DOES STOCK MARKET PERFORMANCE HAVE A LONG EFFECT ON ECONOMIC GROWTH: EVIDENCE FROM MENA

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Abstract

Financial market has a close relationship with economic growth because increasing economic growth, representing the real gross domestic product (GDP), will enhance the efficiency and develop the stock market. On the other hand, the good performance of the stock market will affect economic growth positively. This paper aims to investigate the impact of stock market performance on the economic growth of a group of MENA countries during the time period 2000–2019. This study uses unbalanced panel data, unit root test, co-integration test, and autoregressive distributed lag (ARDL) model for data analysis (Kao, 1999; Pesaran, Shin, & Smith, 2001). The findings report that the stock market index, banking sector development, the ratio of foreign direct investment (FDI) to the GDP, and the consumer price index, as a proxy of inflation, have a significant positive long-run effect on the economic growth, while the ratio of broad money supply (M2) to the GDP has a significant negative long-run effect on the economic growth. The policymakers and government can based on the results of the study in developing and adopting policies to improve and enhance the efficiency of the stock market and attracting new investors inside and outside the country, which results in increasing the economic growth.

Keywords: Financial Markets, Economic Growth, Panel Data, ARDL, MENA

1. INTRODUCTION

Financial market is a mean for increasing savings and investments by enabling firms for collecting funds they need by issuing stocks and bonds resulting in enhancing and keeping the economic growth. On the other hand, the growth in the gross domestic product (GDP) will lead to an increasing demand for goods and services, which encourage firms to raise money by borrowing from the financial markets to meet the higher demand, which, in turn, develop the financial markets. Therefore, the relationship between stock market performance and economic growth is reciprocal and each variable affects the other.

Some studies examine the effect of stock market capitalization as a percent of GDP, stock market traded as a percent of GDP, and stock market turnover ratio, as indicators of stock market performance, on economic growth, and find a long-run relationship between them (Pradhan, Arvin, Samadhan, & Taneja, 2013; Radikoko, Mutobo, & Mphoeng, 2019; Elhassan & Braima, 2020; Kapaya, 2020). On the other hand, Derk (2020) finds that stock market capitalization and the stock market traded have no significant effect on economic growth.

Recently, financial markets and economic growth are both negatively affected by the COVID-19 pandemic, where the stock market indices for almost all countries all over the world have declined, as well as the growth in the GDP has been decreased. There are some reasons behind that decline such as a lot of people have lost their jobs and their savings and investments have declined, which, in turn, affect negatively the economic growth. Furthermore, the profits of many firms have declined, resulting in decreasing their ability and desirability for issuing stocks and bonds to collect money for investment, and then affect negatively the performance of the financial markets.

Governments in all countries worldwide always try to enhance the efficiency of the financial markets to attract more investments from both local and foreign investors, which results in increasing and keeping the economic growth. Therefore, this paper comes to examine the relationship between the stock market performance and the economic growth in a group of MENA countries. Furthermore, the results of this paper could help the governments and the policymakers to enact laws and policies enhancing the financial markets.

Some studies examine the effect of the stock market performance on the economic growth and find a long-run relationship between them (Pradhan et al., 2013; Radikoko et al., 2019; Elhassan & Braima, 2020; Kapaya, 2020). However, other studies find that the stock market performance has no significant effect on economic growth (Derk, 2020). The differences in the results of the studies may be because of using different indicators as a proxy of the stock market performance, different statistical approaches, and different markets. So, this paper aims at examining the relationship between the stock market performance and the economic growth in 10 MENA countries by answering the following question: *Does stock market performance have a significant long-run effect on economic growth?*

The remainder of this paper is structured as follows. Section 2 introduces the literature review and the contribution of this paper, while the variables, model, and hypotheses will be developed in Section 3. The results will be discussed in Section 4 and finally, Section 5 concludes the paper and recommends for further research.

2. LITERATURE REVIEW

The relationship between the financial markets and the growth in the real GDP is crucial because of the importance of the stock market performance to the economic growth and vice versa. Therefore, this relationship has a long debate among researchers and has attracted the interest of many scholars in

developed and developing countries (Ashamu & Soyebo, 2020; Bui & Doan, 2021).

Boubakari and Jin (2010), Anigbogu and Nduka (2014), Niranjala (2015), Ng'oma (2018), and Esian and Ebipre (2020) examine the effect of stock market performance on economic growth and find a long-run relationship between them. Furthermore, some studies find a positive nexus between stock market performance and economic growth (Mamun, Ali, Hoque, Mowla, & Basher, 2018; Osaseri & Osamwonyi, 2019; Ezenduka & Joseph, 2020; Hismendi, Masbar, Nazamuddin, Majid, & Suriani, 2021). Olweny and Kimani (2011) examine the effect of the stock market index and inflation on economic growth in Kenya by utilizing the vector autoregression (VAR) model. They find no relationship between inflation and economic growth, while the stock market index has a positive effect on economic growth. Okodua and Olabanji (2013) investigate the effect of stock market performance on economic growth in the context of Nigeria by employing the autoregressive distributed lag (ARDL) model. The findings show that market capitalization and interest rate have a positive effect on economic growth, while economic growth is negatively affected by dividend yield. In a related study, Nyanaro and Elly (2017) examine the effect of the stock market on economic growth in four African countries by using VAR for data analysis. They find that economic growth is affected by market capitalization and liquidity while there is no relation with stock price volatility.

Al Rasasi, Alsabban, and Alarfaj (2019) examine the effect of stock market performance on economic growth in the context of Saudi Arabia and find a positive relationship between the stock market index and economic growth. Abdullahi and Fakunmoju (2019) examine the effect of stock market performance on economic growth for a group of African countries by using panel data. The results show that economic growth is statistically significant positively affected by stock market capitalization, stock market index, and stock market turnover ratio, while negatively affected by the corruption perception index.

In a recent study, Ashamu and Soyebo (2020) examine the effect of stock market performance on economic growth in Nigeria by using the ARDL model. They find that market capitalization, traded value, and stock market index have a positive effect on economic growth. In a most recent study, Yemelyanova (2021) examines the effect of the stock market on economic growth for a group of European countries by using the Granger casualty test. The researcher finds a negative relationship between bank development and economic growth; however, market capitalization and investment ratio have a positive effect on economic growth. In another most recent study, Bui and Doan (2021) investigate the relationship between stock market performance and economic growth for a group of Asian countries by employing the generalized method of moments (GMM). The findings show that stock market capitalization, banking sector development, and the control of corruption have a positive significant effect on economic growth, while inflation has a negative effect. On the other hand, the labor force has no effect on economic growth.

This paper contributes to the literature by reducing the dearth of the developing countries'

studies regarding the relationship between the stock market performance and the economic growth by examining the effect of the stock market index, the banking sector development, the FDI as a percentage of the GDP, broad money supply (M2) as a percentage of the GDP, and the consumer price index, as a proxy of inflation, on the economic growth for ten of MENA countries over the period from 2000 to 2019 by using the ARDL model.

3. THE EMPIRICAL FRAMEWORK

3.1. Data

A time-series dataset has been collected for ten MENA countries, namely Saudi Arabia, Jordan, Qatar, Bahrain, the United Arab Emirates, Morocco, Algeria, Tunisia, Oman, and Egypt to examine the long-run effect of the stock market performance on the economic growth. Time series variables included in this study are the real gross domestic product (*GDP*), as a proxy for the economic growth, the stock market index (*SMI*), the consumer price index (*CPI*), as a proxy for inflation, the foreign direct investment (*FDI*), the gross domestic credit provided by the banking system to the private sector, which is a proxy for banking sector development (*BNKDEV*), and the money supply (*M2*). The real GDP, the stock market index, and the consumer price index are transformed into the natural logarithms, while the gross domestic credit provided by the banking system to the private sector, the FDI, and the broad money supply are taken as a percentage of the GDP. The study uses annual data from 2000 to 2019. More information about the dataset is shown in Table 1.

Table 1. Dataset variables: Measurement and sources

Variables	Symbol	Measurement	Source
Economic growth	*GDP*	LNGDP	The World Bank (n.d.)
Consumer price index	*CPI*	LNCPI	
Stock market index	*SMI*	LNSMI	"World and sector indices" (n.d.)
Foreign direct investment	*FDI*	FDI/GDP	
Banking sector development	*BNKDEV*	Domestic credit provided by banks to the private sector/GDP	The World Bank (n.d.)
Money supply	*MS*	M2/GDP	

3.2. Methodology and model

To the main objective of this study, which is to find whether there is a long-run effect of the stock market performance on the economic growth in the ten MENA countries or not, an appropriate econometric technique needs to be applied. To do so, some important tests for the macroeconomic variables need to be applied, such as unit root and co-integration tests. A unit root test is applied to find out whether the macroeconomic variables used in this paper are stationary or not. A co-integration test is used to discover whether there is a long-run relationship between the macroeconomic variables under the study or not. Therefore, the study's model can be written as follow:

$$LNGDP_t = \alpha_0 + \alpha_1 LNSMI_{t-1} + \alpha_2 LNCPI_t + \alpha_3 LNSMI_t + \alpha_4 FDI_t + \alpha_5 BNKDEV_t + \alpha_6 MS_t + \mu_t \qquad (1)$$

where, μ_t is a white noise error term. It can be noted that there are some alternative methods that can be used for conducting this research such as GMM, pooled ordinary least squares (OLS), a fixed effect model, and a random effect model. Furthermore, the Hausman test is used to choose between random and fixed effect models where the null hypothesis (H_0) states that the random effect model is appropriate for data analysis while the alternative hypothesis (*Ha*) states that the fixed effect model is appropriate and this is based on the comparison between the p-value and the significance level (α).

4. EMPIRICAL RESULTS

4.1. Descriptive statistics

Descriptive statistics and the correlation matrix for all explanatory variables and explained variables included in our model are reported in Table 2 and Table 3, respectively. Since the correlation coefficients for all variables under the study are less than 0.8, it can conclude that the model does not face the problem of multicollinearity as can be seen in Table 3 (Gujarati & Porter, 2010; Wooldridge, 2013).

Table 2. Descriptive statistics for all variables included in this study

Variable descriptive	LNGDP	LNCPI	LNSMI	FDI	BNKDEV	MS
Mean	25.291	4.571	8.228	3.311	51.061	75.188
Maximum	27.260	5.677	9.723	23.527	100.700	138.881
Minimum	23.417	3.808	6.194	-3.175	12.776	30.511
Std. Dev.	1.032	0.270	0.812	3.409	18.878	26.434
Observations	178	178	178	178	178	178

Table 3. Correlation matrix

Variables	LNGDP	LNCPI	LNSMI	FDI	BNKDEV	MS
LNGDP	1.000	-	-	-	-	-
LNCPI	0.215	1.000	-	-	-	-
LNSMI	0.379	0.381	1.000	-	-	-
FDI	-0.365	-0.165	-0.010	1.000	-	-
BNKDEV	-0.319	0.031	0.047	0.264	1.000	-
MS	-0.195	0.164	0.033	0.271	0.588	1.000

4.2. Unit root test

Unit root test is the first step in the analysis, which uses to check whether the economic variables used in this study are stationary or not. The results for the panel unit root test are reported in Table 4. The results are based on the ADF-Fisher χ^2 unit root test. The results obtained show a mixed order of integration. The results for variables *LNGDP, LNCPI, BNKDEV,* and *MS* confirm they are integrated of

order I(1). While the results for variables *LNSMI* and *FDI* confirm that they are integrated of order I(0). Therefore, a co-integration test needs to be applied to check for the long-run relationship between the variables. In addition, since the results for stationarity tests show a mix of integrated order I(1) and I(0) using the ARDL model is the most appropriate econometric technique to use for the analysis.

Table 4. Panel unit root test

ADF-Fisher unit root test. Chi-squared						
Variable (level)	*Intercept*	*Intercept & trend*	*Variable (first difference)*	*Intercept*	*Intercept & trend*	*Integrated of order*
LNGDP	23.78 [0.252]	19.01 [0.520]	DLNGDP	37.45* [0.010]	36.68** [0.012]	I(1)
LNCPI	8.50 [0.987]	9.87 [0.970]	DLNCPI	55.38* [0.000]	40.75* [0.000]	I(1)
LNSMI	64.78 [0.000]	56.92 [0.410]	DLNSMI	83.14* [0.000]	72.86* [0.000]	I(0)
FDI	67.46* [0.000]	52.11 [0.000]	DFDI	377.44* [0.000]	101.96* [0.000]	I(0)
BNKDEV	11.74 [0.924]	23.79 0.251]	DBNKDEV	59.99* [0.000]	41.85* [0.000]	I(1)
MS	22.91 [0.292]	37.97* [0.003]	DMS	103.54* [0.000]	79.89* [0.000]	I(1)

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

4.3. Co-integration test

The panel co-integration test is the second step in the analysis. Using two different panel co-integration tests to examine whether variables included in this study have a long-run relationship or not, namely

Kao residual co-integration and Johansen-Fisher panel co-integration tests. For further information regarding co-integration tests see Kao (1999). The results reported in Table 5 show that there is a long-run relationship between economic growth and the five explanatory variables.

Table 5. Panel co-integration test

Kao residual co-integration test (no deterministic trend)		
ADF	*t-statistic*	*Probability*
	-3.475	0.000*
Johansen-Fisher panel co-integration test (linear deterministic trend)		
	t-statistic	*Probability*
Fisher stat. (from trace test)	299.5	0.000*
Fisher stat. (from maximum-eigenvalue test)	210.2	0.000*
Johansen-Fisher panel co-integration test (linear deterministic trend restricted)		
	t-statistic	*Probability*
Fisher stat. (from trace test)	296.9	0.000*
Fisher stat. (from maximum-eigenvalue test)	176.5	0.000*

*Note: * significant at 1% level.*

4.4. Long-run relationship

Based on the results reported in Subsection 4.2, which confirm that the variables of the study are co-integrated in mixed order, and the results from Subsection 4.3, which confirm the existence of the long-run relationship, using the ARDL model will be an appropriate econometric technique to find

the long-run impact of the five independent variables (the consumer price index, the stock price index, the FDI, the banking sector development and the broad money supply on the dependent variable, the economic growth). The panel ARDL model was introduced by Pesaran et al. (2001). The ARDL model can be written as follows:

$$\Delta LNGDP_t = \alpha_1 + \alpha_2 LNGDP_{t-1} + \alpha_3 LNCPI_{t-1} + \alpha_4 LNSMI_{t-1} + \alpha_5 FDI_{t-1} + \alpha_6 BNKDEV_{t-1} + \alpha_7 MS_{t-1} + \\ + \sum_{i=1}^{k} \beta_1 \Delta LNGDP_{t-1} + \sum_{i=0}^{k} \beta_2 \Delta LNCPI_{t-1} + \sum_{i=0}^{k} \beta_3 \Delta LNSMI_{t-1} + \sum_{i=0}^{k} \beta_4 \Delta FDI_{t-1} + \sum_{i=0}^{k} \beta_5 \Delta BNKDEV_{t-1} + \\ + \sum_{i=0}^{k} \beta_6 \Delta MS_{t-1} + \mu_t \quad (2)$$

where, Δ is the first differences operator, k is the optimum lag length, β is short-run dynamics, and $\alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$, are long-run elasticity, μ_t is

the error term. The error correction of the ARDL model is written as follows:

$$\Delta LGDP_t = \alpha_1 + \sum_{i=1}^{n} \beta_1 \Delta LNGDP_{t-1} + \sum_{i=0}^{n} \beta_2 \Delta LNCPI_{t-1} + \sum_{i=0}^{n} \beta_3 \Delta LNSMI_{t-1} + \sum_{i=0}^{n} \beta_4 \Delta FDI_{t-1} + \\ + \sum_{i=0}^{n} \beta_5 \Delta BNKDEV_{t-1} + \sum_{i=0}^{n} \beta_6 \Delta MS_{t-1} + \lambda ECM_{t-1} + \mu_t \quad (3)$$

where, λ is the speed of adjustment parameter and ECM_{t-1} is the error-correction term and μ_t is the error term.

The ARDL for long-run estimations is reported in Table 6. The estimations were including constant

and trend and the maximum lag length is chosen based on SIC lag selection criteria.

The long-run effect of the five independent variables under the study on the economic growth has become as follows: the long-run effect of the consumer price index, the stock market index, the FDI on the economic growth are positive and significant at a 1% level, while the long-run effect of the banking sector development on the economic growth is positive and significant at a 5% level. On the other hand, the broad money supply long-run effect is negative and is significant at the 1% level. The result shows that an increase in the consumer price index by 1% leads to an increase in economic growth by 0.818%. An increase in the stock market index by 1% leads to an increase in economic growth

by 0.26%. An increase in the FDI as a share of the GDP by 1% leads to an increase in the economic growth by 0.013%. The banking sector development leads to an increase in the economic growth by 0.002%. An increase in the broad money supply as a share of the GDP by 1% leads to a decrease in the economic growth by 0.007. Table 6 also reports the value of the coefficient of the error correction term (ECM_{t-1}) is negative and significant at a 1% level. The coefficient of ECM_{t-1} is -0.152, meaning that any change in the short-run towards the long-run is corrected by 15.2% per year This indicates that it needs about 6.57 years to move from the short-run to the long-run relationship.

Table 6. Panel PMG/ARDL model long-run estimations: Effect of change in independent variables (at the 1% level) on the dependent variable *LNGDP*

Variable	Coefficient	t-statistic	Prob.
LNCPI	0.818	5.131*	0.000
LNSMI	0.260	6.426*	0.000
FDI	0.013	3.434*	0.000
BNKDEV	0.002	2.215**	0.029
MS	-0.007	-3.386*	0.000
ECM_{t-1}	-0.152	-2.855*	0.005

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

Financial markets can serve savers and corporations where savers invest their money in buying equity and debt instruments and providing them high returns especially on bonds while corporations raise money through issuing securities in financial markets. The development of financial markets could lead to promoting the economic growth by increasing the GDP, which, in turn, positively affects corporations by increasing the demand for goods and services and then corporations go to the financial market to collect more cash to meet the excessive demand on goods and services, which results in boosting the financial market. In addition, the development of the financial market is essential for corporations because they highly depend on it for raising the cash required for producing goods and then increasing the GDP.

It is very important for the financial market to be efficient, effective, and stable to achieve economic growth. Moreover, the efficient financial market, increasing the number of firms listed in the financial market, and increasing trading volume, leads to increasing liquidity, reducing risks, and increasing returns, which can attract local and foreign investors to invest in the financial market, which results in increasing the economic growth. On the other hand, banks encourage savers to invest their money by providing interest on their deposits and, therefore, increasing the amount of money available to grant loans to firms and governments which, in turn, affect positively the economic growth. The existence of a strong economy and efficient financial market will attract foreign investments by providing a good investment environment and high-interest rates and, therefore, increasing economic growth.

5. CONCLUSION

The panel ARDL model is used to examine the association between the stock market index and the growth in the GDP for the MENA region from 2000 to 2019. This paper shows that the consumer price index has a positive significant effect on

economic growth by increasing the real GDP. The results also report that the economic growth is positively affected by the stock market index, indicating that the development of the financial markets in general and the stock market, in particular, will lead to an increase in the economic growth, where firms go to the financial markets to borrow money by issuing stocks and bonds to produce more goods and services, which results in increasing investments and then maintain and increase the economic growth. FDI has a positive association with economic growth, where increasing the flow of the external investments to the financial markets will reflect positively on the development and the efficiency of the financial markets and then increase the real GDP. The banking sector development has a positive effect on the economic growth, where increasing the domestic credit granted to the private sector by the financial system will increase the investments and then increase the real GDP and keep the economic growth. Finally, the broad money supply has a negative significant effect on the economic growth, where the amount of money could be invested in non-productive projects which negatively reflects on the real GDP and then, in turn, on the economic growth. This study recommends the policymakers and regulatory bodies adopt policies enhancing and developing the efficiency of the financial markets, especially the stock markets to increase the flow of FDI and attract more local and international investors because developing the financial markets will positively affect the real GDP and result in keeping and maintaining the economic growth. This study recommends future research take into consideration the effect of the exchange rate, interest rate spread, the monetary policy, the fiscal policy instruments, and the financial stability on the economic growth and the economic stability as well as take into account quarterly data and a longer period of time. In addition, this study strongly recommends taking into account the effect of COVID-19 on the growth of the GDP. Finally, it recommends taking another region to show whether the relationship between

stock market performance and economic growth differs from one region to another. This study faces some limitations such as the missing data of most MENA countries, which results in limiting the number of countries to be included in the sample of this study as well as the unavailability of quarterly data on the variables of the study.

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