CHAPTER 5
EMPIRICAL RESULTS

5.1 The existence of bubbles in the Vietnamese stock market

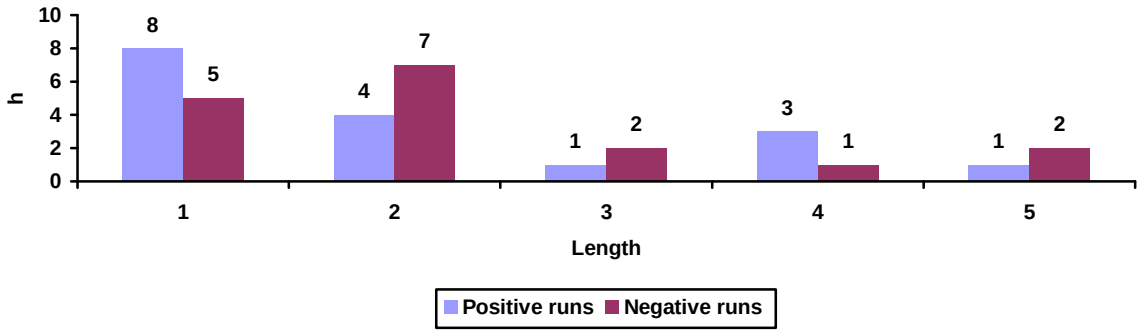
After the negative and positive runs are separated into two sets of runs, the test are performed by using logit formulation, the independent variable is the log of the current length of the run and the dependent variable is 1 (or 0) if the run ends (or does not end) in the next period. The likelihood ratio test (LRT) of β=0 is asymptotically distributed χ^2 with one freedom. The sample hazard rates are calculated by the equation (4.2.1.2b):

$$\hat{h}_i = \frac{N_i}{M_i + N_i}$$

this is represented the conditional probability that a run ands at i, given that it lasts until i. A run of length i is a sequence of i excess returns of the same sign.

Figure 5.1

The sample hazard rates



The result is calculated with aggregate price index.

Table 5.1

Run counts, hazard rates and tests of duration dependence for runs of monthly excess returns

Run length	Positive		Negative	
	Actual run counts Total= 36	Sample hazard rates	Actual run counts Total= 39	Sample hazard rates
1	8	0.470	5	0.294
2	4	0.444	7	0.583
3	1	0.200	2	0.400
4	3	0.750	1	0.333
5	1	1.000	2	1.000
Log-logistic test				
α:		2.42		1.87
β:		-2.64		-2.23
LRT of H_0: β=0		14.12		9.88
(p-value):		(0.0002)		(0.0017)

The test is performed by Eview.

The null hypothesis of no-bubble implies that the hazard rate is constant (or the slope β=0). The alternative hypothesis requires a negative sloping hazard function (β <0) for the runs of positive returns. As the result in table 1, the VNindex has a significant negative β coefficient of -2.64, the likelihood ratio test (LRT) of the null hypothesis of no duration dependence or constant hazard rate (H0: β =0) is rejected at the 1% significant level with the LRT=14.12. The evidence of existence of bubbles in VNindex is convinced that the fever during period of 2003 to 2009 was partially consequence of rational expectations.

It is similarly to the other result in negative returns, the null hypothesis (H_0: β=0) is rejected at the 1% significant level with the LRT= 9.88 and slope β=-2.23. Since the rational bubbles cannot be negative, the significant result in the runs of negative returns that implies the VNindex must be driven by chance or some other

deviations from serially independent returns such as fads, but not by rational bubbles, this could be explained from two reasons: the world economy downturn in 2008 was affected to investors and it made the VNindex declined continuously for a short period. And it also illustrated that the Vietnamese stock market contained the “bear trap” with the irrational investors speculated in the falling prices, they tried to pull down the stock prices to get benefit in advance from buying the unskilled investors’ securities and tried to push them up again for their speculation.

The asymmetric coefficients in both of negative and positives runs show that the probabilities of ending runs are changed largely between the lengths. As the McQueen and Thorley’s argument, the probability of ending runs for one length is 0.5, but the result shows that there is a lower probability of ending runs in the Vietnamese stock market, 0.44 and 0.41, where the former is for positive runs in one length and the latter is for negative runs. And investors intend to take in advance from the bubbles, they try to push the stock price up and that leads to a largely change in two lengths, the probability of ending runs in two lengths is reduced rapidly in second run of this kind of length (0.054 and 0.069 for the positive and negative runs, respectively), this result illustrated that investors were more interested to speculate the bubbles than the “bear trap” which was implemented by some investors.

5.2 Results of VARs analysis

To avoid of missing the long-term relationship among those variables, we implement the cointergration test to test whether those variables are cointergrated or not. If they are, we will choose the VECM (Vector Error Correction Model) instead of VAR, the VECM employs the data at level to analyze not the stationary data as VAR. After checking the cointergrated test, the result illustrated that there are no cointergrated among those variables, and then VAR is chosen to implement the analysis.

5.2.1 Results of Unit Root Tests

As mentioned previous section, the Augmented Dickey-Fuller (ADF) is employed to test unit root. Initially, the graphs in level of all variables which are useful to provide more information about the nature of the series that will be shown, there is only exchange rate (EXC), lending and basic interest rate (INTE and INT, respectively) that should be tested the stationary test with trend, the others – stock returns (RET), inflation (INF) are tested the stationary by performing without trend. The results of unit root test are given in table (5.2), which the italic lines represented additional tests with or without trend that are not shown in the graphs of series.

In the table (5.2), the ADF test is performed with the null hypothesis that the series is non-stationary (H_0=non-stationary). The null hypothesis of non-stationary will be rejected if the ADF statistic is less than the 1% critical value. As the result in the table (5.2.1), there are inflation rate (INF), stock returns (RET) and basic interest rate (INT) which are having the critical value at (0.0036, 0.0000 and 0.0050, respectively), are rejected the null hypothesis of non-stationary, that implies inflation rate (INF), stock returns (RET) and basic interest rate (INT) are stationary, the other two variables (i.e lending interest rate (INTE) and exchange rate (EXC)) are failed to reject the null hypothesis with the critical values at 33% and 99% confidential level, respectively). Those results imply that they are non-stationary series. The VARs need the stationary property of those variables, hence, we need to employ the stationary series those consist of proxies of D(INTE) and D(EXC) (The results of the ADF for

testing stationary in the first different series are shown in table (5.3), as it illustrates the series are stationary after first differencing for each variable). However, the original series could be tested to reconsider the VARs system is stability or not, since the aim of VARs analysis is to model the interaction between the variables rather than the coefficients.

Figure 5.2

Graphs of endogenous variables

Chart 1: Stock returns

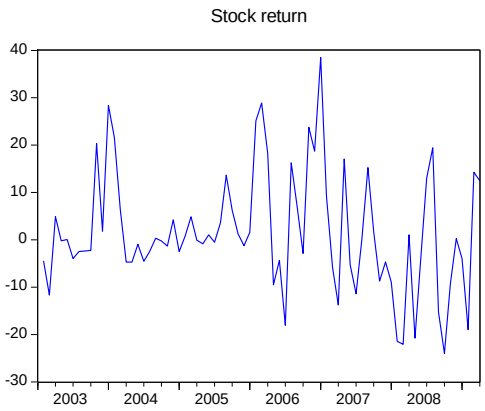


Chart 2: Inflation

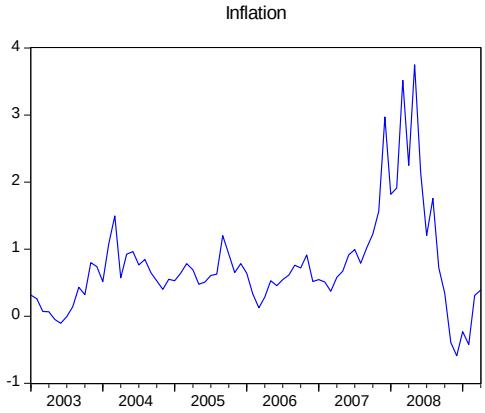
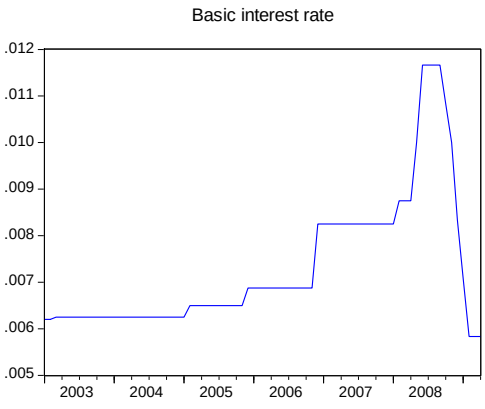


Chart 3: Interest rate



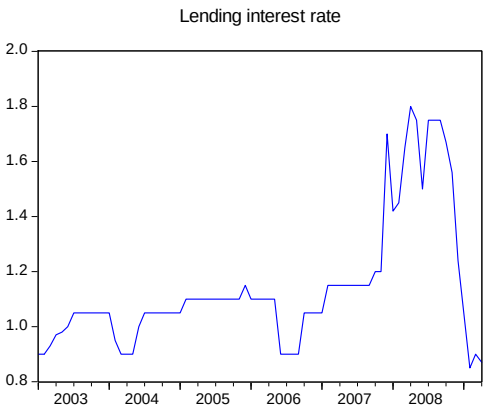


Chart 4: Exchange rate

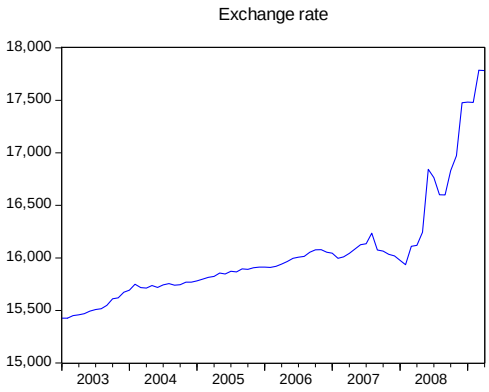


Table 5.2

ADF test for Unit root for the series

Variables		p*	SC	ADF test statistic	MacKinnon one-sided p-value	Result
INF	No trend	5	1.41	-3.8740	0.0036	Stationary
RET	No trend	1	7.88	-5.7515	0.0000	Stationary
INTE[1]	No trend	1	-1.59	-1.8922	0.3343	Non-stationary
	Trend	1	-1.53	-1.6116	0.7792	*Non-Stationary*
INT[2]	No trend	1	-12.92	-2.3956	0.1464	Non-stationary
	Trend	*3*	*-12.89*	*-4.3316*	*0.0050*	*Stationary*
EXC	*No trend*	*1*	*12.23*	*2.0807*	*0.9999*	*Non-stationary*
	Trend	1	12.28	0.4983	0.9991	Non-stationary

Note: The Augmented Dickey-Fuller (ADF) test is under the null of a unit root.

1: Lending interest rate; 2: Basic interest rate. The test is performed by Eview.

Table 5.3

ADF test for first different series which are non-stationary

Variables	p*	SC	ADF test statistic	MacKinnon one-sided p-value	Result
D(EXC)	1	12.30	-7.8399	0.0000	Stationary
D(INTE)	1	-1.53	-8.7743	0.0000	Stationary

Note: The Augmented Dickey-Fuller (ADF) test is under the null of a unit root.

**: The optimal length for ADF regression is selected based on the SC criterion.*

The test is performed by Eview.

As mentioned above, the VARs will employ the stationary series. To compare capture the suitable impact of interest rate to the stock returns, the study would like to compare between two models which are employed the different interest rates, basic and lending interest rate. The model with basic interest rate (INT) is namely model A, and the other is model B with lending interest rate.

Model A: Inflation (INF), Stock returns (RET), Basic interest rate (INT), the change of exchange rate (D(EXC)).

Model B: Inflation (INF), Stock returns (RET), Change of lending interest rate (D(INTE)), Change of exchange rate (D(EXC))

The meaning of term D(INTE) and D(EXC) are: the change of lending interest and exchange rate from previous month, it contains the information of two periods in its own lagged. As the level form of lending interest and exchange rate are nonstationary, the study will use the stationary data which are the first different in lending interest and exchange rate, it says that the VAR system will find the impact the change of lending interest rate which was decided by commercial banks based on the SBV's monetary policy (reserve rate, money supply…) and the SBV's adjustment for exchange rate.

5.2.2 Lag length selection and exogeneity

Since, to determine the lag order, AIC, HQIC or SIC (or SC[1]) could be used. The result in table 5.4 illustrates the lag optimal after checking the smallest values of SC:

Table 5.4

Selection-order criteria

Model	**Lag**	**SC**	**LR**
A (basic interest rate)	1	9.01318	291.91
B (lending interest rate)	1	20.2166	100.7

Note: *LR sequential modified LR test statistic at 5% level. The test is performed by Eview.*

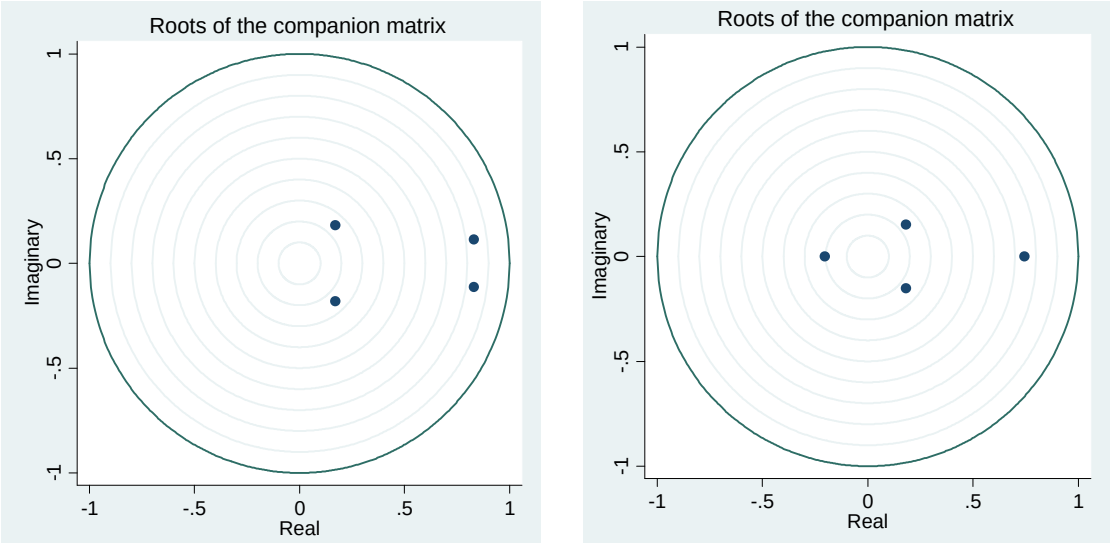
as we could see in table (5.4), the smallest criteria of SC for the model A is 9.01 and for the model B is 20.21 for the lag 1. It could be explain that the overall lag for VARs system is only one previous-period for the right hand side of the system. After performed the lag length selection, a test of stability for the VARs system is required. The stability condition requires that all eigenvalues have modulus less than one. A stable model is thus well behaved in the sense that the impact of shocks is calculable and finite. The result shows that VARs satisfies the stability condition, or it could be stated that the estimated VARs are stable.

[1] The criteria SC (SIC) is consistent criteria (maintained for unstable processed)-Lütkepohl (2005)

Figure 5.3

Graph of stability conditional check

model A *model B*



The test is performed by Eview.

Additionally, the Granger causality test is employed to determine whether lagged observations of another variable (X) have incremental forecasting power when added to a univatiate autoregressive representation of a variable (Y). The result mostly is expected to reject the null hypothesis which says that a variable (Y) does not Granger cause another variable (X), all coefficients on the lags of variable Y will be zero in the equation for variable X.

Table 5.5

Granger Causality test for model A

Dependent variables	Excluded	Chi2	df	Prob>chi2
Stock returns (RET)	Inf	0.1526	1	0.696
	dexc	3.7817	1	0.052*
	Int	2.1896	1	0.139
	All	6.281	3	0.099*
Inflation (INF)	Ret	0.0747	1	0.785
	Dexc	3.0927	1	0.079*
	Int	0.1351	1	0.713
	All	3.7275	3	0.292
Change of exchange rate (DEXC)	Ret	11.578	1	0.001***
	Inf	0.1759	1	0.675
	Int	2.6026	1	0.107
	All	15.716	3	0.001***
Basic Interest Rate (INT)	Ret	3.2588	1	0.071*
	Inf	56.527	1	0.000***
	Dexc	2.3231	1	0.127
	All	63.852	3	0.000***

Note: ***, **, **:Reject the null hypothesis at 1%, 5% or 10%, respectively, of critical value: it is said that the evidence favor the alternative hypothesis that other variables Granger cause dependent variable. The test is performed by Eview.*

From the result in model A, it shows that the stock returns could be only predicted/forecasted based on the previous change of exchange rate (the changing gap/adjustment between two periods of exchange rate at 90% of confident level). It

also illustrated that to forecast the change of exchange rate and the basic interest rate, we could employ the information of stock returns, the former is at 99% confident level and the latter is at 90% confident level.

Table 5.6

Granger Causality test for model B

Dependent variables	Excluded	Chi2	df	Prob>chi2
Stock returns (RET)	Inf	2.8854	1	0.091*
	Dexc	4.6904	1	0.030**
	Dinte	3.0172	1	0.082*
	All	6.8845	3	0.075*
Inflation (INF)	Ret	0.0531	1	0.851
	Dexc	3.0572	1	0.080***
	Dinte	0.0350	1	0.851
	All	3.3802	3	0.336
Change of exchange rate (DEXC)	Ret	10.603	1	0.001***
	Inf	0.9703	1	0.324
	Dinte	3.36	1	0.066*
	All	10.603	3	0.001***
Change of lending Interest Rate (DINTE)	Ret	0.1256	1	0.722
	Inf	2.0915	1	0.148
	Dexc	0.8699	1	0.351
	All	2.6883	3	0.442

Note: ****, **, *:Reject the null hypothesis at 1%, 5% or 10%, respectively, of critical value: it is said that the evidence favor the alternative hypothesis that other variables Granger cause dependent variable. The is performed by Eview.*

In contradiction to the model A, the results in the model B has more interesting results, stock returns have Granger caused by other variables, i.e. inflation (INF), the change of exchange rate (D(EXC)) and the change of lending interest rate (D(INTE)). The model B could be fully explained investors' expectation to the macro variables (especially in monetary policy). It also says that any movement of other variables will affect to the change of stock returns or stock prices. For example, if any bad news happens to exchange rate, makes a bigger change (or the gap between two periods is larger), it will be a good opportunity for investor to speculate in the currency exchange market, many speculators will withdraw their investment in the stock market and buy the dollars.

Regarding to the above results, although the null hypothesis is failed to reject, it means that the dependent variable is not predictable by other variables, but it does not conclude that there is no relationship among those variables, or there could be some effects among those variables and the test of Granger Causality could not capture correctly. The study will employ the above results to analyze the impact among stock returns and monetary policy without concerning to some misspecifications from Granger causality. And results of the model B is suitable to implement a finding of impact between stock returns and monetary policy due to the perfectly forecast of stock returns from other variables in the model. Moreover, to evaluate the suitable model, after implement the Granger causality test, a forecast performance of the models could be applied to assess which model is suitable to further analyses based on some criteria.

5.2.3 Forecast performance of the models

To select the model which is more powerful to explain the relationship among variables, the forecast performance of the model is a necessary step to implement.

Table 5.7

Statistical criteria in evaluating of forecast performance

MODEL A

	RMSE			Theil's U inequality		
	4-period forecast	8-period forecast	12-period forecast	4-period forecast	8-period forecast	12-period forecast
RET	12.5630	12.5671	12.5681	0.8359	0.7941	0.7702
INT	0.0072	0.0071	0.0069	0.9561	0.9656	0.9561
INF	1.0541	1.0410	1.0288	0.8858	0.8443	0.8193
D(EXC)	110.2528	110.0576	109.869	0.8409	0.7995	0.7754

MODEL B

	RMSE			Theil's U inequality		
	4-period forecast	8-period forecast	12-period forecast	4-period forecast	8-period forecast	12-period forecast
RET	12.5651	12.5722	12.5782	0.8355	0.7936	0.7695
D(INTE)	0.1047	0.1048	0.1049	0.8320	0.7913	0.7678
INF	1.0538	1.0404	1.0280	0.8872	0.8460	0.8208
D(EXC)	110.3229	110.2044	110.0946	0.8393	0.7977	0.7736

Note: Theil's U inequality the agreement between the model and the reference data. The lower index is the better model. The results are calculated by the author..

As the main objective of the study, the study concentrated to explain the impact of monetary policy on the stock returns as well as the response of the stock market to any movement of State Bank of Vietnam, beyond that the prediction for the trend of stock returns will be made. From the result of forecast for model A and model B, although the model A contained the information of basic interest rate, which is directly controlled by the SBV, but it shows that the forecast performance is not good, the model A could not capture investors' expectation on the monetary policy to the stock returns. Instead, the model B has used lending interest rate in the model and capture all of other variables and the stock returns could be forecasted perfectly from those variables. Due to basic interest rate could not explain enough or impact directly to the stock market, in other word, the SBV issued the monthly basic interest rate, but they adjusted rarely, and they deployed the other tools to control the economy such as reserve rate (as mentioned above), credit growth, outstanding debt, money supply, those are affected directly to the lending interest rate and the stock market, since those tools cannot be collected, the lending interest rate explains better for the SBV's monetary policy than the basic interest rate (the study also evaluates the performance of model A by using the ARIMA model for forecasting the result, the result shows that the stock returns should be well prediction on its own previous information, *see the forecast result in appendix*)

In the result of model B, the Theil's U inequality illustrates that the forecast for each period is suitable to the actual data (the lower indices the better model). In the combination from argued above, the study employs model B as the target model for analyses and detecting the impact among stock returns and monetary policy in the Vietnamese stock market.

The following table gives a result of correlation test in the innovations of dependent variables from model B (after selected the model). The null hypothesis cannot be rejected at the second lag or it can be explained that there is no correlation among the innovation of each equation of the model. It initially is a condition to implement analyses the model.

Table 5.8

The Residuals Serial Correlation Lagrange Multiplier tests

Lag	Chi2	df	Prob > chi2
1	28.5905	16	0.02685
2	21.1584	16	0.17250

Note: H0: no autocorrelation at lag order. The test is performed by Eview.

Besides that, from the test for normality (by employed the Jarque-Bera test), there is only the equation of stock returns cannot reject the null hypothesis that the system has normality distributed (individual test, cannot reject at 1% of critical value), other equations (i.e. inflation, the change of lending interest and the change of exchange rates) are rejected the normality test at 1% of the critical value; and make the joint test to reject the null hypothesis. The system, especially for monetary variables, is misspecification.

Table 5.9

Jarque-Bera test

Equation	Chi2	df	Prob > chi2
RET	6.048	2	0.02685
INF	95.594	2	0.00000
DEXC	288.938	2	0.00000
DINTE	13.859	2	0.00098
ALL	404.440	2	0.00000

The test is performed by Eview.

5.2.4 Ordering of the variables

It is necessary to consider the order of each variable, it will affect to the result of impulse and variance decomposition. The Cholesky decomposition is used to define the contemporaneous effect between the endogenous variables. The order of

the variables in the system is verified by examining the correlation coefficients of error terms. The variables with the most significant correlation are ranked in the first place and so on. The ordering illustrates that the contemporaneous value of an adjustment of exchange rate has a contemporaneous effect on the stock returns. In other words, the shock from the adjustment of exchange rate has a direct effect on the stock returns. On the other hand, the value of interest rate and inflation rate have a small effect to the stock returns contemporaneously; technically, there is an indirect impact in lagged values of inflation and lending interest rate to the contemporaneous value of stock returns. It also has other meaning of the ordering, when the variable which is not caused by other variables will be placed in the first place and the next will be based on the correlation, the target variable is standing at the last of the ordering.

Table 5.10

Correlation Coefficients between Innovations

	e_{INF}	$e_{D(INTE)}$	$e_{D(EXC)}$	e_{RET}
e_{INF}	1.0000			
$e_{D(INTE)}$	0.4102	1.0000		
$e_{D(EXC)}$	-0.1228	-0.4591	1.0000	
e_{RET}	-0.0418	0.1236	-0.0149	1.0000

The test is performed by Eview.

The ordering variables to implement forecast error variance decomposition and impulse response function are based on Cholesky ordering, inflation rate, INF, stationary series of lending interest rate, D(INTE), stationary series of exchange rate,D(EXC), and the last is target variable, stock returns, RET.

5.2.5 Implications of the model

5.2.5.1 Variance decomposition and impulse response of stock returns

At one month ahead forecast horizon, from the table 5.11 which contains the forecast error variance decomposition of the stock returns (RET), we could see that 97.13% of the variation in the stock returns is due to its own innovation while 0.38% is accounted for by the innovations of change of exchange rate (DEXC), the change of lending interest rate and inflation rate are 2.38% and 0.17%, respectively. Then it suddenly drops to 89.80% in the second month, leads the increase rapidly in the change of exchange rate (to 5.39%), the change of lending interest (4.04%) and inflation rate (to 0.77%). After that, from third month, the change of variance of stock returns is slowly to forth month (from 88.24% to 87.59%). Consequently, the contribution of other innovations of exchange rate, interest rate and inflation rate to the shock of stock returns are increasing in the long term, but the main share is still belonging to its own innovation. It is partially linkage to the part A, which proved that there exist the speculative bubbles in the Vietnamese stock market, and explained that investors have observed the past movement of stock returns to make their decisions in the stock market.

Table 5.11

Variance decomposition of stock returns (RET)

Period	S.E.	INF	DINTE	DEXC	RET
1	0.488663	0.175241	2.385404	0.307722	97.13163
2	0.630757	0.767856	4.040538	5.393382	89.79822
3	0.703311	2.003473	4.068373	5.680993	88.24716
4	0.741127	2.649984	4.061565	5.698354	87.59010
6	0.77236	3.197887	4.059692	5.680043	87.06238
10	0.784584	3.412124	4.057031	5.67305	86.8578

The result is performed by Eview.

The responses of stock returns (RET) to its own innovation have large positive magnitude, when compared to the responses of the stock returns from the shocks initiated by other variables. At a one-standard deviation increase in the stock returns induces a contemporaneous increase in the stock returns by 11.43 units, which is the highest positive effect of this shocks. The sizes of the positive effect of the stock returns shock on the stock returns that seems to decline sharply period to period, and it changes to negative effect from the forth month by 0.07.

Table 5.12

The response of stock returns (RET)

Period	INF	DINTE	DEXC	RET
1	-0.485617	1.791667	0.643510	11.43290
2	-1.015030	1.858048	2.911872	4.166083
3	-1.450280	-0.423965	0.813109	0.588063
4	-1.058723	-0.200110	0.318498	-0.073646
6	-0.58095	-0.10621	0.09821	-0.09186
10	-0.17861	-0.03176	0.031422	-0.0247

The result is performed by Eview.

Besides that, a one standard deviation of inflation rate increases will make a reduction by 0.48 unit in stock returns (table 5.12), and the stock returns reduce deeper in the second month to 1.01 unit. Interestingly, the responses of stock returns to the inflation rate fall has a trend to reduce in the forth month. It could be explained that the shock from inflation rate will affect stronger in second month to the stock returns. It is as same as to the change of lending interest rate, at one standard deviation of the change of interest rate will make a rise of stock returns to 1.79 unit, and it has stronger effect on the shock of stock returns in second month by 1.85 unit. But there is a sudden change from third month, due to the negative effect of interest rate by 0.42 unit, then the responses of the stock returns to the shock of interest rate are smaller. The positive effect of the change of lending interest rate in the first two

months is not as expected; the reason is: investors who have informed the change of the lending interest rate and they tried to push the prices up before selling and refund their loan (this situation affected to the 3 months contract), and the expected effect of the change of lending interest rate is negative from third month as mentioned above.

Similar to the impulse from the change of lending interest rate, a one standard deviation of the change of exchange rate leads to a positive effect to stock returns and makes it a slight increase of 0.64 unit. From second month, the response of stock returns to the shock of exchange rate suddenly increases to 2.91 unit, then it reduces from third and forth months at 0.81 and 0.31 unit, respectively..

To sum up, the responses of stock returns to the shocks of other variables are stronger on second month. From third month, the effect of monetary policy innovations on stock returns is higher than its own. That could explain from two reasons, the first reason is the delay of investors' reaction to any movement of monetary policy, most of the domestic investors entered the stock exchange without the knowledge or technical skills to participate in the market. That reason led many arguments that convinced the explosive stock prices were caused by the fads or fooling trades during 2006-2007, an observed bubbles in the stock returns (as Kindleberger and Aliber (2005)'s argument); the other reason was discussed as above section, there is lacking some other variables in financial sectors, gold, real estate which have experienced some large fluctuations in the past and the domestic investors were key players to speculate in those markets.

5.2.5.2 Variance decomposition and impulse response of monetary policy variables

a. Variance decomposition of monetary policy variable

As the result from Granger Causality test, there is only the change of exchange rate employs the past information of stock returns to forecast, although the effect of the stock returns could be appeared in other variables, but the test illustrated that the stock returns could not be a component to forecast other monetary policy variables and it also states that the analyses do not contain the analysis of impact from the stock returns to other variables, except the change of exchange rate. The table 5.13 which illustrated that at one-ahead-forecast horizon, the forecast error variance

decomposition of the change of exchange rate (at stationary series) contains its own innovation and the contribution of the innovation of stock returns is nothing at one-ahead-forecast horizon (it could be found in figure 5.6 as well). And from the second month, the contribution of stock returns to the variance of the change of exchange rate slightly increases, the innovation of the change of exchange rate has more than 10% of share from stock returns at second month and increases a small volume in the third month and then falls again in forth month. This phenomenon could be explained that the innovations of the change of exchange rate will not be considered from any shock from the stock returns in the short period- that was partial consequence for the delay effect of monetary policy which were blamed by many scholars during the period of fever in the stock market.

Table 5.13

Variance decomposition of monetary policy variables

Variance Decomposition of DEXC:					
Period	S.E.	INF	DINTE	DEXC	RET
1	0.488663	1.509868	20.08824	78.40189	0.000000
2	0.630757	1.258531	22.05885	66.04823	10.63439
3	0.703311	1.732487	21.62801	65.17359	11.46592
4	0.741127	2.102656	21.52617	64.93864	11.43253
6	0.77236	2.443166	21.45794	64.70561	11.39329
10	0.784584	2.576522	21.43056	64.61364	11.37929

The result is performed by Eview.

b. Responses of monetary policy variables to the innovation of stock returns

The effect of shock from stock returns on the innovations of the change of exchange rate is negative at almost periods, but there is no effect at one-standard deviation as same as the above result of variance decomposition. The large negative effect to second month of exchange rate of stock returns could be shown that there is a

movement or withdrawn from the currency exchange market, since investors do not want to hold foreign currency (dollars) and they want to invest to other profitable market, as same as the argument in above section about the investors' reaction between the stock market and the currency exchange market in Vietnam, one standard deviation of stock returns will make a reduce of 35.74 unit in the change of exchange rate at the second month, the large change happens in this month; and declines quickly from third month, the change of exchange rate looses 11.31 units and 1.70 unit in the third and forth month, respectively. But the response of the change of exchange rate is changed to other sign in the contemporaneous shock from stock returns which makes a contribution to 0.59 unit to the change of exchange rate at the sixth month(this is also the strongest effect from the stock returns) and then declines slowly to 0.165 unit in the tenth month.

Table 5.14

Response of the change of exchange rate to stock returns

Period	DINTE	DECX	RET
1	-44.84398	88.59241	0.000000
2	-25.27342	-9.228034	-35.74091
3	-1.117428	-7.392677	-11.31291
4	0.845558	-3.318720	-1.708034
6	0.745193	-0.71029	0.594699
10	0.212123	-0.20968	0.165218

The result is performed by Eview.

In conclusion, the innovation of stock returns almost is based on its own innovation of forecast error deviation, the contribution from the changes of lending interest and exchange rate are fixed around 10%, it is a small part in the innovation of stock returns, it can be concluded that investors make decision for their trading based on the previous information, and it has interaction to the shock of monetary policy: negative responses to the shock of inflation, the change of lending interest rate from

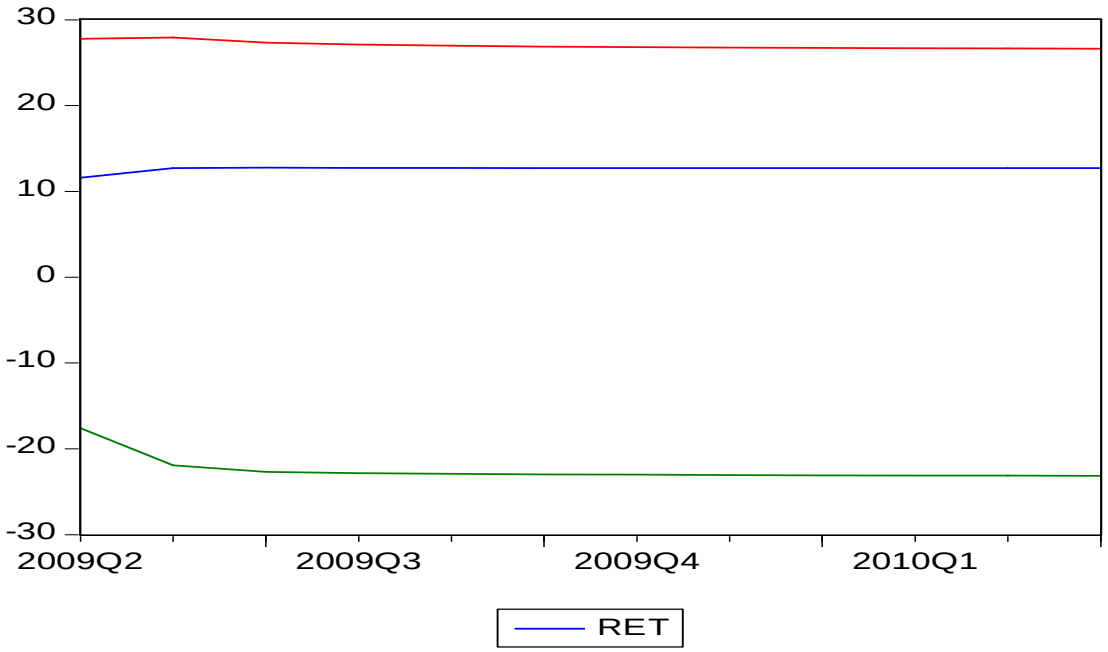
third month, and positive responses to its own innovation during the first three month. But from the response of stock returns to innovation of the change of exchange rate in second month, although the innovation of the change of exchange rate has affected lately, but its change could increase the innovation of stock returns more than 2.91 units in comparison to the contemporaneous innovation of stock returns itself (4.16 units) or 11.43 units at one-standard deviation, we could see that the shock from the change of exchange rate could be a part of fluctuation of stock returns because it affects directly to the investors' behavior when the SBV decides to adjust or make a deflation for domestic currency, from the existing bubbles in the stock market, the State Bank of Vietnam has involved to the movement of stock prices via the change of exchange rate, which is supported to some arguments that the State Bank of Vietnam should control the foreign financial resources when they tried to invest more to the stock market and made a mania from domestic investors as followers in the period of booming stock prices.

5.2.6 The prediction of stock returns

As mentioned in the section 5.2.3, the VAR system has forecasted with lower mean and was chosen as the main system. The study employed the dynamic forecast with stochastic simulation, the result illustrates in figure 5.5. As the result from variance decomposition of stock returns, we could see that the movement of stock returns mostly depends on its own innovation. But from the figure 5.4, it can be seen that the mean of prediction is closed to the upper bound, since it had been affected from the fluctuation at the beginning of 2009, led to prediction that closed to the upper bound. Or it could be explained that from the slow down of economic in 2008 and the effect of world economic recession, the prediction shows that the stock returns have slightly increased and stable.

Figure 5.4

The prediction for stock returns

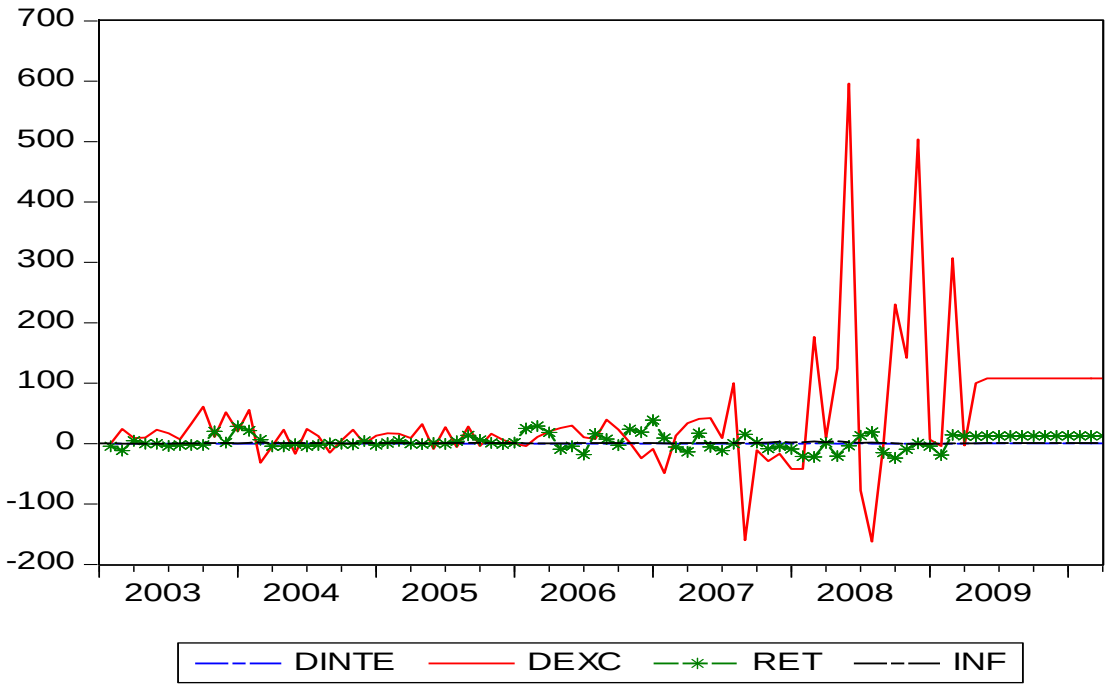


Note: The forecast period is 2009M05-2010M04. The result is performed by Eview.

The prediction of stock returns shows that the change of stock returns for the periods after April 2009 is stable (as mentioned above), 10% approximately. Since the forecast of stock returns is based on the last information of the change of exchange rate, inflation and the change of lending rate, so this could be caused by a deflation in domestic currency (mostly comparing to USD) and the lending rate has not changed too much during the end of 2008 and the first four months in 2009. In the other word, the movement and stable prediction of stock returns is the information for forecasting the change of exchange rate, and again the change of exchange rate is increased in stability around 100dong/month.

Figure 5.5

The forecast for stock returns and monetary policy from the VAR system with the movement of monetary variables



Note: *The actual period is from 2003M01 to 2009M04*

The forecast period is from 2009M05 to 2010M04

The result is performed by Eview.