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Performances of Stock Market and Economic Growth in Iran

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A B S T R A C T

The main purpose is a causal link between stock market performance and economic growth in the first quarter 1993 to last quarter 2015 timeframe (seasonal data). The Subject the research is the empirical analysis using Granger Causality Test and financial variables used include stock market performance (General Price Index - Return of cash - cash price index yield) and economic variables used have been Growth of gross domestic product - the consumer price index. The main question of the research has been the answer to this question. Performance of the stock market cause to economic growth or the outcome of economic activity has grown. Although many empirical studies on the relationship between financial markets and the economy has been carried out. But most of them are considered the results of banks and credit markets on economic growth. No separate research and deep study of the precise causal relationship between stock market performance of and economic growth in Iran has been performed. Results indicate that the performance of index (total price index, yields, and yield cash price index) is significantly related to stock market and economic growth in Iran. It is therefore concluded that Iran's stock exchange stock price changes reflect economic conditions and therefore can be used to predict the future course of economic growth.

Keywords: General Price Index, Stock Index Yields, Yields Stock Price Index, Growth Index.

INTRODUCTION

The stock market of valuable items is the most important part of the asset market of our country(Mishkin, 2007). The main role of stock market valuable items as a fundamental pillar of asset constitution market is the absorption and direction of society erratic cash toward optimum course, as the primary part of assets would be absorbed by the activities and projects(Schwartz & Francioni, 2004). To achieve the purpose, the stock of valuable items has to be efficient. It can be said that the stock market of some countries will not only influence national economy but also influence the world economy. Therefore, there is a meaningful relationship between stock fluctuations, slump and economic growth(Alfaro, Chanda, Kalemli-Ozcan, & Sayek, 2004).

Achieving an economically permanent and long-term growth needs equipment and allocation of optimum investment resources in national economy and this affair will not be easily

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possible without the help of extensive and efficient financial markets(Sokhanvar & Farman, 2016; Vlastakis & Markellos, 2012). Asset is considered to be one of the main and most important institutions in the growth and development of countries economy, and the source of economic growth and exploit promotion will finally be considered as economic development(Balloch, Nicolae, & Philip, 2014; Kilian & Park, 2009).

By concerning the importance of this project, it can be said that the development acceleration of the stock of valuable items can help improve the economic and non-economic conditions of society through save rate increase, transactions and informational expenditure and the improvement of sources allocation will contribute to the improvement of economic and non-economic conditions. One of the first people who did some research on the relation between financial development and economic growth was Goldsmith. He studied the question whether financial development influences economic growth. Hence, to understand the development of stock market and economic growth better, in this study causative relation between stock market and economic growth will be studied. Therefore, this fundamental research is ready to answer this question: is there a meaningful relationship between the performance of stock market and economic growth? If the answer is yes, how is the relationship?

THEORETICAL PILLARS OF RESEARCH

The theoretical discussion of financial development influence on growth is based on the basis that if financial system can do its major responsibilities regarding information cost reduction, exchanges acceleration, the more precise study of costs, will lead to economic growth(Gehringer, 2014; Obstfeld, 2009). In other words, the effect of financial development on economic growth depends on financial interfaces in assessment and evaluation of economic institute's ability that make innovation. Schumpeter and Opie (1961) states the importance of financial services role in providing invention and consequently economic growth that the development of innovative activities is undertaken by the society, dictates economic growth rate(Motoyama & Danley, 2012; Von Pischke, 2002). Better and more efficient financial services extend the situation of innovative activities and improve its efficiency and as a result accelerate economic growth. The provided financial system to savers, job creators and producers decreases and appears as an obstacle for innovation and in this way the rate of economic growth decreases(Bhole, 2004; Pathak, 2011; Studart, 1995). It was seen in many other researches that financial development was obtained as a result of economic growth (Capasso, 2008; Komal & Abbas, 2015; Omri, Daly, Rault, & Chaibi, 2015; Samargandi, Fidrmuc, & Ghosh, 2015). Massively economic forces influence the share price systematically through their effects on expected cash flow in future. Therefore, the relationship between share price and massively economic variables, have been studied so that massively economic fluctuations are effective in share price through the future cash flows and the rate based on which share interest has been reduced(Olweny & Kimani, 2011).

The above economic growth can provide the necessary request to form and create tools and development conditions of financial markets; and financial markets have to coordinate themselves with request and created changes in different economic parts. That is, they don't motivate the financial system of economic growth, but in the opposite, financial development reacts easily to economic growth(Robinson, 1952).

Levine in his studies in 1977, states the theoretical process of financial development-economic development in a chart(Levine, 1997).

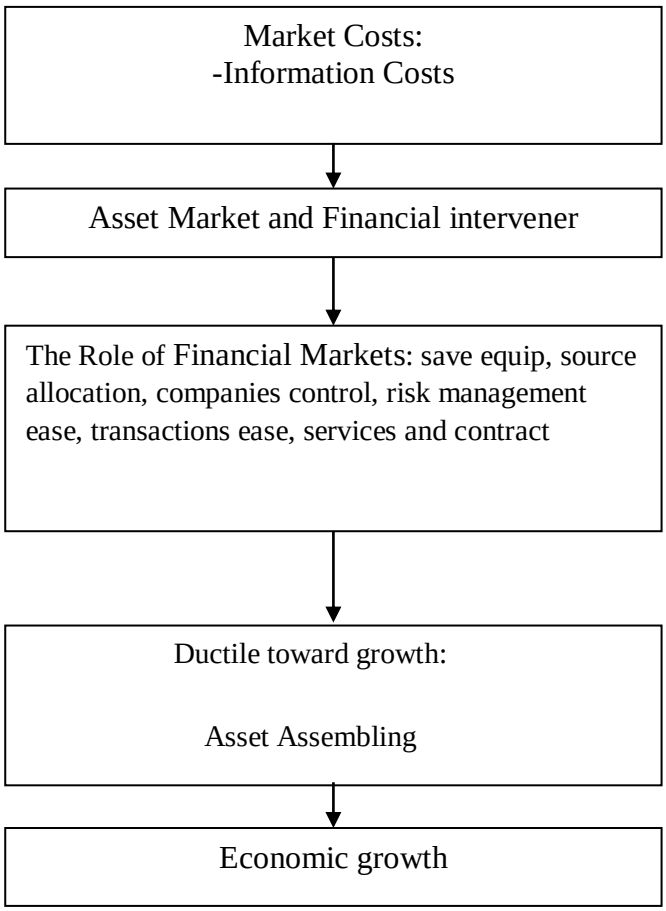


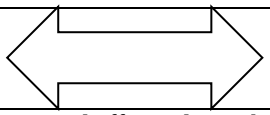
Chart1: The process of financial- economic development

This graph shows that by considering the extensive role of financial market, financial and technical innovations reduce market costs including information and exchanges costs and this action will lead to the improvement in the process of saves equipment, sources allocation and via this way brings about economic growth. The produced changes in technology and financial fields lead to primary changes in different financial markets and tools applied in them. On the other hand, tools development and financial markets need innovation, the change of previous approaches, new approaches design and the alteration of share exchanges styles in financial markets whose result has been speed increase and cost reduction. Therefore, economic society of Iran should enjoy other countries' styles and experience in financial development and finally economic development according to its developmental needs and cultural and economic conditions.

METHODOLOGY

Reviews of causality have been carried out by using Granger Causality Test known and self-regulation based on vector model (VAR). After determination of causality, vector method for show Impulse response functions and forecast error variance analysis is used. And in continue Johansson method for estimating how long-run relationship between stock market performance and economic growth and to estimate the vector error correction term for relationship between stock market performance and economic growth, is used. In this research, total price index, pecuniary yield index, pecuniary yield price index as financial variables with which the performance of stock market is measured.

Table1. Research Conceptional Model

Financial variable (the performance of stock market)	Specifying the type of relation between variables	Economic variable (economic growth)
1- total price index 2- pecuniary yield index 3- price index and pecuniary yield		Inner impure production
	Cause and effect relation between research variables	
Applied economic symbol TPRX, CRI, PICRI		Applied economic symbol: RGDP

Source: Research collection

RESULT

The results of this examination in all cases, the zero hypotheses according to the disperpetuity of studied time-series aren't passed and consequently all variables are in non-durable level. So in next step, durability for the first-order difference of this variable is tested. According to the results of these examinations, the first-order difference of these variables has been durable.

The existing variables in this time series are (1), so Johansson's style which is designed for variables (1) is used. This style concerns examination and the specification of togetherness relations between time series variables, and shows the long-term relations between model variables. With the help of this examination, togetherness relations between model variables can be studied.

Interval Specification

To do Johansson's test first of all optimum interval should be determined whose results were estimated in tables 2 and 3.

Table 2. The result of optimum Interval specification test self- regression with the help of Achaea statistic

Interval	RGDP	TINDEX	CRI	PICRI
0	89	53	52.8	55.9
1	71	40.703	39.5	43.39
2	71.6	42.3	40.6	44.9
3	73.1	40.723	39.6	43.4

Table 3. The result of optimum Interval specification test self-regression with the help of shooartzbizin

Interval	RGDP	TINDEX	CRI	PICRI
0	89.7	54	52.9	56
1	73.3	41	40	44
2	74	42.6	41	45
3	73.5	41.63	40.5	44.3

The Specification of the Number of Co-collective Vectors:

In this stage the number of co-collective vectors according to effect testing and the utmost special amount will be dealt with. The obtained results from the effect testing of utmost special amount are brought in tables 4 through 7 in determining the number of co-collective vectors and as seen a co-collective vector can be written according to effect testing for model variables, and also according to utmost testing of special amount a co-collective vector can be written for variables collection.

Table 4. The results obtained from the specifying test of the number of co-collective vectors for price index PICRI

Hypothesis H_0	The testing of utmost special amount		Effect testing	
	Calculation statistic	Table statistic per level5%	Calculation statistic	Table statistic per level5%
$r = ۰$	36.8	33.6	72.6	70.5
$r \leq ۱$	20.2	27.4	40.8	48.9
$r \leq ۲$	11.75	21.1	15.6	31.5
$r \leq ۳$	2	14.9	3.8	17.9

Source: research findings

Table 5. The results obtained from the specifying test of the number of co-collective vectors for CRI index or pecuniary yielding

Hypothesis H_0	The testing of utmost special amount		Effect testing	
	Calculation statistic	Table statistic per level 5%	Calculation statistic	Table statistic per level 5%
$r = ۰$	275	228	63	62
$r \leq ۱$	173	187	44	56
$r \leq ۲$	149	150	35	50
$r \leq ۳$	113	117	29	44

Table 6. The results obtained from the specifying test of the number of co-collective vectors for TINDEX index and pecuniary yielding

Hypothesis H_0	The testing of utmost special amount		Effect testing	
	Calculation statistic	Table statistic per level 5%	Calculation statistic	Table statistic per level 5%
$r = ۰$	113	117	29	44
$r \leq ۱$	83	88	27	38
$r \leq ۲$	55	63	21	32
$r \leq ۳$	34	42	16	25

Table 7. The results obtained from the specifying test of the number of co-collective vectors for economic growth RGDP

Hypothesis H_0	The testing of utmost special amount		Effect testing	
	Calculation statistic	Table statistic per level 5%	Calculation statistic	Table statistic per level 5%
$r = ۰$	637	374	204	80
$r \leq ۱$	300	322	50	74
$r \leq ۲$	234	273	57	68
$r \leq ۳$	200	228	60	62
$r \leq 4$	173	187	44	56
$r \leq 5$	149	150	35	50

The Estimation of long Term, Co-Collective Vectors

In this stage, Johansson obtained a co-collective vector for variables model which the result of co-collective vectors are given in table 8. To normalize the obtained vectors, the coefficient of variables should be considered as dependent variable and then be divided by the coefficients of other variables which are independent. Therefore, normal vectors can be obtained into each variable whose results are given in table8.

Table8: Normalized co-collective vectors by Johansson's method

Dependent variable	Equation(1)		Equation(2)		Equation(3)		Equation(4)	
Independent variable	PICRI		CRI		TINDEX		RGDP	
	Statistic t	coefficient	statistic t	coefficient	Statistic t	coefficient	Statistic t	coefficient
PICRI	-	-	-	-	-	-	2.3	0.6
TINDEX	-	-	-	-	-	-	5.027	1.7
CRI	-	-	-	-	-	-	4.6	2.1
CPI	-4.34	-.03	-3.097	-0.035	-3.023	-0.009	-0.1	-0.02
RGDP	3.5	0.9	0.33	2.9	4.23	0.3	-	-

- As you see in equations (1), (2), (3), inflation rate has a negative and meaningful relation with stock indexes. So with the increase of inflation, each of stock indexes, namely, total price, pecuniary yield and price index increases.
- In equation (4), stock indexes, namely, total price, pecuniary yield and price index have positive effect on economic growth, that is, with the increase of each stock index, economic growth also increases.
- Considering equation (4), inflation rate on economic growth has a negative effect, that is, as inflation increases, economic growth decreases. According to the obtained results, form the long-term vector which is obtained via Johansson' style, research hypotheses are tested as following.

➢ In equation (1), hypothesis testing, the first research hypothesis is as following:

$$\begin{cases} H0: \text{the coefficient of economic growth in equation}(2) = 0 \\ H1: \text{the coefficient of economic growth in equation } (2) \neq 0 \end{cases}$$

➢

➢ Coefficient ***t*** according to the obtained results from equation (1), statistic amount, the table that equals 2, is greater, ***t*** passes over the statistic amount of RGDP, consequently the opposite hypothesis H0 is accepted and the coefficient of economic growth has a meaningful effect on the index of pecuniary yield, and as coefficient sign is positive, therefore it can be said that economic growth has a meaningful and positive effect on pecuniary yield. The subordinate hypothesis 2 is accepted, namely, economic growth (the growth of internal gross production) influences the performance (the index of pecuniary yield) of stock market positively and meaningfully in Iran.

➢ In the equation (3) of hypothesis testing, the third research hypothesis is as following:

$$H0: \text{the coefficient of economic growth in equation } (3) = 0$$
$$H1: \text{the coefficient of economic growth in equation } (3) \neq 0$$

➢ Coefficient ***t*** according to the obtained results from equation (3), statistic amount of the table which is equal 2, is greater, ***t*** passes over the statistic amount of RGDP, consequently the opposite hypothesis H0 is accepted and the coefficient of economic growth has a meaningful effect on the price index and pecuniary yield. The subordinate hypothesis 3 is accepted, namely, economic growth (the growth of internal gross production) influences the performance (price index and pecuniary yield) of stock market positively and meaningfully in Iran.

$$H0: \text{the coefficient of total price index in equation } (4) = 0$$
$$H1: \text{the coefficient of total price index in equation } (4) \neq 0$$

- Coefficient ***t*** according to the obtained results from equation (4), statistic amount of the table which is equal 2, is greater, PICRI is rejected, consequently the opposite hypothesis H0 is accepted and the coefficient of total price index has a meaningful effect on economic growth. The subordinate hypothesis 4 is accepted, namely, the performance (total price index) of stock market has a positive and meaningful effect on economic growth in Iran.
- In the equation (4) of hypothesis testing, the fifth research hypothesis is as following:

$$H0: \text{the coefficient of pecuniary yield index in equation } (4) = 0$$
$$H1: \text{the coefficient of pecuniary yield index in equation } (4) \neq 0$$

- Coefficient ***t*** according to the obtained results from equation (4), statistic amount of the table which is equal 2, is greater, ***t*** passes statistic amount of TINDEX, consequently the result would be H0, therefore; its opposite hypothesis is accepted, and the coefficient of price index and pecuniary yield has a substantial effect on economic growth, and as the coefficient sign is positive, it can be said that price index and pecuniary yield have a substantial and meaningful effect on economic growth. The subordinate hypothesis 6 is accepted, namely, the performance (price index and pecuniary yield) of stock market has a positive and meaningful effect on economic growth in Iran.

The Estimation of Short-term Relation between variables by Vectorial Error Correction MODEL (ECM)

Providing the existence of co-collection between the assortments of economic variables, vectorial error correction model can be used to correlate the short-term fluctuations of variables to the long-term equilibrium proportion. The estimation results with help of vectorial error correction model are shown in table9.

Table9. The estimation results with help of error correction model

	Equation(1)		Equation(2)		Equation(3)		Equation(4)	
	DPICRI		DCRI		DTINDEX		DRGDP	
	coefficient	Statistic t	coefficient	Statistic t	coefficient	Statistic t	coefficient	Statistic t
Latitude from outset	1.4	0.066	-2.1	0.21	0.085	0.958	0.25	0.699
DPICRI	-	-	-	-	-	-	0.002	5
DTINDEX	-	-	-	-	-	-	0.52	4.79
DCRI	-	-	-	-	-	-	0.2	5
DCPI	-0.6	-5	-0.4	-3	-0.7	-2	-2.5	-3.29
DRGDP	7.9	3.21	0.05	5.4	-0.08	0.002	-	-
ECM(-1)	-0.15	-4.001	-0.2	-4.3	-0.02	-3	-0.019	-4
R2		0.88		0.87		0.85		0.9
D.W		2.9		1.9		2.13		1.89

Source: research findings

CONCLUSION

The obtained conclusion from Johansson's testing is as following:

- Economic growth has a positive and meaningful effect on stock indexes. Therefore, with the increase of economic growth of each of stock indexes; total price, pecuniary yield and price index increase.

- Stock indexes, namely, total price, pecuniary yield and price index have a positive and meaningful effect, that is, as each of stock indexes increases, economic growth rises.

- Inflation rate has a negative effect on economic growth, that is, as inflation increases, economic growth decreases. Inflation rate has a negative and meaningful relation with stock indexes.

Therefore, as inflation rate increases, each of stock indexes such as total price, pecuniary yield and price index increases.

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