Exploring the Effect of Disalledgment Exchanging Rate on Index Bond Price in Stock Market

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Abstract

The study explores the effect of the disalledgment of the exchange on index of bond price in Iran because the importance of exchange rate has influence on total index of bond price. In this article, we investigate the relationship between economic variable and monthly bond output index from 1381 up to the end of 1390 which include all activities of the firm in Tehran security and exchange market. In this study, active firms in bond are those firms which prices have been influential in bond cash output index by bond. In the case that any of the firms has been the out put of table of exchange, the calculated index by bond has been modified. First, we make disalledgment sequence of oil cost and following that, we use vector auto regression method in order to estimate the model. Then we use impulse response and variance decomposition functions in order to achieve better results. The results accept project principal hypothesis has negative and meaningful effect of index exchange rate disalledgment on bond output index.

Key terms: exchange rate disallegment, bond price index, stock market, vector auto regression.

Introduction

In studying the behavior of the influential factors on market and in fact, economical market, the investigation of variable or variables which can explain the relationship between financial economic section and real economic section is very important.

Stock exchange and markets are responsible for providing resources for real economic section and they are considered as the bases of financial section. The practicality of financial section causes optimal appropriate of scarce sources to economical activities. Optimal appropriate can cause self-optimality of accounts and investment and then national economic gross nearly about potential economic capacities. Economists like Goldsmit (1969), Makianon (1973), and Chaw (1973) believed that financial markets have pivotal role in economical growth and development. They believed the difference between quality and quantity of provided services by financial institutions can explain an important part of difference in growth rate among countries.

Chinzara studied the disalledgment relationship macro economic variables and stock variables and stock prices by using VAR-GARCH model for South Africa and found that there is interplay between these variables. The disalledgment economical variables have influence on stock market fluctuations, too.

Zhao studied the active relationship between real exchange rate and stock price in China during 1991-2009.in this study, they have used multivariable GRACH model. The results indicate that there is no long term balanced relationship between real exchange rate and stock price and earlier changes in stock market has a greater influence on the next fluctuations of exchange market. There are overflow effects of fluctuations between two markets in interplay.

Morley 5 (2009) has studied the relationship between stock price and exchange price in short and long term by using bonds test for countries like England, Japan, and Switzerland between 1985-2005. The results indicate long term relationship between exchange rate and stock price for these countries. The results of estimating error correction proposed a positive relationship between exchange rate and stock price.

Cong. Et.al., (2008) in their article has studied the relationship between impulse of oil price and stock market in china. They used monthly data 1996 – 2007 by using VAR model. The results estimate that some of oil impulses reduce share index of automobile manufacturing factories and some of oil companies.

Park & Ratti (2008) have studied the relationship between impulses of oil price in U.S.A and thirteen European countries stock market by using VAR approach and monthly data during 1989 to 2005. They found that a majority of countries which import oil have shown meaningful influence on oil price shocks while among oil exporting countries only Norway has shown meaningful positive response of shock real output to oil price shocks. Adam & Tweneboah have studied the relationship between macroeconomic variables on Ghana stock market during 1991-2006 by using Yuhanson cointegration test and vector error correction. The results indicate that there is a positive relationship between stock price direct external investors and rate of inflation and there is a negative relationship between exchange rate and exchange interest.

Goginneni in his article has studied the reaction of stock market to oil price changes on U.S.A stock market oil price changes during 1983-2006 by using daily data.

The result indicate that when oil price changes because of changes of oil demand, oil price change has positive effect on stock out and if the oil price change is based on the change in supply of oil, it will have negative effect on stock market. There were no evidence based on asymmetry effects in activity of stock market in increasing and decreasing oil price and the activity more or less than the expected stock market regarding oil price changes. This results shows stock market is practical in response to oil price daily changes.

Recently, Fama & French (1993) in their researches about basic changes in comprehension of financial assets pricing in the U.S.A show that limiting systematic risks to factor based on financial assets pricing model can not be so helpful in comprehending investors and shareholders. Therefore, noticing other influential factors such as economical variables could be important.

The importance of financial assets pricing leads to creation of variant theories and models in recent fifty years. Marquees (1952), Shap(1963), Lintr(1965), Musin(1996), Russ(1976), Block-Shulz(1973) models are among the most important models. Designing developed models and using information technology has caused several estimations of financial assets output and risk.

Another reason for establishing present research is helping correct financial asset pricing is being suitable for new research in relation to study the effect of economical information on stock price.

Argument

Our purpose is studying the relationship between exchange rate disallegment and bond price index in stock market. In other words, we want to know that if the exchange rate disalledgmnet is very important in bond price index in stock market or not? By considering the principal role of government in economic office, decision making, and substantial effect of government policies on stock market, we can conclude that research

about the effect of macroeconomic factors such as rate, bank interest, exchange rate, liquidity growth rate, …on stock pricing can be a new influential comprehension in this regard. In the **Causality disallegent**

There are various methods for calculating inflation and disalledgment. We summarize the most practical methods in this regard, respectively.

The criterion for measuring the distance between variable from average: this criterion is used prevalently in experiments especially preminal studies in order to calculating and measuring disalledgment.

The criterion for variable variance or standard deviation: this method has been used in several studies.

Generally, changes of one of variable can be divided into two groups: predictable and **ARCH & GARCH models**

As mentioned above, because there is the possibility of changing variance cause error, it is better to consider disalledgment calculation as conditional error prediction variance. In this situation, the priority is using general model of ARCH and its developed forms like GARCH. In this model, the variance disalledgment models are computed by using error term conditional

Conditional auto regression heteroscedasticity

 model

Angel (1982) showed that it is possible to model mean and variance simultaneously. Considering that conditional predictions are mainly better than non-conditional predictions. Angel proposed that ARMA model as follows:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \delta_t$$

Conditional mean y_{t+1} equals $\alpha_0 + \alpha_1 y_t$ and prediction error variance equals σ^2 . However, mean of non-conditional predictions $\frac{\alpha_0}{1-\alpha_1}$ and its non-conditional variance equals $\frac{\sigma^2}{(1-\alpha_1^2)}$. Since it is

way that investors and shareholders can predict the effects of macroeconomic decision on index changes and stock price.

unpredictable changes in which unpredictable changes indicate disalledgmnet.

Expected change criterion: this criterion indicates the expected change of prediction (like economist, statistician, counselor, etc.) about one or more variable during time.

Estimation criterion based on econometrics methods. This method is shaped after estimating variable prediction model. In this method, the equation variance is usually is usually considered a fixed amount but there is the possibility of changing variance during the time.

variance of vector model which is changeable during the time.

In this study, we have used general auto regression conditional hetroscedasticity model in order to calculate fluctuations. The reason is that this model is more comprehensive and practical in relation to other models.

proposed $\frac{1}{(1-\alpha_1^2)} > 1$, non-conditional prediction error variance is larger than conditional variance. Similarly, if variance ε_t is not fixed, it is possible to estimate each change by using ARMA model. If residual ε_t the result of regression model is $y_t = \alpha_0 + \alpha_1 y_{t-1} + \varepsilon_t$, conditional variance equals $E_t(\varepsilon_{t+1})^2$.

A simple method for conditional variance prediction as a AR(q) process is using estimated residual squares.

$$\hat{\varepsilon}_t^2 = \alpha_0 \hat{\varepsilon}_{t-1}^2 + \alpha_1 \hat{\varepsilon}_{t-2}^2 + \alpha_2 + \cdots + \alpha_q \delta_{t-q}^2 + V_t$$
has a random step process. If the amount of $\alpha_1, \alpha_2 \ _q$

,…,α is zero completely, estimate variance and $_0α$ is fixed. Otherwise, conditional variance y_t according to auto regression process is shaped in the above mentioned equation. Therefore, we can say the above mentioned equation which is a heteroscedasticity of an auto regression model is called ARCH.

Many researchers believe that the real exchange rate disalledgemnet is resulted from price rigidity, inappropriate pecuniary, financial, exchange, and other factors. The researchers use the concept of exchange equilibrium rate for explaining structural disallegment and they explain the difference between exchange, equilibrium exchange, and exchange real exchange as disalledment.

Considering different periods and exchange conditions, pecuniary policies, financial, and exchange (one-rate fixed system period, multi-rate fixed exchange, floating management) in the country and non-correction of exchange of exchange rate based on inflation and stability of relative exchange for longer periods, it seems that real rate is different from equilibrium rate and this disalledgment of real exchange rate cause effectiveness on macroeconomic variables of the country. Changes of stock exchange and the rise of bond price is influenced by a lot of variables and factors. However, changes and instability in stock market is the source of changes in other macro pecuniary changes. The purpose of this study is explaining activities and reflections between exchange rate disalledgment and Tehran security exchange market. The results indicate that there is a cause and effect relationship between independent variables in this study which leads to a disalledgment is stock price index. Accordingly, applying irregular and imbalance pecuniary and exchange policies in addition to creating a difficult atmosphere in the country economy, creates severe problems for financial institutions such as planning, prediction, investment management, and selecting assets. Lack of a long term strategy in exchange market and applying cross-sectional and sometimes paradoxical policies an addition to dissalledgment in exchange rate will result in confusion for economic activates and disturbance in stock market. Therefore, pecuniary and exchange

officials of country should be considered such findings in decision making for pecuniary and exchange policies and results of instability in exchange market and transferring them to exchange market should be take in to consideration, too. Since people keep different combinations of cash, bond, deposit, stocks and bonds, gold and exchange changes of the amount of money, exchange rate and bank interst rate, people's request for keeping each of them as assets have influence on request for share and this issue has influence on stock index, too. It is believed that prices of share is determined some of basic macroeconomic variables such as inflation rate, exchange rate, interest rate, and the amount of liquidity.

The increase of exchange rate in short term leads to decrease in total index of stocks and bonds market because of exit of investment from stock market to pecuniary market and in long term will result in market boost because of increase of exporting industries interest.

Disalledgment and instability in exchange rate will result in non-rationalized allocation resources and disruption in stock market by creating instable and insecure in economics and breaking down account and investment process.

On one hand, instability in exchange rate creates an insecure environment for economic decisions especially in stock market by creating insecurity in profitable economic activities and its related costs. On the other hand, national pecuniary value in an open economy has a principal role in determining economical costs related to investment and payment rate.

Repeated and irregular fluctuations on exchange rate can create insecure atmosphere which is resulted from international exchange, reduced trade, and less activity of investment process because of disruption in stock market order and financial assets basket.

In this case, people go on keeping assets by adapting them to those fluctuations. The relationship between disalledgment in exchange rate and stock market price index can not be one sided. These two variables can have reciprocal reactions. It seems that disalledgment rate can

result in instability stock market price index and fluctuations in this index can result in stability in exchange rate.

Considering the fact those macro changes of variables especially pecuniary verities have influence on stock market, It can be explained that the relationship between stock market activity index and pecuniary macroeconomic variables can provide better and solvable policy making. Determining the amount and the way of pecuniary variables influences on stock market index can profitable in a lot of policy makings. Since people have different financial assets of cash, deposit, bonds, and exchange, they specially pay attention to pecuniary exchange policies.

Since productive firms and industries have important role in economical growth of every country, recognizing factors and principals which can lead to growth and development is very significant. Growth and development depends on more investment and commercial firms are trying to achieve this factor in order to supply financial needs. Developing countries like Iran have high degree of instability in macroeconomic variables. In these countries, exchange rate, stock price, and other important macroeconomic variables are fluctuating in relation to developed and industrial economies. These fluctuations create an insecure atmosphere for investors which does not allow them to make decision in their future investments

Instruments and methods

The method which was used in this study is vector auto regression (VAR) as follows:

LSTUCK=f (LOIL, UNEX, INF)

In this method, we have used variables such as:

LSTUCK: bond price index

LOIL: increase of oil price

UNEX: exchange rate disalledgment

For analysis and evaluation of the influence of exchange rate disalledgement on bond price

security and easily and it may be detrimental for them. Therefore, in order to increasing investment and following it achieving long term, continuous economical growth and paying attention to stock market and especially security and exchange market as an important principal factors which can influence on stock market index such as exchange rate and it's security. Considering the importance of economical theories which can show various shapes of interaction between exchange rate, stock price index, and recent development in econometric techniques which can facilitate measuring insecurity of economical variable can help experimental study of interaction between causes of insecurity which is one of important issues of economists in recent years. Exchange rate disalledgmnet indicates the situation in which the real exchange rate of a country deviates from its rate equilibrium. If exchange rate is lower than its determined equilibrium or it is more than its valued equilibrium, such (digressions or deviations) have great influence or economic behavior. Some of researchers believe that the disequilibrium of real exchange is resulted from inappropriate financial, monitoring, exchange, and other related factors. This research is analytical and inferential. The theoretical fundamentals are collected from available articles in the libraries and then we have estimated the middle by using econometrics techniques and E views software.

index in a series of time intervals based on month from 1381 to 1390.

In this research ARCH models are completely similar to complex regression models therefore ARCH models destroys the influence of omitted variables in estimated models.

Initially, we have used GARCH method for evaluating exchange of series of extracted related disalledgment and then by applying command of creating series of disallegment, the disalledgment will be used as one of models of variables.

Then we have used VAR model for estimating E views 7 software. For estimating VAR model,

we should examine test of unit root for all variables. In the case of stability of all variables, we start to select optimal interval based on software results which is applied according to various criteria such as AIC criterion, Schartze criterion, and Hanan-Queen criterion. After determining optimal interval, we estimated model based on optimal interval and we examine test of auto regression and Granger causality for variables then we use impulse reaction functions and variance method in order to have a better and more accurate analysis. Before estimating the introduced model and determining the relationship between supply of money and other variables of model, we should use test of Dicky-Fowller for each of them. As we know, this test is used for determining stability or instability of variables understanding. The reason is that

estimating the relationship between independent and dependent variables without considering stability of variables is resulted in false regression. Therefore, the related results and analysis will not have validity. Furthermore, after application of the statistical data of (1357-1387), each if them had been tested in order to show which one of them is stable or instable. In this test, Dicky –Fowller unit root has been generalized and if the absolute value of the t statistic is larger than the amount of the required values in level of (1%, 5%, and 10%), we can consider such variables stable variables. By testing Dicky –Fowller unit root and generalized Dicky –Fowller test for all variables of the model, the acquired results are summarized and presented in the following table:

Table 4: unit root test

Stable/unstable	The amount in level 10%	The amount in level 5%	The amount of in level1%	T statistic	Stable/ unstable
D(LSTUCK)	-2.584	-1.943	-2.584	-1.503	Stable
UNEX	-3.581	-2.926	-3.581	-4.997	Stable
D(LOIL)	-4.038	-3.448	-4.038	-4.071	Stable
INF	-4.037	-3.448	-4.037	-6.001	Stable

Source: research result

According to the available results which are mentioned in the above table; since the amount of statistic test in 1,5, and 10 levels is 10 percent lower than the other results, the H0 (null

Test of determining optimal interval

Estimating vector auto regression requires determining the suitable interval length (optimal interval). According to Judge. et. Al., (1988) [1] and MC Millin (1988)[2], we use AIC criterion for determining optimal interval. Optimal interval is a kind of interval which reduced the following sequence up to the minimum amount:

$$(1-4)AIC(q) = \text{Ln det}W_q + 2m^2 q/n$$

hypothesis) which indicates the presence of unit root is rejected and our variables are stable. Therefore, all variables of our test are stable and the result equals I (0).

In which ( ) indicates the amount of model variables, (n) indicates the amount of samples and (Wq) is the estimation of variance matrix of residuals a VAR model with internal number of (q).

Ofcourse, in E views 7 software in view menu and in Lag Structure section, there is an option called Lag Length Criteria, in which the number of optimal interval model is determined by asterisk. We have used AIC and SBC model for estimating optimal interval length , also by using software options the result in two states were the

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[1] Judge et.al

[2] MC Millin

same and therefore the interval was selected as a optimal interval. If the amount of interval is more than this, it will result in reduction in Table 3-4: determining optimal interval

freedom degree up to the amount which makes the estimation impossible.

The period under study: from the first of 1381 up to the end of 1390

The number of observation: 111 observations

Interval	**LogL**	**LR**	**FPE**	**AIC**	**SC**	**HQ**
0	-217.5341	NA	0.000735	4.135749	0.000735	4.254579
1	-178.8953	72.40412*	0.000489*	3.727844*	4.411329*	4.005114*
2	-165.0890	24.87627	0.000510	3.767369	3.767369	4.203079
3	-154.8504	17.70995	0.000568	17.70995	3.871179	4.465328
4	-146.1474	14.42673	0.000652	14.42673	4.002655	4.755244
5	-140.3551	9.184153	0.000792	9.184153	4.186578	5.097607
6	-129.9132	15.80392	0.000889	15.80392	4.286724	5.356193
7	-121.0761	12.73816	0.001034	12.73816	4.415786	5.643694
8	-112.1065	12.28276	0.001206	12.28276	4.542459	5.928807

Resource: project results

It is observed that the minimum amount of AIC and SBC criterion is related to interval one. Therefore, the first interval is selected as an optimal interval. After determining the amount of optimal interval model, we can estimate VAR model. The results are presents as follows:

Table 4-4: the estimation model of VAR with one interval.

The sample after modification: third month of 1390: third month of 1381 to the end of 1390.

The number of observation after modification: 118 samples.

The amount of standard deviation in (-) and the amount of t statistic in [ ]

	D(LSTUCK)	**LOG(UNEX2)**	**D(LOIL)**	INF
D(LSTUCK(-1))	-0.378663 (0.12973) [-2.91879]	-0.003756 (0.00905) [-0.41527]	-0.002262 (0.01205) [-0.18769]	0.122716 (0.17292) [0.70968]
LOG(UNEX2(-1))	-1.685916 (0.80995) [-2.08150]	0.919353 (0.05647) [16.2800]	-0.091677 (0.07524) [-1.21853]	-2.411747 (1.07957) [-2.23399]
D(LOIL(-1))	-0.913078 (1.59505) [-0.57244]	-0.058650 (0.11121) [-0.52738]	0.354116 (0.14816) [2.39004]	4.098369 (2.12602) [1.92772]
INF(-1)	0.008979 (0.00755) [1.18991]	0.001267 (0.00053) [2.40855]	-0.000292 (0.00070) [-0.41678]	1.046676 (0.01006) [104.067]
C	-5.777242 (3.00427) [-1.92301]	-0.380331 (0.20946) [-1.81575]	-0.210853 (0.27906) [-0.75557]	-11.46182 (4.00434) [-2.86235]

DUM	-0.588665 (0.38322)			
	[-1.53611]	0.002155 (0.02672) [0.08067]	-0.036124 (0.03560) [-1.01481]	0.563687 (0.51078) [1.10357]
DU1	-1.426590 (0.61610) [-2.31551]	0.002909 (0.04296) [0.06773]	0.056009 (0.05723) [0.97867]	0.354535 (0.82119) [0.43173]
R-squared	0.373842	0.956262	0.350893	0.998203
Adj. R-squared	0.279918	0.949701	0.253527	0.997934
Sum sq. resids	38.51029	0.187203	0.332283	68.41658
S.E. equation	0.981202	0.068411	0.091143	1.307828
F-statistic	3.980272	145.7562	3.603858	3703.770
Log likelihood	-62.00839	63.16404	49.67991	-75.51360
Akaike AIC	2.936527	-2.389959	-1.816166	3.511217
Schwarz SC	3.212081	-2.114405	-1.540613	3.786771

Inverse Roots of AR Characteristic Polynomial
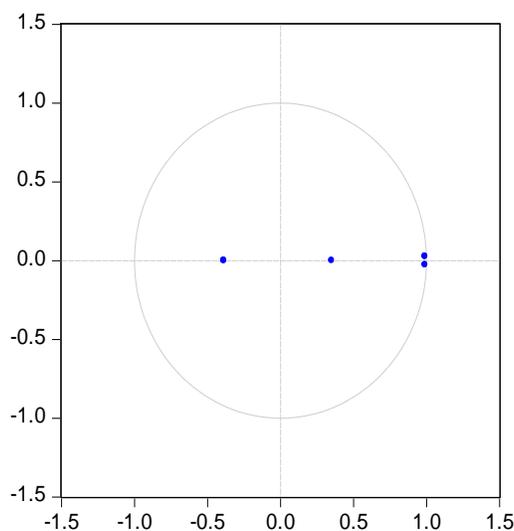
6. Granger Casualty Test

Granger (1969) states that if the past and present data of Y2t helps the prediction of Y1t, Y2t indicates Y1t Granger causality. Although the analysis of regression determines the dependence of one variable to other variables, it does not indicate causality.

Therefore, the question is that, can we say the changes of Y1t which leads to the changes of Y2t or vice versa, and the changes of Y2t is the reason for the changes of Y1t; or is there any feedback between these two factor or not; which means if we can discover the direction of causality when there is priority and relationship from statistical point of view. You should pay

attention to this factor that the Granger causality test is only one of the effects of causality with interval in which sometimes Ps of variables such as Z and Y are more than five percent; which apparently means Z is not the cause of Y and Y is not cause of Z, too. But the impulse response functions indicates the

reaction of Z to Y. Therefore, Granger causality method[3] is not able to test concurrent or simultaneous causality which shows the effect with interval.

Resource: project results

Test of auto regression

By observing the inverse root diagram of auto regression, we can find that is there any dependence between residual models or not?

For answering this question, we should use in diagram in E views 7 software. If all the points are in the circle, we can say there is no auto regression between residual models. Otherwise there is no dependence between them. This problem is presented in the following diagram. Considering that all the points are in the circle, we can conclude there is no special dependence between the residuals.

Table 4-4 Granger causality

Sample: form the beginning of 1381up to the end of 1390

The number of observations: 118 samples

Dependence variable: D (LSTUCK)

Prob.	Df	Chi-sq	Excluded
0.1149	1	2.486085	UNEX
0.3060	1	1.047991	D(LOIL)
0.0440	1	4.058138	INF
0.0389	3	8.370438	All

Source: project results

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[3] Granger Causality test

The above mentioned table, indicates the Granger causality VAR during 1381-1390.based on null hypothesis which indicated that the variables are not the reason for D (LSTUCK) is rejected based on their amount of probability. Therefore, the applied variable in this study are selected correctly.

According to the results of causality test and the above mentioned results, and the above mentioned results, we can say "impulse response function can indicate the variable reaction together and Granger causality can not test causality simultaneously"; since expiation of VAR models results for coefficients separately is very difficult, for explaining the mechanism of series interplay, we will use impulse response function and variance decomposition.

Impulse response function and variance decomposition

In fact, impulse response function indicates the active behavior of system variables during time when one impulse is similar to standard deviation. Generally, the use of impulse response function in vector auto regression models (VAR) indicated the most accurate result in order to analysis the active interaction between system variables in long time. In the analysis which is based on this function, we can examines the internal variables of activates in the system while they face other variables with impulse.

Variance decomposition is another instrument of VAR diagrams for describing for describing the function dynamics in short time. The portion of instability for each variable in response to response to each of variables to other diagrams is determined by variance decomposition. We can measure the influence of each variable on other variables during time by variance decomposition of prediction error. In the other words, variance decomposition error prediction estimated the influence of variables in shock influence in one variable in the framework of reaction diagram.

The principals of the analysis are based on variance decomposition error prediction in order to fix the dynamics in a vector auto regression model in the comparison of each share of variables in each period of error prediction of that period. The impulse reaction function determines the effects of one impulse in relation to other variables of the model. The variance decomposition shows that how the changes in one internal variable creates impulse in other parts of the model. Generally, we can determine to some extend the changes of one sequence can be the result of error terms of the same sequence or to some extent the changes of one sequence can be the result of the other variables error terms in that system by using variance decomposition error prediction. Decomposition and analysis in the impulse method, is a prevalent instrument for determining and achieving the data around the interplay effects between variables in dynamic diagrams. Since impulse reaction function measure the time series of impulse influence situation of one active system, we can observe the influence of impulse on variables in VAR diagram. In determining impulse reaction, it should be noticed that the influence of standard deviation of impulse variable on the other variable will be decomposed and analyzed. The related diagrams show the reaction of D(LSTUCK) in relation to an impulse standard deviation in LINF, D(LOIL), UNEX variables. In the other words, it shows that if one impulse or sudden change which is about standard deviation in UNEX, D(LOIL) and LINF variables is created, it's influence in D(LSTUCK) in other period will be determined. According to diagram, the influence of impulse on the diagram and the D(LSTUCK) response to these impulse up to ten periods is observable. The influence of these impulses has steep slope but gradually the amount of steepness of slope decreases up to the point that the influence of impulses will be modified which indicates the resistance of the diagram. The input impulse from D(LSTUCK) variable in the first period will result in 0.79 unit decrease in D(LSTUCK) and this reaction in the second period is negative and it will reach -0.27. the reaction in the third period is possible and it will reach 0.11 and it will be modified in the forth period gradually.
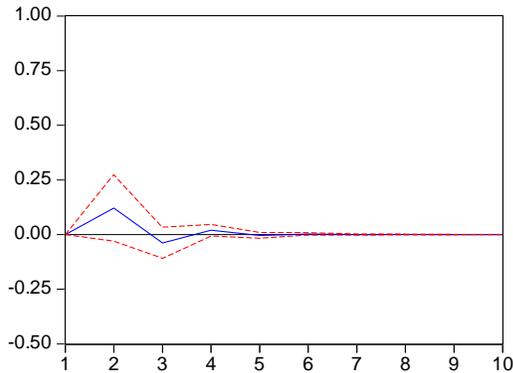
The following diagram shows the variable reaction D(LSTUCK) in one impulse of self variable and one impulse of each of independent variables up to 10 periods.
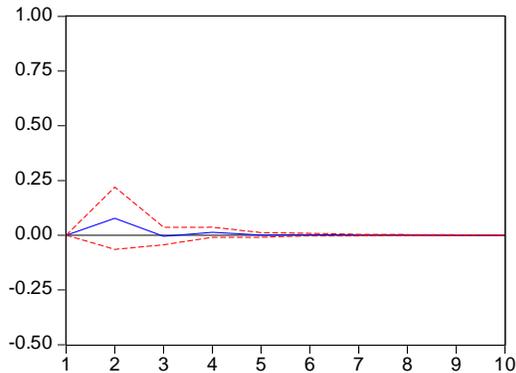
Diagram 2-4 impulse reaction function

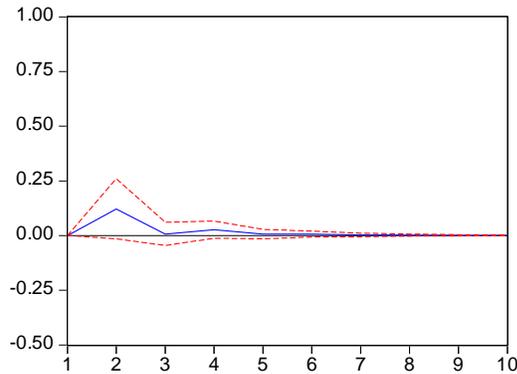A – The reaction of stock price in relation to an index impulse – price – bond
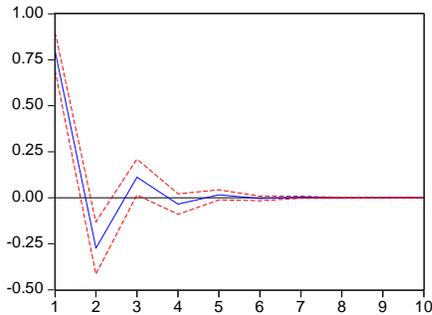
B – The index reaction of stock price in relation to a disalledgment impulse – rate – exchange

C – The index price of bond price in relation to increase of price impulse – oil

D – The index reaction of bond price in relation to one rate impulse – inflation

Resource: research results

The input impulse from other variables in the first period is zero. The input impulses from UNEX, D (LOIL), LINF is similar to each other. It means that it is ascending at first and then it is descending in a way that the reaction D (LSTUCK) to each of three variables after the second period is descending. The maximum amount of the impulse influences in the variables will not be more than 0.12. From The reaction of D(LSTUCK) variable on each of three independent variable will be modified after the second period. Then, we can observe the convergence of the impulse reaction functions gradually after this period which indicates the resistance of estimated model.

variance decomposition

Variance decomposition error prediction is another method for determining the influence of interplay mechanism of series which can determine the influence of each variable on the other variables during time. This test shows the percent of error prediction of one variable with regard to variable shocks; in contrast to Granger causality test which can only show causality with interval and not simultaneous or internal way, this
Table 4-5: Variance decomposition D(LSTUCK)

among other variables in the second period, LIFL variable impulse after its D (LSTUCK) impulse has the most influence on D(LSTUCK) in a way that it will equal to 0.1218. After LINF variable which is 0.1212, it has the most influence on D (LSTUCK) and at the end the minimum influence is related to D(LOIL) variable.

test can show their interaction during time t in addition to influence of interval variables.

In order to analyze the result of error prediction variance decomposition, we use error prediction variance decomposition tables of each variable for fifteen years (refer to Appendix 15).

As it is mentioned in table of variance decomposition for variable D(LSTUCK), (SE) refers to standard deviation column, D(LSTUCK) refers to variable prediction error in different intervals and since this error for each year is calculated based on previous year errors, this error is increased during this period of time.

Period	Variable error prediction D(LSTUCK)	D(LSTUCK)	LOG(UNEX2)	D(LOIL)	INF
1	0.981202	100.0000	0.000000	0.000000	0.000000
2	1.049831	98.61943	0.776835	0.591341	0.012397
3	1.064277	98.30962	1.083769	0.591996	0.014612

4	1.067365	97.87071	1.522824	0.588828	0.017636
5	1.069975	97.52171	1.863207	0.596242	0.018841
6	1.071787	97.19664	2.184848	0.599052	0.019457
7	1.073477	96.91784	2.459243	0.603359	0.019557
8	1.074900	96.67402	2.700309	0.606162	0.606162
9	1.076143	96.46502	2.906981	0.608421	0.019581
10	1.077201	96.28639	3.083676	0.609890	0.020045

According to (4-5 tables) which indicates variance decomposition which D(LSTUCK) variables, error prediction in first period is about 0.98, in the second period is about 1.04, etc.

According to results of this table, 100 percent of changes of D(LSTUCK) in the first period is result from D(LSTUCK). In the second period of changes of D(LSTUCK), 9861 percent is related to the variable itself and about 1.39 percent is related to other variables. UNEX variable has the most share which is about 0.77 percent and after that D(LOIL) variable has the most share which is about 0.59 percent and the last variable which is INF variable with 0.012 percent has the last share. There will be no changes in ratios and the maximum share is related to D(LSTUCK) variable and after that it is related to UNEX variable. The important point to be mentioned is that among descriptive variables, D(LSTUCK), then D(LSTUCK) and then UNEX variable has the maximum percent of description during the period under study. After UNEX, D(LOIL) and at the end INF variable are placed. In the other words,among variables which have influence on D(LSTUCK), the influence of impulse role of D(LSTUCK) is always more than other variables. In a way that it will not be less than 96.2 percent.

According to resource results of the first theory of research which indicates the negative influence of the exchange of rate of disalledgment on bond output index is accepted. The other theories of project were the positive and meaningful relationship between oil price increase, bond output index, inverse influence, and meaningful inflation rate on bond output index during the period under study.

Conclusion and suggested strategies

According to the results of this study, the study of other financial capital variables such as the amount of transactions and value of financial capital of companies in addition to suggesting increase of the length of time period of future studies are confirmed.

Furthermore, considering the influence of several internal factors on changes of stock price index, the use of suitable adapting filters of series of data is better for decreasing the influence of minor short – term factors on stock price index. Furthermore, considering the influence of capital market price index in many selected countries such as security and exchange market of neighboring countries is beneficial for completing the results of Tehran stock exchange.

Considering Tehran stock exchange, the bond of some of industries such as automobile industries, entrepreneur will be damaged from the increase of exchange rate. In contrary to this, the increase of exchange rate is favor of industries such as petroleum and mines, therefore, it is expected that the increase or decrease of exchange rate can have a different influence on various industries. So it is recommended that the fluctuations of real exchange rate and bond price be analyzed by focusing on industrial groups in stead of bond price index as a research project. Active investors in research in securities and exchange market and new investors should be aware of short and long effects of price and exchange on bond price index and they should not consider sudden changes of price index as a criterion for evaluation of profitability and selection of new bond.

If we consider determining the bond price of accepted companies in exchange as one of duties of securities and exchange brokers and if we accept that this price should show all influential factors on the stock exchange, therefore all economical factors such as exchange and price fluctuation in valorization should be mentioned. Therefore it is recommended that the fluctuation of exchange rate and prices should be taken into consideration in valorization of companies bonds.

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