

2022

## Trade and Financial Openness and Financial Development: Is there Asymmetric Co-integration relationship? Evidence from Jordan

Ala'a Al-Dweik  
alaa.dweik@zuj.edu.jo

Ghazi Al-Assaf  
GhaziAl-Assaf@yahoo.com

Follow this and additional works at: <https://digitalcommons.aaru.edu.jo/jpu>



Part of the [Arts and Humanities Commons](#), and the [Social and Behavioral Sciences Commons](#)

### Recommended Citation

Al-Dweik, Ala'a and Al-Assaf, Ghazi (2022) "Trade and Financial Openness and Financial Development: Is there Asymmetric Co-integration relationship? Evidence from Jordan," *Jerash for Research and Studies Journal* *مجلة جرش للبحوث والدراسات*: Vol. 23: Iss. 1, Article 73.  
Available at: <https://digitalcommons.aaru.edu.jo/jpu/vol23/iss1/73>

This Article is brought to you for free and open access by Arab Journals Platform. It has been accepted for inclusion in Jerash for Research and Studies Journal *مجلة جرش للبحوث والدراسات* by an authorized editor. The journal is hosted on [Digital Commons](#), an Elsevier platform. For more information, please contact [rakan@aarj.edu.jo](mailto:rakan@aarj.edu.jo), [marah@aarj.edu.jo](mailto:marah@aarj.edu.jo), [u.murad@aarj.edu.jo](mailto:u.murad@aarj.edu.jo).

- Granger, C.W.J., & Lee, T.-H. (1989). Investigation of production, sales and inventory relationships using multicointegration and non-symmetric error correction models. *Journal of applied econometrics*, 4(S1), S145-S159.
- Harris, R. I. D. and Sollis, R. 2003. *Applied time series modelling and forecasting*, J. Wiley and Sons, England.
- Lardic, S. and Mignon, V. 2008. Oil prices and economic activity: An asymmetric cointegration approach, *Energy Economics*, 30(3): 847-855.
- Lane, P.R., & Milesi-Ferretti, G.M., (2006), "The external wealth of nations Mark II: revised and extended estimates of foreign assets and liabilities 1970–2004", *IMF Working Paper* 06/69.
- Rajan, R.G., Zingales, L. 2003. The great reversals: the politics of financial development in the twentieth century. *J. Financial Economics*, 69, 5–50.
- Ross Levine (1997), Financial Development and Economic Growth: Views and Agenda, *Journal of Economic Literature*, Vol 35, N° 2, pp 688-726.
- Shen, C. H., Chen, C. F. and Chen, L. 2007. An empirical study of the asymmetric cointegration relationships among the Chinese stock markets, *Applied Economics*, 39(11): 1433-1445.
- Tong, H. 1983. *Threshold models in non-linear time series analysis*, Springer-Verlag New York.

- 20- Engle, and Granger, 55.
- 21- Tong, H. 1983. Threshold models in non-linear time series analysis, springer-Verlag New York.
- 22- Enders, and Siklos, 19.
- 23- Granger, C.W.J., & Lee, T.-H. (1989). Investigation of production, sales and inventory relationships using multicointegration and non-symmetric error correction models. *Journal of applied econometrics*, 4(S1), S145-S159.
- 24- Engle, and Granger, 55.
- 25- Enders. and Siklos. 19.

## List of Sources and References

- Açıkgöz, S., Balcılar, M., & Saracoglu, B. (2009). Openness and financial development: time series evidence from Turkey. *In Anadolu International Conference in Economics, Eskisehir*.
- Al-Assaf, G. (2014). Testing for Asymmetric Cointegration Relationship between Banking Sector Development and Trade Openness: Evidence from Jordan. *Dirasat, Administrative Sciences*, 41(2), 497-507.
- Arif, I., & Rawat, A. S. (2019). Trade and financial openness and their impact on financial development: Evidence from South Asian economies. *South Asian Journal of Business Studies*, 8(1), 26-39.
- Baltagi, B. H. Demetriades, P. O. and Law, S. H. 2009. Financial development and openness: Evidence from panel data, *Journal of Development Economics* 89(2): 285-296.
- Balke, N. S., & Fomby, T. B. (1997). Threshold cointegration. *International economic review*, 627-645.
- Cook, S. 2007. Threshold adjustment in the long-run relationship between stock prices and economic activity, *Applied Financial Economics Letters*, 3(4): 243-246.
- Engle, R. F. and Granger, C. W. J. 1987. Co-integration and error correction: representation, estimation, and testing, *Econometrica: Journal of the Econometric Society*, 55(2): 251-276.
- Enders, W. and Siklos, P. L. 2001. Cointegration and threshold adjustment, *Journal of Business and Economic Statistics*, 19(2): 166-176.
- Enders, W. and Granger, C. W. J. 1998. Unit-root tests and asymmetric adjustment with an example using the term structure of interest rates, *Journal of Business & Economic Statistics* 16(3): 304-311.

## Endnotes

- 1- Ross, Levine, (1997), Financial Development and Economic Growth: Views and Agenda, *Journal of Economic Literature*, Vol 35, N° 2, pp 688-726.
- 2- Rajan, R.G., Zingales, L. 2003. The great reversals: the politics of financial development in the twentieth century. *J. Financial Economics*, 69, 5–50.
- 3- Williamson, John, and Molly, Mahar, (1998), *A Review of Financial Liberalization*, World Bank, Washington.
- 4- Enders, W. and Siklos, P. L. 2001. Cointegration and threshold adjustment, *Journal of Business and Economic Statistics*, 19(2): 166-176.
- 5- Rajan, Zingales, 69.
- 6- Baltagi, B. H. Demetriades, P. O. and Law, S. H. 2009. Financial development and openness: Evidence from panel data, *Journal of Development Economics* 89(2): 285-296.
- 7- Açıkgöz, S., Balcilar, M., & Saracoglu, B. (2009). Openness and financial development: time series evidence from Turkey. In *Anadolu International Conference in Economics*, Eskisehir.
- 8- David, M. A., Mlachila, M. M., & Moheput, A. (2014). Does openness matter for financial development in Africa? (No.14-94). *International Monetary Fund*.
- 9- Arif, I., & Rawat, A. S. (2019). Trade and financial openness and their impact on financial development: Evidence from South Asian economies. *South Asian Journal of Business Studies*, 8(1), 26-39.
- 10- Engle, R. F. and Granger, C. W. J. 1987. Co-integration and error correction: representation, estimation, and testing, *Econometrica: Journal of the Econometric Society*, 55(2): 251-276.
- 11- Al-Assaf, G. (2014). Testing for Asymmetric Cointegration Relationship between Banking Sector Development and Trade Openness: Evidence from Jordan. *Dirasat, Administrative Sciences*, 41(2), 497-507.
- 12- Enders, W. and Granger, C. W. J. 1998. Unit-root tests and asymmetric adjustment with an example using the term structure of interest rates, *Journal of Business & Economic Statistics* 16(3): 304-311.
- 13- Enders, and Siklos, 19.
- 14- Baltagi, Demetriades, and Law, 89.
- 15- Lane, P.R., & Milesi-Ferretti, G.M., (2006), “The external wealth of nations Mark II: revised and extended estimates of foreign assets and liabilities 1970–2004”, *IMF Working Paper* 06/69.
- 16- Baltagi, Demetriades, and Law, 89.
- 17- Rajan, Zingales, 69.
- 18- Engle, and Granger, 55.
- 19- Balke, N.S., & Fomby, T.B. (1997). Threshold cointegration. *International economic review*, 627-645.

Table 7. Diagnostics Test

Statistics	Estimated Value
Normality (Jarque-Bera)	3.11
Breusch-Godfrey Serial Correlation LM Test	0.728
ARCH Test	0.735
White Heteroskedasticity Test	0.544

5. Conclusion

The effects of trade and financial openness shock on financial development are often examined using a modeling approach. In the area of financial development, a large number of studies widely used standard cointegration analysis to investigate the interdependence between variables. One of cointegration techniques applied is adopted from Engle and Granger. This cointegration test assumes that the adjustment mechanism of the error correction term is symmetric, which indicates that the adjustment coefficients are similar regardless of positive or negative in the equilibrium error. However, asymmetry has now been an important property in macroeconomic analysis, with a large number of studies providing evidence of the asymmetric adjustment of macroeconomic variables.

The present study attempts to analyze the long-run equilibrium relationship between trade and financial openness and financial development by cointegration tests assuming asymmetric adjustment by adopting Enders-Siklos asymmetric cointegration tests. The results obtained show that there is an evidence of presence of asymmetric pattern in the relationship between credit to private sector ratio and trade and financial openness.

From error correction model, it can be concluded that there exists a long-run cointegrating relationship between trade and financial openness and financial development. Where the adjustment coefficients show that since the asymmetric adjustment coefficient is larger when it is positive than negative. Rising in trade and financial openness, will have a bigger impact on financial development in Jordan.

estimation of threshold cointegration relationships between financial development and trade and financial openness are reported in Table (4).

**Table (4):** Enders and Siklos Asymmetric Cointegration Test

CPS, TO, FO, (TO $\times$ FO), Y	$H_0: \rho_1 = \rho_2 = 0$				$H_0: \rho_1 = \rho_2$	
	TAR: $\Phi$	K	M-TAR: $\Phi^*$	K	TAR: F test	M-TAR: F test
	3.891**	1	5.557**	2	0.563**	0.024**

- (\*\*\*) Significant at the 10%; (\*\*) Significant at the 5%; (\*) Significant at the 1%.
- k is the lag periods of lagged difference term, which is decided by the minimum AIC.
- The critical values of  $\Phi$  and  $\Phi^*$  statistics are given in Enders and Siklos (2001).

The test is conducted by using both F-joint and f-equal. The  $\Phi^*$  statistic indicates that we can reject the null hypothesis of no cointegration with asymmetry. This implies that asymmetric adjustment between financial development and trade and financial openness is confirmed since the F-statistic indicates that the null hypothesis which assume symmetric adjustment  $\rho_1 = \rho_2$  is rejected at 5% level. This verifies that there exists a long-run cointegration relationship among financial development and trade and financial openness in Jordan with underlying adjustment process being highly asymmetric.

From Table 4, it is found that there exists cointegration relationship with asymmetric patterns between variables. Therefore, we can proceed to estimate the asymmetric ECM in order to explore the symmetric adjustment process in our model. Table 5 presents result for asymmetric error correction model.

**Table 5.** The Asymmetric Error Correction Model Estimates

Variables CPS, TO, FO, (TO $\times$ FO), Y	Adjustment Coefficients	
	A+	a-
Coefficient	-0.638109	-0.365511
Prob.	0.0356	0.0853

- (\*\*\*) Significant at the 10%; (\*\*) Significant at the 5%; (\*) Significant at the 1%.

The adjustment coefficients presented in Table 5 show that since the asymmetric adjustment coefficient is larger (0.638), when it is positive than negative, rising in trade and financial openness, will have a bigger impact on financial development in Jordan.

Noted from table 7, the estimated model is free from problems of non-normality, autocorrelation, ARCH effects and heteroskedasticity as indicated by Jarque-Bera test for normality, Breusch-Godfrey LM test for serial correlation, Engle's test for ARCH effects and White Heteroskedasticity test.

one. In other words, the variables are non-stationary in level, but stationary at first difference or  $I(1)$

**Table 1:** Augmented Dicky-Fuller Unit Root Test

Variables	Null Hypothesis: Variable is non-stationary				
	level		First difference		Conclusion
	C	C+T	C	C+T	
CPS	-1.7969	-3.1132	-5.7576*	-5.8639*	I (1)
TO	-1.7969	-3.1132	-5.7576*	-5.8639*	I (1)
FO	-1.4964	-4.4793	-5.8129*	-5.7280*	I (1)
(FO $\times$ TO)	-1.8226	-3.4417	-4.4779*	-5.5000*	I (1)
Y	-2.1369	-2.9904	-4.9660	-5.0310	I (1)

- (\*\*\*) Significant at the 10%; (\*\*) Significant at the 5%; (\*) Significant at the 1%.

- C: including constant, C+T: including constant and trend. - Lag Length based on SIC.

Prior to test the existence of asymmetric cointegration in the models, we conduct the traditional two-step cointegration test due to Engle and Granger<sup>(24)</sup> two-step procedure (the E-G) requires that residual from equation (1) is obtained and then tested for a unit root. Table (2) and (3) presents the results of these tests.

**Table (2):** Results of Engle-Granger Cointegration Tests

CPS= 0.900 +0.563TO -1.301FO -0.094 (TO $\times$ FO)-1.008Y
t= (3.193)* (2.517)* (-1.789)*** (-1.166) (-3.043)*
(R <sup>2</sup> : 0.69) (adj R <sup>2</sup> : 0.66) (S.E:0.05) (SRR:0.12) (F-ststistic:20.89*)
(DW:0.73)

- (\*\*\*) Significant at the 10%; (\*\*) Significant at the 5%; (\*) Significant at the 1%.

The results of E-G cointegration tests show that there is a potential cointegration relationship between financial development and trade and financial openness (see table 3).

**Table (3):** Engle-Granger ADF Cointegration Tests

Augmented Dickey-Fuller test statistic	Test critical values:		
	1%	5%	10%
-4.1087	-3.610453	-2.938987	-2.607932

Though there is cointegration existed between financial development and trade and financial openness base on symmetric E-G cointegration tests we are interested in this paper to examine whether this cointegration relationship is with asymmetry patterns or not. In order to do this, we decompose the error obtained from equation (1) into a positive and negative values and then conducting the test of Enders Siklos<sup>(25)</sup> for both TAR and MTAR models. The results of our

specification and the MTAR specification is the definition of the Heaviside indicator function ( $I_t$ ).

There are two sequential steps of testing for threshold cointegration: The first step is the linear cointegration test which is to test the null hypothesis of using the F-test of the joint hypothesis. The first step is the linear cointegration test which is to test the null hypothesis of using the F statistics. Because of the fact that F statistic is non-standard under the null hypothesis of no cointegration against the alternative of cointegration with asymmetry, where the null of  $\rho_1 = \rho_2 = 0$  is examined using an F-test of the joint hypothesis. The F statistic is denoted by  $\Phi$  and  $\Phi^*$ , for the TAR and M-TAR models, respectively. If this statistic rejects the null of no cointegration, we then implement the second step of testing for the null hypothesis of whether there is symmetric adjustment, that is  $\rho_1 = \rho_2$  with the standard F statistic.

If the asymmetric cointegration relationship among variables is detected, the next step is to formulate the asymmetric error correction model. Granger and Lee<sup>(23)</sup> extended the ECM specification to the case of asymmetric adjustment. Allowing for asymmetries requires that residuals and first differences of explanatory variables can be decomposed into positive and negative values. This can be represented in equation (5) as follows:

$$\begin{aligned} \Delta FD_t = & \alpha^+ \hat{u}_{t-1}^+ + \alpha^- \hat{u}_{t-1}^- + \sum_{i=1}^p \lambda_i^+ \Delta FD_{t-i}^+ + \sum_{i=1}^p \lambda_i^- \Delta FD_{t-i}^- + \sum_{i=1}^p \gamma_i^+ \Delta TO_{t-i}^+ \\ & + \sum_{i=1}^p \gamma_i^- \Delta TO_{t-i}^- \\ & + \sum_{i=1}^p \gamma_i^- \Delta TO_{t-i}^- + \sum_{i=1}^p \delta_i^+ \Delta FO_{t-i}^+ + \sum_{i=1}^p \delta_i^- \Delta FO_{t-i}^- + \sum_{i=1}^p \mu_i^+ \Delta Y_{t-i}^+ + \\ & \sum_{i=1}^p \mu_i^- \Delta Y_{t-i}^- + \eta_t \end{aligned} \quad (5)$$

Having statistically significant for the estimated coefficients in the previous equation indicating the presence of asymmetric pattern in the relationship between financial openness and trade openness and financial development.

#### 4. Empirical Results

To examine the potential asymmetric cointegration relationship between credit to private sector ratio and trade and financial openness, we first checked for their unit root properties using the standard Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. Results of these tests are displayed in Table (1). The results generally suggest that all variables are integrated of order



In order to test the existence of the asymmetric relationship between financial openness and trade openness and financial development in banking sector, we first use the Engle-Granger<sup>(18)</sup> framework, assuming that the adjustment mechanism of the ECT is symmetric, which means that the adjustment coefficients to the equilibrium level are the same for both positive and negative values of the residual obtained from the long-run relationship. This indicates that the speed of adjustment of the financial development indicator, used in our analysis, is the same no matter if the shocks to financial openness and trade openness indicator are positive or negative.

If the variables are integrated of the same order, then the first step is to obtain the error term from equation (1) and test it for stationarity. The augmented Dickey-Fuller (ADF) statistic can be used to ascertain whether the residuals  $\varepsilon_t$  are stationary,

The error term has to be  $(I_0)$  in order to detect a potential cointegration relationship. Balke and Fomby<sup>(19)</sup> has expanded the Engle-Granger<sup>(20)</sup> test for cointegration by partitioning the lagged residuals from the cointegration regression to positive and negative value using a Heaviside indicator function  $(I_t)$ , which is basically based on the threshold proposed by Tong<sup>(21)</sup>. Two popular threshold cointegration tests called TAR and MTAR tests are usually used to detect asymmetric cointegration relationship among set of variables. The basic form of these two tests allows for only one threshold, Enders and Siklos<sup>(22)</sup> proposed the following equation to test for the stationarity of  $\varepsilon_{it}$ , where the null hypothesis for both tests indicating no cointegration with asymmetry ( $\rho_1 = \rho_2 = 0$ ).

$$\Delta \varepsilon_t = I_t \rho_1 \varepsilon_{t-1} + (1 - I_t) \rho_2 \varepsilon_{t-1} + \sum_{i=1}^K \delta_i \Delta \varepsilon_{t-i} + \xi_t \quad (2)$$

where  $\rho_1$ ,  $\rho_2$  and  $\delta_i$  are coefficient to be estimated.

$\xi_t$  is a white-noise disturbance.

K: is the number of lags.

$I_t$  is the Heaviside indicator function, Enders and Siklos consider two specifications for this function based on the level ( $\varepsilon_{it}$ ) and change in the residual ( $\Delta \varepsilon_{it}$ ) such that:

$$I_t = \begin{cases} 1 & \text{if } \varepsilon_{t-1} \geq 0 \\ 0 & \text{if } \varepsilon_{t-1} < 0 \end{cases} \quad (3) \quad M_t = \begin{cases} 1 & \text{if } \Delta \varepsilon_{t-1} \geq 0 \\ 0 & \text{if } \Delta \varepsilon_{t-1} < 0 \end{cases} \quad (4)$$

The system of Equations 2 and 3 is known as the threshold autoregressive (TAR), and the combination of Equations 2 and 4 is known as the momentum threshold autoregressive (M-TAR). These two models are constructed using the original cointegration regression. The only difference between the TAR

demonstrated the positive impact of one of the openness indicators and the negativity of the other.

This paper specifically examines the potential cointegration relationship among banking sector development and simultaneous openness on the basis of existence of asymmetric cointegration. However, if there is a potential asymmetric pattern in the residual obtained from the long-run regression, one may use the tests by Enders and Granger<sup>(12)</sup> and Enders and Siklos<sup>(13)</sup>, who develop an alternative specification for testing the stationarity of the residual, based on threshold and momentum threshold autoregressive models. They expand the cointegration test of E-G to incorporate an asymmetric error correction term. Therefore, we extend our analysis by employing the Enders and Siklos test to examine the presence of asymmetric cointegration in our data and extend the standard Engle-Granger Cointegration test used in previous literature.

### 3. Data

This study discusses uses Annual time series data on Jordan for the period (1980-2019). All data series is obtained from the Word Bank Database and Annual Reports of the Central Bank of Jordan.

### Empirical Model and Methodology

The aim of our empirical model is to test the asymmetric relationship between financial openness and trade openness and financial development in banking sector by starting with the long-run cointegrating regression as follows:

$$BFD_t = \beta_0 + \beta_1 TO_t + \beta_2 FO_t + \beta_3 TO_t \times FO_t + \beta_4 X_{it} + \varepsilon_t \quad (1)$$

FD: represents the financial development indicator, where choosing the right measure of financial development is not an obvious exercise and the literature has not settled on a common measure. Given the lack of general consensus, we take private credit to GDP perhaps the most frequently used proxy for financial development this measure has been applied by Baltagi et al.<sup>(14)</sup>. TO: trade openness indicator which is measured by (export +import) divided by GDP is the preferable measure in literature; which we shall adopt. FO represents the financial openness indicator, that is trade in services which is measured by (service exports + service imports) divided by GDP. Lane and Milesi-Ferreti<sup>(15)</sup>, and Baltagi et al.<sup>(16)</sup> have applied it most recently. In order to examine directly the simultaneity hypothesis proposed by Rajan and Zingales<sup>(17)</sup>, an interaction term between FO and TO variables is also included. X: represents other control variables used in the literature that might affect financial development, and may include GDP per capita (Y).  $\varepsilon_{it}$ : is the error term.

study did not support the hypothesis of the simultaneous openness of trade and financial sector for the studied region.

Most of the previous work investigating the cointegration relationship between trade openness and banking sector development have focused on the use of the Engle-Granger<sup>(10)</sup> framework, assuming that the adjustment mechanism of the ECT is symmetric, which means that the adjustment coefficients to the equilibrium level are the same for both positive and negative values of the residual obtained from the long-run relationship. This indicates that the speed of adjustment of the banking sector indicators, used in our analysis, is the same no matter if the shocks to trade openness indicator are positive or negative. The issue is that both the E-G and Johansen tests might be invalid if the adjustments to equilibrium appeared to be asymmetric.

Following the same theoretical grounds, Al-Assaf<sup>(11)</sup>, took this into consideration, using time series analysis to test the long-run asymmetric equilibrium relationships between financial development indicators, specifically in the banking sector and trade openness in Jordan over the period 1967 to 2011. The study provides evidence of asymmetry in the relationship between financial assets ratio and trade openness. However, there is no evidence of presence of asymmetric pattern in the relationship between trade openness and the credit to private sector ratio, total banks deposits ratio, and the financial depth indicator. The author finds no cointegration with threshold at a conventional level of significance among two banking sector development indicators, namely, credit facilitated to the private sector and financial development measured by M2 to GDP.

Additionally, using TAR estimation, it can be concluded that financial assets ratio responds asymmetrically to the change in the level of trade openness in Jordan, where the speed of adjustment to the new equilibrium is faster when the residual in the past period is positive than when it is negative.

Hence, the literature provides mixed evidence with regards to the impact of financial and trade openness on financial development. This can be explained by the difference in the statistical methods used in the analysis, the limitations of the data or the difference in the sampled countries. As some studies have shown a positive effect of financial and trade openness on financial development and that this openness must be simultaneous in order to achieve financial development.

However, some of them also showed a positive relationship with no need for simultaneous openness to achieve development. On the contrary, some studies have shown that there is a negative relationship between financial and trade openness and financial development. In addition, other studies

that if a country opens its borders for trade and capital simultaneously, the role of the local incumbents gets weaker.

A study by Baltagi et al<sup>(6)</sup>, adopted this “the interest group theory” to examine the impact of financial and trade openness on financial development for annual data for a sample of 42 developing and industrialized countries using Dynamic Panel Estimation Techniques (GMM) test for the period (1980-2003). The study found that both financial and trade openness are statistically significant for development in the banking sector.

They also concluded that the existence of financial or trade openness can generate benefits in the development of the banking sector, and this means that their findings provide limited support to the hypothesis of Rajan and Zingales (2003) that the simultaneous opening of both trade and capital accounts is necessary to promote financial development in a contemporary setting.

The study presented by Açıkgöz et al<sup>(7)</sup> also confirmed the conclusion reached by Rajan and Zingales, as this study investigates whether trade and financial openness affect financial development using quarterly time series data for the period (1989-2007) in Turkey. The empirical findings using the bounds testing indicate that only two financial development measures out of seven are determined by financial and trade openness. Only for one of these variables, there is evidence of long-run Granger causality from openness to financial development. This study provided evidence to support the hypothesis that both trade and capital accounts should be simultaneously opened for financial development to take place.

In contrast, the study presented by David et al<sup>(8)</sup>, analyzes the links between financial and trade openness and financial development in 34 African countries for the period (1970-2009). It is based on a panel dataset using methods that tackle slope heterogeneity, cross-sectional dependence and non-stationarity. The results do not point to a general direct robust link between trade and capital account openness and financial development in SSA. However, there are some indications that trade openness is more important for financial development in countries with better institutional quality.

The results of the Arif and Rawat<sup>(9)</sup> study had another direction in explaining the impact of trade and financial openness and their simultaneous openness on financial development for a sample of 4 countries in South Asia for the period (1996-2015). Along with the conventional panel unit root test and co-integration test, pooled mean group estimations. The findings suggested a significant negative impact of financial openness and significant positive impact of trade openness on the financial development of South Asia. Moreover, this

Many problems have arisen due to globalization, that imposed financial and commercial openness policies, especially in services trade. Where Simultaneous Openness theory of financial development argues that established incumbent industrial and financial interest groups oppose financial development since it breeds foreign competition by easing the entry of new firms into the market and, thus, erodes the monopolistic rents of the incumbent groups who oppose financial development<sup>(2)</sup>.

In this context, increasing trade openness leads to demand for new financial products, including instruments for trade finance and for hedging of risks. In addition, financial openness might reduce the cost of capital and increase liquidity, thereby fostering financial development. An economy should open to both trade and financial flows simultaneously because one without the other would not give the desired results<sup>(3)</sup>.

Using a variety of econometric techniques, a number of studies have examined the relationship between trade openness, financial openness, and financial development. Most of these studies assumed that the effect of financial and trade openness on financial development would be similar.

In this paper, we explore a different point of view by considering the asymmetric effects of financial and trade openness on financial development in the Jordanian banking sector using an asymmetric cointegration test adopted by Enders and Siklos<sup>(4)</sup> who developed an alternative specification for testing the stationarity of the residual, based on threshold and momentum threshold autoregressive models.

The remainder of this paper proceeds as follows. Section (2) summarizes the main literature. The background of the main methodology to be used is discussed in Section (3), and Section (4) shows the empirical results. Section (5) concludes.

## 2. Literature Review

The theoretical justification for the relationship between trade openness, financial openness and financial development can be explained by “the interest group theory” presented by Rajan and Zingales<sup>(5)</sup>. They examined the extent of financial development for a sample of 24 countries, mostly industrialized. For the period (1913-1999). The authors concluded that trade openness without financial openness is unlikely to deliver financial development. The hypothesis is based on the interest group theory of financial development, where openness is opposed because it increases competition in the domestic economy and may result in the loss of economic rent of local incumbents. Therefore, it proposes

## الانفتاح التجاري والمالي والتطور المالي: هل هناك علاقة تكامل مشترك غير متماثلة؟ دراسة حالة الأردن

آلاء فؤاد الدويك، قسم الاقتصاد، جامعة الزيتونة الأردنية، عمان، الأردن.

غازي إبراهيم العساف، قسم اقتصاد الأعمال، الجامعة الأردنية، عمان، الأردن.

### ملخص

تُحاول هذه الدراسة تحليل علاقة التوازن طويلة المدى واختبار مدى إمكانية وجود علاقة تكامل مشترك غير متماثلة في الأجل الطويل بين الانفتاح التجاري والمالي والتطور المالي في القطاع المصرفي في الأردن خلال الفترة (1980-2019). وجدت الدراسة دليلاً على وجود نمط غير متماثل في العلاقة بين التجارة والانفتاح المالي ونسبة الائتمان إلى القطاع الخاص حسب اختبار Enders and Siklos (2001). حيث أظهرت النتائج أن هناك علاقة تكامل مشترك غير متماثل معنوية بين الانفتاح التجاري والمالي والتطور المالي في القطاع المصرفي الأردني. وتظهر نتائج تقدير نموذج تصحيح الخطأ أن التعديل إلى التوازن يكون أسرع في حال الزيادة في الانفتاح التجاري والمالي مقارنة بالانخفاض في الانفتاح المالي والتجاري.

الكلمات المفتاحية: التكامل غير المتماثل، التطور المالي، الانفتاح التجاري، الانفتاح المالي، القطاع المصرفي، الأردن.

### 1. Introduction

The global economy is witnessing rapid developments that led to the emergence of a set of economic and financial changes. These changes had a clear reflection on the development and performance of the financial sector business, especially the banking sector, as this sector has a vital and effective role in economic. In addition, it has a positive impact on economic growth through the accumulation of capital through the mobilization of savings rate and allocation of financial resources efficiently<sup>(1)</sup>.

Financial and Trade openness was one of the most prominent developments during the 1980s, by eliminating restrictions and controls imposed on the movement of goods and services, as well as on capital across national borders.

2030

## Trade and Financial Openness and Financial Development: Is there Asymmetric Co-integration relationship? Evidence from Jordan

Ala'a Fouad Al-Dweik<sup>\*</sup> and Ghazi Ibrahim Al-Assaf<sup>\*\*</sup>

Received Date: 3/1/2021

Acceptance Date: 29/3/2021

### Abstract

The current study attempts to explore the asymmetric long-run equilibrium relationship between trade and financial openness and financial development, especially in banking sector. Using Jordanian data, over the period 1980 to 2019. The study has found evidence of asymmetry pattern in the relationship between trade and financial openness and the credit to private sector ratio. From estimation of error-correction model, the adjustment back to equilibrium is more rapid following relative increase in trade and financial openness compared to relative decrease in trade and financial openness.

**Keywords:** Asymmetric cointegration, Financial development, Trade openness, Financial openness, Banking sector, Jordan.

---

© All rights reserved to Jerash University 2022.

\* Department of Economic, Al-Zaytoonah University of Jordan, Amman, Jordan.

E-mail: [alaa.dweik@zu.edu.jo](mailto:alaa.dweik@zu.edu.jo)

\*\* Department of Business Economic, The University of Jordan, Amman, Jordan.

E-mail: [g.alassaf@ju.edu.jo](mailto:g.alassaf@ju.edu.jo)

2029