

Stock Exchange Development and Economic Growth: Empirical Evidence from Jordan

Ali Mustafa Al-Qudah¹

¹ Department of Finance and Business Economics, Faculty of Finance and Business Administration, Al Al-Bayt University, Mafrqa, Jordan

Correspondence: Ali Mustafa Al-Qudah, Department of Finance and Business Economics, Faculty of Finance and Business Administration, Al Al-Bayt University, Mafrqa, Jordan. E-mail: alimqf@yahoo.com

Received: June 19, 2014

Accepted: August 28, 2014

Online Published: October 22, 2014

doi:10.5539/ijbm.v9n11p123

URL: <http://dx.doi.org/10.5539/ijbm.v9n11p123>

Abstract

The present study examined the relationship between Amman stock exchange development measured by Market Capitalization Ratio (MCR) and Value Traded Ratio (VTR) and Jordan economic growth measured by Gross Domestic Product Growth (GDPG) for the period 1978–2012. The study used Vector Error Correction Model (VECM) to examine the hypotheses. The study indicated that there is a positive and significant relationship between Amman stock exchange development and Jordan economic growth. In addition, the pairwise Granger causality test shows that there is a unidirectional causality running from market capitalization ratio and value traded ratio to economic growth.

Keywords: stock exchange development, economic growth, VECM, Jordan

1. Introduction

The economic growth in the modern concept jointed to an efficient and active financial sectors. There are many definitions for capital markets (stock markets). According to Alile (1984), the capital market is an institution that participates to the economic growth through different essential roles play in the economy, such as channelling resources, promoting reforms to modernize the financial sectors, financial intermediation capacity to link deficit to the surplus sector of the economy, and a veritable tool in the mobilization and allocation of savings among competitive uses, which are critical to the growth and efficiency of the economy. Stock market also participates in channeling capital to highly productive firms so it increases economic expansion and growth (Alile, 1997). Ekundayo (2002) suggests that nations required domestic and foreign investment to achieve sustainable economic growth and development. The well-developed stock market considered as one important institution to attract domestic and foreign investments (Pat & Odia, 2010).

The financial markets contributed to the compilation of national savings and repurpose, which contributed to the development of the national economy and increased growth rates. In addition to that, contributed to the financial markets in the establishment of joint-stock companies, which became the nucleus of an effective and basis for growth in the global and national economies. In the same context, Kenny and Moss (1998) state that the stock markets play an important role in improving the operations of the domestic financial system in general and the capital market in particular. Financial markets also help in reducing the risk of investment because of the ease with which they are trading stocks. Obstfeld (1994) also suggested that international risk sharing through internationally integrated stock markets improves the allocation of resources and accelerate the process of economic growth. The financial markets also, contributed to the increase of the size of the credit, the companies that own the surplus of liquidity should be employed in the banks or in the capital markets in order to re-lend to companies that need it. In the same context, Pagano (1993) state that stock market participates in mobilization of domestic savings by increasing the set of financial tools available to savers to diversify their portfolios providing an important source of investment capital at relatively low cost. A well-functioning and liquid stock market that allows investors to diversify away unsystematic risk, will increase the marginal productivity of capital. In the same context, Levine and Zervos (1998) argued that a well-established stock market can activate capital and diversify risks between market agents but it is also able to provide different types of financial services more than banking sector to stimulate economic growth.

The financial markets constitute attract investment areas, because they determine the true values of the prices of

stocks and bonds and therefore can through that recognize the value of fixed assets and liquid at each firm. Therefore, the demand for investments increased in financial markets that are stable and active, and increasing profits size of the production firms which contribute to an increase in the volume of transactions and speculation in the financial markets, because some of them will go to the banks, which in turn encourages speculation. Without efficient stock markets, investors are limited to diversify their investments, and they will avoid investment in stocks because of the high investment risk. In addition, in the absence of developed stock markets, firms may find it difficult to expand their capital. However, when we have well developed stock markets, investors can easily diversify their investment in different firms stocks and different sectors, as well as firms can expand their capital in an efficient way, so this makes investment in firms more attractive (Geert & Campbell, 1998).

Developed stock markets provide two advantages for listed companies: first, increased information production or transparency, second, reducing capital constraints through opening doors to companies to sell or to buy their shares or to expand their firms through public offer, which provides liquidity for its work and without interest (Allen, 1993; Jensen, 1989; Faure-Grimaud & Gromb, 2004).

In the same context, Mayer and Alexander (1991) and Mayers (2000) found that stock market can overcome the agency problem between management and shareholders, which influence firm's managers to work more efficiently and reduce production cost to maximize their firms' profit and achieve their shareholders goals. In addition, there are strong theoretical reasons to believe that market liquidity will positively affect firm performance, because stock shares are the currency that directs both cash flow and control rights, the tradability of this currency plays a central role in the governance, valuation, and performance of firms. In theoretical analyses, liquid markets have been shown to permit non-shareholders to become shareholders (Vivian, Fan Thomas, & Noe Sheri 2008).

Financial markets have become the most important economic indicators at local and global levels, because the trends climb in stock prices, which describe the economy of merchantability, and downward trends confirm that the economy will begin to retrograde movement. Thus, stock markets play an important role and quickly in determining the level of economic activity. Therefore, the purpose of the current study is to examine whether Amman stock exchange is important to Jordan economic growth and to introduce a new evidence on the relationship between stock markets and economic growth at developing countries level. The rest of the paper is organized as follows: Section 1 introduction, Section 2 empirical evidence, Section 3 data and methodology. Section 4 estimation results and discussion while Section 5 presents conclusion.

2. Literature Review

According to Geert and Campbell (1998), the research interest in the relationship between financial development (stock markets and banking sector) and economic development was only in last few years, since the past research was concentrating on technology development as the main generator of the economic growth. The new studies such as (Locus, 1988) state that growth can be self-sustainable without technological development. Empirically, the early studies by (Goldsmith, 1969; Show, 1973; Mckinnon, 1977) found that financial development has a positive relationship with economic growth.

Kolapo and Adaramola (2012) examined the impact of the Nigerian capital market on economic growth for the period 1990–2010. The economic growth measured by Gross Domestic Product (GDP) and the capital measured by Market Capitalization, Total New Issues, Value of Transactions, and Total Listed Equities and Government Stocks. They used Johansen co-integration and Granger causality tests. They found that the Nigerian capital market and economic growth are co-integrated. The causality test results show there is a bidirectional causation between the GDP and the value of transactions and a unidirectional causality from market capitalization to the GDP. This is a clear indication of the relative positive impact the capital market plays in the economic growth of the country.

Odetayo and Sajuyigbe (2012) studied the effect of Nigerian stock market development measured by market capitalization, total number of issues, value of transactions and total listed equity on economic growth of Nigeria measured by GDP. They used Ordinary Least Square (OLS) method to examine their study hypothesis. They found that market capitalization and total number of issues have a positive and significant impact on economic growth measured by GDP while value of transactions has no effect and total listed equity has a negative and significant effect on economic growth.

Mishra et al. (2010) examined the impact of capital market efficiency on economic growth in India using market capitalization, total market turnover and stock price index as a measures for stock market development and GDP as a measure of economic growth for the period first quarter 1991 to the first quarter of 2010. They used multiple regression model to examine the study hypothesis. The results show that the stock market of India has a positive

and significant impact on economic growth of India.

Pat and James (2010) examined the impact of the Nigerian capital market on her socio-economic development from 1981 to 2008. They used GDP as a measure of socio-economic growth, and market capitalization, total new issues, volume of transaction and total listed equities and Government stock. As measures of capital market (stock market) development, they used Ordinary Least Square (OLS) to examine the study hypothesis. They found that capital market indicators have no significant impact on socio-economic growth. They referred to the same reasons stated by Ariyo and Adelegan (2005) and Ewah et al. (2009) who found that the capital market in Nigeria has not contributed meaningfully to the economic growth of Nigeria due to low market capitalization, small market size, few listed companies, low volume of transactions, low absorptive capitalization, and illiquidity. They recommended that the government has to put up measures to stem up investors' confidence and activities in the market so that it could contribute significantly to the Nigerian socio-economic development.

Boubakari and Jin (2010) tested the casual relationship between stock market and economic growth for five European countries (Belgium, France, Portugal, Netherlands and United Kingdom) by using quarterly time series data for the period 1995 to 2008. They used Granger causality test to examine the study hypothesis by using variables of market capitalization, total trade value and turnover ratio as indicators for stock market development, GDP as indicator for economic growth and FDI. They found that countries that have efficient and liquid stock market have a positive relation among stock market and economic growth and inverse was the case with those countries that have inefficient and less liquid stock market.

Antonios (2010) examined the relationship between stock market development and economic growth for Germany by using annual data for the period 1965–2007. Stationary test, Granger causality test and Vector Autoregressive (VAR) model to estimate the relationship between economic growth, stock market development and bank lending. The aim of this study was to explore the long-run relationship between these variables, applying the Johansen co-integration analysis based on the classical unit roots tests. The findings of Granger causality tests showed a unidirectional causality between stock market development and economic growth.

Nazir et al. (2010) explored the relationship between the stock market development and economic growth in Pakistan for the period of 1986 to 2008. By using market capitalization and liquidity as measures of stock market development and GDP as an indicator of economic growth. The results showed that economic growth in Pakistan can be made by stock market development through size and liquidity.

Baboo and Odit (2009) investigated the impact of stock market development on economic growth of Mauritius. They used a time series for the period 1989–2006. In addition, they used market capitalization to GDP and Value trade to GDP as an indicator for stock market size and liquidity respectively and Gross Domestic Product (GDP), analyzed both the short run and long run relationship by using Error Correction Model (ECM). They found that stock market development positively affect economic growth in Mauritius both in the short run and long run.

Yartey and Adjosi (2007) examined the impact of stock markets development on economic growth for 14 African countries. They used the ratio of market capitalization to GDP as the stock market development indicator, the total value of shares traded relative to GDP, which is indicative of liquidity on the stock markets. Stock markets turnover to GDP ratio as another liquidity indicator, the macroeconomic variables include GDP as the economic growth development indicator, investment and trade openness (sum of exports and imports relative to GDP). They used the Difference Generalized Method of Moments dynamic instrumental variable modeling approach to test the study hypothesis. They found that the total value of shares traded relative to GDP has a positive and significant effect on economic growth while the other stock market development indicators have no significant effect.

Adjasi and Biekpe (2006) investigated the effect of stock market development on economic growth in 14 countries by using panel data analysis. They found that stock market development positively and significantly affect economic growth.

Capasso (2006) investigated the relationship between stock market development and economic growth for a sample of 24 OECD countries for the period 1988–2002. The study found the stock market development has a positive and significant impact on economic growth.

Mohtadi and Agarwal (2004) investigated the casual relationship between stock market development and economic growth for 21 developing countries. This study used panel data over the period 1977 to 1997. Results showed that the market capitalization ratio, shares traded ratio, foreign direct investment, domestic investment and secondary school enrollment have positive relation with economic growth. The study found that the stock market played a vital role in the economic growth through direct and indirect channel.

Levine and Zervos (1998) examined the impact of stock markets and banks on economic growth capital accumulation, productivity improvements, and saving rates using data on 47 countries from 1976 through 1993. They used the Ordinary Least Square (OLS) method to examine their hypotheses. They found that stock market liquidity and banking development both positively predict growth, capital accumulation, and productivity improvements when entered together in regressions.

3. Data and Methodology

3.1 Data Sources

The present study used time series data. Evaluating the impact of Amman stock exchange development measured by the size of Amman stock exchange, which is measured by market capitalization to Gross Domestic Product (GDP) ratio, Market Capitalization Ratio (MCR), and liquidity measured by value traded to GDP ratio (VTR) on economic growth of Jordan measured by GDP growth (GDPG). All the information related to the variables of the study gathered from Central Bank of Jordan and Amman stock exchange. Since the Central Bank of Jordan database used to collect the data related to GDP for the period 1978–2012 and Amman stock exchange database used to collect stock market capitalization and value traded data for the period 1978 -2012, the sample used in this paper consists of annual observations for Jordan and extended from 1978 to 2012.

3.2 Study Variables

3.2.1 Gross Domestic Production Growth (GDPG)

The GDP growth (GDPG), measured by GDP of the current year minus GDP of the previous year divided by GDP of the previous year, measures economic development that increases the demand size. GDPG is an important term to study, because the developed economy increases demand size, the increase in demand size imposed on firms to invest more in a new technology and to be more innovative to meet their customers' demands and to increase their competitiveness. Economic development also attracts domestic as well as foreign investors to invest in the existing project through stock markets or establishing new projects to achieve profits (Campbell and Hopenhayn, 2003; Fasvely, Greenaway, & Yu, 2007). GDPG is used as a dependent variable.

3.2.2 Amman Stock Exchange Development

We consider two measures for Amman stock exchange development namely size and liquidity, whereby size denotes market capitalization as a percentage of GDP, and liquidity denotes total value traded as a percentage of GDP.

3.2.2.1 Market Capitalization Ratio (MCR)

This study used the MCR to measure the stock market development of Amman Stock Exchange. MCR is defined as the value of domestic equities traded on the stock exchange relative to GDP (MCR). Because it is believed that it is a good proxy and less arbitrary than other individual measures of stock market development (Yartey, 2008). In addition, most of other studies used other indicators of stock market development such as number of listed companies, stock market size, and changes in the stock market index.

Stock markets development is used as an explanatory variable because it is expected to improve economic growth by providing a boost to domestic savings and increasing the quantity and the quality of investment. Particularly, stock markets can improve economic growth by finding a path for increasing firms' capital at lower cost through financing by stocks. Since firms in countries with developed stock markets are less dependent on bank financing, which can reduce the risk of a credit crisis. The stock market is also permitting long-term investment to be financed by individuals; many of them like to make them available for only a very limited period, or to be able to withdraw them at will (Baumol, 1965; Yartey, 2008). We hypothesize a positive relationship between market capitalization ratio and GDPG.

3.2.2.2 Value Traded Ratio (VTR)

The study used stock exchange liquidity measured by value traded to GDP (VTR) as a second measure of Amman Stock Exchange development. Liquidity defined as the ease and speed that enable investors to buy and sell securities. With a well-developed stock exchange jointed with a high liquidity, introduce for investors the ability to access their money during the period of investment in the projects. Since they can easily and quickly sell their stocks in the projects, also liquid stock exchange can ease investments in the long run especially profitable projects. The liquid stock exchange the more saving channeled to the projects (Levine & Zervos, 1998; Yartey, 2008).

In the same context, Benchivenga, Smith and Starr (1996) have illustrated the positive role of liquidity provided by stock exchanges on the size of new real asset investments through common stock financing. The ability of

investors to buy and sell securities easily is called the liquidity of the market. The liquidity is showing how the market improves the allocation of capital and thus enhance the long-term economic growth. In the market with high liquidity, investors can buy and sell shares whenever they want, change their portfolio with less risk, and invest in new and more rentable projects. VTR and turnover ratio are the most common measures of the stock exchange liquidity (Boubakari & Ognaligui, 2010). The current study used the total value traded ratio as a measure of Amman Stock Exchange liquidity. We therefore hypothesize a positive relationship between value-traded ratio (liquidity) and GDPG.

3.3 The Methodology

3.3.1 VAR Model

The methodology used by this study based on the Levine and Zervos (1998), Baboo and Odit (2009) and Antonios (2010), found a strong relation between stock market and economic development. This study is looking to find an evidence on the relationship between stock exchange development and economic growth from Jordan as one of the developing countries. Most of the previous studies used OLS method in their analysis while this method does not take into consideration the interrelationship between independent variables, which leads to inaccurate hypotheses testing. In the current study, the Vector Autoregressive model (VAR) is used to estimate the relationship between stock market development and Jordan economic growth. The study choose the VAR model, because it has the advantage of estimating separately each variable as a dependent one with other independent variables respectively (Al-Eitan, 2012; Antonios, 2010). The study's general model is as follow:

$$GDPG = F(MCR, VTR) \quad (1)$$

Where GDPG: is GDP growth, MCR: market capitalization ratio and VTR: value traded ratio.

VAR model describes a system of equations in which each variable is a function of its own lag and the lag of the other variables in the system. A vector error correction model is a special form of the VAR model for I (1) variables which are cointegrated (Griffiths, Hill, and Lim, 2008). According to Johansen Cointegration Test the study variables are cointegrated, therefore the study used the restricted VAR model (vector error correction model). The final form of the Vector Error-Correction Model (VECM) was selected according to the approach suggested in (Maddala, 1992; Antonios, 2010).

$$\Delta GDPG_t = \beta_1 + \sum_i^n \beta_2 \Delta GDPG_{t-i} + \sum_i^n \beta_3 \Delta MCR_{t-i} + \sum_i^n \beta_4 \Delta VTR_{t-i} + \epsilon_{Ct} - i + \epsilon_t \quad (2)$$

where Δ is the first difference, ϵ_{Ct-1} is the error correction term lagged one period, λ is the short-run coefficient of the error correction term ($-1 < \lambda < 0$), ϵ_t is the error term. GDPG: Gross Domestic Product Growth (proxy for economic growth) MCR: Market Capitalization Ratio, VLT: Total value traded ratio, t: time. β_1 = intercept of relationship in the model (constant), and β_2 - β_4 : Coefficients.

For estimation process, we used econometric software E Views 6 provided by Quantitative Micro Software.

3.3.2 Study Hypotheses

The study has the following alternative hypotheses:

H1: There is a significant relationship between Amman Stock Exchange development measured by market capitalization ratio and Jordan economic growth measured by GDPG.

H2: There is a significant relationship between Amman stock exchange development measured by VTR and Jordan economic growth measured by GDPG.

3.3.3 Unit Root Test or Stationary Test

It is essential to check for stationary since non-stationary data may lead to spurious results. Granger and Newbold (1974) who coined the term spurious regression to describe regression results, involving time series, that look a good regression since the t-values suggest that there is a significant relationship between the two variables while the fact that it is spurious regression. So, stationary time series data is a condition to use data in regression. There is a number of tests used to discover whether the univariate time-series such as Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP). We can convert data to stationary by taking the first difference or more for the related variable.

3.3.4 Lag Selected

The lag selection criteria are used to select the optimum lag because it is necessary to avoid over parameterizing model and produce a tightfisted model, (Al-Eitan, 2012). In addition, to use it for Cointegration test, Granger Causality test and VECM. We use a number of criteria such as Akiak Information Criteria (AIC) and Schwarz information Criterion (SC).

3.3.5 Johansen Cointegration Test

Variables are considered cointegrated when there is one or more Cointegration equations between variable, which indicates that they have long run association (relationship). If the variables are cointegrated or have long run association and stationary, we can run restricted Vector Autoregressive (VAR) model that is Vector Error Correction Model (VECM). However, if the variables are not cointegrated and stationary we cannot run VECM rather we shall run unrestricted (Al-Shiab, 2008).

3.3.6 Pairwise Granger Causality Test

According to Subhash and Mathur (1989), causality in the Granger sense (1969, 1980) is an appropriate methodology for examining whether stock market development causes economic growth, or vice versa. So we use Granger Causality test to examine the causality direction between the study variables, whether GDPG causes MCR or MCR causes GDPG, GDPG causes VTR or VTR causes GDPG since this causality may be bidirectional or unidirectional between variables.

H0: Market Capitalization does not Granger cause GDPG and vice versa.

H1: Market Capitalization does Granger cause GDPG and vice versa.

H0: Value trade does not Granger cause GDPG and vice versa.

H1: Value trade does Granger cause GDPG and vice versa.

H0: Market capitalization does not Granger cause value traded and vice versa.

H1: Market capitalization does Granger cause value traded and vice versa.

4. Empirical Results and Analysis

4.1 Unit Root Test Results

The Augmented Dickey Fuller test is run for the variables: GDPG, MCR and VTR. Results are reported in Table 1.

Augmented Dickey Fuller t-statistics guideline is if the test absolute statistics is more than the critical value, variable is stationary (has not a unit root).

From Table 1, when we test for unit root test at level and (non, trend and trend and intercept) all variables are integrated (not stationary), and the test for unit root test at the first difference, Gross Domestic Product Growth (GDPG), Value Traded Ratio (VTR) and Market Capitalization ratio (MCR) are stationary at first difference at probability 5%.

Table 1. Augmented Dickey Fuller (ADF) unit root test

Variable	Difference	Calculated Statistics	ADF	5% ADF Critical Value	Probability	Order of Integration	Stationary/Not Stationary
GDPG	0	-1.69148		-1.95169	0.0855	I(0)	Not Stationary
VTR	0	-1.7746		-1.951	0.0723	I(0)	Not Stationary
MCR	0	-0.91686		-1.95907	0.3121	I(0)	Not Stationary
GDPG	1	-10.495		-1.951	0.0000	I(1)	Stationary
VTR	1	-6.09304		-1.95133	0.0000	I(1)	Stationary
MCR	1	-6.90531		-1.95133	0.0000	I(1)	stationary

4.2 Lag Order Selection Criteria Results

We use the following criteria to select the optimum lag. According to Table 2, the optimum lag is (3) because the most criteria (sequential modified LR test statistic, Akaike information criterion and Schwarz information criterion) indicate that the third lag is the optimum lag.

Table 2. Lag order selected criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	19.80118	NA	6.30E-05	-1.158702	-1.01726	-1.1144
1	44.74537	43.00722	2.11E-05	-2.258301	-1.69252	-2.08111
2	63.20238	28.00374	1.13E-05	-2.910509	-1.9204	-2.60042
3	80.50749	22.67567*	6.73E-06	-3.847507*	-2.068831*	-3.04029
4	94.78885	15.75873	5.26e-06*	-3.483275	-2.00873	-3.271625*
5	102.363	6.790594	7.15E-06	-3.74917	-1.48606	-3.04039

Note. * indicates lag order selected by the criterion:

LR: Sequential modified LR test statistic (each test at 5% level);

FPE: Final Prediction Error;

AIC: Akaike Information Criterion;

SC: Schwarz information Criterion;

HQ: Hannan-Quinn information criterion.

4.3 Johansen Cointegration Test Results

Our guideline all variables must be integrated at the same order only then we can run the Johansen Cointegration test. From Table 1 all the study variables are stationary at order I (1). Therefore, we can run The Johansen test. From Table 3 the Johansen Cointegration Test results indicate that the variables are cointegrated and have one Cointegration equations at the (0.05) level. So the VECM will be used in the current study.

Table 3. Johansen cointegration test

No. of CE(s)	Eigenvalue	Trace Statistic's	5% Critical Value	Prob
None *	0.634032	40.59473	29.79707	0.002
At most 1	0.25846	10.43846	15.49471	0.2485
At most 2	0.047745	1.467681	3.841466	0.2257

Note. Trace test indicates (1) Cointegration equation at the 0.05 level.

*denotes rejection of the hypothesis at the 0.05 level.

4.4 Pairwise Granger Causality Test

In order to test null hypotheses (F- statistics) is used. Our guideline if the P value is more than 5%, we cannot reject null hypothesis. If the P value is less than 5%, we reject null hypothesis and accept alternative hypothesis. From Table 4 we can see that market capitalization does Granger cause GDPG, since P value is (0.0003) which is less than 5% so we can reject H0 and accept H1. Value traded ratio also granger causes GDPG since; P value is (0.0034) which is less than 5% so we can reject H0 and accept H1. However, GDPG does not granger causes market capitalization and value traded ratio since P value for both is more than 5% so we accept H1 so the causality is unidirectional. There is a unidirectional causality running from market capitalization ratio and value traded (liquidity) to economic growth. This result confirms the result of (Antonios, 2010; Kolapo & Adaramola, 2012). While market capitalization and value traded causes each other the causality is bidirectional.

Table 4. Pairwise granger causality test

Null Hypothesis:	Obs	F-Statistic	Prob.
MCR does not Granger Cause GDPG	31	9.33168	0.0003
GDPG does not Granger Cause MCR		0.13811	0.9363
VTR does not Granger Cause GDPG	31	5.97014	0.0034
GDPG does not Granger Cause VTR		0.37642	0.7708
VTR does not Granger Cause MCR	32	3.61786	0.0269
MCR does not Granger Cause VTR		7.19457	0.0012

4.5 Vector Error Correction Model Results

We see from the unit root test (stationary test) that the study variables (GDPG, market capitalization ratio (MCR) and value traded ratio (VTR)) are stationary at first difference I (1), and the results of the Cointegration test indicates that the variables have a long run associationship, therefore we can run Vector Error Correction Model (VECM). From Table 5 we have Cointegration equation and error correction since the first difference of GDPG D (GDPG), the first difference of market capitalization ratio D (MCR) and the first difference of the value-traded ratio D (VTR) are dependent variables. While the first lag, the second lag and the third lag of the dependent variables are independent variables. This is because when we use VECM model we will have number of models equals the number of all variables in the study (GDPG, MCR and VTR). The output of the VECM model give us the coefficient, standard error and t statistics for each independent variable but it does not give us the probability so we cannot decide which of them is significant or not.

Table 5. Vector error correction estimation for GDPG, MCR, and VTR Standard Errors in () and t-statistics

Cointegration Eq:	CointEq1		
GDPG(-1)	1.000000		
MCR(-1)	0.082077 (0.03995) [2.05463]		
VTR(-1)	0.215534 (0.05725) [3.76457]		
C	-0.110574		
Error Correction:	D(GDPG)	D(MCR)	D(VTR)
CointEq1	-1.311564 (0.24303) [-5.39681]	2.686483 (2.04143) [1.31598]	1.938650 (1.89188) [1.02472]
D(GDPG(-1))	0.209846 (0.15507) [1.35327]	2.356697 (1.30256) [1.80928]	1.912580 (1.20714) [1.58439]
D(GDPG(-2))	0.215302 (0.14452) [1.48982]	0.471302 (1.21394) [0.38824]	0.330069 (1.12501) [0.29339]
D(GDPG(-3))	0.046350 (0.10748) [0.43125]	0.319287 (0.90281) [0.35366]	0.062308 (0.83667) [0.07447]
D(MCR(-1))	0.179997 (0.04331) [4.15573]	1.627166 (0.36383) [4.47231]	1.621378 (0.33718) [4.80866]
D(MCR(-2))	0.139648 (0.06978) [2.00121]	0.139805 (0.58617) [0.23851]	0.247857 (0.54323) [0.45627]
D(MCR(-3))	0.069431 (0.05554)	-0.544278 (0.46654)	-0.144727 (0.43236)

	[1.25011]	[-1.16664]	[-0.33474]
D(VTR(-1))	0.308319 (0.07251)	-1.771550 (0.60907)	-1.621517 (0.56445)
	[4.25222]	[-2.90862]	[-2.87273]
D(VTR(-2))	0.234094 (0.09271)	0.949031 (0.77878)	0.199761 (0.72173)
	[2.52497]	[1.21861]	[0.27678]
D(VTR(-3))	0.009627 (0.05942)	-0.491059 (0.49914)	-0.309218 (0.46257)
	[0.16201]	[-0.98381]	[-0.66847]
C	-0.004590 (0.00650)	0.019844 (0.05459)	0.000465 (0.05059)
	[-0.70623]	[0.36350]	[0.00919]
R-squared	0.922430	0.726225	0.644817
Adj. R-squared	0.881603	0.582133	0.457879

Therefore, we take the system of models and estimate them by using Ordinary Least Square (OLS), to get the probability for each independent variable. Since our target is to find out how and in which way, GDPG is affected by MCR and VTR.

Therefore, here we focused only on the following VECM model:

$$D(GDPG) = C_1 (GDPG) (-1) + 0.0820765684748 * MCR(-0.215533983743 * VTR(-1) - 0.110573634736) + C_2 D(GDPG(-1)) + C_3 D(GDPG(-2)) + C_4 D(GDPG(-3)) + C_5 D(MCR(-1)) + C_6 D(MCR(-2)) + C_7 D(MCR(-3)) + C_8 D(VTR(-1)) + C_9 D(VTR(-2)) + C_{10} (10) * D(VTR(-3)) + C_{11}$$

Where:

D(GDPG): the dependent variable.

D(GDPG(-)), D(GDPG(-2)), D(GDPG(-3)), D(MCR(-1)), D(MCR(-2)), D(MCR(-3)), D(VTR(-1)), D(VTR(-2)) and D(VTR(-3)) are independent variables.

C(1) c(2), (3), C(4), C(5), C(6), C(7), C(8), C(9), C(10) and C(11) are coefficients.

From Table 6, C(1) is the coefficient of the Cointegration equation which is called the error correction term or the speed of adjustment toward equilibrium. Our guide line if C(1) is negative and significant we can say that there is a long run causality running from independent variables to GDPG, and if C(1) is not negative and not significant this means there is no long run causality from independent variables to GDPG. From the table we can see that the sign of C (1) is negative and significant, since its probability is (0.0000) which is less than 5% percent. Therefore, there is a long run causality running from independent variables to GDPG. Moreover, we check that by using Wald test since the test statistic of Chi-square is (29.12552) and the probability of it is (0.000) which means there is a long run causality running from independent variables to GDPG. Bannerjee *et al.* (1998) holds that a highly significant error correction term is further proof of the existence of a stable long-term relationship. The estimated coefficient of the ECM (-1) is -1.311564 (prob value = 0.000] suggesting that-in the absence of changes in other variables-deviation of the model from the long-term path is balanced by 100.311564 percent increase in GDPG per year. This means that deviation from the long run relationship takes less than one year to be corrected.

Table 6. VECM estimation for D (GDPG)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-1.311564	0.243026	-5.396807	0.0000
C(2)	0.209846	0.155066	1.353271	0.1919
C(3)	0.215302	0.144515	1.489820	0.1527
C(4)	0.046350	0.107476	0.431254	0.6711
C(5)	0.179997	0.043313	4.155728	0.0005
C(6)	0.139648	0.069782	2.001209	0.0497
C(7)	0.069431	0.055540	1.250107	0.2264
C(8)	0.308319	0.072508	4.252224	0.0004
C(9)	0.234094	0.092712	2.524969	0.0206
C(10)	0.009627	0.059421	0.162011	0.8730
C(11)	-0.004590	0.006499	-0.706226	0.4886
R-squared	0.922430			
Adjusted R-squared	0.881603			
F-statistic	22.59389			
Prob (F-statistic)	0.000000			

The impact of Amman Stock Exchange development measured by Market Capitalization Ratio (MCR), from Table 6 we see that the coefficients C(5) and C(6) for D (MCR (-1)) and D (MCR (-2)) have a positive and significant impact on GDPG. Since their coefficient is 0.179997 and 0.139648 respectively and their probability is 0.0005 and 0.0499 respectively while D (MCR (-3)) is not significant. In addition, we use Wald test to check whether the Jointly D (MCR (-1)), D (MCR (-2)) and D (MCR (-3)), have a short run causality running from market capitalization ratio lags to GDPG or not. The result shows there is a short run causality since the Wald test statistic value of Chi-square is 18.46556 and the probability of it is 0.0004.

This means that stock market is more developed, the economic growth is improved, since the stock market played a great role in attracting savings, as well as foreign investments and allocating of capital. Therefore, the developed stock markets raising the return on capital, allocate the risk, and provide a good environment for firms to build and raise their capital in addition stock markets provide services that boost economic growth. Mishra et al. (2010) referred that to well-developed stock markets positively related with the ability to mobilize capital and diversify risk on an economy wide basis. While Gabriel (2002) and Flavia and Petru (2010) referred that to the capital market has reached a level of development that enable it to improve economic growth. In the same context, Levine and Servos (1996) wrote that large capital markets widen the prospect for economic growth. While Greenwood and Smith (1977) wrote that large stock markets can lower the cost of mobilizing savings and facilitate investment in the most productive projects. Levine (1991) and Bencivenga et al. (1995) derive models where more liquid stock markets where it is less expensive to trade equities, reduce the disincentives to investing in long-duration projects because investors can easily sell their stake in the project if they need their savings before the project matures. Improved liquidity, therefore, facilitates investment in long run higher return projects that boost productivity growth Levine and Zervos (1998). In addition, Levine (1991) refers that to stock market issuing new financial resources to the firms. Spears (1991) attributed that financial stock market facilitates higher investments and the distribution of capital introduce to the investors who avoid to invest directly to the firms the chance to invest indirectly through buying and selling stocks quickly with more independence.

This result is consistent with the results of (Levine & Zervos, 1998; Baboo & Odit, 2009; Nazir et al. 2010; Mohtadi & Agarwal, 2004; Antonios, 2010; Boubakari & Jin, 2010; Mishra et al. 2010; Capsso, 2006; Adjasi & Biekpe, 2006; Odetayo & Sajuyiegbe, 2012; Yartey & Adjosi, 2007). Since they found stock market, development measured by market capitalization to GDP has a positive and significant impact on economic growth.

The impact of Amman Stock Exchange development measured by Value Traded Value (VTR) on GDPG. From Table 6 the coefficients C(8) and C(9) for D (VTR (-1)) and D (VTR (-2)) have a positive and significant impact on

GDPG. Since the coefficients, values are 0.308319 and 0.234094 respectively and their probability values are 0.0004 and 0.0206 respectively. While D (VTR (-3)) is not significant. and we use Wald test to check whether the jointly D(VTR(-1)), D(VTR(-2)) and D(VTR(-3)), have a short run causality running from the value trade ratio lags to GDPG or not. The result shows there is a short run causality running from value trade ratio lags to GDPG since the Wald test statistic Chi-Square value is 26.00013 and the probability of it is 0.0000. This is referred to Amman Stock Exchange is depth and extensiveness, since most of the Jordanian and non-Jordanian trading in different financial instruments. The level of awareness by the people is high and most of the people know well about Amman Stock Exchange. In addition, we can observe the common people as well as major investors bought shares from companies through issue public offer. Benciveng et al. (1996) and Levine (1991) argue that the stock market liquidity or the ability to trade stocks easily is important for economic growth. Kyle (1984) and Holmstrom and Tirole (1993) argue that liquid stocks markets can increase incentives to get information and improve corporate governance. Moreover, theoretical debate exists about whether greater stock market liquidity actually encourages a shift to higher-return projects that stimulate productivity growth. Since more liquidity makes it easier to sell shares, some argue that more liquidity reduces the incentives of shareholders to undertake the costly task of monitoring managers (Shleifer & Vishny, 1986; Bhide, 1993; Livine & Zervos, 1998). Levine (1997) and Bencivenga (1991) believe that more liquid markets can create long-term investment and hence economic growth through lower transaction cost.

This result is consistent with the results of (Levine & Zervos, 1998; Baboo & Odit, 2009; Nazir et al. 2010; Mohtadi & Agarwal, 2004; Odetayo & Sajuyiegbe, 2012; Yartey & Adjosi, 2007).

R^2 and adjusted R^2 are 0.922430 and 0.881603 respectively this indicates that the independent variables can explain 92.2% from the changes in GDPG. The F statistics is 22.59389 and the probability of it is 0.0000 so it is significant meaning that the model variables are jointly influence GDPG significantly.

4.6 Diagnostic Checking for VECM Model

We check the model to make sure that the model fulfills the requirement of a good regression model.

4.6.1 Serial Correlation

We use Breush-Godfrey serial correlation LM test to check whether the residuals of the model have a serial correlation or not. Table 7 shows that the Chi-squared probability is more than 5% which means that there is no serial correlation.

Table 7. Breusch-Godfrey serial correlation LM test

F-statistic	0.303171	Prob. F(2,17)	0.7424
Obs*R-squared	1.033165	Prob. Chi-Square(2)	0.5966

4.6.2 Heteroscedasticity

We use Breusch-Pagan-Godfrey test to check whether the residuals of the model are heteroscedasticity or not. The result in Table 8 shows that the Obs R-squared probability is 0.7168 which is more than 5% and this mean the residuals are not heteroscedasticity or they are homoscedasticity.

Table 8. Heteroscedasticity test: breusch-pagan-godfrey

F-statistic	0.591500	Prob. F(12,17)	0.8206
Obs*R-squared	8.836419	Prob. Chi-Square(12)	0.7168
Scaled explained SS	4.868130	Prob. Chi-Square(12)	0.9622

4.6.3 Normality

We Orthogonalization: Cholesky (Lutkepohl) test to check whether the model residuals are normally distributed or not. The result in Table 9 shows that the probability of Jarque-Bera is more than 5%, which means that the model residuals are normally distributed.

Table 9. VEC residuals normality test

Component	Jarque-Bera	df	Prob.
1	3.018604	2	0.2211
2	5.104638	2	0.0779
3	1.36874	2	0.5044
Joint	9.491982	6	0.1477

4.7 Impulse Response Function

We employ the Impulse Response Function based on the VECM to examine how GDPG responds to shocks in GDPG, MCR and VTR. For calculating impulse response, we have chosen Cholesky- def adjusted. Figure 1 shows the impulse response functions.

Response of GDPG to GDPG: If we give a positive shock of 1 standard deviation to GDPG. We can see from Graph that GDPG react positively to own shocks by going down to the second year then start rising to arrive to the maximum at 5 year then start decreasing and become nearly steady in the last 4 years. In general, GDP react positively to own shocks.

Response of GDPG to MCR: If we give a positive shock of 1 standard deviation to MCR, we can see that GDPG react positively with positive shocks to MCR. Since it is rising and arrive to the max at year 4 then start going down then become nearly steady and positive in the last 3 years. So, GDPG positively affected by the shocks of MCR.

Response of GDPG to VTR: If we give a positive shock of one standard deviation to VTR, we can see that GDPG has no response for the first year, and then it becomes negative for years 2 and 3. Then start rising and arrive to maximum positive level at year 4. After that, it becomes negative for years 5, 6 and 7, while it reaches zero at year 8. Then GDPG reaction becomes positive for the years 9 and 10. Therefore, GDPG has positive and negative reaction to VTR shocks.

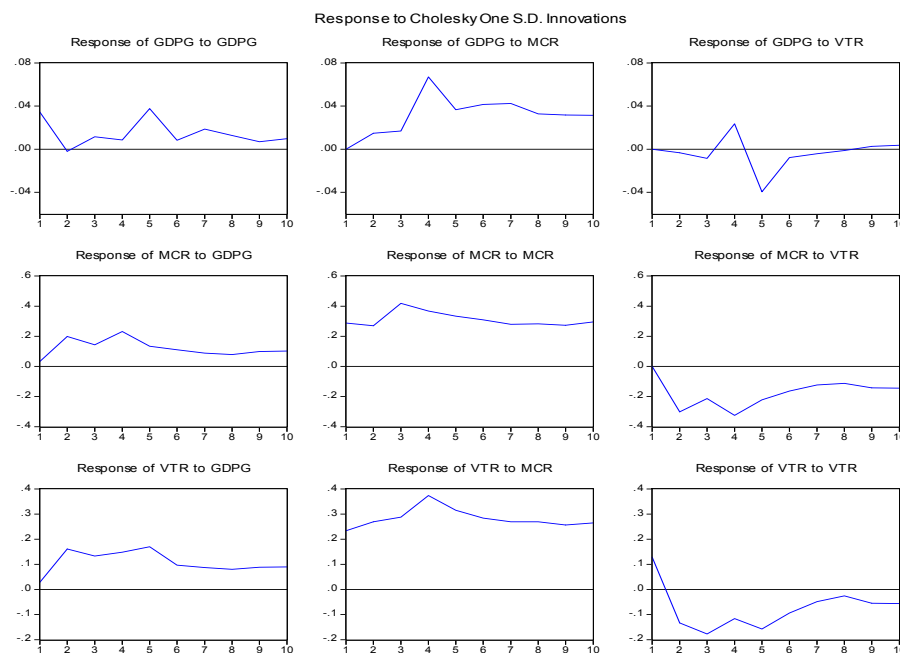


Figure 1. Response of GDP to GDPG, MCR and VTR

4.8 Variance Decomposition of GDPG

The study developed variance decomposition under VECM environment to examine how GDPG responds to own and other variables shocks. Table 10 shows the variance decomposition of GDPG.

In the short run that is 1st year impulse or shock to GDPG can contribute 100% fluctuation in the GDPG. While shocks in the short run 2nd year to MCR and VTR can contribute 15.44% and 0.76% respectively fluctuations in the GDPG.

In the long run year 10 the shock to GDPG can contribute 18.82% fluctuation in the GDPG. While shocks in the long run year 10 to MCR and VTR can contribute 68.9% and 12.25% respectively fluctuations to GDPG. MCR becomes more dominant in year 4 since the shock in year 4 to MCR can contribute 71.08% fluctuation to GDPG. While the shock to VTR in year 5 can contribute 19.38% fluctuation to GDPG. This means that Jordan economy responds well to shocks in economic activities.

Table 10. Variance decomposition of GDPG

Period	S.E.	GDPG	MCR	VTR
1	0.034428	100	0	0
2	0.037665	83.79515	15.44293	0.76192
3	0.043663	69.26966	26.33754	4.392796
4	0.083837	19.8471	71.08518	9.067726
5	0.106568	24.75269	55.86321	19.38731
6	0.114962	21.79152	61.08591	17.12257
7	0.124036	20.98756	64.18731	14.82513
8	0.128922	20.39822	65.87027	13.73151
9	0.13298	19.44931	67.60675	12.94394
10	0.137075	18.82014	68.92794	12.25192

5. Conclusions

The current study investigated the relationship between Amman Stock Exchange development measured by Market Capitalization Ratio (MCR) and Value Traded Ratio (liquidity) and Jordan economic growth (GDPG). By using annually time series from 1978–2012. The study used Vector Error Correction Model (VECM), Granger causality test, impulse response function and variance decomposition function to examine the study hypotheses. The study finds that there is a positive and significant relationship between Amman Stock Exchange development measured by Market Capitalization Ratio (MCR) and Jordan GDP growth. In addition, the study finds that there is a positive and significant relationship between Amman Stock Exchange development measured by Value Trade Ratio (VTR) (liquidity) and Jordan GDP growth. This means that Stock exchange is playing a great role in attracting domestic savings and investments as well as foreign investments and allocating the financial resources to the productive and successful projects, through providing investors with sufficient and free information about firms' performance and protecting their investment, which participate in improving economic growth. In addition, Amman Stock Exchange is characterized by depth, extensiveness, and high level of awareness by the people. The results confirm theoretical literature suggested by Levine (1991) stock exchange development improves economic growth because it reduces both liquidity and productivity shocks. Moreover, supported by Kyle (1984) argument, large size and high liquidity stock exchange introduce incentives for investors through providing them by information about firms, which lead to allocate resources well and accelerate economic growth.

The results of Granger causality tests shows that there is a unidirectional causality between stock market development measured by MCR and VTR and economic growth with direction from stock market development to economic growth. The results of Cointegration test, causality test, VECM results, impulse function and variance decomposition function show that Amman Stock Exchange development measured by MCR and VTR have a short run and long run relationship with Jordan economic growth. The implications of the study results recommend that Jordan is required to continue the development of Amman Stock Exchange to facilitate both domestic and foreign investments.

References

- Adjasi, C. K., & Biekpe, N. B. (2006). Stock market development and economic growth: The Case of Selected African countries. *African Development Review*, 18(1). <http://dx.doi.org/10.1111/j.1467-8268.2006.00136.x>
- Al-Eitan, G. N. (2012). A dynamic model for determining inward foreign direct investment in Jordan. The twenty-fifth PhD conference in economics and business, The University of Western Australia, 7th-9th November.
- Alile, H. I. (1984). The Nigerian stock exchange: historical perspectives, operations and contributions to economic development. *Central Bank of Nigerian Bullion*, 2, 65–69.
- Allen, F. (1993). Stock markets and resource allocation. In Mayer, C., & Vives, X. (Eds.), *Capital Markets and Financial Intermediation*. Cambridge University press. <http://dx.doi.org/10.1017/CBO9780511752056.007>
- Al-Shiab, M. S. (2008). The influence of monetary and fiscal policies on the capital market: a vector autoregressive (VAR) model. *Journal of Administration and Economic Sciences*, 1(2).
- Antonios, A. (2010). Stock market and economic growth: an empirical analysis for Germany. *Business and Economics Journal*.
- Ariyo, A. (2005). *Assessing the impact of capital market reforms in Nigeria: an incremental approach*. Paper presented at the 46th annual conference of the Nigeria Economic Society in Lagos in August.
- Baboo, M. N., & Odit, M. P. (2009). Stock market development and economic growth: the case of Mauritius. *International Business & Economics Research Journal*, 8(2).
- Banerjee, A., Dolado, J. J., & Mestre, R. (1998). Error-correction mechanism tests for cointegration in a single-equation framework. *Journal of Time Series Analysis*, 19, 267–283. <http://dx.doi.org/10.1111/1467-9892.00091>
- Baumol, J. W. (1960). *The stock market and economic efficiency*. New York: Furham University Press.
- Bencivenga, V. R., Smith, B. D., & Starr, R. M. (1996). Equity markets, transaction costs, and capital accumulation: an illustration. *The World Bank Economic Review*, 10(2), 241–265. <http://dx.doi.org/10.1093/wber/10.2.241>
- Bencivenga, V. R., Smith, B. D., & Starr, R. M. (1995). Transactions costs, technological choice, and endogenous growth. *Journal of Economic Theory*, 67(1), 53–177. <http://dx.doi.org/10.1006/jeth.1995.1069>
- Bhide, A. (1993). The hidden costs of stock market liquidity. *Journal of Financial Economics*, 34(2), 31–51. [http://dx.doi.org/10.1016/0304-405X\(93\)90039-E](http://dx.doi.org/10.1016/0304-405X(93)90039-E)
- Boubakari, A., & Ognaligui, R. W. (2010). Financial stock market and economic growth in developing countries: The case of Douala stock exchange in Cameroon. *International Journal of Business and Management*, 5(5).
- Boubakari, A., & Jin, D. (2010). The role of stock market development in economic growth: evidence from some Euronext Countries. *International Journal of Financial Research*, 1(1), 4023–4031. <http://dx.doi.org/10.5430/ijfr.v1n1p14>
- Campbell, J. R., & Hopenhayn, H. A. (2003). *Market size matter*: Federal Reserve Bank of Chicago. Working Paper No. 2003-12.
- Capasso, S. (2006). *Stock market development and economic growth*. United Nations University (UNU-WIDER) World Institute for Development Economics Research, Research Paper No. 2006/102, September.
- Ekundayo, I. K. (2002). Creating a conducive Environment for Investment in the Nigerian capital market. Paper Presented at Public Enlightenment on Opportunities in the Capital Market for industrial Development of Kogi stat ‘ Lokoja 29th March to 1st April.
- Ewah, S. O., Esang, A. E., & Bassey, J. U. (2009). Appraisal of capital market efficiency on economic growth in Nigeria. *International Journal of Business and Management*, 219–225.
- Fasvely, R., Greenaway, D., & Yu, Z. (2007). Market size and the survival of foreign owned firms. *Economic Record*, 83(1), 23–34.
- Faure-Grimaud, A., & Gromb, D. (2004). Public trading and private incentives. *Review of Financial Studies*, 17, 985–1014. <http://dx.doi.org/10.1093/rfs/hhh002>
- Geert, B., & Campbell, R. (1998). Capital market: an engine for economic growth. *The Brown Journal of World Affairs*, 5(1), 33–53.

- Goldsmith, R. W. (1969). *Financial structure and development*. New Haven, Conn: Yale University Press.
- Granger, C., & Newbold, P. (1974). Spurious regression in econometrics. *Journal of Econometrics*, 2, 111–120. [http://dx.doi.org/10.1016/0304-4076\(74\)90034-7](http://dx.doi.org/10.1016/0304-4076(74)90034-7)
- Greenwood, J., & Smith, B. D. (1997). Financial markets in development, and the development of financial markets. *Journal of Economic Dynamics and Control*, 21, 145–181. [http://dx.doi.org/10.1016/0165-1889\(95\)00928-0](http://dx.doi.org/10.1016/0165-1889(95)00928-0)
- Griffiths, W. E., Hill, R. C., & Lim, G. C. (2008). *Using Eviews for principles of econometrics* (3rd ed.). John Wiley and Sons, Inc, Courtier Kendallville, USA.
- Holmstrom, B., & Tirole, J. (1993). Market liquidity and performance monitoring. *Journal of Political Economy*, 101(4), 678–709. <http://dx.doi.org/10.1086/261893>
- Jensen, M. (1989). The eclipse of the public corporation. *Harvard Business Review*, 67, 61–74.
- Kenny, C., & Moss, T. D. (1998). Stock markets in Africa: emerging lions or white elephants? *World Development*, 26, 829–843. [http://dx.doi.org/10.1016/S0305-750X\(98\)00019-9](http://dx.doi.org/10.1016/S0305-750X(98)00019-9)
- Kolapo, F. T., & Adaramola, A. O. (2012). The impact of the Nigerian capital market on economic growth (1990–2010). *International Journal of Developing Societies*, 1(1), 11–19.
- Kyle, A. S. (1984). Market structure, information, futures markets, and price formation. In G. Storey, A. Schmitz, and A. H. Sarris (Eds.), *International Agricultural Trade: Advanced Readings in Price Formation, Market Structure, and Price Instability*. Boulder, CO: Westview.
- Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. *The American Economic Review*, 88(3), 537–558.
- Levine, R. (1991). Stock markets, growth, and tax policy. *Journal of Finance*, 1445–1465. <http://dx.doi.org/10.1111/j.1540-6261.1991.tb04625.x>
- Levine, R., & Zervos, S. (1998). Stock markets, banks and economic growth. *American Economic Review*, 88(3), 537–558.
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22, 3–42. [http://dx.doi.org/10.1016/0304-3932\(88\)90168-7](http://dx.doi.org/10.1016/0304-3932(88)90168-7)
- Maddala, G. (1992). *Introduction to Econometrics*. Prentice Hall, New Jersey.
- Mayer, C., & Alexander, I. (1991). *Stock markets and corporate performance: a comparison of quoted and unquoted companies*. CEPR discussion paper no 571.
- Mckinnon, R. I. (1977). *Money and capital in economic development*. Washington, D.C: Broolongs Institution.
- Mishra, P. K., Mishra, U. S., Mishra, B. R., & Mishra, P. (2010). Capital market efficiency and economic growth: the case of India. *Journal of Economics, Finance and Administrative Sciences*, 27(18), 130–138.
- Mohtadi, H., & Agarwal, S. (2004). Financial Markets and the Financing choice of Firms: Evidence from developing countries. *Global Financial Journal*, 15(2), 52–70.
- Myers, S. (2000). Outside equity. *The Journal of Finance*, 55, 1005–1037. <http://dx.doi.org/10.1111/0022-1082.00239>
- Nazir, M. S., Nawaz, M. M., & Gilani, U. J. (2010). Relationship between economic growth and stock market development. *African Journal of Business Management*, 4(16), 3473–3479.
- Obstfeld, M. (1994). Risk-taking, Global Diversification, and Growth. *American Economic Review*, 84, 1310–1329.
- Odetayo, T. A., & Sajuyigbe, A. S. (2012). Impact of Nigerian capital market on economic growth and development. *International Journal of Arts and Commerce*, 1(5).
- Pagano, M. (1993). Financial markets and growth: An overview. *European Economic Review*, 37, 613–622. [http://dx.doi.org/10.1016/0014-2921\(93\)90051-B](http://dx.doi.org/10.1016/0014-2921(93)90051-B)
- Pat & James. (2010). An empirical analysis of the impact of the Nigerian capital market on her socio-economic development. *Journal of Social Sciences*, 24(2), 135–142.
- Shaw, E. S. (1973). *Financial depending in economic development*. New York: Oxford University Press.
- Shleifer, A., & Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*,

96(3), 461–488. <http://dx.doi.org/10.1086/261385>

Spears, A. (1991). Financial Development and Economic Growth-Causality Tests. *Atlantic Economic Journal*, 19(66). <http://dx.doi.org/10.1007/BF02299108>

Subhash, C. S., & Mathur, I. (1989). Do stock market prices affect mergers? *Managerial Finance*, 15(4).

Yartey, C. A. (2008). The determinants of stock market development in emerging economies: is South Africa different? IMF working paper, WP/08/32.

Yartey, C. A., & Adjosi, C. K. (2007). Stock market development in Sub-Saharan Africa: critical issues and challenges. *International Monetary Fund*, WP/ 07/209.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).