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Effectiveness of monetary and fiscal policies during the recession and economic Prosperity Tehran Stock Exchange (time interval 2006-2012)

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Abstract: Monetary and fiscal policies are among the most important and critical policies that can be run in each economy. The economic set of a country consists of various sections and the way these sections interplay guides the country economic status. Monetary and fiscal policies are also one of the most significant forms of government interference in the macro-level economy of country. When government views the country's economic status as unpleasant, a specific strategy would be taken to improve the status or to reach a pleasant status and the specified target. In economic texts, it has also been explicitly explained that the impact of monetary policies, whether expansionary or contractionary, might affect the country economy and market instantly. Given the importance of the impact of government monetary and fiscal policies on stock exchange performance and, as a result, on the country economy, the present study aimed at investigating the influence of monetary and fiscal policies, during the economic recession and boom, on Tehran stock exchange activity (within time period of 2006-2012) by using an ecometric approach. To achieve that, the impact of variables such as amount of money and foreign exchange fluctuations in free market as monetary policies and also the effect of government costs as one of fiscal policy tools on the performance of stock exchange was taken into consideration. The results of pattern estimation revealed that amount of money or increasing the money supply negatively and meaningfully affects the stock exchange indices changes. Furthermore, government costs bear no remarkable influence on Tehran stock exchange index. Additionally, the fluctuations of foreign exchange negatively and significantly affect Tehran stock exchange index. Indices influence positively at the time of economic boom and negatively at the time of recession.

Key words: Monetary policies; Fiscal policies; Government costs; Foreign exchange price in free market

1. Introduction

Monetary and fiscal policies has long been among the most paramount macro-level economic tools and knowing about the influence of these variables is an important step in planning and development in national level (Hajian et al., 2007). Making appropriate policies and using suitable tools for removing the lack of balance and creating an economic balance are among the issues that are widely of concern in economy (Kuismanen and Kamppi, 2010).

Monetary policies are in fact a set of decisions made and measures taken by country monetary-related officials in monitoring the supply and demand process of money for affecting the economic activities. Typically, the level of prices, rate of employment, amount of real production, and exports and imports are regarded as the main variables in macro-level economy, which their increase, decrease, or stability are the intended purposes of economic policies, are a part of monetary policies (Nazari and Goharian, 2006). In addition, the fiscal policy is, in essence, a policy in which specific economic goals are achieved by using a set of tools such as changes in governmental costs and taxes (Kuismanen and Kamppi, 2010). Fiscal policy is one of convergent points of policy and economy in that policy plays a significant role in determining the fiscal policies (Faraji, 2005).

In classic economic texts there are different theories about the impact of different costs of government, as fiscal policies, on improvement of development indices. Additionally, there are varying empirical findings on this regard some of which show this fact that government cost bear positive influence on macro-level economy (Kuismanen and Kamppi, 2010). Lack of effect or even trivial effect on development indices has often been justified based on two points: firstly, an increase in government costs leads to replacing them with private section costs which in turn results to a decrease in government costs. Secondly, the lack of positive outcome from government costs is a result of inappropriate governing (Khabiri, 2012). From investors' perspective, government costs might bear positive or negative influence on stock exchange and share prices and because it increases the share interest (Kuismanen and Kamppi, 2010), an increase in the investment interest would lead to a decrease in business and finally the whole economic activities are negatively affected. The impacts of these points

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along with the decrease of properties price, increase of people wealth, an increase in loan costs, and decrease of business interest would inevitably influence fiscal markets.

In this situation, amount of money is an important variable of macro-level economy and also one of main tools of government to control inflation. This point is almost an agreed-upon precept by all economic sections. However, there are long-held differences about the effect of money amount on production and prices. According to moneyterists in such situations, increasing the supply of money would lead to inflation in long run and bears no impact on product growth (Kazerouni and Asghari, 2001).

Stock exchange is among the most important fiscal markets that represent, to some extent, each country economy conditions. Recession and boom of stock exchange will influence not only national economy but also international economy. Moreover, stock exchange is, in fact, a place for collecting savings and liquidity of private section which can be used for developing and finishing important investment projects. In addition, it is a certain reference for stagnant savings investors to invest their money in almost safe areas and sections. It goes without saying that stock exchange recession or boom might be due to varying factors. If it does not have a logical relationship with other sections, there will be some flaws and defects in their performance (Taheri and Sarem Safari, 2011).

Economic conditions are likely to have different impacts on stock exchange performance. For example, in recession cases, it is typically expected that the rate of production and companies benefit and their investment amount decrease. And in reverse, at the time of economic boom it can be expected that these factors increase (Choridia and Shivakumar, 2002). When economy is moving toward recession, several reports about decrease of construction, increase of unemployment, and falling of economic efficiency are published. Now, the question that is commonly raised by investors is that how recession can influence investment, financial systems, and their benefits? When an economy is in its peak level and is progressing at a high speed, employment is also in its maximum rate, the gross domestic production increases as much as possible (meaning that amount of resources waste has substantially decreases), and income level and people purchase power is also increasing (Azarinia, 1999).

Therefore, given the importance of fiscal and monetary policies and their role on Tehran stock exchange during times of economic recession and boom, and also to clarify the interlink of monetary and fiscal policy variables in investment markets, the current paper tries to investigate these variables.

1.1. Economic policy

Economic policy is a part of government policy. It is, in its specific meaning, a totality of economic policies. Taking a more restricted view, it can be taken as application of specific strategies to achieve specific goals. Nowadays, economic science is usually used in two ways: the first way is use, description, explanation, and prediction of the process of production, inflation, and incomes. However, most experts believe that the outcome of the above-mentioned attempts should be observed in the second application of this science that is, improvement in economic activities (Samuelson, 1380, P. 25). In this case, economic policies are put in the area of strategic economy in that economic policies usually involve judgment about values in the sense that it deals with a set of "what should be" and "what should not be" problems. Thus, economic policy is the root of most of arguments and debates about the value of economic policies and economic policy (Tafazzoli, 1999).

Like any other goods, money has also supply and demand and the supply and demand rules apply for money too. Thus, if the value of money is taken as the rate of interest of bank interest rate, it is possible to regard investment as money demand. In this case, there is a reverse relationship between money and interest rate. We can regard saving as money supply and bank interest as money demand that is directly related to interest rate.

1.2. Fiscal policy

Fiscal policy is a policy that tries, by using tools such as changing the government costs and taxes, to achieve economic goals. Monetary policy is, in fact, a policy that aims at reaching intended economic goals by changing and monitoring money amount, changing the level and structure of interest rate, or other conditions of credit giving and financial facilities.

The purpose of fiscal policies in industrial and developed and developing countries is to some extent different. In industrial countries, the above-cited purposes are for removing inflation, recession, and reaching full employment status. However, in developing countries, the main purpose is economic growth, increasing the governmental incomes, and also increasing or decreasing the whole supply.

After the big recession of 1929-1933 in western economy and especially after World War II, full employment has been one of primary goals in societies. As an example, U.S 1946 employment rule obliges the U.S federal government to do its best for creating and maintaining job opportunities, continuous growth, and fixed purchase power for the running money. Our country constitution has also stated in its 43rd principle that one of Islamic Republic of Iran's economic rules is providing and preparing the necessary conditions of work for everyone to reach full employment.

1.3. Monetary policy

Monetary policy is a set of strategies taken by central bank in order to change the money amount

and liquidity to provide a stabilized economic situation. The responsibility of monetary policy decision makings and their enactment is on central bank (Dadgar, 1382, P. 300). Countries' economic policies incorporate different policy makings such as monetary policy, fiscal policy, income policy, commercial policy, and exchange policy. Each of these policies has their own goals so that the society can reach its macro purpose that is growth, development, and social welfare. But because the goals of monetary policies are not in line with those of fiscal and commercial policies, some contradictions and differences arise among different economic goals which practically make it hard to achieve the main macro purpose. Thus, different economic policy makings should be in accord with each other in order to be able to reach the ideal economic condition (Aria, 2006).

1.4. Types of monetary policy

Central banks and monetary-related officials make use of two monetary policies of contractionary and expansionary via different monetary tools to achieve their basic economic goals. In the former, central bank tries to reduce the whole economic demand rate by reducing the money amount through restricting the monetary base or reducing the monetary multiplier index. In the latter, the goal of central bank is increasing the money amount and decreasing the interest rate and finally increasing the whole demand amount in economy (Mojtahed, 325).

1.5. The History of Stock Exchange in Iran

In 1315, two experts (from Belgium and Netherland) travelled to Iran only to examine the legal facilities of establishing stock exchange in Iran. However, the industry and mines chamber, central bank, and commercial ministry studied about the same issue for years and in 1341 after forming a commission the issue became more serious. Finally, in 1345, the rules and regulations of Tehran stock exchange were compiled and then were approved in parliament. Stock exchange is a place to make a contact between suppliers and demanders of investment and increases the amount of investment in society by collecting and using small amounts of investments which in turn reduces the rate of inflation and makes the distribution of wealth more balanced.

Businessmen and industry owners can put the accepted securities in banks and credit institutions as bond and in this way receive their needed credits and regulate the liquidity trend in their agencies (Abdollahzadeh, 2003). Since the government addresses are mainly low-income people, government seems not to pay much attention to stock exchange shareholders in that its purpose is more just distribution of wealth and removing the income gaps rather than wealth production for shareholders.

In Iran, stock exchange is a place for secondary trades on accepted companies. This simple definition indicates that there should already be a specified investment on the intended company or factory (primary market) and then after meeting specific condition it is accepted in stock exchange so that it can be exchanged in the stock exchange (secondary market). If we accept this simple definition for Iran stock exchange, it won't be logical anymore to say that securities stock exchange has a significant role in the economic development of the country, and also in releasing from dependence on oil incomes. In fact, the role of stock exchange is inevitable in gathering stagnant or non-productive liquidity, guiding wandering savings toward investment purposes, formation of fixed investment and providing fiscal resources, productive investments, attracting people's participation in national development, extending public ownership, preventing from capital flight, attracting foreign investments, reducing the pressure of budget deficit, and also assisting in economic growth. It is obvious that when a company has already been established with private or non-private investment and some years have passed from its activity and now its owners want to transfer its ownership, money is, in fact, moved from one side to another side or is moved from the investment company box to another bank or organization box and stock exchange has no role in economic development process (Raei, 2002, P. 16).

The stock exchange of Tehran was set up in 1346. It started its activity on Bahman fifteenth in the same year by doing some trades on the share of mineral and industrial development bank. After that, Pars oil company, government bonds, treasury documents, the bonds of industrial ownership development organization, and also Abbas Abad bonds entered into Tehran stock exchange.

Giving tax exemptions to accepted companies and institutions in stock exchange has had a paramount role in creating motivation for share offering in the stock exchange. During eleven years of the stock exchange before the Islamic revolution, the number of companies, banks, and insurance companies that were accepted in the stock exchange increased from 6 economic agencies (with 6/2 billion Rials of investment) in 1967 to 105 agencies with over 230 billion Rials of investment. Besides, the value of stock exchanges in the stock exchange rose from 15 million Rials in 1967 to more than 150 billion Rials in 1978. In years after the revolution and before the first five-year economic program, remarkable changes were made in the national economy that affected Tehran stock exchange as well. The first event was approving the bill of bank affairs office by the revolution council on Khordad 17th in 1358. According to this rule, the country technical and commercial banks were combined within a framework of 9 banks (6 commercial banks and 3 technical ones). Later on, insurance companies were also combined and were owned by government. In addition, the approval of Iran industries

development and protection rule in Tir, 1979 caused a lot of economic agencies to get out of stock exchange. Their number reduced from 105 economic companies and institutions in 1978 to 56 companies at the end of 1988. It was during these years that stock exchange started its downturn trend and continued till the end of 1988. Since 1368 and within the first five-year economic, social, and cultural program the activity of Tehran stock exchange as a good context for performing the privatization policy was taken into more serious consideration.

2. Research methodology

The research method used in this study can be regarded as an applied one in that its findings can be of use for a wide range of investors, fiscal analysts, government, and also researchers. In addition, it is a descriptive correlation research. In order to gather the required data, the method of library research was used. Besides, for compiling the related research literature the library method was employed in which different books, English and Persian articles, and also internet websites were used.

The study sample was Tehran stock exchange. In order to examine it, the data related to our indices (exchange fluctuations, money amount, and increase in government budget deficit) and also the amount of the stock dealings between 2006 and 2012 were collected seasonally.

In order to examine the research hypotheses and given the nature of the research data that are based on real past information and of time series type, the method of causal comparative was utilized. Moreover, ecometric approach was used for testing the hypotheses. Finally, for calculating the model, first the unit root test was taken for each variable and then after determining the stationary and non-stationary of the time series variables, the resulted pattern was analyzed via OLS method.

3. Results

Table 1: Results of Manavy Tests

P.P. Test			
Result	Sig. Level	Statistic	Variable
non-Stationary	0/99	1/64	Foreign Exchange Rate
Stationary	0/03	-3/71	Foreign Exchange Differential
non-Stationary Stationary	0/99 0/00	1/33 -6/90	Government Cost Government Cost Differential
non-Stationary	0/99	12/9	Money Amount
Stationary	0/03	-3/69	Money Amount Differential
non-Stationary	0/69	-0/69	Stock Index
Stationary	0/01	-4/99	Stock Exchange Differential

All variables were Stationary with only one Differential Measuring

Table 2: Results of Johanson Cointegration Test

Johanson Cointegration Test			
Result	Sig. Level	Statistic TRACE	Hypothesis
Rejected Rejected	0/00 0/0007	109/11 43/59	Lack of long-term relation Existence of at least one relation
Accepted	0/36	8/97	Existence of at most two relation

Based on the given explanations and also given the long-term relationship between the model variables, estimation can be done and its results can be relied upon.

Table 3: The Primary Estimation of Model

Dependent Variable: Stock exchange index			
Significant	T	Index	Variable
Significant	-2/95	-615/98	Intercept
Significant	-25/62	-0/02	Money amount
Non-significant	0/95	0/002	Government cost
Non-significant	0/86	0/03	Foreign Exchange rate
Significant	68/08	207904/1	Recession and boom

The existence or lack of existence of significant relationship was measured by *T* statistic whose formula is as follows (for a putative index like: β

$$T=\frac{\beta}{SE(\beta)}$$

It means that the obtained index is divided by standard deviation so that T is resulted. According to the definition in statistics science and statistical distribution:

- If the absolute value T is bigger than 2, the intended variable has a significant impact on the model dependent variable.

Table 4: Statistical Tests

Result	Obtained Figure	Statistical Distribution	Test Name
Lack of normal distribution	57/20	Chi-square	J.B. Normality
Existence of autocorrelation	2/229	F	Autocorrelation
Approval of Homoscedasticity	0/35	F	Heteroscedasticity

J. B. Normality test has been shown in the following graph.

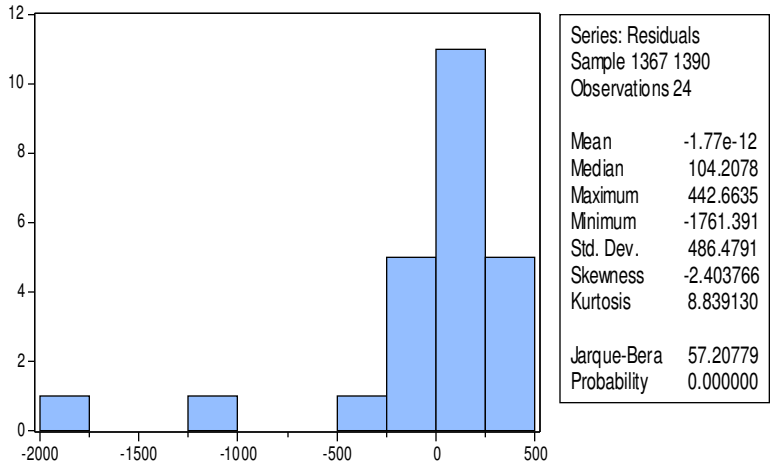

Fig. 1: J.B. Normality

The model was successful only in the heteroscedasticity test and the existence of autocorrelation in the model caused a set of statistical problems. To remove this autocorrelation, first the type of autocorrelation should be determined.

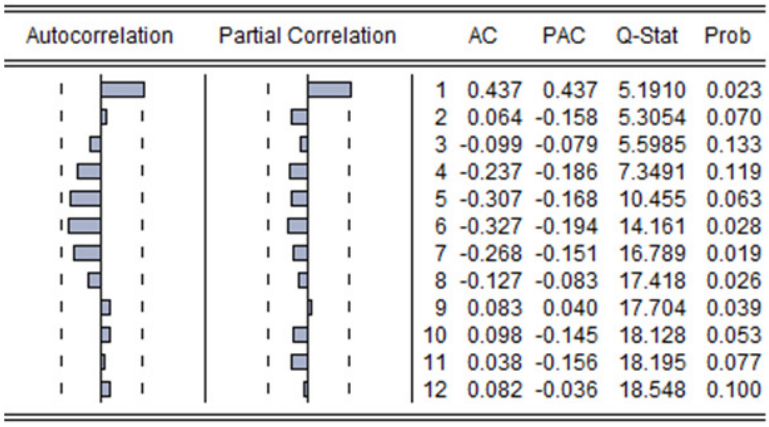

Fig. 2: Ngar Autocorrelation

Given the descending nature of the autocorrelation column, the existence of AR can be inferred. Thus, the calculation should be done again with considering the autocorrelation in the model. In terms of the explanations about the estimation of the minimum of OLS for an appropriate estimation it is necessary to consider the residual sentence of the model. If it has not a clear form, the model can be trusted. The following figure represents the regression model residual sentence.

Table 5: The final Estimation of Model

Dependent Variable: Stock exchange index			
Significant	T statistic	Index	Variable
Significant	-1/98	—643/50	Intercept
Significant	-23/87	-0/02	Money amount
Non-Significant	0/73	0/001	Government cost
Non-Significant	0/64	0/03	Foreign Exchange rate
Significant	65/27	207589/5	Recession and boom
Significant	2/93	0/44	Autoregression

Table 6: Important Features of Estimation

Result	Figure	Feature
Enough explanation and 99 percent of foreign exchange rate by the model variables	0/99	Coefficient of Determination
Correction of model specification	15086/13	F
Lack of autocorrelation	1/89	Watson Camera

As it is clear from the graph, there is no clear form in the residuals. Therefore, the model can be completely relied upon. The effect of intended variables in this study is summarized in the following table.

Now to examine the actuality degree of the model and also the accuracy extent in the price determination of foreign exchange by the model variables, we can compare the fit model of foreign exchange rate with the real foreign exchange rate.

As the diagram shows, the two graphs completely converge and show a precision of 99 percent.

4. Discussion and Conclusion

Results of the first hypothesis analysis: If the amount of money or increasing the money supply has a positive impact on the stock exchange index? Based on the results of the current research study, it can be reported that amount of money or an increase in money supply has positively affected the stock exchange index. It means that as the amount of money increases, the stock exchange index is positively influenced and decreasing or increasing the amount of money will increase or decrease the stock index. Thus, the effect of money amount on the stock exchange index is negative and significant.

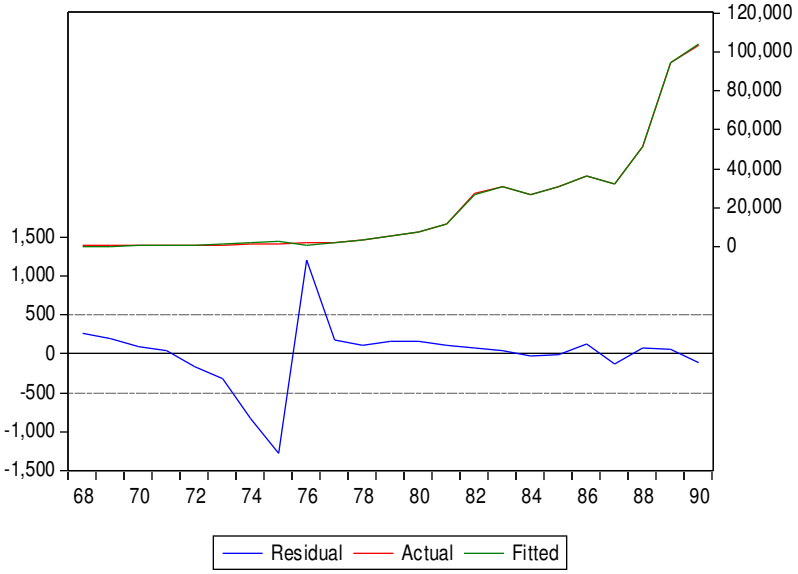

Fig. 3: Residuals Grapg

Table 7: Effect of Model Variables on Stock Index

Significance of Effect	Effect on Stock Index	Variable
Significant	Negative	Money amount
Non-significant	Positive	Government cost
Non-significant	Positive	Foreign exchange rate
Significant	Positive	Recession and boom

Table 8: Results of Research Hypotheses

Result	Hypothesis
No, The impact is negative and significant	If money amount or increasing the money supply has a positive impact on the changes of stock exchange index?
No, The impact is not significant	If an increase or decrease in the government costs has any significant influence on the stock index?
No, The impact is not significant	If fluctuations of foreign exchange bear any positive impact on the stock exchange index?
Yes	If indices have positive effects at the time of boom and negative effects on at the time of recession?

Results the second hypothesis analysis: If increase or decrease in the government costs bears any influence on Tehran stock exchange index? The findings of the study reveal that any decrease or increase in the government costs has no positive and significant effect on Tehran stock exchange index. In other words, government costs do not affect the stock exchange index and with any decrease or increase in these costs no change is made in the stock index.

In the economy of Iran, government has always managed a huge part of economic activities and resources and has indirectly affected the production by direct participation in production or by investment in infrastructures, education, etc. Macro policies have been effective on private section performance. Government has an important role in investment through budget. Therefore, fluctuations in government activities would affect the process of allocating the resources and nominal interest levels, foreign exchange rate, and taxes which in turn influence the country economic-commercial cycle. The present study findings signify that the costs of government do not influence significantly the stock index. Additionally, empirical data also reveal that in Iran economy, lack of fiscal balances in the form of budget deficit and its impacts on the money base resources are among economic problems that have ambivalent influences on economy of the country.

Results of the third hypothesis analysis: If fluctuations of free foreign exchange have any positive effect on the stock index? The study findings indicated that these fluctuations do not have any significant influence on the stock index. In developing countries, the rate of foreign exchange is a basic economic variable. Given that companies and

institutes in these countries usually provide their demands in the form of imports from developed countries, thus, any change in the price of foreign exchange might considerably affects the exchange and liquidation process of debts. Increase in the foreign exchange rate will not only cause an increase in the foreign debts, but also cause an increase in the prime cost of products and imported services by these companies.

Results of the fourth hypothesis analysis: If indices bear a positive impact at the time of boom and a negative impact at the time of recession? The specified variables of this study showed a positive influence at the time of boom and a negative effect at the time of economic recession. Thus, it can be inferred that development of stock market can lead to more growth at the time of boom. The findings also show that all the variables are significant statistically. Furthermore, given the obtained indices for the variables (which were described and explained in the fourth section) and also the results of calculation imply that the variable of money amount (money supply) has a negative reversed relationship with the stock exchange index meaning that an increase or decrease of money amount will lead to a decrease and increase of public tendency to invest in the stock exchange. Finally, government costs have no relationship with the stock exchange index.

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