which are the same, independent and normally distributed based on assumption. The statistical important of ECM_{t-1} (that is the lagged of error correction term) is that, it further validate the established long run relationship between the variables. Further, the coefficient of ECM_{t-1} that is τ indicating the speed of adjustment at which the long run will be achieved from the short run in the model.

5. Findings

5.1 Descriptive Statistics and Correlation Analysis

Table 1 revealed the descriptive statistics for Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore. The variables under study namely, RGDP, FI, OP, and TOP. The values of Kurtosis and Skewness revealed nonexistence of symmetric in the distribution. Generally, if the values of Kurtosis and Skewness are 0 and 3 respectively, the experimental distribution is expected to be normally distributed. Similarly, if the Skewness Coefficient is in a plethora of unity, it is measured moderately extreme, and a low (high) Kurtosis value indicated extreme platykurtic (extreme leptokurtic). Jarque-Bera Statistics coefficients of the variables revealed that the frequency distributions are non-normal. Table 1 below showed that the standard deviation of the RGDP, FI, and OP are reasonably more volatile as compared to TOP. Additionally, Table 2 showed that RGDP and FI are equitably more volatile as compared to OP and TOP. The results of correlation matrix showed that RGDP decline along with Fi and TOP in all the six countries, while OP, rises RGDP in the countries.

Table 3: Summary Statistics

Variables	Mean	Standard deviation	Skewness	Kurtosis	Jarque-Bera
LNRGDP$_{it}$	*-2.149*	*1.177*	*0.616*	*3.437*	*10.03**
					(0.006)
LNFI$_{it}$	*-0.152*	*1.604*	*0.174*	*2.243*	*4.973*
					(0.130)
LNOP$_{it}$	*-0.612*	*0.756*	*0.248*	*3.232*	*1.762*
					(0.414)
LNTOP$_{it}$	*0.057*	*0.607*	*0.940*	*4.919*	*42.42**

					(0.000)
Variables	Correlation matrix				
	$LNRGDP_{it}$	$LNFI_{it}$	$LNOP_{it}$	$LNTOP_{it}$	
$LNRGDP_{it}$		***1.000***			
$LNFI_{it}$		*-0.536** *(0.0000)*	***1.000***		
$LNOP_{it}$		*0.234** *(0.005)*	*-0.818*** *(0.026)*	***1.000***	
$LNTOP_{it}$		*-0.099* *(0.239)*	*0.285** *(0.001)*	*-0.479** *(0.000)*	***1.000***

Notes: * and ** significant at 1 and 5% levels. Figures in ( ) denote *p*-values

5.2 Result of Cross-section Dependence Test

This study uses a testing technique that deals with the problem of cross-section dependence. First, this study applies two cross-sectional independence tests established by Friedman (1937) and Pesaran (2007) to evaluate whether the time series in the panel are cross-section independent. Pesaran (2007) recommended a test statistic based on the average of pair-wise Pearson's correlation coefficients of the residuals found from an autoregressive (AR) model. Under the null hypothesis of cross-section independence, the statistic converges to a standard normal distribution. In Table 3 the results of the CD tests based on these correlations showed that RGDP, FI, OP, and TOP are highly dependent on countries. The probability values in parenthesis revealed that the null hypothesis of independence is strongly rejected at 1% level of significance, so that cross-section dependence has to be considered when computing the panel data statistics if misleading conclusions are to be avoided and spells that the variables are cross-sectionally independent, and the panel data set is statistically significant for empirical tests. This finding underlines the already mentioned importance of taking into account cross-section dependence when analysing the effect of FI, OP and TOP on Economic Growth in the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies.

Table 4: Cross-sectional Dependence Tests

Variables	**Pesaran's CD test**	**Breush-Pagan (LM) test**
$LNRGDP_{it}$	6.082*	39.49*
	(0.000)	(0.000)
$LNFI_{it}$	8.607*	76.20*
	(0.000)	(0.000)
$LNOP_{it}$	7.834*	68.23*
	(0.000)	(0.000)
$LNTOP_{it}$	9.172*	63.34*
	(0.000)	(0.000)

Note: * and ** significant at 1 and 5% levels. Figures in ( ) denote *p*-values. Pesaran (2004) CD test takes cross-independence as the null, and the p-values are for the one-sided test based on the normal distribution.

5.3 Result of Panel Unit Root Test

To examine the existence of stochastic non-stationary in the series, this study applies the first generation panel unit root tests which neglect the presence of cross-section dependence but were commonly used in the panel data literature on the determinants of the economic growth. Consequently, the consideration cross-section dependence should provide more reliable results. Therefore, this study also applies the second generation panel unit root test proposed by Pesaran CIPS (2007). The results are summarized in Table 5 Concerning the idiosyncratic component, the results of the Levin et al. (2002), Im et al. (2003), Breitung (2000) unit root tests clearly point to the rejection of the unit root hypothesis, the results of the unit root analysis of the factor component for RGDP, FI, OP and TOP at the level are found to be non-stationary at 1%, 5% and 10% levels of significance. Therefore, the RGDP, FI, OP, and TOP are non-stationary and not integrated of the same order, while at first difference are found to be integrated and stationary at 1% levels of significance. Consequently, the RGDP, FI, OP, and TOP are stationary and integrated of the same order, that is, *I*(1).

Table 5: Panel Unit root test panel unit root test

Variables	LLC		Breitung		Im et al.	
	At level	At first different	At level	At first diff	At level	At first different
$LNRGDP_{it}$	-0.718	-9.301*	-0.835	-8.279*	-0.478	-8.279*
	(0.438)	(0.000)	(0.236)	(0.000)	(0.633)	(0.000)
$LNFI_{it}$	-0.206	-5.712*	-0.017	-3.355*	-0.935	-6.672*
	(0.582)	(0.000)	(0.493)	(0.000)	(0.835)	(0.000)
$LNOP_{it}$	0.458	-5.670*	-1.186	-6.398*	-0.821	-6.855*
	(0.677)	(0.000)	(0.118)	(0.000)	(0.794)	(0.000)
$LNTOP_{it}$	1.177	-6.375*	1.084	-4.229*	1.811	--6.160*
	(0.881)	(0.000)	(0.861)	(0.000)	(0.965)	(0.000)

Notes: The chosen lag for Pesaran CIPS is equal to zero. * and ** denotes rejection of the null hypothesis of non-stationary at 1 and 5% levels of significance respectively.

Table 6: Summary results of heterogeneous cointegration tests

	Without trend			With trend	
Test type	Dependent variable: $LNGDP_{it}$				
	Statistic	Value	*p*-value	Value	*p*-value
Westerlund	G_t	-4.121*	0.000	-4.900*	0.000
	G_a	-19.552**	0.018	24.321**	0.024
	P_t	-8.064*	0.005	-9.672*	0.001
	P_a	-12.115*	0.000	-19.348*	0.006

* and ** denotes rejection of the null hypothesis of no-cointegration at 1% and 5% levels of significance respectively for Westerlund estimates. The AIC is used to choose the optimal lead and lag.

To study the influence of financial instability, oil prices, trade openness with the Asian financial crisis on economic growth in the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore countries, this study used Westerlund and Edgerton (2008) that simultaneously considers cross-section dependence and structural breaks. Moreover, this test allows for heteroskedastic and serially correlated errors and cross unit-specific time trends. Table 6 above revealed that the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies in both constant and constant and trend cases all the four statistics reject the null hypothesis of no cointegration. That implies there are long-run linkages between financial instability, energy prices, trade openness and economic growth when allowing for known breaks (1997 Asian financial crisis). The group means statistic ($G\alpha$) and panel statistics($P\tau$ and $P\alpha$) rejects the null at 1% level of significance. Narayan and Smyth (2008) proposed the same finding that Pedroni's test statistics do not reject the null of no cointegration whereas once structural breaks are incorporated they found cointegration by means of the test suggested by Westerlund (2006). Additionally, table 5 reported the contemporaneously estimated breaks for the region; that is 1997 Asian financial crisis. A comparison with previous studies reporting explicit estimated break dates in the cointegration relation between energy consumption and economic growth reveals that these findings can be roughly confirmed by Narayan and Smyth (2008) who found structural breaks of the energy consumption-growth nexus for the G7 countries during the 1980-1988 sub-period of the whole sample period 1972-2002, and Lee and Chiu (2011) who provide the occurrence of structural breaks for six developing countries during the periods 1976-1979, 1982-985, and 1991-1992 when analysing nuclear energy consumption from 1971-2006. Since the present analysis includes three to four times more countries than the studies by Narayan and Smyth (2008) and Lee and Chiu (2011) over a larger sample period, this study is able to more clearly determine structural breaks that are common to these the region due to global shocks such as the 1997 Asian financial crisis.

5.4 Long-run and Short-run Estimates

Table 7: Pooled mean group estimates

Dependent variable: $LNRGDP_{it}$			
Variables	**Coefficients**	**Standard error**	***p*-value**
Long-run estimates			
$LNFI_{it}$	-0.336*	0.071	0.000
	[-4.710]		
$LNOP_{it}$	0.902*	0.103	0.000
	[8.756]		
$LNTOP_{it}$	0.210*	0.077	0.007
	[-2.752]		
TB	-0.403*	0.334	0.000

	[-4.154]		
Short-run estimates			
$\Delta LNFI_{it}$	0.293** [2.545]	0.115	0.012
$\Delta LNOP_{it}$	0.276* [3.027]	0.091	0.003
$\Delta LNTOP_{it}$	0.646** [2.546]	0.254	0.012
ΔTB	-0.59** [-2.582]	0.228	0.011
ect_{t-1}	-0.558* [-3.654]	0.153	0.000
Optimal lag length (1,1,1,1,1)			

Table 7 represented the Long-run and Short-run results of Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies. The t-statistics are given in square bracket. In the emerging Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies, the long-run coefficient for $LNOP_{it}$ and $LNTOP_{it}$ are positive and significant at 1%, while, the coefficients for $LNFI_{it}$ and TB are negative and statistically significant. The signs of all the variables are line with the theoretical predictions. However, the coefficients for $LNFI_{it,}$ $LNEP_{it,}$ and $LNTOP_{it}$ are positive and statistically significant at 1%, 5% and 10% level of significance. However, the sign of TB is negative and statistically significant. Moreover, the estimated coefficients of the ect_{t-1} of Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies is -0.558 (at 1% significant) which indicating that in the absence of changes in the independent variables, deviation of the model from the long-run path is corrected by 56% per year which is very fast. 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 determinants and the known structural breaks. The coefficient of the World financial crisis is negative and statistically significant at 1% level.

Furthermore, the results revealed that economic growth of both Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore was negatively and significantly related to the financial instability. A negative linkage between the economic growth and financial instability is consistent with Batuo and Kupukile, 2012, who's found similar results for African countries. In emerging African economies the result indicates that in the long-run 1% increase of the financial instability will lead to 0.369% decrease in economic growth, in the emerging ASEAN countries 1% increase of the financial instability will lead to the 0.162% decrease in the economic growth.

Also, this result shows that the liberalisation appeared to engender greater instability and crises in Jordan, Malaysia, Philippines, Thailand, Indonesia, and Singapore economies, 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 emerging economies goals of broader economic growth and development. However, in the short-run, the result reveals that 1% increase of the financial instability it will lead to 0.293% increase in the economic growth of the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies, Therefore, in the short-run, the result shows that financial instability has a significant direct effect on economic growth in both emerging economies.

Moreover, an oil price is found to be positively related to the economic growth in both long-run and short-run. This positive sign indicated the direct impact of oil price on economic growth. This result has been supported by Lee, Ni, and Ratti (1995), Lee and Chang (2005), Akpan (2009), Apergis and Payne (2010), Muhammad, Saleheen, and Mohammad, (2012), Behbondi, et al. (2013), Zoa and Wang (2015) and Tang, et al. (2016). The result suggested that in the long-run 1% increase in oil price will lead to 0.902% increase in economic growth. While in the short-run 1% increase in oil price will lead to 0.276% increase in economic growth.

The result argued that an oil price increase directly increases real national income through higher export earnings, though part of this gain would be later offset by losses from lower demand for exports generally due to the economic recession suffered by trading partners. However, the greater oil price will lead to a decrease of inflation, input costs, real effective exchange rate drops significantly, increased non-oil demand, increase investment, tax revenues increase, and the budget surplus increases. Moreover, because of resistance to real increase in wages, an oil price rises will typically lead to downward pressure on nominal wage levels. Wage pressures together with increased demand tend to result in lower unemployment. These impacts are superior the more sudden, and the more pronounced the price increase and are magnified by the impact of lower prices on consumer and business self-reliance.

The result showed that trade openness has positively linked to the economic growth, 1% increase of trade openness will lead to the 0.210% increase in economic growth. However, in the short run, the result reveals that trade openness is positively related to the economic growth. 1% increase in trade openness will lead to the 0.646% increase in economic growth, The positive relationship has been supported by the works of Chen and Feng, 2000, Dar and Amirkhalkhali, 2003, Dollar and Kraay, 2003, Awokuse, 2007, Yucel, 2009, Kakar and Khilji, 2011, Gries and Redlin, 2012, Manni and Afzal, 2012, Muhammad, Hussain and Ali, 2012, Muhammad, Saleheen, and Mohammad, 2012, Kennedy 2013, Mercan, Gocer, Bulut, and Dam 2013, Lachecheb, 2014, and Kyophilavong, et al. 2015.

Additionally, this result indicates that the analysis results support the hypothesis that openness will increase the economic growth which is put forward by endogenous

growth theories. When the role of openness in emerging economies new technological developments by more efficient production methods and the role 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 countries.

However, the coefficient of the Asia financial crisis is negative and statistically significant at 1% level. This implies that the Asia financial crisis has a significant negative impact on the economic growth. This means that Falls in equity markets, foreign exchange markets and rises in interest rates are the most notable financial effects. These changes then have an impact on the real sector of the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies. Asian financial crisis will cause investors to lose confidence in the economic health of an entire Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore countries economy or their government to meet its foreign debts; they will pursue to move funds abroad into more secure assets. Financial companies which invest in large portfolios will make them switch from holding stocks to holding hard currency or bonds issued by the governments of the industrialised economies, particularly the United States. Why because of this government bonds will be viewed as 'safe havens.' Secondly, the Asian financial crisis will lead to interest rates to increase significantly. The market reaction to a decrease in the money supply (in this case because of capital flight overseas) is an increase in market interest rates and the prospect of a so-called 'credit crunch,' in which funds for borrowing diminish throughout the economy. In addition to this market response, the monetary authorities may raise rates further in an effort to prevent further, continuous depreciation of the currency.

5.5 The Result of Causality Test

Table 8: Dumitrescu and Hurlin Granger causality results

	LNFI $-/\rightarrow$ *LNRGDP*			*LNFI* $\leftarrow/-$ *LNRGDP*		
Individual Statistics						
Country	κ_i	W_i	p_i	κ_i	W_i	p_i
Jordan	1	0.426*	0.000	1	0.828*	0.000
Malaysia	1	0.034	0.817	1	0.615*	0.000
Philippine	1	0.812*	0.000	1	0.873*	0.000
Thailand	1	0.002	0.989	1	0.503*	0.002
Indonesia	1	0.786	0.000	1	0.707*	0.000
Singapore	1	0.821*	0.000	1	-0.873*	0.000
Panel test statistics						
W^{Hnc}	5.899*			1.698		
Z_{NT}^{Hnc}	2.961			-0.317		
$\tilde{Z}_{N}^{HNC}$						

	LNOP −/→ LNRGDP			*LNOP ←/− LNRGDP*		
Individual Statistics						
Country	κ_i	W_i	p_i	κ_i	W_i	p_i
Jordan	1	0.181	0.512	1	0.024	0.769
Malaysia	1	-0.284**	0.034	1	0.045	0.632
Philippine	1	-0.318	0.154	1	0.083	0.155
Thailand	1	-0.052	0.717	1	0.061	0.449
Indonesia	1	-0.155*	0.009	1	-0.054	0.406
Singapore	1	-0.318	0.154	1	0.0083	0.155
Panel test statistics						
W^{Hnc}		1.966			4.071	
Z_{NT}^{Hnc}		-0.108			0.154	
$\tilde{Z}_N^{HNC}$						

	LNOPP −/→ LNRGDP			*LNOPP ←/− LNRGDP*		
Individual Statistics						
Country	κ_i	W_i	p_i	κ_i	W_i	p_i
Jordan	1	-0.616**	0.033	1	-0.229**	0.048
Malaysia	1	-0.066	0.726	1	0.025**	0.047
Philippine	1	0.432**	0.042	1	0.004	0.719
Thailand	1	-0.248	0.143	1	-0.007	0.711
Indonesia	1	-0.053	0.709	1	-0.056	0.122
Singapore	1	0.433*	0.006	1	0.005	0.719
Panel test statistics						
W^{Hnc}		5.068**			0.694	
Z_{NT}^{Hnc}		2.313			-1.101	
$\tilde{Z}_N^{HNC}$						

The Granger Causality analyses based on the ARDL Wald test with 1 lag are conducted between the financial instability, energy prices, trade openness and economic growth of Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies. The results are summarized in Table 7. The results test revealed a bidirectional causality between financial instability and economic growth in Jordan, Philippines, Indonesia and Singapore. However, the result showed one-way causality running from economic growth to financial instability, economic growth in trading openness index in Malaysia, from economic growth to trade openness index in Jordan, from economic growth to oil prices in Philippines, from economic growth to financial instability in Thailand, from oil prices to economic growth in Indonesia, from trade openness index to economic growth in Singapore The unidirectional causality also found running from trade openness to economic growth in Malaysia and Singapore. This is consistent with the work of Asafu-Adjaye (2000), Liu, Burridge, and Sinclair (2002), Cunado and Gracia (2005), Lee and Chang (2005), Hossain (2011), Bouzid (2012), Polat, et al. (2013), Farhani, et al. (2014), Kumar, et al. (2015) and Siddique and Majeed (2015)Mugableh (2015), Bhattacharya, et al. (2016) and Tang, et al. (2016).

The Panel Dumitrescu and Hurlin heterogeneous causality showed unidirectional causality running from financial instability to economic growth, and from trade openness index to economic growth. The unidirectional causal relationship between trade openness and economic growth is consistent with the work of Hossain (2011). This result also indicated that trade openness facilitates economic growth by the misuse of economies of scale, decrease the mandatory requirement to permit increments in the import of capital and moderate products improving proficiency through expanded rivalry, and advancing the dissemination of information through learning by doing. The aftereffects of this investigation bolster the difference that trade openness will keep on being seen as a key determinant of economic growth. The aftereffect of vitality costs does not bolster the view that vitality cost and financial development are impartial on each other.

6. Conclusion

This study uses panel data to examine the effect of financial instability, oil price, and trade openness on economic growth in the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore countries. It applies the second generation cointegration test Westerlund and Edgerton, 2008 cointegration tests to identify the cointegration linkages between financial instability, oil prices, trade openness and economic growth when allowing for known breaks (1997 Asian financial crisis). It further applies the Wald Test and Panel Dumitrescu and Hurlin heterogeneous Granger causality to study the dynamic panel causality to examine the dynamic causality between financial instability, oil price, trade openness and economic growth in Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies, Westerlund and Edgerton (2008) cointegration tests that simultaneously considers cross-section dependence and structural breaks and 1997 Asian financial crisis on economic growth in the Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore countries. The study utilises five financial indicators: a measure of financial instability index, market capitalization (MC), broad money supply (liquid liabilities (LL)), domestic credit by the Bank (DCB), bank credit to private sector (BCP) and real lending interest rate (RLR). The analysis uses annual panel data for the period between 1970 to 2016 which are obtained from World Bank Statistical Database (2018) and Thomson Reuter DataStream (2018). This study confirmed the existence of cointegration linkages between the financial instability, oil price, trade openness and economic growth when allowing for known breaks (1997 Asian financial crisis) in Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore economies. This implies that the independents variable (financial instability, oil price, and trade openness are the main determinants of economic growth in the economies.

Moreover, the Wald test results revealed the feedback causal relationship between financial instability and economic growth in Jordan, Philippines, Indonesia and Singapore. However, the result showed one-way causality running from economic growth to financial instability, economic growth to trade openness index in Malaysia, from economic growth to trade openness index in Jordan, from economic growth to oil prices in Philippines, from economic growth to financial instability in Thailand, from oil prices to economic growth in Indonesia, from trade openness index to economic growth in Singapore. Also, the Panel Dumitrescu and Hurlin heterogeneous causality showed unidirectional causality running from financial instability to economic growth, and from trade openness index to economic growth.

From the above summary of the findings, it revealed how financial instability is fundamentally affecting the economic growth of the Jordan, Malaysia, Philippines, Thailand, Indonosia, and Singapore economies. Therefore, there is a danger that in trying to avoid financial instability. The conciliation by Jordan, Malaysia, Philippines, Thailand, Indonesia and Singapore nations approach producers can make inflexibility or monetary suppression arrangements as opposed to understand a steadier budgetary framework which could accomplish by bank principles and controls being intended to extend the space for the development and strength of situated macroeconomic strategies. Government stores should be used just to secure the prosperity and working of the monetary framework. At the point when a keeping money issue develops, the experts should first assess whether the foundation is guaranteeing liquidity or a dissolvability issue and what the major repercussions of disappointment would be. Singular banks facing dissolvability issues ought to get bolster when their disappointment would weaken general bank dependability either straightforwardly or because, in the judgment of the experts, their distress would unsettle advertise assurance. Open assets ought to be given straightforwardly and to limiting good risk. Likewise, it would be useful for help to be given in ways that allow the general population division to profit if resource costs recover. Fiscal experts ought to perceive keeping money framework susceptibilities. For this, they should first recognize the banks that are well on the way to encounter inconveniences in the present condition. Bank supervision ought to in like manner request high-repeat data to consistently assess bank liquidity and dissolvability and direct credit peril diagnostics and stress testing. Supervision should be as careful as could sensibly be normal, covering remote money peril, bank hazard administration works on, loaning rules, and sponsoring steadfastness. It should extend to all store assuming and acknowledgment making organizations, including nonbank bank establishments. Methodology for dealing with a major emergency or disappointments inside all the budgetary administration's markets ought to be attracted up rapidly a course of action for potential outcomes. The districts should track current G20 exercises to strengthen control of cross-outskirt monetary streams and re-build up speculator certainty to unfreeze universal credit advertises and motivate capital inflows and intraregional loaning.

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