“Analyzing the effect of financial development on economic growth – the Jordanian experience”

AUTHORS	Izz Eddien N. Ananzeh https://orcid.org/0000-0003-0567-8518 Mohammad D. Othman

ARTICLE INFO	Izz Eddien N. Ananzeh and Mohammad D. Othman (2019). Analyzing the effect of financial development on economic growth – the Jordanian experience. *Investment Management and Financial Innovations*, *16*(1), 119-127. doi:10.21511/imfi.16(1).2019.09
DOI	http://dx.doi.org/10.21511/imfi.16(1).2019.09
RELEASED ON	Thursday, 14 February 2019
RECEIVED ON	Wednesday, 12 December 2018
ACCEPTED ON	Tuesday, 05 February 2019

LICENSE	This work is licensed under a Creative Commons Attribution 4.0 International License

JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
28	0	9

© The author(s) 2026. This publication is an open access article.

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

Izz Eddien N. Ananzeh (Jordan), **Mohammad D. Othman** (Jordan)

ANALYZING THE EFFECT OF FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH – THE JORDANIAN EXPERIENCE

Abstract

This study came to inspect the impact of the development of both financial market and banking system on the economic growth of Jordan based on the annual data covering the period 1993–2017. Through the use of many methodologies: Johansen co-integration test, (VECM), and Granger causality test, where real GDP was used as an indicator of economic growth, the real market value of stocks (Market Capitalization) (LCAP) and Share Turnover (LTURN) are indicators for the financial market, Money supply in the broad concept (LM2), and Local domestic credit (LCR) are indicators for the banking sector.

The results of this study reported that the study variables are stationary, and in the level of order 2, they are integrated, and a long-run relationship between the study variables existed according to the Johansen co-integration test. VECM model result and the target model result confirm a short-run causality running from the all variables toward GDP. Granger causality test underline a single directional causality running from variables of our study to GDP and denote the short-run impact between LCAP, LTURN, LM2, LCR, and LGDP. The analysis of the variance decomposition shows that the development of the banking system affects economic growth almost equally with the impact of the development of the financial market. The results go to the same line of supply-leading hypothesis.

Keywords financial development, economic growth, VAR model, VECM model

JEL Classification G17, G18, E44

Received on: 12th of December, 2018
Accepted on: 5th of February, 2019

© Izz Eddien N. Ananzeh, Mohammad D. Othman, 2019

Izz Eddien N. Ananzeh, Associate Professor, Faculty of Business, Philadelphia University, Jordan.

Mohammad D. Othman, Assistant Professor, Faculty of Business, Middle East University, Jordan.

This is an Open Access article, distributed under the terms of the Creative Commons Attribution 4.0 International license, which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

The financial systems of developing countries have witnessed many obstacles and restrictions due to the measures taken by the state to impose control over financial and banking activity. Economists therefore called for the adoption the policy of financial liberalization to cancel or effectiveness.

The importance of economic growth comes from people belief that their real freedom lies in achieving a decent standard of living. The growth of any economy is a procedure in which real national income of prevailing economic system grows for a long period of time. If the economic growth rate at constant prices is higher than population growth, this means that the average per capita income is increasing.

To achieve economic growth, it is a necessary to provide a set of elements, the most important one is the existence of a developed and efficient financial system. The financial system of any country consists of a group of financial institutions, most notably financial market and the banking system, which play a pivotal role in achieving high growth rates in any countries of the world. So the efficient financial

system is one of the basic requirements for economic growth in any country.

The financial sector is the main channel through which the surpluses are collected from different sectors and distributed to various investment fields by providing financing resources. This is done directly through the financial market or indirectly through the banking system and other financial institutions, which is known as financial intermediation services. The positive role of financial intermediation services is strongly correlated with the efficiency of the financial system and its ability to transfer funds from surplus units to deficit units, and the extent to which the financial system is integrated into real economic units. The development of the financial sector affects growth rates through its impact on capital productivity or its ability to convert financial assets into real investment. In light of the challenges of globalization and technological development in the telecommunications and information sector, especially in a small and developing economy, and open as the Jordanian economy, which is characterized by its political influences and the scarcity of its economic resources.

The Jordanian government has been alerted to the financial development role in achieving better economic growth by job creation, improving the competitiveness of the economy and maximizing wealth. The financial sector represented by the banking system and the financial market has witnessed remarkable development in the past years through organizing the electronic transfer process and increasing the number of banks and commercial banks. On the other hand, the Amman Financial Market witnessed a remarkable development as a result of Jordanians' tendency to invest in financial assets and also increasing volume of foreign direct investment.

In theory, both the banking system and financial markets have a clear effect on the economic growth, but due to outstanding argument among economists about this effect, and the fact that many of those who supported the existence of this relationship differed in the direction of the causal relationship and the results of different researches in different countries, this study seeks to answer the following question: Inquire about the type and nature of the relationship that connects between development of financial markets and the development of the banking system to economic growth in Jordan?

The study importance came from financial system importance to achieving economic growth in our country. The management of the financial system is one of the most important challenges faced by people who put the economic policies of the Jordanian state. The overall economic performance depends to a large extent on the financial system, and economic stability in the short term. The distortions in the financial sector are severe obstacles to long-term economic growth by damaging capital accumulation. This study can lead to important results that help decision-makers in our country to make sound decisions that may serve the economy.

This paper will be completed in the following order: section 1 debates or reviews the literature, section 2 describes the empirical results, section 3 presents the econometric methodology used in the paper. Finally, conclusions and recommendations are presented in the last section.

1. LITERATURE REVIEW

The theoretical interest in the nature of the linkage between developments of financial sector and economic growth is attributed to writings of Bagehot (1873). After that, Schumpeter (1912) stressed the important role of commercial banks in providing the necessary funding to stimulate economic growth. The studies of Shaw (1973), McKinnon (1973) are considered the first leading studies that highlighted the importance of financial developments on economic growth. Further, some economists such as Robinson (1952) believe that economic growth is leading to development of financial sectors.

Given the important nature of these relationship, the applied studies become more important to re-

http://dx.doi.org/10.21511/imfi.16(1).2019.09

solve the controversy in the direction of the relationship between them. Patrick (1966) is the first researcher who pointed out the possibility of bi-directional causal relationship between economic growth and financial development. But Goldsmith (1969) clarified the difficulty of determining the causal directional relationship between these variables.

Gupta (1984) used Granger methodology to determine the causal linkage between the development of financial sector and economic growth in 14 developing countries. Gupta (1984) results confirmed the result of Patrick (1966) which the former called supply-leading, which means that the development of financial sector had led to the economic growth in 8 countries and had not been confirmed by Patrick (1966) which he called demand-following.

Levine and Zervos (1996) tested the relationship between economic growth and development of financial sector between 1976 and 1993 using the Two Stage Least Square methodology (2SLS), and the outcomes confirm a positive impact of development of financial sector on the economic growth.

Since Darrat (1999) focused on the causal relationship between the financial deepening and economic growth in Saudi Arabia, United Arab Emirates and Turkey during the period 1980–1995 using the Granger causality test depending on error correction model, the results of this study reinforce the viewpoint that financial deepening is a causal factor necessary for the economic growth in spite of the evidence strength varies across countries.

Koivu (2002) focused on effect of the banking sector on economic growth for 25 transition countries using the fixed-effects panel model, and the results show that interest rate is negatively correlated to economic growth, while the rise in the bank credit ratio didn't accelerate economic growth. The researcher pointed out that this result applies to countries living in a transitional state that was characterized by banking crises rocked its financial sectors during the first decade of the transition, and banking sector has also been characterized by easy credit restrictions, which has led to this result.

Beck and Levine (2004) examined the effect of both financial markets and the banking sectors on the economic growth of forty countries for the period from 1976 to 1998 by using OLS methodology. The study results showed a positive impact of the development in both the financial market and banking system on economic growth.

The study of Perera (2009) that described Sri Lanka for the period from 1955 to 2005 using the adopted Johansson methodology and VECM, reported a causal relationship between the financial development and the economic growth.

Adusei (2013) inspect the linkage between the financial development and the economic growth in Ghana depending on annual data for the period between 2010 and 1971, through the joint integration model, error correction model, and FMOLS model. The researcher found in this study that economic growth was gradually damaged through financial development in Ghana. And last but not least, Greenwood et al. (2013) found that the development of financial sector is very important to the economic development of any country.

In this context, many studies have been conducted and have reached conflicting results and depending on the results of the previous empirical studies, there is no obvious consensus on the direction of the causal relationship between financial development and the economic growth. Also, the empirical results represent the specific countries. Depending on the previous literature, our study came to inspect the impact of the development of both financial market and banking system on the economic growth of Jordan based on the annual data covering the period 1993–2017.

2. METHODOLOGY

Depending on the previous studies and in order to achieve the objective of this study, we have chosen a set of variables to represent the main variables of this study to inspect the type of the relationship between development of financial sector and economic growth in our country Jordan. According to the economic theory, we describe this relationship as follows:

2.1. Economic growth variable

Gross Domestic Product (LGDP): real GDP is represented by the logarithmic formula as a variable representing economic growth. All variables in the study were represented by the logarithmic formula.

2.2. Financial market variables

This study used two variables as indicators of development the financial market, one of which reflects the size of the market and the other reflects the liquidity of the market and its efficiency.

1. The real market value of stocks (Market Capitalization) (LCAP): the market value of the shares shows the size of the market and represents the value of shares listed on the Amman Stock Exchange, according to economic theory, the expectation refers to a positive impact on GDP. The reason for using market value as a variable in this study is because size of market is positively or negatively correlated with ability to mobilize capital, and diversification of macroeconomic risks.

2. Share Turnover (LTURN): is an important indicator that reflects stock market liquidity. It is equal the total value of the domestic shares exchanged over a given period of time as a percentage of market value, from which we can measure the volume of transactions relative to the size of the market, and according to economic theory, the expectation refers to a positive impact on GDP.

2.3. Variables of the banking sector

This study used two variables to express the development of the banking system.

1. Money supply in the broad concept (*LM*2), which is considered the most important indicator that indicates the financial development of any state, and positively affects the economic activity. *M*2 is a broader money concept than *M*1 that refers to the money supply in the narrow concept, it also includes savings deposits, mutual funds, market securities, and other time deposits.

2. Local domestic credit (*LCR*): the liabilities from public institutions, private sector, financial institutions, and the net liabilities from the government. The most important role of credit lies in the financing of investment, since according to the multiplier theory, the changes in investment have multiple effects on income, as investment is one of the basic components of aggregate demand. The change in investment leads to a greater change in income. Accordingly, the expectation refer to a positive impact on GDP.

For all variables we used annual time series at macro level for the time period from 1993 to 2017. Our data sources came from Central Bank of Jordan (CBJ).

To investigate the dynamic relationship between the variables of our study, we use Vector Error Correction Model (VECM) as econometric methodology, where it was adopted as a method of analysis, because it is one of the modern methods that we can use to investigate the relationship between different economic variables.

The following expression was used:

$$LGDOP_t = \int (LCAP_t, LTURN_t, LM2_t, LCR_t). \quad (1)$$

We specify the Vector Auto Regression (VAR) model as follows:

$$\begin{aligned} LGDOP_t &= \mu_0 + \sum_{i=1}^{k} \mu_{1i} LGDP_{t-i} + \\ &+ \sum_{i=1}^{k} \mu_{2i} LCAP_{t-i} + \sum_{i=1}^{k} \mu_{3i} LTURN_{t-i} + \\ &+ \sum_{i=1}^{k} \mu_{4i} LM2_{t-i} + \sum_{i=1}^{k} \mu_{5i} LCR_{t-i} + \varepsilon_{1t}, \end{aligned} \quad (2)$$

where $LGDP$ refers to the natural logarithm of Gross Domestic Product, $LCAP$ refers to the natural logarithm of real market value of stocks (Market Capitalization), $LTURN$ refers to the natural logarithm Share Turnover, $LM2$ points out for natural logarithm of money supply, and LCR points out for natural logarithm of Local domestic credit.

http://dx.doi.org/10.21511/imfi.16(1).2019.09

For all the endogenous variables after the estimation is made in the model, we can utilize it to perform many tests such as Granger causality test.

VECM equation estimation is as follows:

$$\begin{aligned}\Delta LGDP_t &= \sum_{i=1}^{n}\gamma_{1i}\Delta LGDPL_{t-i}D_{t-i} + \\ &+\sum_{i=1}^{n}\gamma_{2i}\Delta LCAP_{t-i} + \sum_{i=1}^{n}\gamma_{3i}\Delta LTURN_{t-i} + \\ &+\sum_{i=1}^{n}\gamma_{4i}\Delta LM2_{t-i} + \sum_{i=1}^{n}\gamma_{5i}LCR_{t-i} + \\ &+\gamma_6 D_t + \beta_1\left(\phi_0 LGDP_{t-i} + \phi_1 LCAP_{t-i} + \right. \\ &\left.+\phi_2 LTURN_{t-i} + \phi_3 LLM2_{t-i} + \phi_4 LCR_{t-i}\right) + \varepsilon_{1t}.\end{aligned} \quad (3)$$

They are vectors of exogenous variables from equation (3).

One of the characteristics of this system is that it does not require distinguishing between endogenous and exogenous variables where all variables are treated as internal variables in the system.

3. EMPIRICAL RESULTS

Depending on the preceding literature, our research postulates an overlapping relationship between the variables under study, so this research is an attempt to display measurement trends of this relationship, and to determine the nature of this relationship, either short- or long-term.

One of the most statistical problems that the researcher may face is non-stationary problem for the time series. In other words, the mean and variance change over time. Because most the economic data suffer from this problem. The regression we get between the series variables at their levels is mostly a spurious regression, and in spite of the possibility in obtaining a high value for coefficient of determination R^2. As the stationarity test is one of the most important tests in order to avoid the spurious regressions, we implemented stationarity test for our time series under study, firstly, Augmented Dickey-Fuller (ADF) and, secondly, the Phillip-Perron (PP). In order that we implemented the two tests, the results are reported in Table 1.

Depending on the ADF and PP results reported in Table 1 for the all-time series, we reached the result of rejection of the null hypothesis for unit root. Therefore, we can make our conclusion that all variables under study are stationary, and integrated in the level two I(2).

In order to determine the lag length, which is one of the most important requirements for the test of Johansen co-integration, we should adopt the appropriate lag length before conducting or estimating the VAR model, and depending on the results of five criteria presented in Table 2, we choose the lag 2, which is the appropriate lag length, which was selected on the basis of the minimum value of each criterion.

The use of the ordinary least squares method in estimating the regression between the non-stationary time series variables leads to spurious relationship between these variables. Therefore, the co-integration test is utilized to inspect the relationship between non-stationary and integrated variables for the same level in order to estimate correct relationship between them and to eliminate the problem of spurious regression between it. The Johansen co-integration test is one of the most common tests, especially in short-time series.

Table 1. Unit root tests results

Test	Results	LGDP	LCAP	LTURN	LM2	LCR
ADF	Level	–0.702001	–1.016721	–1.194085	–0.927052	0.286087
	First difference	–1.314450	–3.838742**	–4.10580**	–2.403054	–2.392410
	Second difference	–8.82795**	–3.86301**	–8.10861**	–7.018997**	–4.089915**
PP	Level	–0.23964	–1.22301	–1.478089	–0.3493	–0.36592
	First difference	–3.03556*	–3.8191**	–4.1102**	–2.2786	–2.69659
	Second difference	–8.81424**	–9.7095**	–9.6453**	–7.051**	–4.8319**

Note: *, **, refer to the 5%, 1% levels of significance.

Table 2. The lag length selection criterion

Lag	Log L	LR	FPE	AIC	SC	HQ
0	18.19349	NA	1.48e07	–1.319349	–1.070416	–1.270755
1	134.9721	163.4900	2.09e11	–10.49721	–9.003610	–10.20564
2	188.0267	47.74916*	2.28e12*	–13.30267*	–10.56441*	–12.76813*

Note: * refers to the selected lag order through different criterion.

Table 3A. Trace test

Null hypo	Eigenvalue	Trace-stat	0.05 critical value	Prob.**
$R = 0$*	00.908017	131.8599	68.83889	0.0001
$R \geq 1$*	00.761390	76.97837	46.84613	0.0003
$R \geq 2$*	00.707449	44.02114	28.78707	0.0006
$R \geq 3$*	00.460213	15.75145	14.46471	0.0457
$R \geq 4$	00.065986	1.570075	3.843466	0.2102

Table 3B. Maximum Eigenvalue test

Null hypo	Eigenvalue	Max-Eigen value	0.05 critical value	Prob.**
$R = 0$*	00.908017	54.88152	34.67687	00.001
$R \geq 1$*	00.761390	32.95723	28.68434	00.009
$R \geq 2$*	00.707449	28.26969	22.43162	0.0042
$R \geq 3$*	00.460213	14.18137	13.36460	0.0515
$R \geq 4$	00.065986	1.570075	4.641466	0.2102

Note: * at the level 5% denotes the rejected null hypothesis.

To explore whether the variables of our study are co-integrated (long-term relationship) before using the VECM model, we perform the multivariate Johansen co-integration test, and the Table 3 shows the results of this test.

Johansen co-integration test depends on two types of tests: firstly, trace test, and, secondly, maximum Eigenvalue test. The outcomes of these tests are reported in Table 3A and Table 3B. The outcomes refer to the existence of 3 co-integrating equations. This means that there are three linear combination between our variables.

Co-integration equation results for all our variables under study, show in Table 4, have a significant positive impact on GDP.

Table 4. The co-integration equation results

LGDP	LCAP	LTURN	LCR	LM2
1.000000	–0.026441 (0.01446)	–0.012121 (0.02284)	–0.280227 (0.05851)	–0.652096 (0.05853)

The results of the test of co-integration reported a presence of the long-run relationship among our variables under study and are linked to each other. Depending on this result, there is a need to use or submit the VECM model for estimation.

The VECM model result and the target model result, which are reported in Tables 5A and 5B, confirm for a long-run causality running from Market Capitalization, Share Turnover, Money supply, and Local domestic credit toward Gross Domestic Product. Also, our results confirm a short-run causality running from Market Capitalization, Share Turnover, Money supply, and Local domestic credit toward Gross Domestic Product.

In order to test the causality direction through variables under study, we conduct the Granger Causality Test, show in Table 6, and the results confirm only for a single directional causality running from LCAP, LTURN, LM2, and LCR to LGDP. This result denote for the short-run impact between LCAP, LTURN, LM2, LCR, and LGDP. This result confirm the findings of Darrat (1999), Yang and Yi (2008), and others.

http://dx.doi.org/10.21511/imfi.16(1).2019.09

Table 5A. The results of VECM

Error correction	D (LGDP)	D (LCAP)	D (LTURN)	D (LM2)	D (LCR)
Coint-Eq-1	–00.404014	–00.136028	00.329990	00.089981	00.093919
Standard errors	(0.11237)	(1.67804)	(1.06824)	(0.12842)	(0.46876)
t-statistics	[–3.59552]	[–0.08106]	[0.30891]	[0.70065]	[0.20035]

Table 5B. Target model estimation

$D(L.GDP) = C(1)\cdot(LGDP(-1) - 0.0264412020062\cdot LCAP(-1) - 0.0121207903785\cdot LTURN(-1) - 0.652096045993\cdot LM2(-1) - - 0.280226713431\cdot LCR(-1) + 0.0324203555662) + C(2)\cdot D(LGDP(-1)) + + C(3)\cdot D(LCAP(-1)) + + C(4)\cdot D(LTURN(-1)) + C(5)\cdot D(LM2(-1)) + C(6)\cdot D(LCR(-1)) + C(7)$

	Coefficient	*S* error	*t*-stat	Prob.
(*C*1)	–00.733465	00.137204	–5.345798	00.0005
(*C*2)	00.138203	00.222562	00.620963	00.5434
(*C*3)	00.006518	00.022138	00.294421	00.7722
(*C*4)	–00.043058	00.037911	–1.135759	00.2728
(*C*5)	–00.274821	00.339665	–00.80910	00.2861
(*C*6)	–00.226641	00.200464	–1.130583	00.2749
(*C*7)	00.121417	00.031802	3.817839	00.0015

Table 6. Granger causality test results

Null hypothesis	Objects	*F*-statistic	Probability
LCAP → LGDP	23	13.6923	.0002
LGDP → LCAP		00.75014	.4865
LTURN → LGDP	23	8.69454	.0023
LGDP → LTURN		00.32639	.7257
LM2 → LGDP	23	5.27991	.0157
LGDP → LM2		1.46673	.2570
LCR → LGDP	23	4.45667	.0268
LGDP → LCR		00.88033	.4318

Know we will go forward to Variance Decomposition Analysis (VDA), which is utilized to assist in the interpretation of VAR model. The Variance Decomposition refers to the information amount in the autoregression that each variable shares it to the other variables. It is pointed by Pesaran and Shin (1999). The results of VD are reported in Table 7.

According to results of Variance Decomposition (VD), 2.30% of LGDP is explained by itself, 43.55% of Gross Domestic Product is explained by Market Capitalization, 2.22% of Gross Domestic Product is explaintd by Share Turnover, 28.15% of Gross Domestic Product is explaintd by Local domestic credit, and 23.73% of Gross Domestic Product is explained by Money supply. The large proportion in explaining Gross Domestic Product has Market Capitalization and changing in Share Turnover explains little percentage of GDP.

The analysis of the Variance Decomposition shows that the development of the banking system affects economic growth almost equally with the impact of the development of the financial market.

Table 7. VD of LGDP results

Period	S.E.	LGDP	LCAP	LTURN	LCR	LM2
1	0.023188	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.027718	70.16776	27.26574	0.313756	1.071401	1.181349
3	0.033319	49.48768	35.04595	7.933726	6.671763	0.860882
4	0.047082	26.63773	63.76685	4.645713	3.546786	1.402924
5	0.066597	13.96705	68.72118	3.640406	8.707804	4.963563
6	0.090077	8.686223	61.82863	3.728563	16.95451	8.802072
7	0.115483	5.878330	54.30948	3.727020	23.00435	13.08082
8	0.143168	4.129823	49.44120	3.139110	26.23882	17.05104
9	0.171110	3.008711	46.09115	2.602647	27.59176	20.70574
10	0.197178	2.300409	43.55810	2.221605	28.18450	23.73538

CONCLUSION AND RECOMMENDATIONS

This study came to inspect the impact of the development of both financial market and banking system on the economic growth of Jordan based on the annual data covering the period 1993–2017. Through the use of many methodologies: Johansen co-integration test, (VECM), and Granger causality test, where real GDP was used as an indicator of economic growth, the real market value of stocks (Market Capitalization) (LCAP), and Share Turnover (LTURN) are indicators for the financial market. Money supply in the broad concept (LM2), and Local domestic credit (LCR) are indicators for the banking sector.

The results of econometrics analysis reported that all variables under study are stationary, and are integrated in the level of order 2, I(2). Also, the test of Johansen co-integration reports the existence of a long-run relationship between the study variables. VECM model results and the target model result confirm a short-run causality running from all variables toward Gross Domestic Product. The Granger causality test confirm only a single directional causality running from variables of our study to Gross Domestic Product. This result denote the short-run relationship between LCAP, LTURN, LM2, LCR, and LGDP. The analysis of the Variance Decomposition shows that the development of the banking system affects economic growth almost equally with the impact of the development of the financial market.

Our results go to the same line of supply-leading hypothesis. It is the same result that researchers have reached like Schumpeter (1911), Shaw (1973), Gupta (1984), Greenwood and Jovanovic (1990), King and Levine (1993a, b), Darrat (1999), Khan and Senhadji (2000), Calderon and Liu (2003), Caporale et al. (2009), Cheng and Degryse (2010), and others.

1. Depending on the result of this study, we recommend that the government of Jordan focus on stimulating the supply side of the economy, because the results of our study showed that financial development is causing economic growth, and this can be achieved through the following proposals.

2. The government should continue to follow the policy of encouraging foreign investment and facilitating the entry of capital, leading to an increase in money supply, creating more job opportunities, increasing the Gross Domestic Product and raising the rate of economic growth.

3. Our country needs to develop and follow the policy necessary to achieve monetary stability and control inflation rates.

4. There must be some institutional reforms in the state to increase the efficiency of the financial sector in Jordan.

ACKNOWLEDGMENT

This paper is supported by the Deanship of Scientific Research and Graduate Studies at Philadelphia University, and Middle East University in Jordan.

REFERENCES

1. Adusei, M. (2013). Financial Development and Economic Growth: Evidence from Ghana. *The International Journal of Business and Finance Research, 7*(5), 61-76. Retrieved from https://ssrn.com/abstract=2261992
2. Ananzeh, I. E. (2016). Relationship Between Bank Credit and Economic Growth: Evidence from Jordan. *International Journal of Financial Research, 7*(2), 53-63. https://doi.org/10.5430/ijfr.v7n2p53
3. Al-Zararee, A. N., & Ananzeh, I. E. N. (2014). The Relationship between Macroeconomic Variables and Stock Market Returns: A Case of Jordan for the Period 1993–2013. *International Journal of Business and Social*

http://dx.doi.org/10.21511/imfi.16(1).2019.09

Science, 5(5), 186-194. Retrieved from http://www.ijbssnet.com/journals/Vol_5_No_5_1_April_2014/22.pdf

4. Bagehot, W. (1873) (1962 edition). Lombard Street. Richard D. Irwin, Homewood, IL.
5. Beck, T., & Levine, R. (2004). Stock Markets, Banks, and Growth. *Journal of Banking & Finance, 28*(3), 423-442. https://doi.org/10.1016/S0378-4266(02)00408-9
6. Calderón, C., & Liu, L. (2003). The direction of causality between financial development and economic growth. *Journal of Development Economics, 72*(1), 321-334. https://doi.org/10.1016/S0304-3878(03)00079-8
7. Caporale, M. G., Raul, C., Sova, R., & Sova, A. (2009). *Financial development and economic growth. Evidence from ten new EU members* (Working paper no. 09-37).
8. Cheng, X., & Degryse, H. (2010). The impact of bank and non-bank financial institutions on local economic growth in China. *Journal of Financial Services Research, 37*(2-3), 179-199. https://link.springer.com/article/10.1007/s10693-009-0077-4
9. Darrat, A. (1999). Are Financial Deepening and Economic Growth Causally Related? Another Look at the Evidence. *International Economic Journal, 13*(3), 19-35. https://doi.org/10.1080/10168739900000002
10. Engle, R. F., & Granger, C. W. J. (1987). Co-Integration and Error Correction: Representative, Estimation and Testing. *Econometrica, 55*(2), 251-276. https://doi.org/10.2307/1913236
11. Greenwood, J., & Jovanovic, B. (1990). Financial Development, Growth, and the Distribution of Income. *Journal of Political Economy, 98*(5), 1076-1107. Retrieved from https://www.nber.org/papers/w3189
12. Greenwood et al. (2013). Quantifying the impact of financial development on economic development. *Review of Economic Dynamics, 16,* 194-215. https://doi.org/10.1016/j.red.2012.07.003
13. Goldsmith, R. W. (1969). *Financial Structure and Development*. Yale University Press, New Haven, CT.
14. Gupta, K. L. (1984). *Finance and Economic Growth in Developing countries*. Croom Helm Ltd. Provident House, Great Britain.
15. Gujarati, D. N. (2003). *Basic econometrics* (4th ed.). McGraw-Hill, Boston.
16. Johansen, S. (1995). *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*. Oxford: Oxford University Press. https://doi.org/10.1093/0198774508.001.0001
17. Khan, M. S., & Senhadji, A. S. (2000). *Financial Development and Economic Growth: An Overview* (IMF Working Paper, no.00/209). Retrieved from https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Financial-Development-and-Economic-Growth-An-Overview-3926
18. King, R. G., & Levine, R. (1993a). Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economics, 108*(3), 717-737. https://doi.org/10.2307/2118406
19. King, R. G., & Levine, R. (1993b). *Finance, entrepreneurship, and growth: Theory and evidence* (Working paper). World Bank, Washington, DC.
20. Koivu, T. (2002). Do Efficient Banking Sectors Accelerate Economic Growth in Transition Countries? *BOFIT Discussion Papers, 14,* 1-28.
21. Levine, R., & Zervos, S. (1996). Stock Market Development and Long-Run Growth. *The World Bank Economic Review, 10*(2), 323-339. https://doi.org/10.1093/wber/10.2.323
22. McKinnon, R. I. (1973). *Money and Capital in Economic Development*. Brookings Institution, Washington, DC.
23. Patrick, H. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development Cultural Change, 14*(2), 174-189. Retrieved from https://www.jstor.org/stable/1152568?seq=1#page_scan_tab_contents
24. Pesaran, M., & Shin, Y. (1999). An Autoregressive Lag Modeling Approach to Cointegration Analysis. In S. Strom (Ed.), *Econometrics and Economic Theory in 20th Century*. The Ragnar Frisch centennial Symposium, Cambridge University Press, Cambridge.
25. Robinson, J. (1952). The generalization of the general theory. In *The Rate of Interest and Other Essays*. MacMillan, London.
26. Shaw, E. (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.
27. Schumpeter, J. (1911). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and Business Cycle*. Cambridge Mass, Harvard University Press.
28. Yang, Y. Y., & Yi, M. H. (2008). Does Financial Development Cause Economic Growth? *Journal of Policy Modeling, 30*(5), 827-840. https://doi.org/10.1016/j.jpolmod.2007.09.006