THE ROLE OF MACROECONOMIC VARIABLES IN THE STOCK MARKET IN IRAN

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Abstract: Capital and capital markets are important role in any economy. Therefore in this study the role and impact of macro variables in the Iranian stock market is given in. Since the stock market in any country is one of the most important indicators that highlight the economic situation, as important variables in this market analysis is required. In Iran several years ago by the approval and implementation of principle 44 of the constitution of the country's stock market has altered the essential and most state-owned companies were sold. Thus the results of this work can be used for the principle of privatization. Macroeconomic variables used in this work are: inflation, exchange, volume of liquidity in the private sector and index of industrial production. By analyze of variance method, this experimental study actually examines the oscillation in the stock market as oscillations that exist in these four variables between 2007- 2011. Outcome of this analysis shows that the exchange rate and industrial index have more effect on the stock market than inflation and M1.

Key words: exchange rate, financial market, industrial index, inflation, stock market

Introduction

As we know, the term refers to the stock market where shares of firms, types of goods, metals, currencies and also bonds will be supply and exchanged. Stock market growth with economic development, agricultural development and industrialization of countries is involved. In addition, laws and regulations, supervises the activities of the safety stock investment in the stock market increased, and this also increases people's participation in the creation of new industries have been established. The first stock market was founded by multinational company East India in Holland, Amsterdam City. So the company doing the exercise was the first company which he sold stock. The major stock markets around the world call: Wall Street in New York City that was founded in 1792, that the world's largest stock market in terms of value and volume of financial transactions is, stock market in England, London City which was founded in 1801, the stock market in Japan, Tokyo City founded in 1878 and so on. Starting stock market activity in Iran is 1937. This year, a Belgian engineer named Ron Luther Feld with a Dutch expert on the request of the Iranian government, conducted a study on establishing a stock exchange. But in fact the stock market activity began in 1967.

Stock market through savings rate, the rate of change and improve the quality of capital investment affects the economy. The macroeconomic perspective on the

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topic of saving rates, savings due to changes in overall volume; otherwise simply because the stock market development could be substitution of securities rather than bank deposits, and while the overall level of savings has remained unchanged. It cannot be said that such a replacement is completely without effect on economic development. Because the stock market to banks more efficient allocation of resources and is more dynamic. From microeconomic perspective, the stock through influencing how the corporate finance and corporate management quality are considered.

Assessment of macro and micro economic opinions the stock market in Iran shows that, although this market is that the new institutional economics in Iran and its impact on the economy is about 5%, and still has not been in his real position. But this market situation at least shows economic entities. The main purpose of the stock market in Iran are economic agents transpires performance, targeting savings to productive investments, and so preparation resources. In any case the stock market and capital market creates is positive and constructive role in Iran's economy.

Increasing importance of stock market in Iran is not only the relative efficiency reasons but there are other reasons such as government attention stock market as a tool to simplify privatization of state-owned companies, have significant effects on growth and stock market development and so on. From this point of view many economists believe that stock market is an essential instrument for change in the state of Iran. This transformation of state-owned company to private company by stock market can create the necessary resources and lead to structural modification of these companies up to date. Such dependence on the resources of this institution loans decreases and therefore increases the effectiveness managers of these companies. Another important role of stock market in Iran's economy is decreasing negative effects of fiscal policy in currency and credit markets. Otherwise, other economists argue that economic development of country with the credit system reform is more successful. In view of the economic mechanism as intermediate to these two mechanisms are complementary and not substitutes introduced which can overcome some of the economic needs of the country's development path.

So the stock market by attracting stagnant volume of capital increases volume of capital in the community, and interact relation between suppliers and users of capital, and regulate the capital market transactions. Therefore, the prices of shares and securities may be somewhat to reduce price volatility.

Given the stock market above objectives are: increasing incentives for savings and investment at the macroeconomic level, attracting foreign investment, reducing the release of government policies and less important tasks to perform important tasks, economic growth, expand market penetration, market development and economic units of capital, technical and professional prosperity, increase domestic production by accelerating privatization and so on.

All studies done split the effect of macroeconomic variables on stock markets abroad and in Iran highlights the fact that the stock market is important for each

country. In addition understanding of how the stock market is influenced and knowledge relationship between these variables with the stock market can have many benefits for any economy. The importance of this problem lies in knowing the exact macro variables affecting the capital market and taking into account the nature of this relationship, then academics and professionals can understand and anticipate the reaction of stock market much easier.

Literature review

Today, academic studies made about the role and effects of macroeconomic variables in stock market are many. But with all this, studies on this effect are fairly new.

The study done by Pilinkus and Boguslauskas (2009) indicated that macroeconomic variables were significant determinants for stock market prices in Lithuania. They investigated the short-run relationship between stock market prices and macroeconomic variables in Lithuania through an application of the impulse response function. Gross domestic product and money supply had a positive effect on stock market prices while most of the time unemployment rate, exchange rate, and short-term interest rates negatively influenced stock market prices. Hsing (2011) applying the GARCH model, examined the impacts of macroeconomic variables on the stock market in Bulgaria and found that the Bulgarian stock market index was positively associated with real GDP, the M2/GDP ratio and the U.S. stock market index and was negatively influenced by the ratio of the government deficit to GDP, the domestic real interest rate, the BGN/USD exchange rate, the expected inflation rate and the euro area government bond yield. Another study measuring the relationship between macroeconomic variables and stock market performance was done by Elli and Oriwo in Kenya (2012). They investigated the relationship between macroeconomic variables on NSE All share index (NASI) and went further to determine whether changes in macroeconomic variables can be used to predict the future NASI. Three key macroeconomic variables including lending interest rate, inflation rate and 91 day Treasury bill (T bill) rate were examined. Findings of their study indicated that 91 – day T bill rate had a negative relationship with the NASI while inflation had a weak positive relationship with the NASI. Hussin and et al. in (2012) focused on the relationship between the development of Islamic stock market and macroeconomic variables in Malaysia and found that Islamic stock prices are co-integrated with the selected macroeconomic variables in which the stock price is related positively and significantly with Industrial Production Index (IPI) and Consumer Production Index (CPI) variables but related negatively and significantly with Aggregate Money Supply (M3) and MYR variables. Meanwhile, its relation with Islamic Inter Bank Rate (IIR) variables is found negative but insignificant. Babayemi et al. (2013) examined the panel data of seven major African stock markets with a view to investigate the long run relationship between these markets and some vital macroeconomic variables. The result of their study showed that in the long run,

Foreign Direct Investment (FDI) and External Debt exert a positive impact on the African stock markets while negative impact will be recorded for Money supply. Al-Shubiri (2013) investigated the relationship between economic variables and abnormal stock returns by the ASE using data for 50 industrial firms from 2004 to 2012. The study indicates the impotence of the market and the extent of its efficiency as the behavior of the stock returns. However, the newest research about macroeconomic variables and their relationship with stocks market was done by Ouma in (2014), investigating the impact of the macroeconomic variables on stocks returns in Kenya during the period 2003-2013. He found two interesting results. First, all variables are I (0). Second, with the exception of interest rates, there exists a significant relation between stock market returns and macroeconomic variables.

A case studies in Iran

As the results of the study done by Darabi and Ali Farahi (2010) shows, there is no relationship between risk and total return of stocks and macroeconomic variables in the firms accepted in Tehran stock exchange. They investigated the impact of macroeconomic variables on risk and total return of stocks emphasizing the stocks-inflation return model. In their study, they tested the impact of five important macroeconomic variables on risk and total return of stocks of the firms accepted in Tehran stock exchange, in three industries including cement, petro chemistry and automobile in the time interval from 1998 to 2010. The relationship between macroeconomic variables and stock price index in Iran was investigated by Nasrollahi et al. (2011). Using seasonal data, they analyzed the impact of some macroeconomic variables including CPI, exchange rate, housing price index, gold price index and industrial value added on stock index, by self-regression vector model (VAR) and vector error correction model (VECM) during the time period 1990-2005. They concluded that, in the short-term, stocks price index has been affected by its amount during the past periods, exchange rate and industrial value added. However stock's price will be affected by gold price index, housing price index, consumable products and services index, exchange rate and industrial and export value added, in the long-term. Bahar Moghadam and Kavaruei (2012) studied the impact of days and months of the year, macroeconomic variables such as GDP and inflation on stocks return in Tehran stock exchange. They used multivariate regression to find the relationship of macroeconomic variables' effect and t-student test was applied to investigate the seasonal impacts on stocks return. Results showed that the most stocks return was belonged to Wednesdays and the least stocks return was belonged to Sundays. About months of the year the most stocks return was belonged to the first six month and the least stocks return was belonged to the second six month of the year (especially the last month). In addition there were no significant relations between macroeconomic variables and seasonal extraordinary return. Shahabadi et al. (2013) also found that there is no significant impact of macroeconomic variables on systematic risk of Tehran stock

exchange and there is a positive relationship between risk and return during the time period (2001-2009).

Methodology of Research

According to the importance and role of the financial sector in the economy and its impact on other sectors, analyzing factors that influence the financial sector is very important. Therefore data of four important variables in stock market was collected and analyzed. That on the one hand the effect of each variable is analyzed and on the other hand is trying to find ways to control the effects of this variable. Variables taken into account are: exchange rates, inflation, industrial index and M1. To examine the effects of these variables in the stock market we used the method of variance analyses. These four variables are considered independent factor and the stock market is the dependent factor. After examining the effect of each variable and explain their importance we can reach the conclusion that the effect of which variables has greater in the financial sector and what factors have had an influence on these independent factors.

Research Model and Results

The relationship between macro variables of stock market is examined by the analyses variance method. Thus, the effect of each variable on the stock market is analyzed. The inflation effect in the stock market is as table 1, showing the amount co - efficiently, R-square, adjusted R- square and the volume that is estimated standard errors. In analyzing an ideal model, the use of R^2_a adjusted amount of esteem, the higher the coefficient is closer to an analysis model is even better. For inputs of inflation between the years 2007 – 2011this ratio was about 13.5% and this means that the effect of independent variables (inflation) on the dependent variable is very little.

Table 1. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.387	0.149	0.135	3.112

The independent variable is inflation

Given the above we arrive at table 2 using the ANOVA method and show that the meaning of the analysis (sig) is 0/002, this linear relationship is 0/05 and this confirms difficultly, in addition to average sum of squares of errors is more, so consider a ideal model that it is either a minimum amount. This calculation is shown in figure one annex which shows that there is no strong linear relationship between independent and dependent variable.

According to table 2 esteemed the coefficient independent variables (inflation) can be reached esteem linear model for this variable, meaning:

Stock index=9/988+1/118(inflation)

Table 2. Independent variable coefficient (inflation)

	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	β	t	Sig.
inflation	1.118	0.350	0.387	3.193	0.002
(Constant)	9.988	0.637		15.680	0.000

Next we look at the relationship between exchange rates and stock market. Since the coefficient R^2_a is 50/4% of the effect of independent variables (exchange rate) on the dependent variable, so the effect is very limited and in addition the effect of this variable comparative to inflation effect on the dependent variable is more, table 3 confirm this situation.

Table 3. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.716	0.513	0.504	2.356

The independent variable is exchange rate

Using the ANOVA method in table 4 we reach the conclusion that the meaning of analysis (sig) is less than 0/00001, so in the 0/05 we believe that exist joint line and we are estimating a linear function using the coefficient independent variables (exchange rate) in the tables below. This calculation is shown in figure two annex which shows that there is no strong linear relationship between independent and dependent variable.

Table 4. ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	338.544	1	338.544	61.002	0.000
Residual	321.883	58	5.550		
Total	660.427	59			

The independent variable is exchange rate

According to table 5 esteemed the coefficient independent variables (exchange rate) can be reached esteem linear model for this variable, meaning:

Stock index = -37.604+0.005(exchange rate)

Table 5. Independent variable coefficient (exchange rate)

	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	β	t	Sig.
exchange rate	0.005	0.001	0.716	7.810	0.000
(Constant)	-37.604	6.303		-5.966	0.000

Analyzing the relationship between stock market and industrial index in table 6 shows that the coefficient adjusted R^2_a is 99/5% of the industrial index variable effect on the dependent variable, this is an acceptable level.

Table 6. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.998	0.995	0.995	0.228

Also according to table 7 the meaning of analyses (sig) is less than 0/00001, so in the level 0/05 can achieve a linear relationship and this relationship as explanation table 7 is a relationship strong enough compared to the two variables that is, exchange rates and inflation. This calculation is shown in figure three annex which shows that there is strong relation between independent and dependent variable, so all inputs are on the regression line.

Table 7. ANOVA

	Sum of Squares	Df	Means Square	F	Sig.
Regression	657.415	1	657.415	12659.278	0.000
Residual	3.012	58	0.052		
Total	660.427	59			

The independent variable is industrial index

With co-efficient given in table 8 industrial index, we can to reach the estimated linear function as shown.

Table 8. Independent variable coefficient (industrial index)

	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	β	t	Sig.
Industrial index	1.358	0.012	0.998	112.513	0.000
(Constant)	-0.698	0.113		-6.185	0.000

Stock index= - 0/698+1/358(industrial index)

In table 9 we analyze the relationship between the volume of liquidity in the private sector and the stock market. Since adjusted R is 47/5% of M1 affect on the dependent variable, so the effect is very small.

Table 9. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.696	0.484	0.475	2.424

The independent variable is M1

In table 10 ANOVA model using the meaning of analyses (sig) is less than 0/00 001 so in the 0/05 there was a linear relationship, but very weak. This calculation is shown in figure four annex which shows that there is no strong linear relationship between independent and dependent variable.

Table 10. ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	319.515	1	319.515	54.360	0.000
Residual	340.911	58	5.878		
Total	660.427	59			

The independent variable is M1

Stock index = 6/817+ 0/00004588(M1)

According to the independent variable M1 coefficient estimates in table 11 is linear, estimation function as shown.

[t]**Table 11. Independent variable coefficient (M1)**

Table 11. Independent variable coefficient (M1)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	β		
M1	4.588E-5	0.000	0.696	7.373	0.000
(Constant)	6.817	0.716		9.519	0.000

M1 coefficient estimation is β (m1) = 0.00004588

Table 12 examines the effects of four variables on the stock market. Since adjusted coefficient R^2_a is 99/7% so there is a strong linear relationship of all independent variables.

Table 12. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.998[a]	0.997	0.997	0.196724

a. Predictors: (Constant), M1, inflation, industrial index, exchange rate
b. Dependent Variable: stock index

Table 13 show that given that the meaning of analysis (sig) is small as 0/00 001 so, in the 0/05 there was a multiple linear relationship between the four variables. In addition the average sum of squares of errors is small enough so as to estimate co-efficiency table 14 we can all variables in the model.

It should be emphasized that the above model is a model for stock index estimate for dependent variables. From table 14 it appears that the two levels of meaning M1 and inflation in the 0/05 to analyze student - t is large, so their effects on the dependent variable is zero.

Table 13. ANOVA[b]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	658.298	4	164.575	4252.520	0.000[a]
	Residual	2.129	55	0.039		
	Total	660.427	59			

a. Predictors: (Constant), M1, inflation, industrial index and exchange rate
b. Dependent Variable: stock index

Table 14. Coefficients of all independent variables and dependent variable

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	β		
1	(Constant)	-4.465	1.389		-3.215	0.002
	inflation	0.037	0.026	0.013	1.394	0.169
	exchange rate	4.414 E - 4	0.000	0.063	2.771	0.008
	industrial index	1.300	0.017	0.955	75.043	0.000
	M1	-5.845E - 7	0.000	-0.009	-0.399	0.691

a. Dependent Variable: stock index

Inflation ➔ the meaning of analyses (sig) = 0/169>0/05 ➔H_0: β = 0
M1➔ the meaning of analyses (sig) = 0/691>0/05 ➔H_0: β_{M1}= 0
Stock index = -4/465+0/037(inflation) +4/414*10^{-4}(exchange) +1/3(industrial index)-5/845*10^{-7}(M1).

Conclusion

Shareholders accept the investment risk and expected stock returns are looking to maximize their benefits. Therefore identifying the key indicators for the level of expected return on stocks is one of the important issues in modern financial science. Historical time series data to predict future stock returns can also be an important measure for the level of future stock returns. But a more appropriate solution is a large collection of financial factors and dimensions that fully respects the financial condition of organization to cover. Because of their financial assets in the basket of various combinations of cash, shares, bank deposits, bonds, currencies, gold and maintain, therefore changes in the volume of money, exchange rates, inflation and interest rates, demand for those assets held in each of those affects. And this in turn has impact on equities. It is believed that stock prices by some of the fundamental macroeconomic variables such as inflation, exchange rates, interest rates and liquidity, are determined. As results of this paper currency and industrial index have more effect on the stock market than inflation and M1. Thus it is recommended that politicians during the conduct of monetary and fiscal policies at the macro level analyze the effects of these policies on the stock market and other financial markets.

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ROLA ZMIENNYCH MAKROEKONOMICZNYCH NA RYNKU GIEŁDOWYM W IRANIE

Streszczenie: Kapitał i rynki kapitałowe pełnią ważną rolę w każdej gospodarce. Dlatego też w niniejszym badaniu przedstawiona jest rola i wpływ zmiennych makroekonomicznych w irańskim rynku akcji. Ponieważ rynek akcji w każdym kraju jest jednym z najważniejszych wskaźników, które podkreślają sytuację gospodarczą, jako istotne zmienne w tym rynku, analiza jest wymagana. W Iranie kilka lat temu, przez zatwierdzenie i wdrożenie zasady 44 konstytucji kraju, rynek akcji kraju zmienił się istotne i większość przedsiębiorstw państwowych zostało sprzedanych. Tak więc, wyniki tej pracy mogą być wykorzystane do zasady prywatyzacji. Zmienne makroekonomiczne wykorzystane w niniejszej pracy to: inflacja, wymiany, wielkość płynności w sektorze prywatnym, a wskaźnik produkcji przemysłowej. Przez analizę metody wariancji, to eksperymentalne badanie rzeczywiście rozpatruje oscylację na rynku giełdowym jako oscylacje, które występują w tych czterech zmiennych między lata 2007 2011. Wynik tej analizy wskazuje, że kurs walutowy i wskaźnik przemysłowy mają większy wpływ na rynek giełdowy niż inflacja.

宏观经济变量对股票市场的作用在伊朗

摘要:资本市场在任何经济中发挥重要的作用。因此，这项测试是给伊朗的股票市场中的宏观经济变量的影响与作用。因为在任何国家的股票市场是一个最重要的指标，作为有关的变量，在这个市场分析中突出的经济形势是必要的。在伊朗几年前通过批准和执行 44 该国宪法
》，该国的股票市场已更改，绝大多数国有企业已售出。因此，这项工作的结果可用于私营化的原则。在本文中使用的宏观经济变量是：
通货膨胀，交换，在私营部门和工业生产中的流动性的大小。通过方差分析的方法，这项实验的研究其实考虑缓冲区继续对股票市场作为发生在这四个变量之间
2007年至 2011 年的振荡。
關鍵字: 交换率、 金融市场、 工业指数、 通货膨胀和股票市场