

MONETARY POLICY CHANGES AND STOCKS RETURN IN MALAYSIA: EMPIRICAL EVIDENCE USING ARDL MODEL

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ABSTRACT

This paper aims to examine the effect towards stock return if monetary policy changes in Malaysia. In order to answer this issue, we need to test for cointegration between stock market returns and monetary variable which only include interbank offering rate (IBOR) for the period 2004 until 2012 in Malaysia. The focus of the paper is to empirically investigate the link between the monetary policy variable and the stock returns. Using bounds testing approach (ARDL model), the empirical findings reveal that there exists a long run relationship among stock returns and monetary variable. Specifically, monetary variable namely interbank offering rates (IBOR) are found to play prominent roles in influencing the stock returns.

Keyword: Stock returns, monetary variable, inter-bank offering rate (IBOR); ARDL

PERUBAHAN DASAR KEWANGAN DAN PULANGAN SAHAM DI MALAYSIA- BUKTI EMPIRIKAL MENGGUNAKAN ARDL MODEL

ABSTRAK

Makalah ini bertujuan untuk mengkaji kesan ke atas pulangan saham jika berlaku kejutan dalam dasar kewangan di Malaysia. Untuk menjawab isu ini, pengkaji perlu menguji kointegrasi antara pulangan pasaran saham dan pembolehubah kewangan iaitu kadar bunga antara bank (IBOR) bagi tempoh 2004 hingga 2012 di Malaysia. Fokus kertas ini adalah untuk menyelidik secara empirikal antara pembolehubah dasar kewangan dan pulangan saham. Dengan menggunakan pendekatan pengujian sempadan (model ARDL), penemuan empirikal mendedahkan bahawa wujud hubungan jangka panjang antara pulangan saham dan pembolehubah kewangan. Secara khusus, pembolehubah kewangan iaitu kadar bunga antara bank (IBOR) didapati memainkan peranan penting dalam mempengaruhi pulangan saham.

Kata kunci: pulangan saham, pemboleh ubah kewangan, IBOR, ARDL

INTRODUCTION

Monetary policy in Malaysia is officially setup by Bank Negara Malaysia (a.k.a BNM). The main functions of BNM which includes to issuing currency and safeguarding the value of currency. In order to promote a sound and stable financial system in the economy, BNM has right to control over the money supply as directed by the government of Malaysia. Interest rates are the main operating target for the BNM. Recently BNM already use overnight policy rate (OPR) as the indicator of monetary policy stance. If OPR change, it will announce in the monetary policy statement (MPS), which is issued on the same day as the corresponding Monetary Policy Committee (MPC) meeting.

In this paper, it provides empirical evidence on the relationship between monetary policy and one of the most important financial markets, which is the stock market for this research we focused on stock return. Stock return are among the most closely monitored asset prices in the economy and are commonly regarded as being highly sensitive to economic conditions. In the context of the transmission mechanism through the stock market, monetary policy changes will affect the stock return. The research question for this study is what are the most important effect that will occur if monetary policy changes. This research will give good information especially for the investor and policy maker to take right action and develop an absolute strategy in order to maximize the return.

This paper uses a recent econometric technique, namely ARDL or bounds testing procedure proposed by Pesaran et al. (2001). The method is sufficient enough to deal with a short sample size, and it also allows a mixture of time series variables of I(0) and I(1) to be collectively estimated.

In order to tackle the important questions, it is better if test for a stable cointegration relationship between monetary policy and stock market returns which should ultimately affect stock prices as well. By using ARDL model instead of more standard econometric procedures to estimate the impact of monetary policy on stock market returns. This methodology is particularly useful in the current application in this research.

The structure of this paper is organized as follow. Section 2 provides a short review of the literature by focusing on the monetary policy and stocks return. Section 3 presents the econometric methodology by focusing on definitions of the variable of interest as well as the ARDL model. The empirical results are discussed in Section 4, and finally Section 5 summarizes and concludes.

LITERATURE REVIEW

It is well acknowledge that monetary policy affects stock returns. Voluminous studies have documented the significant relationship between monetary policy and stock returns. The researchers like Sprinkel (1964,1971), Palmer (1970), Homa and Jaffer (1971), Keran (1971), Hamburger and Kochin (1972), Modigliani (1972) provided further evidence on the effects of monetary policy on stocks price and eventually their returns. This studies were mostly centered on IBOR as the monetary policy variable and its empirical link with stock returns.

The issue of the impact of the monetary policy has long been debated by financial economists. Rozeff (1974) presents evidence that increase in the growth rate of money raises stock returns. Boudoukh, Richardson and Whitelaw (1994) state that it's still an open question whether monetary policy affects the real economy and stock returns.

A recent example using the event study framework to assess the effect of monetary policy on the stock market is Bernanke and Kuttner (2005). Related literature measuring the response of equity returns to monetary policy using the event study framework also includes Patelis (1997), Bomfin (2003), Craine and Martin (2003) and Bentzen (2004).

ESTIMATION METHODS

Data and the Definition of Variable

The data used in this study are monthly frequency spanning from 2004 until 2012. The IBOR and KLCI returns data set is collected from DataStream. The data of KLCI are transformed into return, whereas, the data of IBOR are kept in natural.

For this paper, its only concern specifically on the return of KLCI that will be affected because of monetary changes.

Monetary Variables

This study only considers one monetary variable, namely inter-bank offering interest rate (IBOR) in investigating the importance of monetary variable in affecting the stock returns in Malaysia. IBOR is actually, interest rate at which banks lend to and borrow from one another in interbank market. IBOR serve as an indicator of levels of demand and supply in all financial markets. Also called interbank rate. For this paper, return of KLCI consider as dependent variable while IBOR as independent variable.

ECONOMETRIC MODELLING

In order to examine long run relationship and dynamic interaction among stocks return and monetary changes, this study employs an ARDL model. In general, there are three steps in estimating the model. The first step is to estimate the long-run relationship among the variables. This is done by testing the significance of the lagged levels of the variables in the error correction form of the underlying ARDL model. Our ARDL model can be written as follows;

$$\square \square \text{Return} = \alpha_0 + \alpha_1 R_{t-1} + \alpha_2 \text{IBOR}_{t-1} + \sum \beta_1 \square \square R_{t-1} + \sum \beta_2 \square \square \text{IBOR}_{t-1} + U_{it} \square$$

where,

Return is return stocks of KLCI, IBOR is interbank offering interest rate. The selection of the optimum lagged orders of the ARDL model are based on Akaike information criteria. In order to test cointegration among the variable, the Wald F-statistics for testing the joint hypotheses has to be compared with the critical values as tabulated by Pesaran et al. (2001).

The joint hypotheses to be tested are;

$$H_0 = \beta_1 = 0$$

$$H_1 = \beta_1 \neq 0$$

If the F-statistics is higher than the upper bound critical value, the null hypothesis (H0) is rejected, indicating that there is a long run relationship between the lagged level variables in the model. In contrast, if the F-statistic falls below the lower bound, then the H0 cannot be rejected and no long run relationship exists. However, if the F-statistics falls in between the upper bound and lower bound critical values, the inference is inconclusive. At this condition, the order of

integration of each variable should be determined before any inference can be made.

In the second step, once the cointegration is established, the conditional *ARDL* long-run model of the determinants of the *return KLCI* can be estimated.

In the final step, we obtain the short-run dynamic parameters by estimating an error correction model associated with the long run estimates.

EMPIRICAL RESULTS

The empirical results are crucial in explaining the changes of monetary policy on stocks return in Malaysia.

Table 1: Descriptive Statistics

	KLCI (RETURN)	IBOR
Mean	1167.103	2.914433
Std.Dev	249.7709	-3.384142
Skewness	0.110062	2.144710
Kurtosis	1.530919	5.342202
Jarque Bera	8.918560	0.069176
Probability	0.011571	282.7000

Table 1 provides a summary statistics for main variable. The first column reports the test statistics including mean, standard deviation, kurtosis and the Jarque-Bera test for normality. Skewness coefficients show that the variables are positively skewed. It is note that for all variables, the distributions seem to be more leptokurtic rather than platykurtic. Jarque-Bera statistics, all variables indicate non normal distributions.

Table 2: Cointegration Vector

Dependent variable is RETURN

List of the variables added to the regression:

RETURN(-1)DIBOR(-

1)

95 observations used for estimation from 2004M6 to 2012M4

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	.78301	.86453	.90570[.368]
T	-.0023357	.015135	-.15433[.878]
DIBOR	-3.5540	3.6810	-.96550[.337]

RETURN(-1)	.16041	.10357	1.5489[.125]
DIBOR(-1)	3.2042	3.6521	.87735[.383]

Joint test of zero restrictions on the coefficients of additional variables:

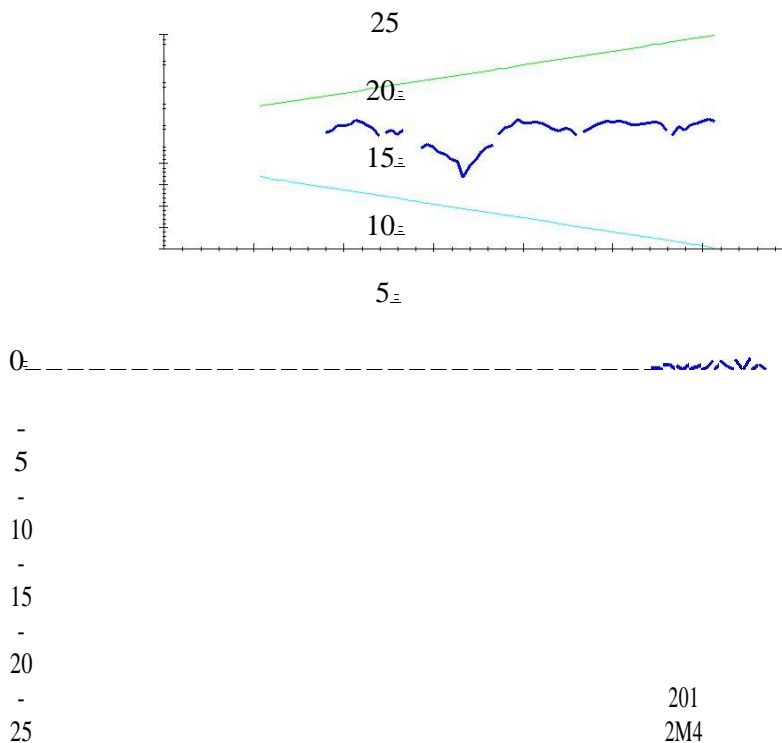
	CHSQ(
Lagrange Multiplier Statistic	2)=	2.9965[.224]
	CHSQ(
Likelihood Ratio Statistic	2)=	3.0447[.218]
F Statistic	F(2, 90)=	3.1656[.023]

The Long_Run relationship = cointegration vector

Lower F=2.385 upper =3.524

Table 2 shows the long run relationship, which includes lower F= 2.385 while for upper F= 3.524.

Plot of Cumulative Sum of Recursive Residuals



2004 2005 2007 2008 2009 2010 2012
 M8 M11 M2 M5 M8 M11 M2

The straight lines represent critical bounds at 5% significance level

The graph shows the straight lines that represent critical bound at 5% significant level.

Table 3: Estimation of short-run Model

Regressor	coefficient	Standard error	t-ratio	Probability
Ecm _{t-1}	-0.61935	0.13130	-4.71721	0.000
Dreturn	-0.27957	0.10285	-2.7182	0.008
Dibor	-1.8130	3.6796	-0.4927	0.623
R ² square	0.51202			
Durbin Watson	2.0650			
F-statistic	14.6897			
Prob. statistics	0.000			

Dependent variable is Dreturn

Table 3 reports the estimation results of short-run model using ARDL (2,3). As shown, dibor are statistically significant in influencing the stocks return. The ECM variable which explains the speed of the adjustment is also significant. This indicates that there is a long run causality from monetary policy variable to the stocks return (KLCI).

SUMMARY AND CONCLUSION

In a nutshell, this paper examines the relationship between the monetary policy variables and stock returns in Malaysia throughout 8- years period from 2004-2012. The study is done by using ARDL model. Specifically, this paper examine the monetary policy variable namely IBOR in affecting the stocks return. Considering the short annual sample size, the ARDL or bound testing procedure is used to examine the long run relationship and the causality direction (long run, and short run) among the variable of interest.

The main findings can be summarized as follows. First, there is a long-run relationship among monetary variable IBOR and stocks return in Malaysia. Second, in the long-run and short run monetary variable namely IBOR are statistically in influencing the stocks return of KLCI. This study is an effort to understand whether monetary policy changes hold any informational content to the stock market that may lead to stocks return of KLCI.

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