RESPONSIVENESS OF THE MALAYSIAN GOVERNMENT SECURITIES YIELD TO THE MONETARY POLICY TIGHTENING IN MALAYSIA

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UNIVERSITI UTARA MALAYSIA
APRIL 2018

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By
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Thesis Submitted to
School of Economics, Finance and Banking,
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of
Master of Science (Finance)

Pusat Pengajian Ekonomi, Kewangan dan Perbankan
SCHOOL OF ECONOMICS, FINANCE, AND BANKING
Universiti Utara Malaysia

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ABSTRACT

The objective of this study is to examine the responsiveness of the Malaysian Government Securities (MGS) yield to the monetary policy tightening in Malaysia. A total of 397 numbers of each dataset are observed, by using data period from the year 2004 to the year 2016. The sample of MGS yield used in this analysis is short-terms MGS yield, medium-terms MGS yield and long-terms MGS yield. This study is to investigate the reaction of MGS yield that changes to 5-, 15- and 25-days prior,post-trading days and during the trading day to OPR hike, with total days covered are 51 days. The findings also shows all of OPR hike in the various period become stationary at order one I(1), while on MGS yield, all except for the short-term MGS yield during OPR hike on 24 February 2006, medium-term MGS yield during OPR hike on 12 May 2010, short- and medium-term MGS yield during OPR hike on 5 May 2011 and medium-term MGS yield during OPR hike on 10 July 2014 which become stationary at level I(0). Moreover, the results indicate that the yields on government bond are sensitive only to the monetary policy tightening during 2005 which is consistent with the term structure of interest rate theory where the yields to maturity increase as the term to maturing increase. Furthermore, the findings also show that in term of short-run relationship results, at least eight out of twenty-four of variables in OPR hike does Granger cause to MGS yield at the 1 percent level of significance, given the p-value are less than 1 percent, 5 percent and 10 percent level respectively, while there a total of eight of MGS yield that Granger cause to OPR hike, assuming that OPR hike is a dependent variable. Nevertheless, the findings also concluded that tenth out or forty-eight of variables either both of variable between OPR hikes or MGS does not show Granger cause to each other. However, in term of long-run relationship tested results indicates no long-run relationship appears between the responsiveness of MGS yield to OPR hike, given both Max-Eigenvalue and trace -statistic test appear to have less than 5 percent and 1 percent levels of critical value. For future study, it is recommended a new research to analyse the relationship between interest rate to both MGS and Government Islamic Issuance (GII) for better understanding of Malaysia Capital Market behaviour.

Keywords: Yield Curve, Malaysia Government Securities Yield, Overnight Policy Rate, Term of Maturity, Term Structure of Interest Rate

ABSTRAK

Tujuan kajian ini adalah untuk mengkaji keberkesanan hasil sekuriti kerajaan Malaysia terhadap peningkatan kadar faedah di Malaysia. Sejumlah 397 sampel data diselidik daripada tempoh tahun 2004 hingga tahun 2016. Kajian ini menumpukan tiga tempoh jangkamasa bagi hasil bon kerajaan iaitu bon kerajaan bagi jangkamasa pendek, jangkamasa sederhana dan jangkamasa panjang. Kajian ini turut memfokuskan kadar tindak balas hasil bon kerajaan kepada tempoh masa 5-, 15- dan 25 hari sebelum, selepas dan pada hari dagangan terhadap kenaikan kadar faedah, dengan jumlah keseluruhan hari adalah sebanyak 51 hari. Hasil kajian yang dibuat membuktikan semua kenaikan kadar faedah dalam pelbagai tempoh adalah stationari bagi ujian unit root pada kedudukan urutan I (1), manakala hasil bon kerajaan menunjukkan keseluruhan tempoh jangkamasa kecuali bon kerajaan bagi jangkamasa pendek terhadap kenaikan kadar faedah pada 24 Februari 2006, hasil kerajaan bagi jangkamasa sederhana terhadap kenaikan kadar faedah pada 12 Mei 2010, hasil bon kerajaan bagi jangkamsa pendek dan sederhana terhadap kenaikan kadar faedah pada 5 Mei 2011 dan hasil bon kerajaan bagi jangkamasa sederhana terhadap kenaikan kadar faedah pada 10 Julai 2014 adalah stationari pada kedudukan tahap I (0). Secara keseluruhannya, kajian ini turut menunjukkan bahawa hasil bon kerajaan hanya sensitif terhadap kenaikan kadar faedah pada tahun 2005, di mana tindak balas keputusan kajian adalah konsisten dengan teori kadar faedah; peningkatan hasil sekuriti kerajaan meningkat apabila kadar faedah meningkat. Di samping itu, sekurang-kurangnya lapan daripada dua puluh empat pembolehubah terhadap kenaikan kadar faeah menyebabkan granger causaliti kepada hasil bon kerajaan pada tahap 1 peratus kepentingan, manakala lapan hasil bon kerajaan turut menyebabkan ujian kausaliti granger terhadap kenaikan kadar faedah, dengan mengandaikan kenaikan kadar faedah adalah pembolehubah yang bergantung. Walaubagaimanapun, penemuan hasil kajian juga menyimpulkan bahawa sepuluh daripada empat puluh lapan pembolehubah sama ada kedua-dua pembolehubah bertindak sebagai pembolehubah bergantung antara satu sama lain tidak menunjukkan ujian kausaliti granger antara satu sama lain. Walau bagaimanapun, dari segi hubungan jangkamasa panjang yang diuji tiada hubungan jangkamasa panjang yang wujud di antara tindak balas hasil bon kerajaan terhadap kenaikan kadar faedah berdasarakan keputusan ujian statistik Max-Eigenvalue dan ujian-statistik kerana keputusan ujian mendapati kesemua data sample adalah kurang daripada 5 dan 1 peratus. Untuk kajian masa hadapan, dicadangkan satu kajian menyeluruh mengenai hubungan kadar faedah terhadap semua Bon kerajaan Malaysia termasuk Bon islamik untuk memahami dengan lebih lanjut berkaitan pasaran modal di Malaysia.

Kata Kunci: Bon Kerajaan Malaysia, Kadar faedah, Tempoh Matang, Struktur Kadar Faedah

ACKNOWLEDGEMENT

First of all, in the name of Allah, the Most Gracious and the Most Merciful, Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this dissertation.

I am thankful for the prayers, encouragement and support given by my beloved family, especially to my dear parents Kamarulbahrin, Faridah, C Baharudin and Nafisah. I would like to express my appreciation to my lovely husband Muhd Zaki, my children Fawwaz and Sarah for their love, patience and constant support. Besides, I would like to thank you to all my siblings Nurfazliza, Kamarul Fazrin, Nur Fairuz Asykeen, Rashidah and Nur Fahimah for their continuous encouragement.

Special appreciation goes to my supervisor, Dr. Norshafizah binti Hanafi, for her supervision and knowledge to complete this dissertation.

My acknowledgement also goes to all my UUM staffs and colleagues for their advice, knowledge and co-operations provided.

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LIST OF ABBREVIATIONS

And others	Et al
And so on	etc.
Augumented Dickey-Fuller	ADF
Bank Negara Malaysia	BNM
Base Lending Rate	BLR
Durbin Watson	DW
European Government Bond	EGB
European Monetary Union	EMU
European Union	EU
Fed Fun Rate	FFR
For example	i.e.
Government Islamic Issuance	GII
Gross Domestic Product	GDP
Japanese Government Bond	JGB
Malaysian Government Securities	MGS
Monetary Policy Committee	MPC
Overnight Policy Rate	OPR
R-Square	R^2
Securities Commission	SC
United Kingdom	UK
United States of America	USA
Unites States Treasury	UST
Vector Error Correlation Model	VECM

CHAPTER 1

INTRODUCTION

1.0 Background of Study

This paper is to examine the response of Malaysian Government Securities (MGS) yield to the monetary policy tightening in Malaysia. According to Dato' Salleh Harun (2002), Malaysia capital market has developed considerably in terms of market size, efficiency and range of instruments. The country's capital market is considered as a well-diversified financial base, which corresponds to the steady economic growth. As such, bond market continues to play a significant role as an alternative source of financing to support the current economic development. Besides that, Malaysia bond market, in particular, has achieved a higher level of efficiency over the years, being one of the fastest growing financial markets in Asia.

Refer to BNM (2017), Malaysian Government Securities (MGS) are interest-bearing bonds issued by the Government of Malaysia via BNM with the objective raising funds from the domestic capital market for the country development spending. MGS are most actively traded bonds in Malaysia bond market. Based on article by Advantage on bonds (2012) holding, bonds market is somehow better than the stock market as it raises a better rate than the rates paid by banks. BNM (2017), the central frequently issues the 3-, 5-, 7-, and 10- year MGS as benchmark securities for the yield curve. In addition, super-long-term MGS (15- and 20-year) maturities have also been issued to lengthen the yield curve.

Therefore, Malaysian government funding through the domestic bond market continued to improve notably showed the trends in the market value of bond issuance.

The contents of the thesis is for internal user only

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APPENDICES

The Augmented Dickey-Fuller

Null Hypothesis: IR300505 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.000000	0.7465
Test critical values:	1% level	-3.568308	
	5% level	-2.921175	
	10% level	-2.598551	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IR300505)
Method: Least Squares
Date: 04/12/18 Time: 17:56
Sample (adjusted): 10/27/2005 1/04/2006
Included observations: 50 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IR300505(-1)	-0.040000	0.040000	-1.000000	0.3223
C	0.120000	0.114158	1.051177	0.2984

R-squared	0.020408	Mean dependent var	0.006000
Adjusted R-squared	-0.000000	S.D. dependent var	0.042426
S.E. of regression	0.042426	Akaike info criterion	-3.442914
Sum squared resid	0.086400	Schwarz criterion	-3.366433
Log likelihood	88.07284	Hannan-Quinn criter.	-3.413789
F-statistic	1.000000	Durbin-Watson stat	2.001667
Prob(F-statistic)	0.322325		

Null Hypothesis: D(IR300505) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.000000	0.0000
Test critical values:	1% level	-3.571310	
	5% level	-2.922449	
	10% level	-2.599224	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IR300505,2)
Method: Least Squares
Date: 04/12/18 Time: 17:58
Sample (adjusted): 10/28/2005 1/04/2006
Included observations: 49 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IR300505(-1))	-1.020833	0.145833	-7.000000	0.0000
C	0.006250	0.006250	1.000000	0.3224

R-squared	0.510417	Mean dependent var	0.000000
Adjusted R-squared	0.500000	S.D. dependent var	0.061237
S.E. of regression	0.043301	Akaike info criterion	-3.401310
Sum squared resid	0.088125	Schwarz criterion	-3.324092
Log likelihood	85.33209	Hannan-Quinn criter.	-3.372014
F-statistic	49.00000	Durbin-Watson stat	2.000887
Prob(F-statistic)	0.000000		

Null Hypothesis: ST240206D has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.215469	0.0249
Test critical values:	1% level	-3.568308	
	5% level	-2.921175	
	10% level	-2.598551	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ST240206D)
Method: Least Squares
Date: 04/12/18 Time: 18:00
Sample (adjusted): 1/23/2006 3/31/2006
Included observations: 50 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ST240206D(-1)	-0.329348	0.102426	-3.215469	0.0023
C	1.189299	0.369187	3.221404	0.0023

R-squared	0.177226	Mean dependent var	0.002380
Adjusted R-squared	0.160085	S.D. dependent var	0.050820
S.E. of regression	0.046575	Akaike info criterion	-3.256324
Sum squared resid	0.104123	Schwarz criterion	-3.179843
Log likelihood	83.40809	Hannan-Quinn criter.	-3.227199
F-statistic	10.33924	Durbin-Watson stat	2.447493
Prob(F-statistic)	0.002332		

Simple Linear Regression

Dependent Variable: ST300505
Method: Least Squares
Date: 10/30/17 Time: 17:53
Sample: 11/23/2005 12/07/2005
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IR300505	0.225444	0.042219	5.339846	0.0005
C	2.872500	0.121065	23.72691	0.0000

R-squared	0.760089	Mean dependent var	3.518091
Adjusted R-squared	0.733432	S.D. dependent var	0.040513
S.E. of regression	0.020917	Akaike info criterion	-4.733557
Sum squared resid	0.003938	Schwarz criterion	-4.661213
Log likelihood	28.03456	Hannan-Quinn criter.	-4.779160
F-statistic	28.51395	Durbin-Watson stat	1.835282
Prob(F-statistic)	0.000469		

Dependent Variable: MT240206
Method: Least Squares
Date: 04/12/18 Time: 18:11
Sample: 2/03/2006 3/17/2006
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IR240206	0.200900	0.033478	6.000894	0.0000
C	3.088700	0.104838	29.46156	0.0000

R-squared	0.553920	Mean dependent var	3.717323
Adjusted R-squared	0.538538	S.D. dependent var	0.034282
S.E. of regression	0.023288	Akaike info criterion	-4.619432
Sum squared resid	0.015727	Schwarz criterion	-4.526917
Log likelihood	73.60119	Hannan-Quinn criter.	-4.589274
F-statistic	36.01073	Durbin-Watson stat	1.223159
Prob(F-statistic)	0.000002		

Dependent Variable: IR240406
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 04/12/18 Time: 19:03
Sample: 3/22/2006 5/31/2006
Included observations: 51
Convergence achieved after 15 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LT240406	-0.032437	0.602735	-0.053817	0.9573
C	3.521711	2.625077	1.341565	0.1862
AR(1)	0.965561	1.298904	0.743366	0.4610
SIGMASQ	0.001218	0.001426	0.853761	0.3976

R-squared	0.922033	Mean dependent var	3.377451
Adjusted R-squared	0.917056	S.D. dependent var	0.126220
S.E. of regression	0.036351	Akaike info criterion	-3.663197
Sum squared resid	0.062106	Schwarz criterion	-3.511681
Log likelihood	97.41152	Hannan-Quinn criter.	-3.605298
F-statistic	185.2729	Durbin-Watson stat	1.924403
Prob(F-statistic)	0.000000		

Inverted AR Roots	.97

Granger Causality Test

VEC Granger Causality/Block Exogeneity Wald Tests
Date: 04/12/18 Time: 19:08
Sample: 1/20/2006 3/31/2006
Included observations: 48

Dependent variable: D(ST240206D)

Excluded	Chi-sq	df	Prob.
D(IR240206)	1.703648	2	0.4266
All	1.703648	2	0.4266

Dependent variable: D(IR240206)

Excluded	Chi-sq	df	Prob.
D(ST240206D)	0.811199	2	0.6666
All	0.811199	2	0.6666

Vector Error Correlation Model

Date: 04/12/18 Time: 19:07
Sample (adjusted): 1/25/2006 3/31/2006
Included observations: 48 after adjustments
Trend assumption: Linear deterministic trend
Series: ST240206D IR240206
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.218575	12.94898	15.49471	0.1167
At most 1	0.022869	1.110440	3.841466	0.2920

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.218575	11.83854	14.26460	0.1169
At most 1	0.022869	1.110440	3.841466	0.2920

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values