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The Study of the Relationship Between Stock Price and Monetary Policy Shocks in Companies Listed in Stock Exchange of Tehran

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Abstract: The purpose of this research is to study the relationship between the Stock Price and the monetary policy shocks in Tehran's Stock Exchange. The statistic group in this study is all companies listed on the Tehran. Stock Exchange: 120 companies were selected as statistical samples. The span of this study was from 1389 (2010) to 1393(2014). This study is the applied kind of research. The finding of the study proved that between the volume of money in circulation and the return on price index there is a positive and significant relationship. And between the volume of liquidity and the return on price index there is, also, a positive and significant relationship as well as between the interest rate and the return on price index. The outcomes of the research imply that between the Stock price and the monetary policy shocks in Tehran's Stock Exchange there is a positive and significant relationship. The effect of policy shocks inflicted on the Stock market in Iran is symmetrical. In other words, good and bad news are equally effective on the Stock market. Stock market In Iran can serve as a shield inflammatory.

Key words: Stock price, monetary shocks, price index, statistical samples, stock exchange

INTRODUCTION

Developing an appropriate monetary strategy fitting the economic space in countries like Iran which face various shocks is of great importance. The uses of monetary policy to stabilize the macro-economic leaves in developing countries face many challenges which have not been analyzed in the literature of monetary policy in industrialized countries.

By taking a look at the macro-economic structure of any country and existing markets of any economy, one can find out that one of the most essential markets in any economy is capital markets. Stock exchange market is of the capital market components and as a part of economy complex function (Cooper, 1988). In developing countries the strikes on the economy due to stock market strokes are more effective. That is because fears of the capital value loss and fears of existing economic instability come together. The efficiency of investment risks due to fluctuations in macro-economic variables can affects the investment option (Cooper, 1989).

The first and most important factors affecting the decision making of investors 'in stock exchange is stock price index. Accordingly, knowledge of the factors affecting stock prices is of great importance. There are, normally, many factors affecting information formation and views of the market parties as well as the stock price. Monetary policy including change in money volume, change in money volume growth and interest rate or facilities of finance lending affect the exchange rate.

The aim of monetary policies in industrialized countries and developing countries is, to some extent, different. In industrialized countries the aim is remove inflation and downturn as well as achieving full employment, while in developing countries the aim is to reach economic is growth and increasing government revenues along with total supply (Cooper, 1988).

In any period of the time, specific financial and monetary diplomacy is used, considering the economic condition. That is why the amount of monetary diplomacy effect, regarding monetary means which are used, is different. The point is the effect of monetary policies on other economy components. The stock price is one of the influential centers of monetary policies in economy. In this research, the relationship and amount of effect of monetary policies as well as stock price is studied by using the statistics of periods in 1389-1393 (2010-2014) and applying auto regressive method with distributed lags.

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Table 1: A summary of implemented research background

Researchers	Research title	Results
Noforsati	Effects and direction of monetary and currency policies on real part of Iran's economic	Monetary policy causes increases in currency and decrease in the GDP on the other hand due to applying this policy, nominal money supply develops in foreign assets of central bank, rising prices and recession are expected
Aboonuri and Moshrefi	Long-run relationship between inflation and real exchange rate	Inflation variables, exchange rate and oil price have positive relationship with stock index petrochemical industry
Sarem	Searching better monetary policy and giving direction to inflation in Iran's economy	Better extracted base in the model by using DSGE methods through which the central Bank has to take a proper direction regarding inflation rate, output gap, rate of monetary volume growth and its pauses as its policy means
Dorokas	Meaning different buses in monetary policies	If the exchange passing rate is high, stabilizing the price of non-tradable goods policy is the best policy
Macdonald and Roman	The effect of monetary policies on economic variable by using structural VAR methods	The monetary policy has no relationship with exchange rate in short terms and just in long terms it can be effective. The long- term exchange rate and monetary policy affects exchange rate fluctuation in predicting inflation
Estephan	The relationship between monetary policy changes and impressibility of exchange rate as a result in Canada	There is a negative signification relationship between impressibility of exchange rate and monetary policy
Zaho	Surveying the dynamic relationship between foreign exchange and stock markets in china	Long-term relationship between effective exchange rate and stock price

MATERIALS AND METHODS

Problem statement: Financial markets are of the most essential markets in any country. The condition of these markets affects seriously the real parts of economy and is also seriously affected by other parts, not necessarily in short terms. One of the most important of financial markets in stock exchange. Stock exchange is a formal and organized market for companies 'buying and selling shares under specific regulations. One function of this market is to help price of securities to be fair and to speed up deals (Davis, 1989). In any country the monetary policies are decided and applied as a subset of economic policies to fix the general level of prices, providing economic growth, employment, protecting the valve of national money and establishing balance of payment. For this reason governments, by implementing monetary policies and affecting the process of production and prices, play roles in economy (Davis, 1989).

In general, there are two Keynesian and classical views in monetary policies. According to Keyres and his followers monetary policy doesn't have an effective role in investment and developing economic activities.

This theory says the government's spending and taxes can increase revenue and national production by affecting the total level of demands profoundly and accelerating these demands. According to the views of new classical and the followers of monetary policies. The best way to stand against fluctuation like inflation and recession is the monetary policy. The followers of monetary policy don't believe in financial policy. They reason that if government increases its spending, its means compaction with the private sector to provide finance which brings more profits by offering bonds. The increase of government's demands makes the conditions herder for the private sectors when applying for financial facilities and consequently, drives them away. This is what the monetary policy follower's regard as government investment and they say, in this way, there is no increase in total demands (Ajzen, 1991).

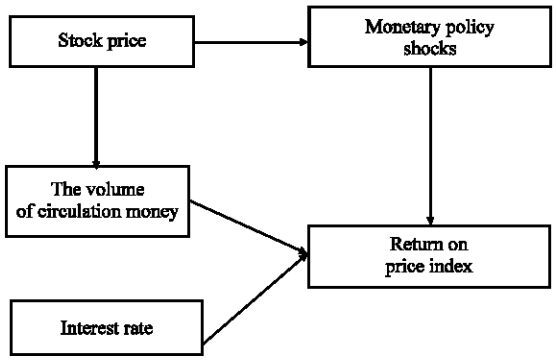

Fig. 1: Variables of research

Recognition of the interaction between Stock price and monetary policy shocks in Iran, is the subject studied in this research (Table 1, Fig. 1).

Research background

Researching methods based on subjects and implementation: This research is regarded as applied research. Research methods based on implementation is descriptive, scrolling and ex-post. The research is quantitative, regarding the kind of data and correlative if the relation hip between the variables is considered.

The society of statistical research and how to choose under study companies for research hypotheses test: The society of statistical research include the companies

Table 2: Panel data unit root test results/y intercept model

Stationary tests with y-intercept								
Test variables	LLc	Prob.	Ips	Prob.	ADF-Fisher	Prob.	Pp-Fisher	Prob.
Variables of the study								
The rate of index price return	-46/367	0./…	-6/670	0./…	289/23	0./..2	336/102	0./…
Stationary level	On surface		On surface		On surface		On surface	
The circulating money volume	-31/323	0./…	-4/350	0./.22	268/413	0./…	314/430	0./…
Stationary level	On surface		On surface		On surface		On surface	
Liquidity volume	-38/851	0./…	-5/950	0./…	281/.2	0./..5	329/87.	0./…
Stationary level	On surface		On surface		On surface		On surface	
Interest rate	-	0./…	-	0./…	241/588	0./…	284/48.	0./…
Stationary	On surface		On surface		On surface		On surface	

which are permitted to Tehran's stock exchange. The time domain of the research consists of a 5 years span, regarding the information close to research time and accessible information.

The statistical sample is selected according to the systematic elimination regarding time and place domain and based on following criteria:

- Their fiscal year is the end of Esfand (March). The companies should not be branches of investment industry, banks or financial intermediary nodes
- The clues related to research variables from companies yearly reports should be accessible
- No detrimental companies
- During the time span of research, the company's trademark should be active

Based on the above criteria, this statistical sample involves research of 127 companies (Table 2).

RESULTS AND DISCUSSION

Based on the results of stationary test in Table 2 the level of confidence is fixed and stationary up to 95: in the following research variables (return on price index, the volume of money circulation, the volume of liquidity and interest rate). In y-intercept model of Lwin, Lin, chew, Philips and pron fisher and in the tests belonging to Eim, Boys and Shin and Dicky Fuller, Fisher's generalizations have been stationary. These results are extracted according to the mentioned person's generalizations and probability level of this statistics (Table 3). As the probability level for this research valuables is zero, there is no need no differencing.

Based on F-Limer test in Table 3 in 6 modals the hyposrssive of zero indicating the pooling of the model (which is the hypnosis of quality of y-intercept for all sections) is rejected and the opposite hypothesis is accepted regarding the face that the p-valve in confidence level is near zero, in other words $p<0.05$. Accordingly for each of the studied company a separate y-intercept must be regarded. And according to the findings of Hasman's test for research hypnoses, as the statistics rate turned out to be 28.985 if a = 0.05. By the way, $p<0.05$ so the hypothesis of zero is rejected. The rejection of zero hypothesis proves that the random effects model is incompatible and fixed effects model must be used (Table 4).

Considering Table 4 in studied companies, in the first model when the variable id dependent (RRI) and the statistics is 2.919 and the probability level is 0.003, there is a positive and sensible relationship between the volume of liquidity and return on price index. There for the sensible effect between the two variables is confirmed.
The achieved correlation factor in model 1 shows that the explanatory variable of the model is able to explain 0.877% of the changes in the correlated variable. Regarding the adjusted coefficient of determination 0.845, it gets clear that this coefficient is high which offers the appropriate ability to be explained by the model. The calculated statistics by Watson (D.W = 2.290) implies no auto correlation in the model. And based on the statistics, Fisher's test (27.394 and prob. = 0.000) is valid for total value of regression.

Based on Kav integration test results in Table 5, the existence of long term relationship, in first mode, between independent variables those of return on price index at a level of 5% is accepted.

Considering the fact that the amount of test statistics in the two above cases is more than the critical amount and the level of probability is <5% the zero hypothesis based on lack of integration is rejected and the alternative hypothesis (integration and long term relationship) is accepted (Table 6). These results prove that there is a strong long term relationship between the variables.

Table 3: Lamer and Hasmen's test results

Model	Tests	Lamer test (Panel)	Hasmen test (Fixed effects)
First model (RFI)	Statistical amount	1/328	28/985
	p-values	0./.24	0./…

Model: $ST_{it} = a + NRS_{it}$

Table 4: The results of fixed effects model

Position	Fixed effects model	Factors	Deviation	Statistics	p-values
First model	VMC	0./139	0./.51	2/718	0./…
	VL	0./121	0./.41	2/919	0./..3
	IR	0./6.7	0./.41	14/543	0./…
	C	6/789	0./563	12/.51	0./…

$RPI_{it} = a + VMC_{it} + IR_{it}$: R^2 = 0./877, 0./845; D.W = 2/29.0; F. Fisher = 27/394 (Prob. = 0./…)

Table 5: Kav integration test results

Long term relationship of variables	Test statistics	p-value
First model (dependent variable: RPI)	21/159	0./…

$RPI_{it} = a + VMC_{it} + VL_{it} + Ir_{it}$; research computing

Table 6: The summarized results of independent variables affecting dependent ones

	Dependent variables			
Independent variables	Rate of price index	Study hypothesis	Confirmation or rejection	Sample surface
Circelatiny money value	Significant relationship	Significant relationship between the money circulation and rate of price index	Rejection H_0	Total
Liquidity volume	Positive effect	Significant relationship between liquidity value and rate of index price return	Rejection H_0	Total
Interest rate	Significant relationship	Significant relationship Between the rate of total price index and interest rate	Rejection H_0	Total

$RPI_{it} = 6.789 + 0.139x_1 + 0.121x_2 + 0.607x_3$

CONCLUSION

The effect of policy shocks inflicted on the stock market in Iran is symmetrical. In other words, good news and bad news are affecting stock market equally. Meanwhile, because the relationship between inflation and stock index return is positive, stock market can play a proper role as a bumper inflation in Iran. As the nominal interest rate is fixed and the real interest rate is negative, people in Iran generally tend to buy long lasting goods and show no interest in stock market. By releasing interest rate and giving people knowledge about stock market, it may be possible to promote stock market in Iran. In this way, liquidity and savings can be directed towards projects which are main priorities of the economy, this will lead to growth and development in the economy of the country.

- First hypothesis: there is a positive and significant correlation between the volume of circulating money and the price index rate of return

The findings of the research proves the first hypothesis. Different approaches have different views towards how money volume change affects the real economy variables, goods prices and assets but all these approaches agree upon the fact that change in money volume, in long terms, brings the change of prices and assets about. Kinzins and Poluns don't agree on the fact that when money volume increases, what financial assets people tend to substitute. To Kinzins the return of the entire assets, including stocks, is considered safe and invariant. The mechanism of affecting is so that any increase of money supply through decreasing the interest rate causes increase of financial assets, including stocks, which leads to rising of prices. In contrast, Poluns reason that the increase of money volume directly and with no intervene affects the expenses and asset prices. The increase of money volume disturbs the balance of real money and trying to remove supply causes demand of goods to rise as well as financial assets. on the other hand they believe the assets replacing the stock are of wide variety. These assets can include a wide spectrum of financial assets with different stock risks, real housing assets and long lasting goods.

According to Polun's hypothesis with the increase of demands for financial assets including stocks, their prices rise directly which is in the same direction of the present hypothesis.

- Second hypothesis: there is a significant positive correlation between the volume of liquidity and the total return

The outcomes prove the hypothesis above. The findings of this research is in accordance with those achieved by Singh *et al.* (2014a), Anderson (1995) and Anderson and Young (1999).

There are various models to study the effects of monetary policies on other variables each of which has weak and strong points. Singh *et al.* (2014b) studied the effects of the monetary policies on economic variables using VAR for Czech. Davis *et al.* (1992) studied the changes of monetary policy and its effect on stock in Canada.

Dess and Robinson Jr. (1984), using the system of simultaneous equations, suggest that the monetary policy affects real economy activities as wellas the effective real sector of economy.

- Third hypothesis: there is a positive and significant correlation between interest rate and price index return

The outcomes obtained from this hypothesis is contradictory to those by Anderson (1995) and Anderson and Young (1999). The first idea was presented by Dess and Robinson Jr. (1984) doing an experimental study of stock rate and price index in the early 1970s. According to the findings there is a significant correlation between these variables. Dess and Robinson Jr. (1984) reached two different results of correlation; the former positive the latter negative, studying stock rate and stock price index. The results of this hypothesis go with those done overseas by Davis *et al*. (1992).

Proposals

Executive proposals (resulted from this study):

- The proposal of the first hypothesis: there is a positive and significant correlation between price index rate of return and the volume of circulating money

Investors are recommended to reach a better assessment when planning to make long term investments considering the rate of success in stock price index. Analysts and consultants of investment are asked to assure investors of their investments by presenting clear analysis about the history of price fluctuations and factors affecting it. This will provide investors with good knowledge as well as confidence in their investments. The first and most important factor taken into account by investors in stock exchange is the stock price index. That is why knowing the effective factors on it is important. It is quite normal that there are a number of factors affecting information and views of the two sides in marketing and companies' stock price which must be taken care of. Some of these factors are internal and some are due to some external variables which have nothing to do with internal economic situation of the company. The world's oil price index is of the most effective factor on economic and political situation in a country. The world's oil price, as an external powerful variable, affects many variables of macroeconomics including stock price index. Analyzing this relationship guides the diplomacy makers of exchange and monetary diplomacy.

- The proposal of the second hypothesis: there is a significant relationship between the volume of liquidity and total return

It is recommended that those investors who are concerned about selling their stocks in short term and afraid of their stocks to be liquidized take the factors of base volume into account by considering other affecting factors. Stock return rate is of great importance to investors. For this reason, researchers have always been searching factors related to stock return out. That is why this hypothesis has tested the relationship between the volume of liquidity and total return. Findings prove that there is no relationship between return rate and the base volume rate. So, investors and financial analysts can eliminate the base volume element from their process of making decisions. Preparing computer programs based on statistical models is recommended for those tending to take advantage of these modern models to predict total return based on previous profits. It is also recommended that companies listed in stock market would be asked for information and reports of liquidity process and the items they are dealing with as well as financial voices.

- The proposal of the third hypothesis: there is a significant and positive relationship between interest and total price return index

To let investors know about the stock information like price change, it is recommended that proper notification system in Tehran and other cities will be started; so that analysts, students and finance experts can use an organized information system. No doubt that this information must be easily accessible. The effects on interests during the year of studying which is considered as the price of investment, must be eliminated from the fixed price; this is important enough to be regarded by the companies and stock owners.

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