Impact of Macroeconomic Factors on the Market Index Return at Palestinian Stock Market

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Abstract

This study aims to investigate the Macroeconomic Factors effect on Palestinian Stock Market Return identified by the return of General Price Index and the return of Palestine Exchange Sectors' Indexes of Banks, Industry, Insurance, Investment and Services in particular; in order to identify different results between these sectors. The macroeconomic factors represented by five variables that are Gross Domestic Product, Balance of Trade, Consumer Price Index, Exchange Rate, and Industrial Product Index. This study make use of time series monthly data for macroeconomic factors from the first month of 2011 to the last month of 2017 to illustrate its impact on stock index return by applying macro-econometric model based on Arbitrage Pricing Theory, and testing these variables with unit root test, correlation coefficient, ordinary least square test and ARCH/GARCH model; in order to make relevant and valuable recommendations for investors, organizations, and financial analysts and give new insights about the dependence relationships between stock market return and macroeconomic variables. The results mainly shown that the consumer price index has a negative significant effect on Palestinian general index return, insurance index return, industry index return and bank index return, also the exchange rate has a negative significant effect on Palestinian bank index return in addition to gross domestic product that has a negative significant effect on Palestinian general index return and service index return, but the balance of trade and industrial production index has no significant effect on Palestinian general index return or sectors' indices returns.

Keywords: Arbitrage Pricing Theory, Macroeconomic Variables, Stock market returns, Stock exchanges, Palestine.

أثر العوامل الاقتصادية الكلية على عائد مؤشر السوق في سوق فلسطين للاوراق المالية

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ملخص

تهدف هذه الدراسة إلى التحقق من اثر العوامل الاقتصادية الكلية على عائد مؤشر السوق المالي الفلسطيني الذي يتمثل بالعائد على المؤشر العام والعائد على مؤشرات القطاعات المالية من قطاع البنوك والصناعية والتأمين والاستثمار والخدمات على وجه الخصوص، من أجل تحديد النتائج المختلفة بين هذه القطاعات. تتمثل العوامل الاقتصادية الكلية بخمسة متغيرات هي الناتج المحلي الإجمالي ، الميزان التجاري، مؤشر أسعار المستهلك ، سعر الصرف ، ومؤشر الانتاج الصناعي . تم الاعتماد في هذه الدراسة على البيانات الشهرية لعوامل الاقتصاد الكلي من الشهر الأول من عام 2011 إلى آخر شهر من عام 2017 لتوضيح اثرها على عائد مؤشر الأسهم من خلال تطبيق نموذج الاقتصاد الكلي القائم على Arbitrage Pricing Theory واختبار هذه المتغيرات بواسطة unit root, correlation coefficient , ordinary least square test بالاضافة الى ARCH/GARCH model ؛ من أجل تقديم توصيات ذات صلة وقيمة للمستثمرين والمنظمات والمحللين الماليين وإعطاء رؤية جديدة حول العلاقة بين عوائد اسواق الأوراق المالية ومتغيرات الاقتصاد الكلي. اظهرت النتائج مؤشر أسعار المستهلك له تأثير سلبي كبيرعلى العائد على المؤشر العام الفلسطيني والعائد على مؤشر قطاع التأمين و قطاع الصناعة وقطاع البنوك، كما أن لسعر الصرف تأثير سلبي كبير على عائد مؤشر قطاع البنوك الفلسطيني بالإضافة إلى إجمالي الناتج المحلي الذي له تأثير سلبي هام العائد على المؤشر العام الفلسطيني والعائد على مؤشر قطاع الخدمات ، ولكن مؤشر الانتاج الصناعي و الميزان التجاري ليس له تأثير جوهري على عائد المؤشر العام الفلسطيني أو عوائد مؤشرات قطاعات الاسهم.

الكلمات المفتاحية: Arbitrage Pricing Theory ، العوامل الاقتصادية الكلية ، عوائد مؤشرات الاسواق المالية ، الاسواق المالية ، فلسطين.

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Introduction

Financial market is the link between individuals and organizations, that stock prices reflect the hopes and fears for thousands of buyers and sellers and formulate their decisions based on their evaluations to many considerations, like macro-economic factors. Many studies have been conducted to determine the relationship between the macroeconomic variable and stock prices, the findings of these studies showed that the macroeconomic factors have an obvious impact on the financial markets (Hunjra et al., 2014). But this impact at the advanced countries differs from that in developing countries, where the political events play the same role in the financial markets (Momani & Alsharari, 2012). To date, however, there is limited researches on how these indicators affect emerging stock markets (Hussainey & Khanh Ngoc, 2009). By concerning with the relationship between macroeconomic indicators and stock market, investors might forecast how financial market changes if domestic indicators fluctuate (Hussainey & Khanh Ngoc, 2009). Just as the market value of a company depends heavily on its current economic situation and future perspectives, the value of all the companies listed on the stock market of a given country will depend on the global economic situation and future perspectives in that country (Peiró, 2016). By reading and understanding of many previous researches, about the factors affect the stock market return, we noted discrepancy in the results of these researches in terms of the impact of economic factors on the stock market return, especially on less developed stock markets. Despite the existence of many studies on the Palestinian Stock Exchange about factors affect the return of stock price index, there is no studies identify the impact of macroeconomic factors on the return of stock price index, neither for the General Index nor for the Palestine Exchange Sectors' Indexes. This motivate us to study the macroeconomic factors namely (a) gross domestic product, (b) balance of trade, (c) consumer price index, (d) exchange rate, and (e) industrial product index effect on the Palestinian Stock

Exchange Return identified by the return of General Price Index and return of Palestine Exchange Sectors' Indexes of Banks, Industry, Insurance, Investment and Services in particular. In order to make relevant and valuable recommendations for investors, organizations, and financial analysts and give new insights about the dependence relationships between stock market return and macroeconomic variables, and have results for each sector for Palestinian market.

Literature Review and Hypotheses Development

There is many studies on economic growth and stock market development, which is increasingly becoming important factor to impact upon economic growth (Sharabati et al., 2013).

2.1 Industrial Product Index

Zhu (2012) studied the impact of macroeconomic factors on return of energy sector in Shanghai stock market, which are inflation rate, money supply, exchange rate, industrial production, bond, exports, imports, foreign reserve and unemployment rate, by applying augmented Dickey-Fuller model and arbitrage pricing theory model the findings reveal that macroeconomic factors have effects on the stock return of energy sector, but regarding the industrial production index, it does not have effect on stock return of energy sector. Besides, Diacogiamnis et al. (2001) provided an empirical examination of a multi-factor model that uses observable macroeconomic variables included two steps: the construction of common factors that contribute to changes in security rates of return and the identification of priced risk premia, the study results indicated a highly correlation with Industrial Production that has a positive and significant sign, and captured the peculiarities of a changing economic environment with risk premia attributed to observable macroeconomic factors. Moreover, Peiró (2016) found that the movements in macroeconomic variables of industrial production and interest rates clearly determine stock returns in the three main European

economies; France, Germany, and the United Kingdom, and stock prices anticipate movements in production one year in advance. In addition to Abbas et al. (2018) study that's GARCH and VAR results reveal that the volatility transmission impact of industrial production on stock market is positive for all G-7 countries except Japan. Furthermore, Zaheer & Rashid (2014) study that aimed to investigate the relationship between index return that used as a dependent variable and the macro-economic factors as independent variables, the cointegration test, ADF and unit root tests have been applied, the regression model used as follows: $KSE_{it} = \alpha + \beta_1 EXR_{it} + \beta_2 INF_{it} + \beta_3 IPI_{it} + \beta_4 M2_{it} + \beta_5 IR_{it} + u_t$ where KSE is the stock market returns of KSE-100 at time t, α is the constant, EXR is the exchange rate, INF is the inflation, IPI is the industrial production, M2 is the money supply, IR is the interest rate, the results concluded that The industrial production is positively related to the stock market returns.

According to these studies the following hypothesis is developed:

H1: There is a statistical positive relationship between Industrial Product Index and the Stock Market Index Return.

2.2 Consumer Prices Index

El-Nader & Alraimony (2012) research aimed to investigate the relationship between the rate of return of the Amman Stock Market index and selected macroeconomic variables, by applying The normality test, unit root tests, OLS, and ARCH /GARCH models that have been utilized, the results confirmed that real money supply, inflation, real exchange rate, change in nominal interest rates, and the Dummy Variable all have a negative role, whereas the increase in the real gross domestic product has a positive role. In addition to Kyereboah-Coleman & Agyire-Tettey (2008) study that aimed to examine how macroeconomic indicators affect the performance of Ghana Stock Exchange by employing unit-root test, Co-integration, and error correction model techniques to ascertain both short and long-run relationships, the researchers found that inflation rate have a

negative effect on stock market performance, but it takes time for the market to react to changes in the inflation rate. Moreover, Gunasekarage et al. (2004) examined the impact of (money supply, the treasury bill rate, the consumer price index, and the exchange rate) as macroeconomic variables on stock market equity values in Sri Lanka, the researchers employed a battery of tests, which include unit roots, co-integration, vector error correction models, impulse response functions and variance decompositions in order to find that the lagged values consumer price index has a significant influence on the stock market. Besides the findings of Issahaku et al. (2013) study that showed a significant long term and short term relationship exists between stock returns and the consumer price index (to represent inflation), thus the researchers explained that the past values of exchange rate, inflation and money supply, help financial analysts in predicting stock returns to make abnormal profit. Furthermore, Rjoub et al. (2009) study results indicated that there is a significant pricing relationship between the Istanbul stock return and the unanticipated inflation. In addition to Barakat et al. (2015) study that aimed to identify the nature of the relationship between macroeconomic variables and the stock market index, taking Interest rate, CPI as proxy for inflation, exchange rate and money supply variables, to reach this objective various econometrics tests carried out, namely unit root test, (ADF) test , Vector Auto Regression (VAR) to select the optimal lag length, co-integration test, and Granger causality test, all the macroeconomic variables used have been found to have a relationship with the stock market either a long run relationship or a causal relation in both Egypt and Tunisia.

According to these studies the following hypothesis is developed:

H2: There is a statistical negative relationship between Consumer Price Index and the Stock Market Index Return.

2.3 Exchange Rate

Issahaku et al. (2013) used unit root test, Vector Error Correction model and Granger Causality tests to establish long-run and short-run relationship between stock performance and macroeconomic variables, the researchers suggested that a causal relationship running from exchange rate to stock returns has been established. Besides Kyereboah-Coleman & Agyire-Tettey (2008) study that found equities on the market were not affected by exchange rate losses, and the investors benefit from exchange-rate losses as a result of domestic currency depreciation. Against Ouma & Muriu (2014) study that investigated the macroeconomic determinants of the stock market returns in Kenya proxied by the returns of the NSE-20 share index, using the Arbitrage Pricing Theory and Capital Asset Pricing Model, then applying the Ordinary Least Square technique, the researchers found that exchange rates is have a negative impact on stock returns. Also the findings of (Gunasekarage et al., 2004; Sindhu et al., 2014) studies that is supported the argument that the lagged values of exchange rate has a significant influence on the stock market. Moreover, the study hypothesis of Dimitrova (2005) claimed that there is a link between the foreign exchange and stock markets, the researcher developed a multivariate simultaneous equation model that allowed to study the relationship in the context of a theoretically sound, structural macroeconomic framework, and asserted that this link is likely negative.

According to these studies the following hypothesis is developed:

H3: There is a statistical negative relationship between Exchange Rate and the Stock Market Index Return.

2.4 Gross Domestic Product

Kibria et al. (2014) research aimed to find out the effect of macroeconomic variables including money supply, discount rate, gross domestic savings, inflation, and GDP per capita on stock returns, to get consistency in the research analysis, accessible Karachi Stock Exchange 100 Index data, and Exchange rate

had been changed into annual records, GDP per capita showed positive effect on KSE 100 index, by applying descriptive statics, Correlation Analysis, Granger causality test and Regression Analysis execute on the data. Moreover the results of Reddy (2012) study showed that reduction in interest and inflation rate resulted in increased stock prices returns, but increased Real Gross Domestic Product has a positive impact on stock prices returns, Stock prices were represented by Stock Market Value Index in the study. Besides, Karunanayake et al. (2012) examined the interplay between stock market returns and GDP growth rates in four Anglo-Saxon economies by using multivariate GARCH model, the results mainly suggested that country specific cross-mean spillovers from GDP growth to stock market returns exist only from the US growth towards its stock market. In addition to Taulbee (1997) results that noted the real GDP is the greatest economic determinant of stock prices, also for the overall US stock market, real GDP had a significant positive influence on the representative stock indices. The same as for Hiang Liow et al. (2006) results that expected property stock excess returns are positively correlated with the conditional variances of GDP growth in Hong Kong and Japan, but negatively correlated in Singapore and UK market.

According to these studies the following hypothesis is developed:

H4: There is a statistical positive relationship between Gross Domestic Product and the Stock Market Index Return.

2.5 Balane of Trade

Bhattacharya & Mookherjee (2001) aimed to determine the lead and lag relationships between the Indian stock market and three key macroeconomic variables (exchange rate, foreign exchange reserves and value of trade balance) relating to the foreign sector in India, by applying the techniques of unit–root tests, cointegration and the long–run Granger non–causality test, the results suggested that there is no causal linkage between stock market and the three key macroeconomic variables. On the other hand, Mehrara (2006) noted that the value

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of trade balance is significant in predicting changes in Iran stock market, the researcher employed the recently developed long–run Granger non–causality test and found that macroeconomic variables have a significant relationship. Moreover, Antonakakis et al. (2015) obtained a time-varying measure of correlation between trade balance and the US stock market based on the dynamic conditional correlation model, the study results fuond significantly positive correlations between 1800 and 1870, while significantly negative thereafter.

According to the previous studies the following hypothesis is developed:

H5: There is a statistical positive relationship between Balane of Trade and the Stock Market Index Return.

Methodology

3.1 Data and sources

In reference to (Issahaku et al., 2013; Hiang Liow et al., 2006; Ouma & Muriu, 2014; Rjoub et al., 2009) studies of economic factors effect that used monthly data, this study will make use of time series monthly data for economic factors. The data was collected from the first month of 2011 to the last month of 2017, thus, making use of 84 data points for regression analysis. There are various sources of data; Dollar to ILS exchange rate data available on the Palestine Monetary Authority Statistics publications. Data of consumer price index, gross domestic product, industrial product index, balance of trade are available on Palestinian Central Bureau of Statistics. The Palestine Exchange General Index and the Palestine Exchange Sectors' Indexes of banks, industry, insurance, investment and services are available on the Palestinian Stock Exchange.

3.2 Variable description

In this study, many variables are used to examine its hypotheses, bellow, these variables are identified

Table (1) illustrates the macroeconomic variables

Independent Variables	Dependent Variables

Independent Variables

- Industrial Product Index (IPI)
- Consumer Price Index (CPI)
- Exchange Rate (ER)
- Gross Domestic Product (GDP)
- Balance of Trade (BT)

Dependent Variables

- Market Index Return

3.2.1 Market Index Return: Since for most of the investors and researchers the return of a stock is more important than the level of its price, index for Palestine stock markets will be used in order to calculate return performances of all shares, by this way investors can have an overall idea about the market (Aga & Kocaman 2006). Moreover, stock markets sectors' indexes return will be used in order to enables investors to make comparisons among the sectors (Aga & Kocaman 2006). The above independent variables will be first test its effect on the return of Market General Index (MIR) then its effect on Sectors' Indexes of Bank Sector (BIR), Industry Sector (IndIR), Insurance Sector (InsIR), Investment Sector (InvIR) and Services Sector (SIR). In order to investigate market index return relation with the economic variables we took the monthly closing value for each index, then following El-Nader & Alraimony (2012) study divided by consumer price index in order to have the real stock market index:

Real Market Index at month t = Index Value $_t$ / CPI$_t$

Then in order to find the market index return we use the following equation:

Market Index Return at month t = Ln (Real Index $_t$ / Real Index $_{t-1}$)

3.2.2 Industrial Product Index

Measuring real output in the manufacturing, mining, electric and gas industries, relative to a base year (Investopedia, 2018). This measure reflects the activities of all the industries in an economy (Hiang Liow et al. 2006). The industrial production though small portion of Gross Domestic Product indicates the real activity in the country (Zaheer & Rashid, 2014). This index consists of

output of the industrial sector of the economy which is one of the most important indexes in any economy that is larger in size and impact on the rest of the indicators (Momani & Alsharari, 2012). The litretur reviwed mainly show a possitive relationship between the indusrial prodution index and stock return mainly the increase in industial production inxes indicate to growth in the economics that push the investors to invest in stock becouse of increace in the confidence in the markets that lead to incraese in prices and return. We found that there's a differnce in the base yaer in the puplications of this factor so we contact Palestinian Central Bureau of Statistics in order to provide us with indutrial production index with the same base year for the period of study and they provided us by e-mail at base year 2011.

3.2.3 Consumer Price Index

This index measured the change over time in the general price level of goods and services that households acquire for the purpose of consumption, with reference to price level (Barnor, 2014). Which is used as a proxy for inflation in the market (Barakat et al., 2015; Barnor, 2014), that is in times of inflation, the cost of living increase and income devoted for consumption purposes, this leads to a reduction in the demand for market instruments which tends to reduce the volume of trading, the outstanding shares may therefore fall as the demand for shares falls (Kyereboah-Coleman & Agyire-Tettey, 2008; Issahaku et al., 2013). This index is available on monthly base at base year 2010 for Palestine market.

3.2.4 Exchange Rate

Is a comparative value of one country's currency towards another country's currency (Shula, 2017). The absence of a Palestinian currency and the use of three different currencies (the New Israeli Sheqel -NIS, the Jordan Dinar - JD and the United States Dollar - USD) lead us to define the exchange rate as the NIS per USD. That is NIS is mainly the most heavily traded currency in Palestine. We took the buying and selling exchange rate monthly period average data, in order

to calculate the average rate between buying and sealing. If there is a fall in the market currency this will likely to affect the economy negatively, a depreciation of the local currency will drive pricing upward which will make it difficult for people to save for investment (Issahaku et al., 2013).

3.2.5 Gross Domestic Product

The fundamental measure for the performance of the economy is the level of gross domestic product, its calculation method in national accounting is defined as the total value of final goods and services produced within a country's borders in a period of time, as a rational stock market investor, the growth in this measure will increase the investors' confidante toward the market and should also increase the level of the stock market because consumers in general have more purchasing power and would likely devote more income toward stock market investing (Reddy, 2012; Taulbee, 1997; Shula, 2017). During periods of high economic growth, there is confidence within the economy and this would stimulate demand for products and services, firms seeking expansion would then require more commercial space, in periods of economic downturn accompanied by high economic volatilities, investors' confidence on the prospect of the economy may be dampened and as a consequence, associated with a lower expected excess returns on investment assets and capital (Hiang Liow et al. 2006). GDP announced on quarterly base, so according to Borjigin et al. (2018) we have to convert GDP to a monthly indicator by quadratic match sum, quadratic match sum converts quarterly data to monthly data by quadratic difference method, this performs a proprietary local quadratic interpolation of the low frequency data to fill in the high observations using E-views software. We took the Real GDP at constant prices for Palestine at base year 2015.

3.2.6 Balance of Trade

Is the difference between the monetary value of a nation's exports and imports over a certain period, if a country exports a greater

value than it imports, it has a trade surplus, positive balance, or a "favorable balance", and conversely, if a country imports a greater value than it exports, it has a trade deficit, negative balance, or an "unfavorable balance", a positive balance adds to gross domestic product, while a negative balance subtracts from GDP (wiki, 2018). It's announced on monthly base. So mainly the previous studies illustrate an expected positive relationship with stock return, that any increase in balance of trade will indicate to growth in gross demostic product and improve in the economics and that push the investors to invest in stock becouse of increace in the confidence in the markets that lead to incraese in prices and return but the decrese in it maily effect negativly in stock return.

3.3 Research Model for Macroeconomic Factors

Following the literature reviewed (Chen et al., 1986; Rjoub et al., 2009; Issahaku et al., 2013; Bhattacharya & Mookherjee, 2001; Ouma & Muriu, 2014), based on Asset Pricing Theory the studies postulate the relationship between the performance of the stock market index return and selected macro-economic indicators as a macro-econometric model modified from the version of (Chen et al., 1986; Rjoub et al., 2009; Ouma & Muriu, 2014) models. Thus, specifying the following model to be estimated:

$$MIR_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 IPI_t + \alpha_3 BT_t + \alpha_4 CPI_t + \alpha_5 ER_t + \varepsilon_t$$

Where, MIR - Stock Market Index Return at time t; GDP-Gross Domestic Product; IPI-Industrial Product Index; BT-Balance of Trade; CPI-Consumer Price Index; ER-Exchange Rate; a's are the coefficients of the variables and ε is the error term. The data series of macroeconomic factors are transformed into rates of change following (Zhu, 2012; Ouma & Muriu, 2014) by taking the log differences in each of the series in the form:

Rate of change for macroeconomic variable in time $_t$ =

Ln (macroeconomic variable at time $_t$ /macroeconomic variable at time $_{t-1}$)

In order to generate the unanticipated components, we adopted the convention that time subscripts apply to the end of the period, it is important to mention that data are used in differences for two reasons; first, theoretical model of APT posits that variables should be used in return form, second, economic time series data were assumed to be stationary (Ouma & Muriu, 2014). Thus, following Zhu (2012) model the hereunder model is applied for this study to test the stock return:

$$MIR_t = \alpha_0 + \alpha_1 \Delta LogGDP_t + \alpha_2 \Delta LogIPI_t + \alpha_3 \Delta LogBT_t + \alpha_4 \Delta LogCPI_t + \alpha_5 \Delta LogER_t + \varepsilon_t$$

Estimation procedures:

1. Unit-root test: Many researchers employed unit-root test, that is a test for stationarity, ascertain the variables due to the use of time series data (Kyereboah-Coleman & Agyire-Tettey, 2008). However, time series data can be non-stationary (trended) and this kind of data can be regarded as potentially a major problem for applied econometric studies, it is well known that trends may cause some problems, some authors have suggested a remedy, namely, to difference a series successively until stationarity is achieved (Ouma & Muriu, 2014). The Augmented Dickey-Fuller (ADF) test will be employed (Kyereboah-Coleman & Agyire-Tettey, 2008; Gunasekarage et al., 2004; Issahaku et al., 2013). Mainly this test will be applied on each macroeconomic variable after transformed to rate of change at level to ensure that all of them are stationary and we can proceed with OLS or ARCH/ GARCH estimation models.

2. Correlation Coefficient: Correlation coefficient test applied in order to make sure that there is no high correlation between the independent variable in order to apply the OLS. The correlation coefficient is a statistical measure that calculates the strength of the relationship between the relative movements of the two variables, the range of values for the correlation coefficient bounded by 1.0 on an absolute value basis or between -1.0 to 1.0, if the correlation coefficient is greater

than 1.0 or less than -1.0, the correlation measurement is incorrect. (Investopedia, 2018).

3. Ordinary Least Squares: OLS technique is applied following (Diacogiamnis et al., 2001; Rjoub et al., 2009; Zhu, 2012; Ouma & Muriu, 2014). The least squares method is a form of mathematical regression analysis that finds the line of best fit for a dataset, providing a visual demonstration of the relationship between the data points, each point of data is representative of the relationship between a known independent variable and an unknown dependent variable (Investopedia, 2018).

4. Autoregressive Conditional Heteroskedasticity: Following (Karunanayake et al., 2012; El-Nader & Alraimony, 2012; Abbas et al., 2018; Hiang Liow et al., 2006) studies ARCH model used, financial models such as ARCH (Engle, 1982) have now become widely used in modeling the behavior of financial time series, one of the main advantages of ARCH models is its ability to capture the non-linearity and volatility clustering in stock return data, also ARCH models study the second moment (Conditional and non-conditional) of the time series, and thus allow the variance of a series to depend on the available information set (El-Nader & Alraimony, 2012). ARCH are able to capture volatility clustering and predict the volatility that allows the conditional variance of a time series to change over time as a function of past squared errors by imposing an autoregressive structure on conditional variance and allowing volatility shocks to persist over time, and hence expected equilibrium returns (excess returns) also vary over time (Hiang Liow et al., 2006).

Empirical Results Discussion and Recommendations

4.1 Empirical results for Macroeconomic Factors

In this section we showed the results of macroeconomic factors effect on stock return for Palestinian market, by applying unit root test and correlation

matrix on macroeconomic factors then using OLS in testing the effect on general index return then ARCH model for general index return and every sector's index return in particular. First of all we applying the stationary analysis (Unit root tests) using Augmented Dickey-Fuller Test. The following table illustrate the results of five macroeconomic variables that must be stationary, in order to have the regression test.

Table (2) illustrates the Unit root tests results for Palestine Market

Macroeconomic Factors	ADF test statistic	Critical Value at 1% of significant level	Critical Value at 5% of significant level	Prob.	Stationary
BT	-9.718278	-3.513344	-2.897678	0.0000	Yes
CPI	-7.297659	-3.514426	-2.898145	0.0000	Yes
ER	-10.19766	-3.512290	-2.897223	0.0000	Yes
GDP	-3.446620	-3.522887	-2.901779	0.0124	Yes
IPI	-9.986979	-3.513344	-2.897678	0.0000	Yes

As shown in Table (2) a rejection of the null hypothesis of non-stationary at the 1% level for all macroeconomic variables except GDP that has a rejection of the null hypothesis of non-stationary at the 5% level because of Prob. value is just about 1.2% so we can conclude that all of the macroeconomic series are stationary and can continue to estimate the OLS test or ARCH/GARCH models. Then we applying the correlation analysis in order to make sure that no evidence of autocorrelation.

Table (3) illustrates the correlation tests results for Palestine Market

	BT	CPI	GDP	ER	IPI
BT	1	0.03447899	0.18082049	0.01633554	0.22668331
CPI	0.03447899	1	-0.26549136	0.01354778	0.02851527
GDP	0.18082049	-0.26549136	1	0.03673844	0.23935406
ER	0.01633554	0.01354778	0.03673844	1	-0.00621984

IPI	0.22668331	0.02851527	0.23935406	-0.00621984	1

As indicated in Table 3, all the correlation coefficient values of macroeconomic factors are less than 0.24, which means that there is no problem of Multicollinearity in this study. Now we can proceed with regression model in order to investigate the macroeconomic variable effect on index return, we will start by applying ordinary least squares on the Palestine general index return.

Table (4) illustrates the OLS tests results for Palestinian general index return

Dependent Variable: MIR
Method: Least Squares
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003666	0.002856	1.283437	0.2032
BT	0.013424	0.028572	0.469841	0.6398
CPI	-1.194021	0.496056	-2.407029	0.0185**
ER	-0.262926	0.168078	-1.564312	0.1218
GDP	-0.405713	0.172874	-2.346866	0.0215**
IPI	0.034632	0.034094	1.015760	0.3129

R-squared	0.133809	Mean dependent var	0.001332
Adjusted R-squared	0.077563	S.D. dependent var	0.025943
S.E. of regression	0.024917	Akaike info criterion	-4.477019
Sum squared resid	0.047805	Schwarz criterion	-4.302163
Log likelihood	191.7963	Hannan-Quinn criter.	-4.406771
F-statistic	2.378997	Durbin-Watson stat	1.763228
Prob(F-statistic)	0.046239		

Note: *** P< .01, ** P<.05, * P<.1

In order to check these results and make sure from the estimation method and have reliable results we apply the ARCH/GARCH model too.

Table (5) illustrates the ARCH tests results for Palestinian general index return

Dependent Variable: MIR
Method: ML - ARCH (Marquardt) - Student's t distribution
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	-0.998128	1.015913	-0.982494	0.3259

C	0.024749	0.022614	1.094442	0.2738
BT	0.027093	0.025459	1.064177	0.2872
CPI	-1.167668	0.507441	-2.301091	0.0214**
ER	-0.297790	0.174303	-1.708465	0.0876*
GDP	-0.400011	0.162042	-2.468560	0.0136**
IPI	0.027214	0.032548	0.836124	0.4031

Variance Equation				
C	7.24E-05	8.69E-05	0.833958	0.4043
RESID(-1)^2	0.078440	0.069541	1.127959	0.2593
GARCH(-1)	0.786794	0.196926	3.995373	0.0001

R-squared	0.157641	Mean dependent var	0.001332
Adjusted R-squared	0.091139	S.D. dependent var	0.025943
S.E. of regression	0.024733	Akaike info criterion	-4.542985
Sum squared resid	0.046489	Schwarz criterion	-4.251558
Log likelihood	198.5339	Hannan-Quinn criter.	-4.425906
Durbin-Watson stat	1.769178		

Note: *** P< .01, ** P<.05, * P<.1

Then we apply the ARCH/GARCH model in each sectors index return on Palestine market.

Table (6) illustrates the ARCH tests results for Palestinian bank index return

Dependent Variable: BIR
Method: ML - ARCH (Marquardt) - Student's t distribution
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	1.216789	0.767772	1.584832	0.1130
C	-0.021457	0.016536	-1.297591	0.1944
BT	-0.008234	0.026688	-0.308545	0.7577
CPI	-1.150969	0.473412	-2.431223	0.0150**
ER	-0.409352	0.143367	-2.855281	0.0043***
GDP	0.036843	0.193527	0.190378	0.8490
IPI	-0.035121	0.030933	-1.135412	0.2562

Variance Equation				
C	0.000262	0.000259	1.008662	0.3131
RESID(-1)^2	-0.105468	0.098601	-1.069650	0.2848
GARCH(-1)	0.625658	0.399154	1.567463	0.1170

R-squared	0.176719	Mean dependent var	0.005584
Adjusted R-squared	0.111723	S.D. dependent var	0.025655
S.E. of regression	0.024180	Akaike info criterion	-4.499330
Sum squared resid	0.044434	Schwarz criterion	-4.207903

Log likelihood	196.7222	Hannan-Quinn criter.		-4.382251
Durbin-Watson stat	1.617870			

Table (7) illustrates the ARCH tests results for Palestinian industry index return

Dependent Variable: INDIR
Method: ML - ARCH (Marquardt) - Student's t distribution
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.189848	0.490819	0.386797	0.6989
C	0.001783	0.010901	0.163612	0.8700
BT	0.042798	0.024369	1.756231	0.0790*
CPI	-1.231973	0.453770	-2.714974	0.0066***
ER	-0.153917	0.156715	-0.982148	0.3260
GDP	-0.218961	0.180271	-1.214622	0.2245
IPI	0.014584	0.025870	0.563732	0.5729

Variance Equation				
C	4.98E-05	7.04E-05	0.707890	0.4790
RESID(-1)^2	0.151287	0.188273	0.803553	0.4217
GARCH(-1)	0.746969	0.293135	2.548211	0.0108

R-squared	0.160638	Mean dependent var		0.004185
Adjusted R-squared	0.094372	S.D. dependent var		0.026059
S.E. of regression	0.024799	Akaike info criterion		-4.541278
Sum squared resid	0.046738	Schwarz criterion		-4.249851
Log likelihood	198.4630	Hannan-Quinn criter.		-4.424199
Durbin-Watson stat	1.262592			

Table (8) illustrates the ARCH tests results for Palestinian insurance index return

Dependent Variable: INSIR
Method: ML - ARCH (Marquardt) - Student's t distribution
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	-7.999400	0.010100	-792.0322	0.0000
C	0.209581	3.48E-05	6023.608	0.0000
BT	0.026378	0.022918	1.150963	0.2497
CPI	-1.046725	0.497697	-2.103135	0.0355**
ER	-0.146358	0.176562	-0.828931	0.4071
GDP	-0.142842	0.141614	-1.008676	0.3131
IPI	0.009507	0.034482	0.275719	0.7828

Variance Equation				

C	-3.47E-05	6.85E-05	-0.506456	0.6125
RESID(-1)^2	0.013400	0.015311	0.875205	0.3815
GARCH(-1)	1.040978	0.096311	10.80855	0.0000

R-squared	0.160874	Mean dependent var	0.004459
Adjusted R-squared	0.094627	S.D. dependent var	0.024987
S.E. of regression	0.023776	Akaike info criterion	-4.443564
Sum squared resid	0.042961	Schwarz criterion	-4.152138
Log likelihood	194.4079	Hannan-Quinn criter.	-4.326486
Durbin-Watson stat	1.844254		

Table (9) illustrates the ARCH tests results for Palestinian investment index return

Dependent Variable: INVIR
Method: ML - ARCH (Marquardt) - Student's t distribution
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	-0.963324	1.190317	-0.809300	0.4183
C	0.040373	0.049879	0.809409	0.4183
BT	0.079912	0.051245	1.559425	0.1189
CPI	-1.062693	1.143143	-0.929623	0.3526
ER	-0.613047	0.330907	-1.852626	0.0639*
GDP	-0.308521	0.435853	-0.707856	0.4790
IPI	0.005408	0.068886	0.078500	0.9374

Variance Equation				
C	0.000209	0.000294	0.710697	0.4773
RESID(-1)^2	0.032772	0.027881	1.175411	0.2398
GARCH(-1)	0.843147	0.179308	4.702215	0.0000

R-squared	0.079100	Mean dependent var	0.002352
Adjusted R-squared	0.006397	S.D. dependent var	0.053266
S.E. of regression	0.053095	Akaike info criterion	-3.106733
Sum squared resid	0.214251	Schwarz criterion	-2.815307
Log likelihood	138.9294	Hannan-Quinn criter.	-2.989654
Durbin-Watson stat	1.945344		

Table (10) illustrates the ARCH tests results for Palestinian service index return

Dependent Variable: SIR
Method: ML - ARCH (Marquardt) - Student's t distribution
Sample: 2011M02 2017M12

Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	-1.143176	3.080955	-0.371046	0.7106

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C	0.037120	0.097230	0.381779	0.7026
BT	0.000200	0.035841	0.005589	0.9955
CPI	-1.128181	0.657259	-1.716493	0.0861*
ER	-0.060279	0.241445	-0.249660	0.8029
GDP	-0.579514	0.219560	-2.639438	0.0083***
IPI	0.073035	0.047448	1.539277	0.1237

Variance Equation				
C	0.000105	0.000208	0.503122	0.6149
RESID(-1)^2	0.018422	0.036522	0.504400	0.6140
GARCH(-1)	0.881211	0.202888	4.343344	0.0000

R-squared	0.120888	Mean dependent var	-0.002878
Adjusted R-squared	0.051484	S.D. dependent var	0.035079
S.E. of regression	0.034164	Akaike info criterion	-3.828328
Sum squared resid	0.088707	Schwarz criterion	-3.536902
Log likelihood	168.8756	Hannan-Quinn criter.	-3.711249
Durbin-Watson stat	2.180326		

4.2 Discussion the results of Macroeconomic Factors

Through the statistical results, it was shown (Table 5) that both variables consumer price index and gross domestic product have an impact with statistical significance less than 0.05 on the dependent variable (Palestinian general index return). We can see that value of coefficient for the consumer price index is negative due to that the more increase in the CPI the more decrease of demand on the shares and the Palestinian general index return decreases, there is an adverse relationship. The explanation of this result mainly as follow; that increase in the cost of living make the income devoted for consumption purposes rather than saving or investing in market instruments this lead to decrease on demand on shares and stock index return. This result is consistent with (El-Nader & Alraimony, 2012; Kyereboah-Coleman & Agyire-Tettey, 2008). We can see also that value of coefficient for the gross domestic product is negative due to that the more increase in GDP the more decrease of Palestinian general index return. The reason for this finding is that despite the increase in GDP and growth in the economy, investment is moving towards other sectors or even saving instead of attracting investment in the stock market. The difference in the result of this study

from the previous studies that have been reviewed is mainly due to the fact that the Palestine market is weak form efficiency. Continuing with (table 5) we noted that there is no significant relationship between the balance of trade and Palestinian general index return mainly this is due to the continuing deficit in the Palestinian balance of trade as imports are more than exports, therefore the improvement or not in this factor did not effect on the investors decisions or the demand on shares. This result is consistent with Bhattacharya & Mookherjee (2001). Regarding to industrial production index the results showed that is no significant relationship between the IPI and Palestinian general index return. The main reason for this is the weakness of liquidity in the Palestinian stock market and the weakness of investors' confidence in it, which led to the fact that even the improvement in the macro economy or the decline does not reflect the impact on the Palestinian stock exchange in addition we do not forget to mention the political risk factor that has a big role in that. This result is consistent with Zhu (2012). The final result shown in (table 5) that the exchange rate has an impact with statistical significance less than 0.10 on the dependent variable (Palestinian general index return). But this relationship become more clear in (table 6) that illustrate that the exchange rate has a statistical significance effect less than 0.05 on the Palestinian bank index return. We can see that value of coefficient for the exchange rate is negative due to that the more increase in the ER the more decrease of demand on the shares and the Palestinian bank index return decreases, there is an adverse relationship. We can justify this result by when the exchange rate of the dollar – shekel increase, the value of the money that will be converted from shekels to dollars will be decreased, as the prevailing currency is the shekel, for example; if the per capita annual income 50 thousands shekels, it is equivalent to 14,285 dollars on the exchange rate 3.5, but if the exchange rate increase to 3.7, the dollar value will become 13,513 which is reflected negatively on the demand for shares and the return of stock index. This result is match with (Ouma & Muriu, 2014; Dimitrova, 2005). The remaining results in (table 6) regarding

the Palestinian bank index return is almost match with the results of (table 5) regarding the Palestinian general index return; that the consumer price index have an impact with statistical significance less than 0.05 on the Palestinian bank index return with negative value of coefficient due to the increase in the cost of living that make the income consumption on purposes rather than investing in market instruments. Statistical results shown in (Table 6) that balance of trade, gross domestic product and industrial production index have no significant relationship with Palestinian bank index return due to the weakness of liquidity and investors' confidence with Palestinian stock exchange and the political risk factor. (Table 7) results shown that the consumer price index have an impact with statistical significance less than 0.05 on the Palestinian industry index return with negative value of coefficient. And balance of trade have an impact with statistical significance less than 0.10 on the Palestinian industry index return with positive value of coefficient, that any increase in balance of trade will indicate to growth and improve in the economics and that push the investors to invest in stock that lead to incraese in prices and return. The remaining factors of exchange rate, gross domestic product and industrial production index have no significant relationship with Palestinian industry index return. (Table 8) results shown that the consumer price index have an impact with statistical significance less than 0.05 on the Palestinian insurance index return with negative value of coefficient. The remaining factors of balance of trade, exchange rate, gross domestic product and industrial production index have no significant relationship with Palestinian insurance index return. (Table 9) results shown that the exchange rate have an impact with statistical significance less than 0.10 on the Palestinian investment index return with negative value of coefficient. The remaining factors of balance of trade, consumer price index, gross domestic product and industrial production index have no significant relationship with Palestinian investment index return. (Table 10) results shown that the gross domestic product have an impact with statistical significance less than 0.05 on the Palestinian service index return with

negative value of coefficient. And the consumer price index have an impact with statistical significance less than 0.10 on the Palestinian service index return with negative value of coefficient. The remaining factors of balance of trade, exchange rate and industrial production index have no significant relationship with Palestinian service index return.

Mainly the results shown that the consumer price index has a negative significant effect on Palestinian general index return, insurance index return, industry index return and bank index return, also the exchange rate has a negative significant effect on Palestinian bank index return in addition to gross domestic product that has a negative significant effect on Palestinian general index return and service index return, but the balance of trade and industrial production index has no significant effect on Palestinian general index return or sectors' indices returns.

4.3 Recommendations

Based on these results, it is necessary to note the importance of implementing prudent economic policies because of their impact on the stock markets and investors' decisions, and also to face the challenges that the financial market may face such as working on reducing the inflation rate.

We also recommend studying the impact of macroeconomic factors on the stock returns on a wider scale as a study of the impact of other economic factors such as unemployment rate and interest rates for the Palestine market and other developing markets.

Conclusion

This study aims to investigate the Macroeconomic Factors effect on Palestinian Stock Market Return identified by the return of General Price Index and the return of Palestine Exchange Sectors' Indexes of Banks, Industry, Insurance, Investment and Services in particular; in order to identify different results between these

sectors. The macroeconomic factors represented by five variables that are Gross Domestic Product, Balance of Trade, Consumer Price Index, Exchange Rate, and Industrial Product Index. This study used time series of monthly data for macroeconomic factors from the first month of 2011 to the last month of 2017 to illustrate its impact on stock index return by applying macro-econometric model based on Arbitrage Pricing Theory, and testing these variables with unit root test, correlation coefficient, ordinary least square test and ARCH/GARCH model. The results mainly shown that the consumer price index has a negative significant effect on Palestinian general index return, insurance index return, industry index return and bank index return, also the exchange rate has a negative significant effect on Palestinian bank index return in addition to gross domestic product that has a negative significant effect on Palestinian general index return and service index return, but the balance of trade and industrial production index has no significant effect on Palestinian general index return or sectors' indices returns.

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الاستاذة مي جبارين:

محلل مالي في شركة الاتصالات الفلسطينية منذ عام 2016 , خبرة في مجال اعداد الموازنات و التقارير المالية بالاضافة الى احتساب التكاليف و تسعير الخدمات و اعداد دراسات الجدوى. حاصلة على شهادة البكالوريوس في تخصص المحاسبة عام 2015 من الجامعة العربية الامريكية بترتيب الاولى على الدفعة و معدل تراكمي 3.89/4 , اتمّت متطلبات المواد لنيل درجة الماجستير في تخصص المحاسبة من جامعة النجاح الوطنية و بمرحلة مناقشة الاطروحة بعنوان " اثر العوامل الاقتصادية الكلية و الاحداث السياسية على عائد مؤشر السوق في سوقي فلسطين و عمان للاوراق المالية".

البروفيسور عبد الناصر نور:

حاصل على بكالوريوس محاسبة عام 1988 من جامعة ناكبور/ الهند وحصل على درجة الماجستير عام 1990 من جامعة بونا/ الهند تخصص محاسبة وادارة الاعمال ,كما حصل على درجة الدكتوراة في المحاسبة عام 1996 من جامعة راجستان/ الهند. وتولى مهمة رئاسة وتأسيس قسم المحاسبة في جامعة الاسراء من عام 1996–2005 وكان خلالها قد ترقى الى درجة استاذ مشارك بالمحاسبة وفي عام 2005 , ومن ثم انتقل الى جامعة الشرق الاوسط للدراسات العليا/ الاردن في العام 2005, وتولى عمادة وتأسيس كلية الاعمال للدراسات العليا من عام 2008–2014، وحصل على رتبة الاستاذية عام 2008، وفي عام 2014–2016 تم استقطابه لتأسيس كلية الدراسات العليا في جامعة الزرقاء في الاردن بالاضافة الى مهام موقعه كأستاذ محاسبة والاشراف على طلبة الدراسات العليا في الجامعة، ومن عام 2016–2018 تم استقطابه كعميد في كلية الاعمال في جامعة عمان الاهلية/ الاردن بالاضافة الى تدريسه لمرحلة الماجستير والبكالورويس والاشراف على رسائل الماجستير في المحاسبة. وقام بنشر ما يقارب 63 بحث علمي في مجلات علمية متخصصة مختلفة محكمة اجنبيه وعربية ومحلية وقام بنشر 9 كتب في مجال تخصصه، وقد قام بالاشراف على ما يزيد عن 65 رسالة ماجستير و14 إطروحة دكتوراة، وقام بالمشاركة بالعديد من المؤتمرات المحكمة العربية والاجنبية والمحلية سواء بالمشاركة بالبحث او برئاسة جلسات محاور المؤتمر ، كما تم الاستعانه به كمقيم خارجي لبعض الجامعة العربية في الخليج والوطن العربي بخصوص الجودة، ومحكم ومقيم في العديد من المجلات الاجنبية والعربية ذات تأثير عالي. وتم استقطابه عام 2018 الى جامعة النجاح الوطنية كأستاذ في قسم المحاسبة كلية الاقتصاد والعلوم الاجتماعية.

الدكتور سامح عطعوط:

يحمل شهادة البكالريوس والماجستير والدكتوراة في علم المحاسبة وعمل لاربعة سنوات في الجامعة العربية الامريكية بجنين ومن ثم انتقل الى جامعة النجاح ليعمل رئيسا لقسم الدراسات العليا للعلوم الانسانية لمدة سبعة سنوات وبعدها تسلم عمادة كلية الاقتصاد والعلوم الاجتماعية من العام 2017 وحتى تاريخه ، يعمل مستشارا ماليا لعدة شركات في فلسطين اهمها الشركة العالمية المتحدة للتامين منذ العام 2010 وعمل مستشارا ماليا لشركة ترست للتامين منذ العام 2008 حتى العام 2010 ، عمل على اعداد الدليل الاسترشادي لحوكمة الشركات العائلية في فلسطين بالتعاون مع معهد الحوكمة الوطني في فلسطين واشرف على اكثر من ثلاثين رسالة ماجستير في فلسطين وله عدة ابحاث في مجالات متعددة اهمها حوكمة الشركات والضرائب وتدقيق الحسابات ، شارك بالكثير من المؤتمرات في مجالات متعددة في الاردن والامارات ومصر وهولندا تتعلق بمجال الحوكمة والفساد، ويعمل حاليا باللجنة المكلفة لاعداد كتاب ومرجع بعنوان مكافحة الفساد التحديات والحلول .