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Financial Development and Economic Growth of Jordan

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Abstract

The study examines the relationship between financial development variables and economic growth of Jordan. The study used quarterly data for the period 1993:Q_1 to 2014:Q_2 and used unit root test, Cointegration test, VAR, VECM, impulse response function and variance decomposition function to examine the study hypotheses. In addition, Granger causality test is used to determine the direction of the relationship between variables. The study found that narrow money supply (M1), broad money supply (M2) and credit facilities to private sector (CPS) have a positive and significant impact on economic growth of Jordan. The Cointegration test as well as the VECM showed that the financial development variables have a long run relationship with economic growth. In addition, the Granger causality test and VECM estimation indicated that there is a bidirectional causality running from financial development variables to economic growth and from economic growth to financial development variables.

Keywords: financial development, economic growth, VAR, VECM, Jordan.

1.Introduction:

The financial sector plays an important role in the economies of the countries where it provides the necessary cash for exchanges and investments. The existence of a well-developed financial sector would contribute in enhancing the country's economic growth and vice versa that the existence of a developed economy leads without doubt the existence of a sophisticated financial sector. Based on this, it has become the relationship between the development of the financial sector and economic growth, the focus of the studies in the last three decades at the theoretical and statistical levels. Studies are focused noticeably on the direction of the causal relationship between the financial development and economic growth in the sense of which leads to the other. Some believe that financial development promotes economic growth, while others believe that economic growth is leading to the development of financial sector. Studies found different results some of them found that financial development causes economic growth, others, found that economic growth causes financial development and some of them found that the causal relationship in both directions. Theoretical interest in the relationship between financial development and economic growth refers to the writings of (Bagehot, 1873 and Schumpeter, 1912) which affirmed the importance of the role of commercial banks in providing the funding necessary to stimulate growth.

In the light of the importance of the Jordan financial sector in improving economic growth, this study investigates the causal relationship between financial development and economic growth of Jordan by using Granger causality test. Investigates also, the effect of financial development on economic growth of Jordan by using Cointegration test, Vector Autoregressive model and or Vector error correction model and impulse response function and variance decomposition function.

The rest of the study is arranged as follow: section 2, literature review, Section 3, data and methodology, section 4, empirical analysis and results discussion, and section 5, conclusions.

2. Literature Review:

The hypothesis of McKinnon (1973) and Shaw (1973) which says that the financial liberalization that ensures appropriate rates of return on cash balances will improve economic growth. The basic principle of this hypothesis is that if the interest rate is low on deposits, it will not encourage savings and this will reduce the funds available for lending for the purposes of investment, which will reflect negatively on economic growth rates. The model of McKinnon (1973) and Shaw (1973) assumed that the presence of more liberal financial

system works to increase savings and investment, and then works to increase economic growth. The endogenous growth theory is going with the McKinnon and Shaw hypothesis, since it suggested that intermediation has a positive effect on economic growth (Greenwood and Jovanovic1990; Shan et al., 2001 and Adamopoulos, 2010). Pagano (1993) suggested three ways in which the financial development can participate in improving economic growth according to the endogenous growth theory. The first way is increasing the productivity of investment. The second way is reducing transaction cost and thus increases the savings ratio channeled into productive investments. And the third way is development of financial sector can either improve or decline savings. A number of scholars empirically examined the relationship between financial development and economic growth. Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Bencivenga, Smith and Starr, 1996; King and Levine, 1993a, emphasized that well developed financial sectors promote long run economic growth.

Balago (2014) empirically investigated the relationship between Financial Sector Development measured by banking sector credits, total market capitalization and foreign direct investment and Economic Growth in Nigeria. To examine the study hypotheses he used a time series data for the period 1990-2009 and used various econometric techniques such as Augmented Dickey Fuller (ADF) test, Johansen Multivariate Co-integration Test, Ordinary Least Square Regression and Vector Error Correction Model (VEC). He found that the financial development sector has a positive and significant impact on economic growth.

Ray (2013) examined the causal dynamic relationships between the level of financial development measured by gross domestic capital formation to GDP, gross domestic savings to GDP and the ratio of outstanding debt to GDP. Population growth as a proxy for labour force growth and annual growth of exports as a measure of the degree of trade openness and the economic growth measured by annual growth of GDP in India for the period 1990-2010. He used Granger causality test to examine the causality between variables, he found that financial development measures granger causes economic growth since there was a unidirectional causality running from gross domestic capital formation and gross domestic savings to economic growth. He did not find a causality running from exports growth and population growth to economic growth.

Shittu and Ibrahim (2012) examined the relationship between financial intermediation measured by the ratio of broad money supply (M2) to nominal gross domestic product (NGDP) and the ratio of domestic credit to the private sector (CPS) to the nominal gross domestic product (NDGP). And economic growth measured by the growth rate of the real gross domestic product in Nigeria. For the period 1970-2010. They used unit root test Johansen Cointegration test and error correction model to examine their study hypotheses. They found that that financial intermediation has a positive impact on economic growth in Nigeria.

Bangake and Eggoh (2011) examined the causality relationship between financial development and economic growth for a sample of seventy-one developing countries. For the period 1960 to 2004. The study carried out its empirical analysis using both the Panel Cointegration tests and the Panel Cointegration estimation (i.e. Dynamic OLS and panel VECM approach). The study showed that both financial development and economic growth have influence on one another, but suggests that a long-run policy approach may prove beneficial among the developing countries.

Kar, Nazliogu, and Agir (2011) investigated the causal relationship between financial development measured by the ratio of narrow money to income, ratio of broad money to income, ratio of quasi money to income, ratio of deposit money bank liabilities to income, ratio of domestic credit to income, and ratio of private sector credit to income. In addition, the economic growth represented by real income. Using sample countries from developing countries represented by countries from Middle East and North Africa (MENA) for the period 1980 to 2007, the study used a simple linear model The Granger Causality test was employed to establish the causal relationship between financial development and economic growth. The study concludes that the direction of causality is bi-directional. The study, suggests that a strong link may exist between financial development and the real sector.

Adamopoulos (2010) investigated the relationship between financial development measured by general stock market index and the domestic bank credits to private sector, and economic growth for Ireland for the period 1965-2007 using a vector error correction model (VECM), Johansen Cointegration test. Granger causality tests indicated that economic growth causes credit market development, while there is a bilateral causal relationship between stock market development and economic growth. Therefore, it can be inferred that economic growth has a positive effect on stock market development and credit market development taking into account the positive effect of industrial production growth on economic growth for Ireland.

Fidelis, Ogwumike and Salisu (2010)Examined the relationship between financial development measured by bank deposit liability, credit to private sector, real discount rate and stock market capitalization and economic growth measured by real gross domestic product of Nigeria for the period 1975 to 2008 and they used the Bound test Autoregressive Distributed Lag (ARDL) approach. The results show that there exists a unique long run relationship between financial development and economic growth.

Egbetunde and Mobolaji (2010) examined the causality and the long run relationship between financial development measured by private credit, bank credit, liquid liabilities and broad money and economic growth measured by per capita real GDP for ten Sub-Saharan African countries for the period 1970-2005. They used unit root test, Cointegration test, Granger causality test and Vector Error Correction Model (VECM) to examine the study hypotheses. The VECM and Cointegration results show that financial development and economic growth have a long run relationship. Granger causality test shows that financial development Granger causes economic growth for Burundi, Cameroon, Mali and Nigeria. While the economic growth causes financial development for Benin, Burkina Faso, Madagascar and Malawi. Moreover, a bidirectional causality between financial development and economic growth for Cote d'Ivoire and Ghana.

Wolde-Rufael (2009) re-examined the causal relationship between financial development and economic growth in Kenya. For the period 1966-2005. by using vector autoregressive (VAR) framework and including exports and imports as additional variables to the financial variables (money supply (M2), liquid liabilities (M3), domestic bank credit to the private sector and total domestic credit provided by the banking sector (all percent of GDP). In addition, economic growth. Applying a modified version of the Granger causality test due to Toda and Yamamoto. He found that a two-way Granger causality: (1) between domestic credit provided by the banking sector and economic growth; (2) between total domestic credit provided by the banking sector and economic growth, and (3) between liquid liabilities and economic growth.

Odhiambo (2008) examined the causal relationship between financial depth and economic growth in Kenya. For the period, 1969 to 2005, he used two econometric techniques; the dynamic tri-variate granger causality test and the error correction model (ECM). The study showed that there is a one-way direction causality, from economic growth to finance.

Odedokun (1998) investigated the impact of financial intermediation measured by investment-GDP ratio, real export growth, and financial depth on economic growth for 70 less developed countries. He used a cross section time series data and panel data analysis to examine the study hypotheses. He found that financial intermediation promote economic growth.

King and Levine (1993) examined the impact of financial development measured by financial depth, relative importance of specific financial institution, proportion of credit allocated to the private sector, and the ratio of claims on the non-financial private sector. On economic growth measured by real per capital GDP, the rate of physical capital accumulation, the ratio of domestic investment to GDP, and residual measure of improvement in the efficiency of physical capital allocation for 80 countries. To examine the study hypotheses they used cross section –time series data for the period 1960 -1989 and used panel data analysis. They found that the financial development has a positive and significant impact on economic growth, and other indicators of economic growth.

From the literature review we observed that most of the studies examined the causality relationship between financial development and economic growth some of them found a unidirectional causality running from financial development to economic growth such as (Ray, 2013; Balago, 2014 and Mobolaji and Egbetunde, 2010). While Odhiambo (2008) found a unidirectional causality running from GDP growth to financial development. In contrast most Kar, Nazliogu and Agir (2013; Wolde-Rufael (2009); Bangake and Eggow (2011) and Adamopoulos, (2010) found a bidirectional causality running from financial development to economic growth and from economic growth to financial development.

Some of the scholars examined the Cointegration between financial development and economic growth such as Balago (2014); Mobolaji and Egbetunde (2010) and Wolde-Rufeel (2009). They found a longrun relationship between financial development and economic growth.

Bangake and Eggoh (2011); Shittu and Ibrahim (2012); Balago (2014) Odedokun (1998) and King and Levine (1993). Found that the financial development positively and significantly affect economic growth.

The present study is an extend to the previous studies, to test the causality relationship between financial development measured by narrow money to GDP (M1), broad money to GDP (M2) and credit to private sector to GDP (CPS) and economic growth of Jordan. Test the Cointegration between financial development and economic growth of Jordan, and to examine the impact of financial development and economic growth of Jordan. By using vector autoregressive model (VAR) or vector Error correction model depending on the stability and Cointegration tests.

3. Data and Methodology:

This study used the method of vector autoregressive model (VAR) or Vector Error Correction Model (VECM). Since a vector, error correction model is a special form of the VAR model for I (1) or more variables which are cointegrated (Griffiths, Hill, and Lim, 2008). to estimate the impact of financial development measured by narrow money to GDP, broad money to GDP and credit to private sector to GDP on economic growth of Jordan measured by GDP growth. The use of this methodology predicts the cumulative effects taking into account the dynamic response between economic growth and financial development (Pereira and Hu, 2000; Adamopoulos, 2010).). 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. Unit root test, Cointegration test, Impulse response function and variance decomposition function. In addition, Granger causality test.

3.1 The Model Specification

Depending on a review of previous studies such as Mobolaji and Egbetunde (2010), Demopoulos (2010) and Balago (2014) economic growth is expressed as a function of financial development. This is expressed by function (1) below;

GDPG = f (FD) (1)

Where GDPG is the economic growth measured by GDP growth, FD is the financial development measured by narrow money ($M_{1)}$ to GDP, broad money (M_2) to GDP and credit to private sector to GDP (CPS).

$$\Delta RGDP = {}^{\beta}{}_1 + \sum^{n}{}_{i} {}^{\beta}{}_2 \Delta RGDP_{t-i} + \sum^{n}{}_{i} {}^{\beta}{}_3 \Delta M_{1t-i} + \sum^{n}{}_{i} {}^{\beta}{}_4 \Delta M_{2t-i} + \sum^{n}{}_{i} {}^{\beta}{}_5 \Delta CPS_{t-i} + \varepsilon Ct - i + \varepsilon t$$

where Δ is the first difference,ECt-1 is the error correction term lagged one period, λ is the short-run coefficient of the error correction term (-1< λ <0), εt is the error term. GDP: Real Gross Domestic Product (proxy for economic growth) M_1: narrow money, M_2: broad money, CPS : credit to private sector to GDP, t: time. ${}^{\beta}{}_1$= intercept of relationship in the model (constant), and ${}^{\beta}{}_2, {}^{\beta}{}_3, {}^{\beta}{}_4, {}^{\beta}{}_5$: Coefficients. For estimation process, we used econometric software E Views 6 provided by , Quantitative Micro Software.

3.2 Study Hypotheses

The study has the following alternative hypotheses:
H1: There is a significant relationship between narrow money and economic growth of Jordan.
H2: There is a significant relationship between broad money and economic growth of Jordan.
H3: There is a significant relationship between credit to private sector and economic growth of Jordan.

3.3 The Data

This study used quarterly data for the period 1993:Q_1 to 2014:Q_2 collected from the Central Bank of Jordan database. Economic growth is measured by the growth rate of the nominal gross domestic product. Financial development is measured by the ratio of narrow money supply to nominal gross domestic product (GDP), the ratio of broad money supply (M2) to nominal gross domestic product (GDP) and the ratio of credit to the private sector (CPS) to the nominal gross domestic product (DGP).

4: Analysis and Results Discussion

4.1 Unit Root Test Results

To estimate the relationship between economic growth and financial development in Jordan. We have to test for the presence of unit root. This is necessary to avoid spurious results. We use the Augmented Dikky-Fuller (ADF) (Nandha and Hammoudeh 2007) . Our guideline is if the test absolute statistics is more than the critical value, variable is stationary (has not a unit root).

Table (1) presents the results of ADF for the levels and first differences of the Quarterly time series data for the period 1993:Q1 to 2014:Q_2. we test for unit root test at level and (none, trend, trend and intercept) GDPG,

narrow money (M_1), broad money (M_2) and credit to private sector (CPS) are stationary at first difference and at the significance level of 5%.

Table 1: Augmented Dickey Fuller (ADF) Unit Root Test

Variable	Calculated ADF Statistics	5% ADF Critical Value	Probability	Order of Integration	Stationary/ Not Stationary
GDPG	2.873044	-1.94486	0.9989	**I(0)**	**Not Stationary**
M_1	1.652374	-2.89592	0.9995	**I(0)**	**Not Stationary**
M_2	1.848563	-2.89592	0.9998	**I(0)**	**Not Stationary**
CPS	0.08939	-2.89768	0.9631	**I(0)**	**Not Stationary**
GDPG	-3.32704	-2.89768	0.0168	I(1)	**Stationary**
M_1	-8.21108	-2.89635	0.0000	I(1)	**Stationary**
M_2	-8.87671	-2.89635	0.0000	I(1)	**Stationary**
CPS	-5.07402	-2.89768	0.0001	I(1)	**Stationary**

4.2 Lag Selected

The lag selection criteria is used to select the optimum lag because it is necessary to avoid over parameterizing model, (Al-Eitan 2012, al-qudah, 2014). The optimal lag is necessary to perform Cointegration test, Granger Causality test, VAR and VECM. VAR Lag Order Selection Criteria is used to determine the appropriate number of lag length. The results of the analysis are shown in Table (2). We use sequential modified LR test statistic (LR), Final prediction error (FPE) and Hannan-Quinn information criterion (HQ). According to FPE and HQ the optimal lag is five lags.

Table 2: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	229.6445	NA	3.10E-08	-5.938012	-5.815342	-5.888987
1	684.8582	850.5309	2.96E-13	-17.49627	-16.88292	-17.25114
2	723.2676	67.72189	1.65E-13	-18.08599	-16.98196*	-17.64477
3	747.6809	40.47467	1.33E-13	-18.30739	-16.71268	-17.67007
4	778.505	47.85841	9.19E-14	-18.6975	-16.61211	-17.86408
5	805.906	39.65934*	7.00e-14*	-18.99753	-16.42145	-17.96800*
6	819.6786	18.4843	7.75E-14	-18.93891	-15.87216	-17.71329
7	838.0866	22.76781	7.73E-14	-19.00228*	-15.44484	-17.58056

* 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

4.3 Testing for Cointegration

The Cointegration test, which is developed by Johansen (1991), is applied to the variables of the study to see whether they are cointegrated or not. If the time series are stationary at level VAR model is used. However, if they are not stationary at level and the Cointegration equations are statistically significant VECM is used; (Eryigit, 2012 and Toraman et al., 2011).
The Johansen Cointegration test identifies the number of stationary long-run relationships that exist among the set of integrated variables. It offers two tests, the trace test and the eigenvalue test, with a view to identifying the number of cointegrating relationships. The results of Trace and Maximum Eigenvalue in tables (3 and 4) respectively shows that there are two Cointegration equations between the study variables, which means there is a long run relationship between variables. This result consistent with the results of Balago (2014); Mobolaji and Egbetunde (2010) and Wolde-Rufeel (2009).

Table 3: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.322865	63.61597	47.85613	0.0009
At most 1 *	0.242688	33.59488	29.79707	0.0174
At most 2	0.145334	12.19039	15.49471	0.148
At most 3	0.001271	0.097922	3.841466	0.7543

Trace test indicates 2 cointegrating equations at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 4: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.322865	30.02109	27.58434	0.0238
At most 1 *	0.242688	21.40448	21.13162	0.0458
At most 2	0.145334	12.09247	14.2646	0.1072
At most 3	0.001271	0.097922	3.841466	0.7543

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level.

4.4 Vector Error correction Model (VECM) Results.
According to stationary test and Cointegration test (Trace and maximum eigenvalue) shows that variables are stationary at first difference and have two Cointegration equation or have a long run relationship, thus the study used Vector Error Correction model, which it is a restricted VAR model including the error correction term to investigate dynamic behavior of the model. Once the equilibrium conditions are imposed, the VEC model describes how the examined model is adjusting in each time towards its long-run equilibrium state (Engle and Granger, 1987).

From Table (5), the coefficient of the Cointegration equation (CointEq1) which is called the error correction term or the speed of adjustment toward equilibrium. Our guideline if coefficient is negative and significant we can say that there is a long run causality running from financial development (narrow money M1. Broad money M2 and credit to private sector CPS) to GDPG, and if the coefficient of the Cointegration equation (CointEq1) is not negative and not significant this means there is no long run causality from financial development variables to GDPG. From Table (5) we can see that the sign of the coefficient of the Cointegration equation (CointEq1) is

negative and significant, since its probability is (0.0004) which is less than 5% percent. Therefore, there is a long run causality running from financial development indictors to GDPG

Table 5: Vector Error Correction Estimates

Error Correction:	Coefficient	Std. Error	t-Statistic	Prob.
CointEq1	-1.55888	0.409502	-3.80676	0.0004
CointEq2	0.110163	0.049621	2.220098	0.0306
D(GDP(-1))	0.890877	0.506592	1.758568	0.0843
D(GDP(-2))	1.225397	0.489511	2.503306	0.0154
D(GDP(-3))	0.418774	0.447212	0.936412	0.3532
D(GDP(-4))	0.816749	0.320976	2.544583	0.0138
D(GDP(-5))	0.256343	0.121621	2.107721	0.0397
D(M1(-1))	-0.18644	0.112427	-1.65835	0.103
D(M1(-2))	0.061754	0.111241	0.555133	0.5811
D(M1(-3))	0.151882	0.111388	1.363538	0.1784
D(M1(-4))	-0.13611	0.109229	-1.24607	0.2181
D(M1(-5))	0.030567	0.10388	0.294253	0.7697
D(M2(-1))	0.160579	0.069723	2.303086	0.0252
D(M2(-2))	0.047737	0.069971	0.682242	0.498
D(M2(-3))	-0.10542	0.066154	-1.59355	0.1169
D(M2(-4))	0.140688	0.065968	2.132661	0.0375
D(M2(-5))	-0.07562	0.066305	-1.1405	0.2591
D(CPS(-1))	-0.11126	0.070701	-1.57359	0.1214
D(CPS(-2))	0.022817	0.084703	0.269376	0.7887
D(CPS(-3))	-0.05907	0.085968	-0.68708	0.495
D(CPS(-4))	-0.17791	0.081287	-2.18869	0.033
D(CPS(-5))	0.006903	0.078691	0.087726	0.9304
C	0.004079	0.003661	1.114191	0.2701
R-squared	0.962896			
Adjusted R-squared	0.947779			
F-statistic	63.69848			
Prob(F-statistic)	0			

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 -1.55888 (prob value = 0.0004] 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. In the short run, we see from Table (5) that broad money M2 and credit to private sector have more impact on GDP growth.

The results of this study are consistent with the results of the studies of Bangake and Eggoh (2011); Shittu and Ibrahim (2012); Balago (2014) Odedokun (1998), King and Levine (1993), Levine and Zervos (1998), Nieuwerburgh et al. (2005) and Shan (2005). Guiso et al. (2004) found that financial development has a positive effect on economic.

R-square (0.962896) and adjusted R square (0.947779) show that econometric model explain more than 94% of the change in economic growth of Jordan.

The F-Statistic (63.69848) indicates that the explanatory variables are jointly significant and are capable of explaining changes in economic growth.

4.5 Granger Causality Test

Granger causality test is a suitable methodology for examining whether financial development causes economic growth or vice versa. Since this causality may be bidirectional or unidirectional between variables.
H0: M_1 does not Granger cause GDPG and vice versa.
H1: M_1 does Granger cause GDPG and vice versa.
H0: M_2 does not Granger cause GDPG and vice versa.
H1: M_2 does Granger cause GDPG vice versa.
H0: CPS does not Granger cause GDPG and vice versa.
H1: CPS does Granger cause GDP and vice versa.
The results of the Granger causality test are reported in Table (6).
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 (6), we can see that narrow money (M1), broad money and credit to private sector Granger cause economic growth (GDPG), since P value is (0.018), (0.000), (0.05) respectively, which is less than 5% so we can reject H0 and accept H1. GDPG causes (M1, M2 and credit to private sector) since the probability value is (0.027, 0.046, 0.003) respectively, which is less than 5% so we can reject H0 and accept H1. There is a bidirectional causality running from financial development (narrow money, broad money and credit to private sector) to GDP growth and vice versa. So financial development leads to economic growth and economic growth leads to financial development. The results of the study consistent with results of Kar, Nazliogu and Agir (2013); Wolde-Rufael (2009); Bangake and Eggow (2011) and Adamopoulos, (2010).

Table 6: Pairwise Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
M1 does not Granger Cause GDP	81	2.954	0.018
GDP does not Granger Cause M1		2.705	0.027
M2 does not Granger Cause GDP	81	5.024	0.000
GDP does not Granger Cause M2		2.395	0.046
CF does not Granger Cause GDP	78	2.337	0.050
GDP does not Granger Cause CF		4.017	0.003
M2 does not Granger Cause M1	81	1.025	0.41
M1 does not Granger Cause M2		1.471	0.211
CF does not Granger Cause M1	78	2.962	0.018
M1 does not Granger Cause CF		4.397	0.002
CF does not Granger Cause M2	78	2.863	0.021
M2 does not Granger Cause CF		3.94	0.003

5. Conclusions:
The goal of this study is to examine the relationship between financial development measured by narrow money to GDP (M1), broad money to GDP (M2) and credit facilities to private sector to GDP)CPS) and economic growth of Jordan measured by GDP growth for the period 1993. Q1 to 2014. Q2. The unit root test is applied to examine the stationary of the time series data of the study. The results showed that financial development indicators (M1, M2, and CPS) are stationary at the first differences. The Johansen Cointegration results showed that there is two Cointegration equations, which means there is a long run relationship between financial development and economic growth. the Granger Causality test results showed that there is a bidirectional

causality between financial development and economic growth, which implies that financial development promotes economic growth and economic growth enhancing financial development.
Finally, the Vector Error Correction Model (VECM) estimation indicates that there is a long run relationship between financial development and economic growth of Jordan.

The implication of the study is that financial development measured by narrow money (M1), broad money (M2) and credit facilities to private sector is considered as a policy tool to improve economic growth of Jordan and economic growth is considered as a policy tool to increase financial development.

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