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Monetary policies and Its Effect on the Total Stock Price Index of Tehran Stock Exchange by Self-Regression Method

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Abstract:
One of the most important goals of business units is to make a profit and ultimately maximize the wealth of shareholders. In other words, the company's managers are trying to maximize the value and price of the company's shares. Some economists in the capitalist world believe that the primary task of for-profit units is to make a profit by producing the goods demanded by the market, and only in this way can the economic efficiency of society be increased. Accordingly, the primary role of the country's financial system is to facilitate savings and investment in the economic community. The issue of financing is crucial for companies to survive. In this regard, the issuance and sale of bonds and stocks is an important financing tool. The role of the stock exchange as an important part of the capital market for the trading of various types of securities seems to be important and fundamental. For investors and company managers to decide, stock prices determine the financial condition of companies. On the other hand, macroeconomic variables are among the important factors that can affect the stock prices of companies.

Keywords:
Risk Management, Enterprise Resource Planning (ERP), Risk Assessment, FMEA Technique

1. Introduction

One of the most important goals of business units is to make a profit and ultimately maximize the wealth of shareholders. In other words, the company's managers are trying to maximize the value and price of the company's shares. Some economists in the capitalist world believe that the primary task of for-profit units is to make a profit by producing the goods demanded by the market, and only in this way can the economic efficiency of society be increased. Accordingly, the primary role of the

country's financial system is to facilitate savings and investment in the economic community. The issue of financing is crucial for companies to survive. In this regard, the issuance and sale of bonds and stocks is an important financing tool. The role of the stock exchange as an important part of the capital market for the trading of various types of securities seems to be important and fundamental. For investors and company managers to decide, stock prices determine the financial condition of companies. On the other hand, macroeconomic variables are among the important factors that can affect the stock prices of companies.

In this study to investigate the effect of some monetary policy variables such as interest rates, exchange rates, crude oil prices, liquidity and competing assets such as coin prices and housing price index on the total stock price index of companies listed on the Tehran Stock Exchange in the distance from 2001 to 2010, the vector auto regression model has been used monthly.

In this way, after determining the data and converting them into time series in Eviews software, logarithm was taken from them to eliminate the alignment between variables. The mana test was examined and except for the real interest rate, other variables remained in the first order difference. After ensuring the significance of the variables in the first-order difference, the optimal interval was determined. The long-run relationship between the variables was then tested and the Johansen co-integration test was used. The two effect tests and the specific maximum showed the existence of at least one co-vector and the long-run relationship between the variables. Then the VAR model was used to estimate the research model

2. Problem Statement

Achieving long-term and continuous economic growth requires the equipping and optimal allocation of financial resources at the level of the national economy, and this is not easily possible without the help of financial markets, especially large and efficient capital markets. In this regard, the stock exchange as the main pillars of the capital market has an important role in raising capital and transferring it to individuals and units requesting funds. Therefore, the stock exchange mechanism is one of the financing tools for manufacturing companies. Therefore, recognizing the factors affecting the mechanism of this market, such as macroeconomic variables, can play an important role in predicting stock market behavior and therefore the possibility of appropriate policy. The impact of money on the stock index is important from two dimensions. The first is considered as an influential factor in the form of macroeconomic variables and the second as an asset in the portfolio of the investor in the financial market. According to economic theories, the impact of this variable as a macroeconomic variable can affect interest rates and the general level of prices. Thus, increasing the money supply increases the general level of prices, which will lead to an increase in the stock price index. Announcing the expansionary monetary policy in the Iranian economy will create a psychological effect on the formation of inflation expectations, because in inflationary conditions, most of the income of people is allocated to consumption expenditures, which leads to reduced demand for stocks and thus Stock prices fall. At the same time, in the face of inflation, the desire to invest decreases, which can lead to a decline in the stock price index in the stock market. Second, by considering the equilibrium of the money market and looking at the theory of the existence of part of the money supply as an asset in the portfolio, we find a negative relationship between the stock price index and the money supply, so that the investor by creating diversity in combining asset maintenance, it tries to maximize its

return. Therefore, considering the substitution effect of two monetary assets and stocks in the portfolio, if for any reason the demand for money increases, the demand for stocks decreases and decreases with the demand for stocks. Stock prices will fall. This study tries to investigate the effect of monetary policies such as interest rates and money supply, exchange rate, crude oil prices, gold coin prices and housing price index on stock prices using econometric models.

2.1. Subject Definition

The stock price index reflects the general state of the country's economy. Increasing this index generally means prosperity and improvement in economic conditions and reducing it indicates crisis and recession. Calculating the stock price index requires having complete basic information and the latest information on changes in stock prices and their trading volume. Therefore, this index is calculated by the Organization of Stock Exchange Brokers or specialized institutions independent of the stock exchange. Changes in the total stock price index follow changes in the amount of shares traded and their price changes. These changes are due to internal and external factors or internal and external factors. Internal or external factors generally affect the stock price of companies, financial and tax laws, internal political and economic crises, stability or uncertainty the stability of governments, wars and regional or international political threats. According to the issues raised in this study, "the effect of monetary policy on the stock price index in the Tehran Stock Exchange" has been studied.

2.2. Hypotheses

Monetary variables such as interest rates and exchange rates have an inverse effect and liquidity has a direct effect on the stock price index of Tehran Stock Exchange.

2.3. Research Questions

What is the effect of monetary policies on the stock price index in Tehran Stock Exchange?

2.4. Reasons and Importance of Choosing a Topic

The capital market affects the return on the entire economy by influencing financing and investment processes in all industrial, agricultural and service sectors. If the capital market acts badly, all sectors will be affected and their movement will be disrupted. Organized capital markets, by enabling the trading of medium and long-term securities of companies, institutions and economic institutions, on the one hand provide the necessary facilities and financial resources to their applicants and on the other hand provide a good return for the providers of these Provide resources. In fact, it can be said that the existence of the stock market is one of the important and vital necessities for economic success in any country. The stock exchange leaves undeniable effects by concentrating capital and their optimal allocation, in order to increase production and socio-economic development goals. Given that the capital market plays an important role in the efficient allocation of capital funds, to boost the economy of countries such as Iran, which on the one hand is faced with a huge amount of stray capital and on the other hand with a lack of investment resources, Factors affecting the behavior of stock index is a positive step in the direction of capital in Iran. Therefore, this study intends to examine the effect of monetary policy

on the stock price index to determine the extent to which the application of monetary policy is effective in stock price fluctuations.

2.5. Variables

In this study, the variables used are as follows:

A - Dependent variable: stock price index (ps)

The weighted average is the stock price of investing companies listed on the Tehran Stock Exchange.

B - Independent variables:

Liquidity (M)

Liquidity in the country's economy means the total amount of banknotes and coins in the hands of the people and their sight and non-sight deposits with banks.

Crude oil price

Crude oil refers to the price of oil per barrel in dollars extracted from the OPEC website.

Interest rate (I)

In this study, interest rate refers to five-year long-term deposits with state-owned banks.

Exchange rate (exc)

The exchange rate means the exchange rate of the dollar against the Rial in the informal market.

Housing price index (maskan)

The rental housing index in urban areas of the whole country is considered as an index of competing housing prices and assets against stock market fluctuations.

Gold coin

The meaning of gold coins is the price of coins for the whole spring of the new design.

2.6. Research Goal

The purpose of this study is to investigate the effect of monetary variables such as liquidity volume, interest rate, exchange rate and crude oil price and competing financial assets such as coin price and housing price index on the price index of Tehran Stock Exchange.

2.7. Research Methods

In this study, according to the theoretical foundations of the present research, the model is selected and according to the studies conducted in the literature on the specific subject of this research, the final model is determined and the basis of the work. This has been done by searching the literature and theoretical topics of research, which are available in various domestic and foreign libraries and information sites. Then, the required data are extracted on a monthly basis during the years 2001 to 2010 through the official statistics sources of the country. analyzed.

2.8. Collection Information Methods

The method of collecting information is the library method and the Office of Economic Studies of the Central Bank and the official databases of the country, such as the Central Bank time series database and the OPEC website and the Tehran Stock Exchange.

2.9. Statistical Methods

In this research, the obtained data were processed using software (Excel) and then the software was estimated using Eviews and VAR model and finally the obtained results were analyzed.

2.10. Research Methods

The variables used in this study are the logarithm of the total stock price index of the Tehran Stock Exchange, the logarithm of the crude oil price, the logarithm of the gold coin price, the logarithm of the liquidity volume, the logarithm of the exchange rate, the logarithm of the housing price index and the real interest rate. Data on interest rates, exchange rates, gold coin prices and liquidity volumes were collected from the Central Bank's Office of Economic Studies and Policy. The price of crude oil is also taken from the OPEC website. The housing price index has been extracted from the Economic Statistics Office of the Central Bank and the total stock price index of the stock exchange market has also been extracted from the website of the Exchange Organization. The period of the present study begins in April 2001 and ends in March 2011. In this research, VAR and co-accumulation methods have been used.

3. A Review of Research History

Abdi Hevelayi et al. [1], studied Predicting Entrepreneurial Marketing through Strategic Planning (Including Case Study).

Haj Abukahaki et al. [2], studied Identification and prioritization of effective indicators on optimal implementation of customer relationship management in the insurance industry(including case study).

Taghipour et al. [3], studied Risk analysis in the management of urban construction projects from the perspective of the employer and the contractor.

Rezvani Befrouei MA et al. [4], discussed Identification and Management of Risks in Construction Projects.

Alamdar khoolaki et al. [5], studied Effect of integrated marketing communication on brand value with the role of agency's reputation .

Taghipour et al. [6], studied Analyzing the Effects of Physical Conditions of the Workplace on Employees Productivity.

Baghipour sarami et al. [7], studied Modeling of Nurses' shift Work schedules According to Ergonomics: A case study in Imam sajjad (As) Hospital of Ramsar.

Taghipour et al. [8], studied Supply Chain Performance Evaluation in IN The IT Industry.

Taghipour et al. [9], studied the Study of the Application of Risk Management in the operation and Maintenance of Power Plant Projects

Mahboobi et al. [10], discussed Assessing Ergonomic Risk Factors Using Combined Data Envelopment Analysis and Conventional Methods for an Auto Parts Manufacturer. occupational injuries are currently a major contributor to job loss around the world.

Taghipour et al. [11], studied Assessment and Analysis of Risk Associated with the Implementation of Enterprise Resource Planning (ERP) Project Using FMEA Technique.

Taghipour et al. [12], studied Construction projects risk management by risk allocation approach using PMBOK standard.

Taghipour et al. [13], studied The Evaluation of the Relationship between Occupational Accidents and Usage of Personal Protective Equipment in an Auto Making Unit.

Taghipour et al. [14], studied Necessity Analysis and Optimization of Implementing Projects with The Integration Approach of Risk Management and Value Engineering.

Taghipour et al. [15], studied Evaluating Project Planning and Control System in Multi-Project Organizations under Fuzzy Data Approach Considering Resource Constraints.

Taghipour et al. [16], studied Implementation of Software-Efficient DES Algorithm.

Taghipour et al. [17], studied Risk assessment and analysis of the state DAM construction projects using FMEA technique.

Taghipour et al. [18], studied the impact of ICT on knowledge sharing obstacles in knowledge management process.

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Taghipour et al. [20], studied Evaluation of the effective variables of the value engineering in services.

Khalilpour et al. [21], studied The Impact of Accountants Ethical Approaches on the Disclosure Quality of Corporate Social Responsibility Information an Islamic in Iran.

Taghipour et al. [22], studied Identification and Modeling of Radio Wave Propagation Channel in Industrial Environments.

Taghipour et al. [23], studied Evaluating CCPM method versus CPM in multiple petrochemical projects.

Soleymanpour et al. [24], studied Mathematical modeling for the location-allocation problem allocation of mobile operator subscribers' affairs' agencies under uncertainty conditions.

Taghipour et al. [25], studied Application of Cloud Computing in System Management in Order to Control the Process.

Taghipour et al. [26], studied Evaluation of Tourist Attractions in Borujerd County with Emphasis on Development of New Markets by Using Topsis Model.

Abdollahzadeh & Taghipour [27], studied Identify and Priories Suitable Area for Ecotourism Development using Multi-Criteria Analysis for Development of the Tourism Market in Iran (Nathanz City).

Mirzaie et al. [28], studied The Relationship Between Social Bearing Capacities with Conflict as a Result, in the Perception of the Visiting Historical Sites.

Abdi et al. [29], studied the relationship between strategic planning with entrepreneurial marketing in the saderat bank of north tehran.

Abbasi & Taghipour, [30], studied An Ant Colony Algorithm for Solving Bi-Criteria Network Flow Problems in Dynamic Networks.

Sedaghatmanesh & Taghipour [31], studied Reduction of Losses and Capacity Release of Distribution System by Distributed Production Systems of Combined Heat and Power by Graph Methods.

Taghipour et al. [32], studied A Survey of BPL Technology and Feasibility of Its Application in Iran (Gilan Province).

Seddigh Marvasti et al. [33], studied Assessing the Effect of FRP System on Compressive and Shear Bending Strength of Concrete Elements.

Jalili et al. [34], studied Utopia is considered to be the physical form of an ideal human society where the goals are met.

Khodakhah Jeddi et al. [35], studied The Analysis of Effect Colour Psychology on Environmental Graphic in Childeren Ward at Medical Centers.

Taghipour et al. [36], studied discussed Insurance Performance Evaluation Using Bsc-Ahp Combined Technique.

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Taghipour et al. [39], studied Investigating the Relationship between Competitive Strategies and Corporates Performance.

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Taghipour & Moosavi. [42], studied A look at Gas Turbine Vibration Condition Monitoring in Region 3 of Gas Transmission Operation.

Taghipour et al. [43], studied The Impact of Working Capital Management on the Performance of Firms Listed in Tehran Stock Exchange (TSE).

Habibie Machiani et al. [44], studied The relationship between social responsibility and brand of companies listed on the Tehran stock exchange.

Asadifard et al. [45], studied A Multi-Objective Mathematical Model for Vehicle Routing Problem Considering the Time Window and Economic and Environmental Objectives Using the Metaheuristic Algorithm Based on Pareto Archive.

Taghipour and Azarian. [46], studied The Impact of Extensive Quality Management on Human Relations (Case Study: Education).

Taghipour and Vaezi. [47], studied Safe Power Outlet.

Taghvaee yazdi et al. [48], studied The Impact of Intellectual Capital on Organizational Entrepreneurship (Case Study: Mazandaran Science and Technology Park)

Azarian and Taghipour. [49], studied The Impact of Implementing Inclusive Quality Management on Organizational Trust (Case Study: Education).

Azarian et al. [50], studied The Effect of Implementing Total Quality Management on Job Satisfaction (Including Case-Study)

Ghadamzan Jalali et al. [51], studied Explain the Relationship Between Intellectual Capital, Organizational Learning and Employee Performance of Parsian Bank Branches in Gilan province.

Tarverdizadeh et al. [52], studied Predicting students' academic achievement based on emotional intelligence, personality and demographic characteristics, attitudes toward education and career prospects through the mediation of academic resilience.

Taghvaee yazdi et al. [53], studied The Relationship between Implementation Principles of Implementation with Organizational Accelerations, Ethical Leadership and Empowerment of Managers (Case study: Employees of national banks in Sari, District 1)

Habibie Machiyani et al. [54], studied Using Business Intelligence to Provide a Model for Smartening the Management of Iranian Chain Stores.

Habibie Machiyani et al. [55], studied Designing a smart model for managing Iranian chain stores based on business intelligence (case study of proma chain store).

Taghipour et al. [56], studied Investigation of the Effect of Information Technology on Agility Using Fuzzy Method (Including Case Study).

Arsalani et al. [57], studied Investigating the Effect of Social Media Marketing Activities on Brand Awareness.

Mohammadi et al. [58], studied Investigating the role and impact of using ICT tools on evaluating the performance of service organizations.

Changiz Delivand et al. [59], studied Investigating the effective factors in measuring customers' credibility with a combined approach of data mining and multidisciplinary decision making.

Wasti et al. [60], studied Distributed dynamic economic dispatch using alternating direction method of multipliers.

4. Define Self-Regression Vector Method

In the second half of the twentieth century, despite the similarity between the different theories, there were significant differences between them. Economists try to identify patterns and test theories by using macro-structural patterns, which are inferred from the assumptions of each particular theory. The construction of macro-structural models began with the Teen Bergen model in 1939, which was designed to explain the economic fluctuations of the United States during 1919-32. Following his example are Klein (1950) and Klein-Goldberger (1952) as pioneers of large-scale macroeconomic structural models. Safari-Katesari and Zaroudi [61], computed net premium in insurance industry through regression of covariates by considering the

dependency using copula. Moreover, Safari-Katesari and Zaroudi [62], computed life insurance reserves under copula framework. In his article, Macroeconomics and Reality, Sims states: The specification of large macroeconomic models is unrealistic, and in practice and experience, there is no need to impose artificial constraints to identify the equations of a system. With some criticism, Sims proposed a competing method in which a system of equations, including some macro variables, is estimated without using the "theoretical aspect" and used to study macroeconomics. He called this method the vector regression (VAR). The vector regression approach itself has a data orientation. First, the model is specified through the data. So that endogenous variables are expressed in the form of their intervals. Estimation and forecasting are then done using statistical calculations and no special theory is needed at this stage.

4.1. Analytical Pattern

In this research, a vector auto regression model has been selected for analysis, which is the most appropriate model for analyzing the analytical model of the study, because the method is simple, does not involve the researcher in detecting endogenous and exogenous variables. Presented on the basis of VAR models is better than the predictions of simultaneous equations and has the ability to express the dynamic structure of the model and rational expectations in the short term, the ability to remove the constraints and constraints that often accompany economic theories. For these reasons, it is said that the VAR method does not require a clear economic model to estimate the model. The model selected in this study is taken from George Phyllis article and Wang Bang Po and Sharma article which uses VAR and VECM methods to study and calculate the impact of oil price, CPI, industrial production index, exchange rate, interest rate, money supply and GNP has been used on the stock price index. The reason for selecting these articles as a base article was to use variables that are consistent and appropriate to Iran's economic conditions in the model.

The general structure of macroeconomic factors affecting the stock price index is assumed as follows:

L ps=F (I , L coin ,L exc , Lmaskan , Lm ,L oil)

LPs t = c1 + c2 Lpst-i + c3 Loilt-i + c4 Lmaskant-i + c5 LMt-i + c6 Lcoint-i + c7 LExct-i + c8 it + ut

Which in :

PSt-i L = logarithm of stock price index

L OILt_i = crude oil price logarithm

maskant_i L = logarithm of housing price index

Mt_i L = Liquidity volume logarithm

COINt-i L = Logarithm of the price of Azadi spring coin

EXCt-i L = exchange rate logarithm

It = real interest rate

i = number of optimal intervals

t = time period

Ut = disturbing sentence

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C8, C7, C6, C5, C4, C3, C2, C1 = Parameters to be estimated.

Test the correctness of variables

The variables must be checked before estimating the pattern by VAR method. One of the most common methods for performing the correct test is the generalized Dickey-Fuller unit (ADF) root test.

Based on the results of the unit root test (Table 3, Table 4), the null hypothesis that there is a unit root is not rejected and the logarithm of the stock price index remains with one-time differentiation. In Table 1, LPS, LM, LCOIN, LOIL, L EXC, L Maskan, I, respectively, stock price index logarithm, liquidity volume logarithm, Azadi spring coin price logarithm, crude oil price logarithm, exchange rate logarithm, housing price index logarithm in Tehran and real interest rates.

Table 1. *Dicky-Fuller ADF Generalized Root Test.*

Academic status	Critical value at 5%	Test statistics ADF	Variable
Incorrect	-2/28	-1/14	LPS
Incorrect	-2/28	-1/49	LM
Incorrect	-2/28	-0/33	Lcoin
Incorrect	-2/28	-2/73	Loil
Incorrect	-2/28	-0/31	LEXC
Incorrect	-2/28	-1/44	Lmaskan
Right	-2/28	-4/68	I

Table 2. *Generalized Dicky-Fuller unit root test with one-time differentiation.*

Mana status	Critical value at 5%	Test statistics ADF	Variable
Right	-2/88	-6/22	D (LPS)
Right	-2/88	-12/10	D (LM)
Right	-2/88	-9/2	D (L Coin)
Right	-2/88	-7/53	D (LOIL)
Right	-2/88	-8/89	D (LEXC)
Right	-2/88	-7/88	D (Lmaskan)

Source: Research Findings

After ensuring the variability of the variables in the first-order difference of the variables, the optimal pattern interrupt must be determined. There are several criteria for determining the optimal interval, including the Akaik, Hannan Quinn, and

Schwartz criteria. Here Schwartz statistic is used as a criterion for determining the optimal interruption. In this study, the optimal number of interrupts of the model is equal to one. After determining the optimal pattern interval, the existence of a long-run relationship between the model variables should be tested.

4.2. Accumulation

The concept of co-accumulation entered the economic literature in the 1980s. In fact, aggregation is a way to solve the problem of lack of information about series that are anonymous. In this study, the Johansen-Celsius co-integration test was used. The maximum eigenvalue statistic, and the effect statistic, Johansen in different cases in terms of the presence or absence of width from the origin and trend - confirm at least one convergence vector.

Table 3. *Co-integration test Unrestricted Counteraction Rank Test (Trace) and (Maximum Eigenvalue).*

hypothesized	Eigenvalue	Trace statistic	0.05 Critical value	Prob
none	0.35	166.85	150.5	0.004
At most 1	0.29	115.32	117.7	0.07
At most 2	0.21	74.46	88.8	0.34
hypothesized	Eigenvalue	Max-Eigen statistic	0.05 Critical value	Prob
none	0.35	51.53	50.59	0.039
At most 1	0.29	40.85	44.49	0.11
At most 2	0.21	27.73	38.33	0.47

Source: Research data

In the VAR method, the coefficients and the degree of explanation of the model parameters are not as important as single-equation methods. Therefore, in the common analysis of the VAR model, two common tools in this model, which are the analysis of variance of the prediction error and the reaction functions, are of special importance.

4.3. Analysis of Variance of Prediction Error

In the analysis of variance test, the prediction error measures the relative strength of the Granger causal chain or the degree of exogenous variables beyond the sample. Therefore, analysis of variance can be called Granger causality outside the sample. In this method, in fact, the share of each exogenous variable in the shocks entered in the dependent variable is examined.

Table 4. *Analysis of variance (Variance Decomposition of LPS).*

Period	L ps	L oil	L coin	Lm	L maskan	L exc	I
10	60.91	15.22	18.90	0.013	1.44	3.40	0.093
30	26.59	35.89	33.5	1.16	1.096	1.42	0.32
48	23.72	35.9	33.57	2.26	2.54	1.48	0.51

** The time period is selected according to the basic article of this dissertation.*

Source: Research data

Short term = 10 months, medium term = 30 months, long term = 48 months

As can be seen: in the short term, the explanatory power of the stock price index is the highest during the period. But over time in the medium and then long term, it was

found that the explanatory power of the stock price index has decreased and affects the stock price index by 23.72%. The explanatory power of crude oil prices, gold coin prices, interest rates and liquidity volumes is constantly increasing over the period. The effect of housing prices decreases in the medium term and increases in the long run. The explanatory power of this variable is greater in the long run than in the short and medium term. The explanatory power of the exchange rate in the short term has the highest percentage compared to the next two periods, over time, the impact of the exchange rate on the stock price index decreases. The biggest effect on the fluctuation of the stock price index is the impulse of crude oil price with 35.9%. In the long run, the most effective shocks on stock price index fluctuations are crude oil shock with 35.9%, gold coin price shock with 33.57%, and stock price index shock with 23.72%, respectively. The stock price index is strongly influenced by crude oil shocks and the price of gold coins. The interest rate with 0.51% explanatory power has no effect on the stock price index.

4.4. Instant Reaction Functions

The instantaneous reaction functions show the dynamic behavior of the variables of the system of equations over time during the incoming shocks as much as a standard deviation. What changes occur in the dependent variable of the template. The following are the results of the test of instantaneous reaction functions of variables.

Table 5. *Impulse response function.*

	Response of Lps to shocks from						
	L ps	L oil	LM	L coin	Lmaskan	L Exc	I
Positive	Negative	Positive	Positive	Negative	Negative	Positive	
40 months	60 months	10 months	57 months	17 months	70 months	5 months	

The reaction diagrams can be seen in Table 5.

The stock price index reacts to the 0.05 oil price shock by the 60th month, when it absorbs the shock and reaches equilibrium. In the same way, it shows a positive reaction to its shock (stock price index) until the shock is adjusted in the 40th month. The stock price index reacts to the 0.003 + liquidity volume shocks up to 10 months and reacts to -0.014 after 10 months until it adjusts the shock from the 50th month onwards. The coin price shock causes a reaction of 0.04+ stock price index, which after 57 months, the effect of this shock reaches zero. The stock price index shows a reaction of -0.01% to the shock of the housing price index for up to 17 months, and after this period, it absorbs the shock. Exchange rate shocks for up to 70 months trigger a 0.014 reaction from the stock price index and then absorb it. The real interest rate shock on the stock price index is very small, which is + 0.001 for 5 months and then -0.0000 until it reaches a long-term equilibrium in the 70th month.

The result of VAR self-regression vectoring

After determining the optimal break and the test of persistence and the impact of the stock price index on the shocks, it is time to provide an estimate with the VAR model.

Lps = 1.004 * Lps(-1) - 0.06 * Loil(-1) + 0.15 * Lcoin(-1) - 0.63* Lexc(-1) -

(0.015) (0.026) (0.06) (0.23)

0.45 * Lmaskan(-1) + 0.08 * Lm(-1) + 0.002 * i(-1) + 6.19

(0.004)(0.08) (0.16)

The numbers in parentheses are standard deviations.

a. Every one percent increase in the stock price index increases this index by one percent in the next period.

b. Each one percent increase in crude oil prices reduces the stock price index by 0.06 percent in the next period. The price of crude oil has a negative and significant effect on the stock price index of Tehran Stock Exchange.

Crude oil prices directly and indirectly affect stock market performance, both of which are negative and significant. The direct effect is explained by the fact that the upward movement of oil prices causes uncertainty in the financial market and the demand for stocks decreases, causing the stock price to fall.

Indirect impact: Due to the fact that developing countries are mainly exporters of crude oil and due to the inability and lack of technology to process crude oil, importers of petroleum products and derivatives, Iran is also one of the importers of petroleum products. comes. The increase in the cost of products produced by industrialized countries leads to an increase in the Rial value of imported goods in developing countries. Rising prices of imported raw materials and petroleum products increase the cost of production of products and services of listed companies, thus reducing the level of production, reducing the profitability of companies and causing instability in real cash flow and lower stock prices.

c. The results of model estimation indicate that there is a direct relationship between stock price index and liquidity volume. Theoretically, the effect of money supply on stock prices can be positive or negative. The broad impact of money supply on real economic activity shows a positive relationship, an increase in money supply leads to an increase in the general level of prices in the market, and markets such as land and the stock market are affected and witness an increase. Applicants will be for investment, but if an increase in the money supply causes inflation, in other words, it will affect inflation instability, it will have a negative impact on stock prices.

d. Every one percent increase in the exchange rate reduces the stock price index to -0.63 percent. The exchange rate has a significant negative effect on the stock market price index. In the analysis of the inverse relationship between exchange rate and stock price, it can be said that due to the fact that many economic actors in the country need to import from other countries to supply raw materials, purchase machinery and transfer the required technology, thus facing foreign exchange demand. Therefore, changes in the exchange rate also affect the production process of their company. Increasing the exchange rate increases the price of raw materials and other materials needed by companies, the profit of these companies decreases and as a result, the stock price of these company′ s decreases. We will be companies.

In addition, from the point of view of holding currency as a substitute asset in the portfolio, it can be said that foreign currency can be considered as a substitute asset for other assets such as stocks. An increase in the exchange rate means a devaluation of the national currency, and people may replace foreign currency with other assets, including stocks, for profit. Reducing stock demand and replacing it with foreign currency can lead to lower stock prices, assuming other conditions are stable.

e. The results of model estimation showed that there is a direct relationship between stock price index and interest rate

In the Iranian economy, because bank interest rates are fixed and a regulatory variable, investment usually does not work through interest rates. On the other hand, in countries where there are money markets and securities markets (such as stocks and bonds), many people keep their savings in the form of stocks and bonds because the holding of stocks is profitable and Investment income is generated for investors. In these societies, if the interest rate is at a high level, it will not be profitable to keep money in cash, and the higher the interest rate, the greater the loss, in which case some cash holders will convert part of their cash balance. They will make a profit by buying stocks and investing in the stock market. As a result, demand for stocks increases and eventually the overall price index rises.

f. Every one percent increase in the housing price index reduces the total stock price index by -0.45 percent. The housing price index has a negative and significant effect on the stock market price index of the stock exchange.

Expectations from falling stock prices lead to the outflow of active capital in activities related to the securities market and its movement towards the housing market. Since part of the housing demand is of the capital demand type, the housing market is a substitute for the securities market and other forms of the capital market. Therefore, with the decrease in the rate of return of the stock market and capital markets, the excess liquidity of the society enters the housing sector and the housing price index increases and consequently the stock price index decreases.

Each one percent increase in the price of Bahar Azadi coin will increase the stock price index by 0.15 percent in the next period. The price of gold coins has a positive and significant effect on the stock price index. When the stock market is not going through a favorable period, investors move to other markets, including the coin futures market, due to the drop in the stock market price index. This market becomes an alternative market for investors when the stock market experiences a deep recession. The plan to form a coin futures market in the stock exchange was presented in 1985, and in March 1986, it was approved by the board of directors of the stock exchange organization, after which coin futures trading began on December 26, 1987. From the beginning of this project until January 2011, more than $ 5.4 billion in coin contracts were concluded in the stock exchange. Coin futures are a new type of paper transaction, meaning that the buyer buys only paper and does not receive a coin by paying 10% of the coin value, but it is written on this historical sheet that if the buyer wants He can receive his coin on that date, and if he does not want to receive the coin, he can participate in the supply and demand of coins. Coins in Iran are traded in two forms: coin futures trading on the stock exchange and cash supply in Kargshaei Bank. Today, the coin futures market is a subset of the capital market and the stock price index shows the general trend of capital market movement, thus the market boom Coin futures will return the stock market to a boom and the overall price index will rise. Gold coins play the role of complementary commodity for the stock price index.

4.5. Granger Causality Test

The price of Bahar Azadi coin has a significant and negative effect on interest rates. The amount of liquidity has a positive and significant effect on the price of gold coins. The price of Bahar Azadi coin has a negative and significant effect on the exchange rate. The exchange rate also has a negative effect on the price of gold coins. Interest rates have a positive and significant effect on liquidity and exchange rates and negatively affect housing prices. The price of crude oil has a positive effect on the

housing price index and a negative effect on the interest rate. The amount of liquidity has a negative effect on the exchange rate and a positive effect on the housing price index. The housing price index has a negative effect on the price of gold coins. The stock price index of the Tehran Stock Exchange is strongly influenced by the price of oil and the price of Bahar Azadi coins and the exchange rate and the price of housing.

5. Conclusions

The capital market is considered as one of the most important financial institutions in the economy. This market also plays an important role in the efficient allocation of capital funds, to boost the economy of countries such as Iran, which on the one hand is faced with a huge amount of stray capital and on the other hand with a lack of investment resources. The mechanism of this market can play an important role in predicting the behavior of the stock market and therefore the possibility of appropriate policy. For this purpose, the present study intends to use the autoregressive vector approach to the impact of some monetary policy variables such as interest rates. Examine the housing price index, exchange rate, crude oil price, liquidity and coin price on the total stock price index of companies listed on the Tehran Stock Exchange on a monthly basis from 2001 to 2010.

Using the vector self-regression model, the model was estimated and the prediction error and instantaneous response functions were investigated using two analytical tools. The results of the analysis of variance of the forecast error indicate that the stock price index is mediated by crude oil momentum, gold coin price momentum, exchange rate momentum, housing price momentum and liquidity volume momentum change, but the share of each variable for The change in the stock price index is different, so that the largest share in the change in the stock price index of crude oil is and the lowest share is related to the real interest rate.

The instant reaction test showed that the stock price index reacted negatively to oil price shocks, housing price shocks and exchange rate shocks and reacted positively to gold coin price shocks, liquidity volume and real interest rates.

Regarding the response to the shocks on the stock price index, the stock market index had the highest reaction to the crude oil price, followed by the Bahar Azadi coin price, and the lowest reaction to the real interest rate.

Using the mentioned results, it can be said that the managers and economic politicians of the country should pay special attention to the oil price shock because it has a significant impact on the stock market recession and increase the volume of liquidity and inflation. It is better to adopt an expansionary fiscal policy in the face of this shock in order to be useful in the face of inflationary pressures from the wandering money supply side.

6. Practical Suggestions

One of the most important problems facing the capital market is the lack of a proper legal framework and the need to formulate a comprehensive capital market law. The effort as soon as possible, along with sufficient accuracy and comprehensiveness in drafting this law and its subdivisions, can be effective in solving the problems of this market.

The monopoly of securities transactions in Tehran Stock Exchange and provincial centers and the impossibility of easy access for residents of other regions of the

country to this market has deprived the capital market of most of the country's stagnant financial resources, capital and liquidity. All parts of the country in the form of city stock exchanges, provided the possibility of its development.

In addition to the above factors, we must pay attention to a set of macroeconomic, social, political and cultural factors that have been effective in the lack of development of the capital market. And provided the ground for removing obstacles in these areas.

It is better for Iran's executives to pay special attention to the oil price shock and adopt an expansionary fiscal policy in the face of rising oil prices so that the high crude oil price shock is absorbed in that policy.

7. Suggestions for Future Research

In this study, the five-year long-term bank interest rate has been used as the interest rate. It is suggested that in future research, the consumer price index or one-year bank interest rate be used.

In this research, VAR method, mania and cumulative tests have been used. It is suggested to use Hedrick-Prescott filter in future researches.

In this research, the number of building permits issued in Tehran as a housing index has been used as competing assets of stock price. It is suggested that the price per square meter of land be used in future research.

In this research, the total price index of the dependent variable was considered, it is suggested to use the cash and return index or the index of 50 more active companies in future research.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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