THE CAUSAL RELATIONSHIP BETWEEN THE STOCK EXCHANGE, ECONOMIC DEVELOPMENT, CREDIT, AND THE U.S. DOLLAR INDEX: AN EMPIRICAL EVIDENCE FROM PALESTINE

Tamer Bahjat Hussain Sabri

Faculty of Business & Economics, Palestine Technical University- Kadoorie, Tulkarem, Palestine.

ABSTRACT

This study aims to investigate the causal relationship between the stock exchange, economic development, the credit market, and the U.S.dollar index in Palestine. In order to investigate this relationship the researcher used the Granger causality test to find causal relationships based on time series data for the period from 1997 to 2013.

The analysis reveals that the causal relationship is rejected at a 5% level among the growth of GDP and the stock exchange capitalization, and furthermore that the US dollar index does not Granger-cause stock exchange capitalization, but there is a weak causal relationship between credit facilities for the private sector and stock exchange capitalization. Additionally, there is a weak Granger-cause between the US dollar index and credit facilities to the private sector and this is because the Palestine economy isa small and illiquid financial market. In addition, small markets do not necessarily function effectively.

KEYWORDS: Palestine Exchange,Granger Causality, Economic development, A kiak Information Criteria,Stationary

1.Introduction

The Palestinian economy experienced many challenges that caused the first contraction since 2006;One such challenge is reflected in the scale of destruction that was left in the wake of the Israeli offensive on the Gaza Strip, which resulted in a sharp decline in production in the strip, amounting to 15.2%, compared with a growth rate of 5.6% in 2013.Different economic behaviour has been seen in the West Bank, where the acceleration of growth went from 1.0% to 5.1% for the 2013 and 2014;This is due to significant growth in consumption and investment and the decline in the trade deficit during the period of comparison. The banking sector maintained a level of stability as customer deposits grew, the credit facilities portfolio increased and improved in quality, and the system's ability to cope with potential risks increased.(Palestine Monetary Authority,2014)

The Palestine Exchange was founded in 1995. It was converted into a public shareholding company with paid-up capital of US$10 million. The Palestine Exchange is considered the only domestic market in Palestine in which securities are being traded. It was established to meet the need to attract investment by Palestinians living in Palestine and abroad. (Buhaisiand Najim, 2009).The Palestine Exchange is necessary to raise money, mobilizing and channelling it toward investment. It can do so through the financial market by linking borrowers to suitable lenders, intervening in the contribution of banks in the financial market by acting as an assistant in finance and consulting operations, and providing long-term financing for productive projects and infrastructure projects. Finally, it is considered a financial instrument in that trading in the financial markets is a way to store of wealth for individuals and companies who want to save their money until it is needed in the future, a mode of saving which is considered better than other fixed assets.

Research in economics and finance documents an uncertain relationship between stock market and macroeconomic factors. Some studies have found a strong relationship, such as Abdullah and Hay worth (1993) who used Granger causality tests to explain fluctuations in monthly stock returns within a vector auto regressive frame work. The results of their study reveal that past money growth, budget deficits, inflation, and both short and long-term interest rates are Granger-causal prior to stock returns. Others have found a weak relationship, such as Asaolu and Ogunmuyiwa (2011)andIbrahimandMusah (2014). Their results show that the Granger causality test could not establish causality between macroeconomic variables and stock prices.

The present study investigates the causal relationship between the stock exchange, economic development, the credit market, and the U.S.dollar index in Palestine. The study contributes to the literature in several ways: by utilizing a new approach to causality testing, and by focusing on the Palestinian economy, for which the causal relationship between the variables in question has not previously been studied. The findings of this investigation can contribute to policy development in Palestine as well. Furtherit propose new variables such as credit facilities to the private sector and U.S. Dollar Index Change.

2.Literature Review

In the literature there are different methodology such as (Luintel and Khan1999)examined the long-term relationship between financial development and economic growth ,using 10 sample countries.While (Hsing,et al., 2012) used exponential GARCH model and based on a quarterly sample .They find that the Argentine stock market index is positively associated with real GDP, money supply , U.S.stock market index and the peso/USD.(Nazir, et.al, 2010)

using the two major measures of stock market development, namely: size of the market and liquidity prevalent in the market in terms of market capitalization.

And reached different results such as (Goswami and Jung 1997) The results showed that the stock prices are positively related to industrial production, and inflation.(Levine and Zervos1998) Used a regression analysis and found that stock market liquidity and banking development both positively predict growth. And also(Al-Qudah, 2014) the study indicated that there is a positive and significant relationship between Amman stock exchange development and Jordan economic growth.

Further(Araújo, 2009) investigates the economic sources in Latin America. The Result showed that, portfolio shocks are the main driving force behind real stock returns. (Akbar,et.al,2012)The result shows that stock prices are linked positively with the money supply and interest rates. And with a negative correlation with inflation and foreign exchange reserves.(Naik and Padhi, 2012)The result shows that macro economic variables related with the stock market index, and that there is a balance in the long term relationship.
In contrast,(Dritsak,andBargiota, 2005)In their study, which examined experimentally causal relationship between financial development, credit market and economic growth in Greece. The results showed the absence of a causal relationship between the stock market and the development of the banking sector.(Ake, and Jin 2010)The results show a positive relationship between the stock market and economic growth, however, it was denied a causal relationship to the countries that the stock market is small and less liquid.(Asaolu and Ogunmuyiwa , 2011)The results showed that the weak relationship between macroeconomic variables in Nigeria. As well as the ASP is not leading the economic performance of the over all index in Nigeria. Furthermore (Kolapo and Adaramola,2012) This paper fined   that the Nigerian capital market and economic growth are co-integrated.) Oluwatosin, et al. 2013(. The result shows that capital market indices have not significantly impacted on the GDP.

And finally the previous studies include different countries such as (Adrangi, et.al,2011) In their study investigates relationship between stock re-turns and inflation rates in Brazil. (Dzikevičiusand Vetrov,2012) explores the possibility of improving risk-adjusted returns of portfolio of US stocks. (Ahmeda, 2014)the study aims to investigate the existence and nature moment interdependencies between the stock and currency markets of Egypt. (Chkili and Nguyen,2014) apply his research on   BRICS countries. (Hsing,2014)studied the Romanian stock market index .

3.Methodology

Data were collected from Palestine Exchange reports, Palestine Monetary Authority reports. And the researcher collected data for the U.S.Dollar Index from Economic Research Federal Reserve Bank.
The study used the period beginning from 1997 and ending 2013 estimates annually. And use econometric software E Views to analyze the data.

3.1Variables of the study

Following (Al-Qudah,2014)(Ake, and Jin ,2010).This study used market capitalization MCR to measure the stock market development of Palestine Exchange. Measures the size of the stock market and equals the value of listed

shares of companies divided by gross domestic product GDP For estimation process. The Gross Domestic Production growth measures economic development (GDPG), measured by GDP of the current year minus GDP of the previous year divided by GDP of the previous year. The researcher expects that the sign of real GDP to be positive
.

Credit facilities to the private sector LRS divided by gross domestic product GDP (Dritsak, and Bargiota, 2005)in their study examines the relationship between the stock market and banking sector development. Dollar U.S.Index Change A weighted average of the foreign exchange value of the against the U.S. dollar measured by Dollar US Index of the current year minus Dollar US Index of the previous year (Hsing, et al., 2012) use the nominal exchange rate, the peso/USD exchange rate and the U.S.stock market index.(Goswami and Jung ,1997) use the devaluation of Korean Won And against US Dollar (Japanese Yen) related to stock price changes.As well as the use of descriptive statistics to analyze the data.

3.2 Test for stationary
It is essential to check for stationary since non–stationary data may lead to spurious results. the study used Augmented Dickey-Fuller (ADF) Fuller (1979) to confirm stationary of the series. The study converts data to stationary by taking the first difference or more for the related variable.

3.3 Lag Selected
Unrestricted vector auto regression (VAR) ,model is used to select the optimum lag by taking the lowest Akiak Information Criteria (AIC) .Selection criteria is important because to avoid ineffective model.

3.4 The Model
Pair wise Granger Causality Test remains a popular method for causality analysis in time series due to its computational simplicity .This methodology has been used in several studies, including the (Ake, and Jin, 2010) (Asaolu and Ogunmuyiwa , 2011)

To explain the Granger test, we will ask the following question: is stock exchange causes economic development or economic development causes stock exchange, the following model explains it:

$$MCG = \sum_{i=1}^{n} \alpha_i MCG_{t-j} + \sum_{j=1}^{n} \beta_j GGDP_{t-j} + u_{1t} \quad ....(1)$$

$$GGDP = \sum_{i=1}^{n} \mu_i GGDP_{t-j} + \sum_{j=1}^{n} \Omega_j MCG_{t-j} + u_{2t} \quad ......(2)$$

Where it is assumed that the disturbances u 1t and u2t are uncorrelated . (Gujarati ,2003)

The study has the following null hypotheses :

Table 1

GGDP does not Granger Cause MCG
MCG does not Granger Cause GGDP
LRS does not Granger Cause MCG
MCG does not Granger Cause LRS
GINX does not Granger Cause MCG
MCG does not Granger Cause GINX
LRS does not Granger Cause GGDP
GGDP does not Granger Cause LRS
GINX does not Granger Cause GGDP
GGDP does not Granger Cause GINX
GINX does not Granger Cause LRS
LRS does not Granger Cause GINX

4.Results
4.1Descriptive Statistics
This section identifies some descriptive statistics such as mean, median, standard deviation, and the highest and lowest values. In Table 2t can be seen that the mean of GGDP is 8.33%, which is considered high compared with international standards, and the maximum growth ratio happened in 2010.

Table 2

		GGDP	GINX	LRS	MCG
Mean	Mean	0.083302	0.003219	0.221859	0.295364
Median	Median	0.091028	0.002337	0.228978	0.253483
Maximum	Maximum	0.226315	0.110453	0.276455	0.922478
Minimum	Minimum	-0.111872	-0.059634	0.146268	0.135655
Std. Dev.	Std. Dev.	0.087877	0.049381	0.029401	0.196266
Skewness	Skewness	-0.562625	0.592200	-0.743954	2.138432
Kurtosis	Kurtosis	3.171310	2.351197	4.060143	7.256716

The minimum growth ratio happened in 2002,whichwas one of the years of the Second Intifada. The GINX maximum value occurred in 2009 after the global financial crisis. The LRS mean was 22% and the maximum value was 27% in2006, a year after a significant rise in the Palestine Exchange, whilethe minimum occurred in 1997.Finally, MCG and the maximum value of 92% happened in 2005,whilethe minimum value occurred in 1997, which was at the beginning of the work of the Palestine Exchange.

Three figures represent the period between 1997 and 2013; Series 1 represents MCG: the highest value of MCG was in 2005, as was mentioned, and then started to decline .
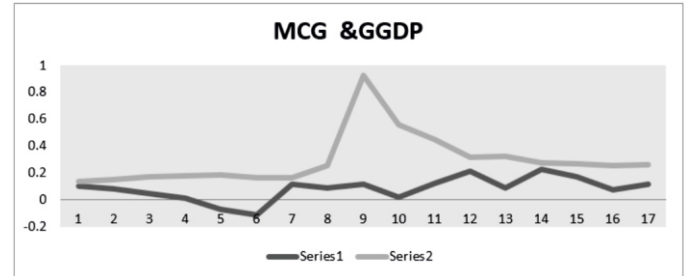

Figure1

As can be see nin Figure2, a rise in the MCG(Series1) may be associated with a rise and decline in INXG (Series2) during the period from 2005 to2006.
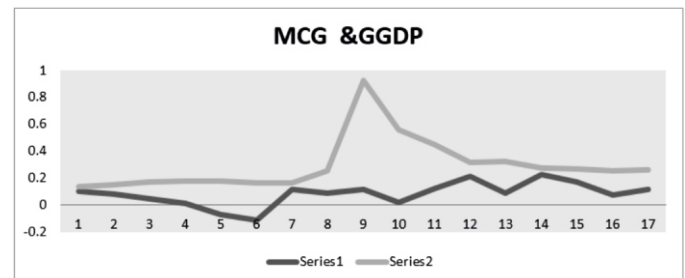

Figure 2

As seen in Figure3, a rise in the MCG(Series1) may be associated with a rise and decline in LRS (Series2) during the period from 2005 to 2006.Before 2005 LRS was higher than MCG.
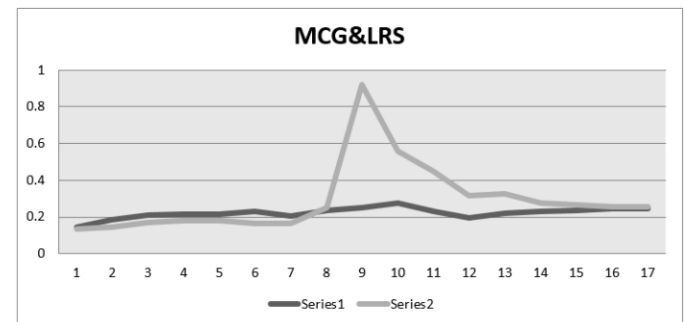

Figure 3

4.2 Test Stationary
As noted from Table 2, at the 5%level,thecalculated value of test statistics is less than the absolute critical value, so we accept the null hypotheses: the time series has unit root(is not stationary) for all variables (MCG,GGDP,LRS,GINX).

Table 2

Variable Statistics	Difference Value	Calculated	5% ADF Critical	Order Integration	Stationary/ Not stationary	
MCG	0	-2.023045	-3.0818	I(0)	Not stationary	
GGDP	0	-1.764803	-3.0818	I(0)	Not stationary	
LRS	0	-2.815615	-3.9635	I(0)	Not stationary	
GINX	0	-2.874422	-3.7611	I(0)	Not stationary	
MCG	1	-3.851291	-3.1222	I(1)		Stationary
GGDP	1	-3.712968	-1.9677	I(1)		Stationary
LRS	1	-3.564635	-3.1003	I(1)		Stationary
GINX	1	-5.988008	-3.1003	I(1)		Stationary

After we take the first difference, the calculated value of test statistics is more than the absolute critical value, and we reject the null hypotheses, so the time series is stationary and does not have unit root.

4.3 Lag Selection

An unrestricted VAR model was used, and took different lags from 1 to 3 as illustrated in Table 3. We took the lowest absolute value of Akiak Information Criteria (AIC) in Lags: 3.

Table 3

Lag	Akaike information Criteria
1	-11.19177
2	-13.04192
3	-1.184908

Pair wise Granger Causality Tests:

Pair wise Granger Causality Tests were used to test hypotheses of the study; Table 4 depicts this.

Table 4

Null Hypothesis:	Obs	F-Statistic	Probability
GGDP does not Granger Cause MCG	14	2.83950	0.11542
MCG does not Granger Cause GGDP		0.96172	0.46207
LRS does not Granger Cause MCG	14	0.82338	0.52127
MCG does not Granger Cause LRS		4.09594	0.05675
GINX does not Granger Cause MCG	14	2.36843	0.15670
MCG does not Granger Cause GINX		0.13483	0.93615
LRS does not Granger Cause GGDP	14	1.84833	0.22650
GGDP does not Granger Cause LRS		0.95062	0.46653
GINX does not Granger Cause GGDP	14	0.79203	0.53584
GGDP does not Granger Cause GINX		1.21197	0.37369
GINX does not Granger Cause LRS	14	4.26543	0.05207
LRS does not Granger Cause GINX		0.51900	0.68249

5. Conclusion

In this study the researcher investigates the causal relationship in Palestine between the stock exchange, economic development, the credit market, and the U.S.dollar index. In order to investigate these relationships, the researcher used descriptive statistics, test stationary, Lag Selection, and the Granger causality test. The analysis revealed that the Palestine exchange is not a leading indicator for economic variables, which is inconsistent. Kwon and Shin (1999), Ebadi (2007), and Weshah (2009)concluded that the stock market does not playan important role to attract foreign investments because of economic and political instability. There are also other studies that have reached similar conclusions, such as Akeand Jin (2010), Ibrahim and Musah (2014), saolu and Ogunmuyiwa (2011).and Oluwatosin et al. (2013) concluded that capital market in Nigeria has not contributed meaningfully to the economic growth because of the low value in the market, and liquidity.

The banking sector in Palestine has maintained a degree of stability, while the Palestine Exchange had experienced a great degree of volatility. This leads to the weakening of the relationship between theLRS and the Palestine Exchange.The study of Dritsak and Bargiota(2005) showed that there is no causal relationship between the stock market and banking sector development in Greece.

In order to improve the integration of the Palestine Exchange in the economy, or in other words, improve the Granger causal relationship between the Palestine Exchange and the economic variables, bodies responsible should increase markets hare through incorporation of new companies, and should inform investors so that decisions are based on economic information.

REFERENCE

- Abdullah D. And Hayworth S.(1993). Macroeconometrics of Stock Price Fluctuations,*Quarterly Journal of Business and Economics*Vol. 32, No. 1, pp. 50-67.

- Adrangi B., Chatrath A., And . Sanvicente A.,(2011). *Inflation, Output, And Stock Prices: Evidence From Brazil* .The Journal of Applied Business ResearchVol. 18, No. 1pp. 61 -77.

- Ahmeda ,W., (2014). Dynamic interactions between Egyptian equity andcurrency markets prior to and during political unrest ,Applied Financial EconomicsVol. 24, No. 20,pp 1347–1359.http://dx.doi.org/10.1080/09603107.2014.925061

- Ake, B., and Jin D. (2010). *The Role of Stock Market Development in Economic Growth: Evidence from Some EuronextCountries*,International Journal of Financial Research Vol. 1, No. 1pp14-20

- Akbar M., Ali S. and Khan M. (2012).*The relationship of stock prices and macroeconomic variables revisited: Evidence from Karachi stockexchange*, African Journal of Business Management Vol. 6(4), pp. 1315-1322

- Araújo, E., (2009).Macroeconomic Shocks and theCo-movement of Stock Returns in Latin America,Emerging Markets Review, Vol. 10, No. 4 , pp. 331–344.

- Asaolu T., and Ogunmuyiwa M., (2011).*An Econometric Analysis of the Impact of Macroecomomic Variables on Stock Market Movement in Nigeria* ,Asian Journal of Business Management 3(1)pp.72-78.

- Al-Qudah ,Ali(2014). *Stock Exchange Development and Economic Growth: Empirical Evidence from Jordan*, International Journal of Business and Management, Vol. 9, No. 11, pp 123-138.

- Buhaisi, E.andNajim,A(2009)*The Awarnece of the Investors at the Palestinian Securities Exchange to the Importance of Accountin Information toTheir Investment Decision*, Journal of the Islamic University (humanities series) No.2 pp713-739

- ChkiliW.,and Nguyen D., (2014).Exchange rate movements and stock market returns in a regime-switching environment: Evidence for BRICS countries http://www.ipag.fr/ fr/accueil/la-recherche/publications-WP.html

- Dritsak C., and Bargiota M.,(2005). *The Causal Relationship between Stock, Credit Market and Economic Development: An Empirical Evidence for Greece*. , Economic Change and Restructuring,Vol. 38 No. 1, p113-127.

- Dzikevičius A., and Vetrov J. (2012). *Stock Market Analysis Through Business Cycle Approach* ,Business: Theory and Practice 13(1),pp 36–42.

- Ebad,iS.,(2007). *The Role Of The Stock Market In The Economy Evaluate The Palestine Exchange Experience* ,The first annual meeting: of the Palestinian Capital Market.www.p-s-e.com

- Economic Research Federal Reserve Bank. https://research.stlouisfed.org/fred2/ series/DTWEXB

- *Hsing Y., BuddenC.,and Phillips ,S. (2012). Macroeconomic Determinants of the Stock Market Index for a Major Latin American Country and Policy Implications*,Business and Economic Research, Vol. 2, No. 1

- Hsing ,Y.,(2014).*The Stock Market and Macroeconomic Factors in Romania and Policy Implications* ,Trends in Economics (TE) Vol. 1, No. 1 . pp. 1-7.

- Ibrahim M. ,andMusah A.,(2014). *An Econometric Analysis of the Impact of Macroeconomic Fundamentals on Stock Market Returns in Ghana*, Research in Applied Economics , Vol. 6, No. 2 pp47-72

- Goswami G., andJung S. (1997).*Stock Market and Economic Forces: Evidence From Korea* http://www.sciedu.ca/journal/index.php/ijfr/article/download/3967/2338.

- Gujarati ,D. 2003,Basic Econometrics ,Fourth Edition ,McGraw Hill ,pp 696-697.

- *Kolapo, T.,andAdaramola,*A. (2012).*The Impact of the Nigerian Capital Market on Economic Growth (1990-2010),* International Journal of Developing Societies,Vol 1, No. 1 pp11-19.

- Kwon, C. and Shin T., (1999). Co-integration and causality between macroeconomic variables and stock returns,Global Finance Journal, Vol.10 No. 1 ,pp 71-81.

- Luintel B. , and Khan M. (1999). .A quantitative reassessment of the finance–growth nexus: evidence from a multivariate VAR, Journal of Development Economics,Vol. 60, No. 2, pp 381–405.

- Levine, R. and Zervos, S. (1998).*Stock Markets, Banks, and Economic Growth, The American Economic Review*,Vol. 88, No. 3, pp. 537-558.

- Nazir ,M. , Nawaz, M., and Gilani U.(2010).*Relationship between economic growth and stock market development* , African Journal of Business Management,Vol.4(16)pp3473-3479.

- NAIK, P., and PADHI ,P,(2012).*The Impact of Macroeconomic Fundamentals on Stock Prices Revisited: Evidence from Indian Data Eurasian* ,Journal of Business and Economics, 5 (10),pp 25-44.

- Oluwatosin ,O. TaiwoA.,and A. Yusuf. (2013). *Empirical Analysis of the Impact of Capital Market Efficiency on Economic Growth and Development in Nigeria* , International Journal of Academic Research in Economics and Management Sciences, Vol. 2, No. 6 pp44-53.

- Palestine Monetary Authority annual reports2013, 2014. Pmahttp://www.pma.ps/ Default.aspx?tabid=510&language=ar-EG

- Palestine Exchange reports https://www.pex.ps/PSEWebSite/publications/PSE-AnnualReport2012-Final.pdf

- Weshah, D . (2009).*The Role Of Foreign Investment In The Development Of Palestine Exchange Performance,* Unpublished Master Thesis ,Islamic University –Gaza ,pp2

- Appendix