

The behaviors of conventional and Islamic bonds in Malaysia during COVID-19

Huzaimi Hussain^{1*}

¹Faculty of Business and Management, Universiti Teknologi MARA Cawangan Sarawak, Kampus Samarahan, 94300 Kota Samarahan, Sarawak, MALAYSIA.

Email: huzaimi@uitm.edu.my

*Corresponding Author

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Abstract

The study empirically examines the behaviors of short-term and long-term bonds in Malaysia for both conventional and Islamic during the COVID-19 crisis. The relationship between short-term and long-term interest rate yields is tested using the Johansen and Juselius cointegration technique based on Expectation Theory. These non-stationary time series models of cointegration analysis are employed upon weekly data from April 1, 2020, to December 29, 2021. Three different maturities of bonds analyzed in the study are three-month, three-year, and ten-year bonds. The results display that cointegration exists between the two long-term bonds, namely three-year and ten-year, for both conventional and Islamic. This information is imperative for policymakers and retail investors in understanding the reaction and performance of bonds in Malaysia, specifically during the COVID-19 crisis. The insight could provide input and assist in making more viable investment decisions.

INTRODUCTION

The size of the capital market in Malaysia has grown significantly in the past few years. As reported by the Capital Market Malaysia (CMM), the market value of the capital market in Malaysia has reached RM3.4 trillion as at end-December 2020 and RM3.5 trillion as at end-December 2021. This encouraging expansion is supported by the development of both conventional and Islamic capital market instruments, namely equities and bonds. The Islamic capital market in Malaysia plays an important role in the economy, where it contributed 64.5% of the total capital market in Malaysia, for both Islamic and conventional. The volume increased from RM2.26 trillion at the end 2020 to RM2.31 trillion at the end of 2021.

The development of the Islamic Financial system in Malaysia began with the establishment of Bank Islam Malaysia Bhd. on 1 July 1983 and Lembaga Tabung Haji (formerly known as Perbadanan Wang Simpanan Bakal-Bakal Haji) on 30 September 1963. Since then, Malaysia has been known as the premier or leader in promoting the Islamic Financial system in the world. The efforts have provided a very viable and supportive financial landscape for both conventional and Islamic Financial institutions to operate side by side and contributed to the growth of the Malaysian economy by channeling funds

from surplus to shortage units. Islamic financial institutions nevertheless, must be very competitive enough to compete with the well-established conventional financial institutions.

Islamic financial system operates based on Islamic rulings (*Shariah*) principles, which rule out the prohibition of certain business activities, and the transaction (*aqad*) that must be carried out in certain stipulated ways. Different with conventional financial system which use interest rates as the cost of borrowing, the Islamic financial system, on the other hand, uses rates of return instead. Interest rate (*riba*) is considered prohibited (*haram*) due to the nature of its operation where the return is pre-determined. Islamic rates of return theoretically set the return based on the economic or business performance.

The comparison analysis on the performance between conventional and Islamic bonds during the crisis is imperative as it will give some insight or perception to the investors, especially Muslim investors in Malaysia as well as to the world. As explained above, Muslims are obliged to follow the rulings and guidelines stipulated by the relevant government agencies in performing their daily activities including business and investment. For instance, Shariah Advisory Board of Securities Commission Malaysia is established and responsible for determining whether a financial instrument is Islamically permissible or not. In addition, as pointed out by Abdullah and Chee, (2010) Islamic finance which is based on ethical principles, is gaining more and more acceptance by non-Muslims currently. The investigation on the performance of Islamic and conventional bonds during the crisis would provide some input to satisfy their sense, which could also act as an alternative investment to the conventional one.

Malaysian economy was not spared when the pandemic COVID-19 struck the world in 2019. The impacts, which spread globally, forced the country to the implementation of Movement Control Order (MCO) or lock down. The first MCO in Malaysia was imposed on 18 March 2020 and was gradually lifted until 2021. The impact was so severe that Malaysia had recorded a contraction of 5.6% gross domestic product (GDP) in 2020 but manage to rebound and expand in 2021 with 3.1% growth.

It is thus imperative to assess the behaviors of the Islamic financial instruments in relation to conventional, particularly during the financial and economic crisis. The objective of this study is to analyze the behavior of both conventional and Islamic bonds (known as *Sukuk*) in Malaysia during the pandemic COVID-19 crisis.

LITERATURE REVIEW

The assessment on the performance and behavior of bonds, namely the relationship between short-term and long-term bonds and their connectedness, has prompted many studies. Samitas et al (2020) finds that Islamic bonds *Sukuk* and conventional bond markets are highly integrated. The study which applies several global *Sukuk* indices also reveals that *Sukuk* is the main mover or shock transmitter to the conventional bonds.

Lee et al. (2017) investigate the dynamic relation between conventional and Islamic lending rates in Malaysia proves that there are no long-run relations for base lending. Average lending rates however evident there is long run between the two and conclude that Islamic borrowing could be a viable alternative to conventional bank borrowing.

Another study by Ito (2013) analyzed the Islamic rates of return and conventional interest rates in the Malaysian deposit market. Cointegration is evidence between Islamic rates of return and conventional interest rates in the Malaysian deposit market. In addition, Islamic rates also found to be the factor which influences the conventional rates in the three, six-, and 12-month maturities. The behavior of bonds is also analyzed in the context of expectation theory, which stipulates that interest rates on different maturities move together over time. Specifically, "The interest rate on a long-term bond will equal an average of the short-term interest rates that people expect to occur over the life of the long-term bond" (Miskin 2013). Investigation by Abdul Hadi et al (2019) supports the notion of interest rate expectation theory where there is significant long-term connection between long-term and short-term interest rates.

Duasa (2004) corroborate the validity of expectation theory in the context of Malaysian capital market where cointegration was found between the short- and long-run interest rates. In addition, she also proves that there is causality between the long to short run interest rates.

Similarly, Elshareif and Tan (2010) also reported the existence of a stable long-run relationship between the short-term and long-term interest rates in Malaysian capital markets. The causality test result however reveals bidirectional causality between the short and long-term interest rates. Sa'ad et al (2022) focuses their study on the *Sukuk* structures for deficit financing during Covid-19 crisis and conclude that the *Sukuk* market has provided solutions to financing for social well-being and stability.

METHODOLOGY

In this study, the behaviors of bonds in Malaysia are investigated for both conventional and Islamic during pandemic COVID-19. The analysis has been conducted on four short-term yields and two long-term yields. The short-term yields employed are namely the three-month conventional Malaysian Treasury Bill, three-month Malaysian Islamic Treasury Bills, three-year bonds, three-year *Sukuk*, while the two long-term yields used are ten-year conventional bonds and ten-year Islamic *Sukuk*, represented by the Malaysian Government Securities and Government Investment Issues yields respectively. Since the study is focusing on the impact of COVID-19 economic crisis specifically, the weekly data are employed for the period spanning from 1 April 2020 until 29 December 2021. These data are obtained from Central Bank of Malaysia website on the third day of the calendar week (Duasa, 2004).

In particular, the study chooses three-month Treasury Bills and three-year bonds to represent short-term bonds and ten-year bonds to represent long-term bonds. Investors having a lower risk tolerance and a higher level of liquidity would be satisfied with the short-term three-month Treasury Bills and three-year bonds. Investors in this risk-averse group would want to avoid high-risk investments that stem from uncertain movements in key economic indicators like future inflation and economic growth.

Typically, they are made up of corporations and banks. Conversely, ten-year bonds are a good option for risk-tolerant investors. The higher risk born by this group for holding these long-term bonds are compensated by the higher return expected to be received in the future. The diversification of investment assets between these short-term and long-term financial instruments would provide investors or fund managers with more stability and liquidity in their returns. Long-term maturity investors are generally made up of pension funds, insurance companies and long-term institutional investors.

The specification of this study is based on the Expectation Theory, as defined by Mishkin (2013) as "The interest rate on a long-term bond will equal an average of the short-term interest rate that people expect to occur over the life of the long-term bond." The main assumption of this theory is bonds of different maturities are perfect substitute where buyers of bonds do not prefer bonds of one maturity over another. The theory is able to explain one of the three empirical facts of the term structure of interest rates, namely, interest rates on bonds of different maturities move together over time.

This study applies cointegration analysis developed by Johansen and Juselius (1990) to test the hypothesis of long-run relationship between the variables or bond yields. To accomplish this objective, standard econometric time series methodology has been applied, where the steps begin by analyzing the behavior of the variables. Specifically, we test the unit root of each series employing the Augmented Dickey-Fuller (Dickey and Fuller, 1981). The process then followed by analyzing the long-run equilibrium among the series applying Johansen and Juselius (1990) cointegration technique.

RESULTS AND DISCUSSION

To check for the stationarity of the variables, this study employs the Augmented Dickey-Fuller (ADF) Test (Dickey and Fuller, 1981). The output is presented in Table 1. It seems that both three-month Treasury Bills and three-month Islamic Treasury Bills are stationary at level and do not pass the condition for cointegration analysis. As expected, the remaining four variables are non-stationary at level and stationary at first difference, demonstrating the I (0) character of the series. These behaviors

enable the study to carry out cointegration examination between these two short-term and long-term variables.

Table 1: ADF Unit Root Tests

Variable	Level		First Difference	
	t-statistic	Prob. Value	t-statistic	Prob. Value
3-MTB	-5.4310	0.0000*	-2.4199	0.1396
3-MITB	-5.8005	0.0000*	-2.8539	0.0533
3-year bond	-0.9322	0.7738	-10.0089	0.0000*
3-year Sukuk	-0.8845	0.7899	-8.9326	0.0000*
10-year bond	-0.7820	0.8192	-8.5689	0.0000*
10-year Sukuk	-0.8704	0.7934	-8.5474	0.0000*

Notes: 3-MTB = 3-month Treasury Bills, 3-MITB=3-month Islamic Treasury Bills

*Indicates significant at 5% level

Since both three-month Treasury Bills and three-month Islamic Treasury Bills are found to be stationary at level, these two variables thus do not fulfill the condition of cointegration analysis, where they must be non-stationary at level. Since all the other four variables prove to be stationary at first difference I (1), the cointegration investigation thus proceeds with the remaining four variables, namely three-year bonds, three-year *Sukuk*, ten-year bonds and ten-year *Sukuk*. The analysis was performed in pairs of variables.

Table 2:(a) Johansen Cointegration test between three-year bonds and ten-year bonds.

Hypothesized		Trace		Max eigenvalue	
No of CE	Statistic	Prob. value	Statistic	Prob. value	
None*	26.9354	0.0368	16.1814	0.1376	
At most 1	10.7539	0.0968	10.7539	0.0968	

Notes: Trace test indicates 1 cointegrating equation at the 0.05 level. Maximal eigenvalue indicates no cointegration at the 0.05 level.

Table 2:(b) Johansen Cointegration test between three-year *Sukuk* and ten-year *Sukuk*

Hypothesized		Trace		Max eigenvalue	
No of CE	Statistic	Prob. value	Statistic	Prob. value	
None*	33.1997	0.0052	24.9452	0.0070	
At most 1	8.2545	0.2316	8.2545	0.2316	

Notes: Trace test indicates 1 cointegrating equation at the 0.05. Maximal eigenvalue test indicates 1 cointegrating equation at the 0.05

As presented in Table 2(a) and 2(b), the existence of long-run equilibrium between three-year and ten-year variables are evidenced for both conventional bonds and *Sukuk*. Nevertheless, only Trace test displays cointegration between the two instruments for the conventional bonds. Findings strongly corroborate expectation theory for the Islamic bonds *Sukuk*, in which both statistics, namely Trace and Max Eigenvalue, recorded a long-run relationship.

Table 2:(c) Johansen Cointegration test between three-year bonds and three-year *Sukuk*

Hypothesized		Trace		Max eigenvalue	
No of CE	Statistic	Prob. value	Statistic	Prob. value	
None*	36.7386	0.0015	27.9521	0.0022	
At most 1	8.7864	0.1939	8.7864	0.1939	

Notes: Trace test indicates 1 cointegrating equation at the 0.05. Maximal eigenvalue test indicates 1 cointegrating equation at the 0.05

Table 2:(d) Johansen Cointegration test between ten-year bond and ten-year Sukuk

Hypothesized		Trace		Max eigenvalue
No of CE	Statistic	Prob. value	Statistic	Prob. value
None	20.7818	0.1889	13.0141	0.3269
At most 1	7.7677	0.2712	7.7677	0.2712

Notes: Trace test indicates no cointegration at the 0.05 level. Maximal eigenvalue indicates no cointegration at the 0.05 level.

The study proceeds with the investigation on the relationship between conventional and Islamic bonds with the same term to maturity, namely three-year and ten-year bonds. The results of the analysis are displayed in Table 2(c) and Table (d). The output reveals that three-year bond and three-year *Sukuk* do have a long-run equilibrium, verified by both Trace and Max Eigenvalue statistics. Different with the ten-year bonds, no cointegration relationship was detected between these two variables in this study. The results displayed in Table 2(a) and 2(b) strongly corroborate the Expectation Theory, which stipulates that the returns or interest rates of short-term and long-term bonds move together in the long run.

CONCLUSIONS

It is imperative to look at the COVID-19 period of economic crisis and learn the lessons in formulating our business and investment decisions. Investment in conventional bond and *Sukuk* would be a good diversification strategy while expecting a stable return. This study analyzes the behaviors of conventional bonds and *Sukuk* in Malaysia during COVID-19 economic crisis. The empirical results of cointegration show that a stable long-run equilibrium relationship exists between three-year and ten-year bonds, and three-year *Sukuk* with ten-year *Sukuk*. This expectation theory however does not apply to the two short-term variables namely three-month Treasury Bills and three-month Islamic Treasury Bills.

As for the connectedness between the conventional bonds and *Sukuk*, there is evidence of cointegration between three-year and not the ten-year bonds. The assumption that both conventional and Islamic bonds move together over time and have a similar trend is suggested by the cointegration results between 3-year conventional bonds with 3-year *Sukuk*. This would give investors the information and awareness they need to predict how these short-term bonds would move and behave in the future. Conversely, the ten-year conventional bonds that were not found to be cointegrated with the 10-year *Sukuk* suggest that there is no long-run equilibrium between these two instruments and that they will move independently and separately in the future. As a result, the investors are unable to predict the future return and behaviour of these two instruments using comparable forecasting tools or determinants.

This pronounced nexus between the short-term and long-term debt-based financial instruments could be a useful guideline for financial investors in strategizing their investment. It is also beneficial for policymakers in formulating and designing accurate monetary policy that could stimulate economic growth. The main limitation of this study is in terms of time frame, whereby the period covered is during the economic crisis of COVID-19 only. The general well-established theory which is tested in this study may not be fully supported due to the abnormal nature of the financial and economic landscape. Studies that include a longer time span with more data should produce better results.

This rare pandemic which hit the economy globally, should nonetheless become a great lesson to the policy makers and business community in becoming more resilient to future shocks or disturbances. In addition, the study focuses only on six capital market financial instruments, namely three-month, three-year, and ten-year bonds for both conventional and Islamic. Inclusion of more financial instruments would provide deeper insight into the issue.

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CONFLICT OF INTEREST

The author affirms that there is no conflict of interest in this article.

AUTHOR CONTRIBUTION

All work related to the writing and development of this article was undertaken solely by Huzaimi Hussaint as the sole author.

AI GENERATIVE DECLARATION

The author declares that generative AI tools were not used in the creation of this article, except for text paraphrasing and cross-checking references. The author assumes full responsibility for the accuracy, integrity, and final content of this work.

RESEARCH ETHICS STATEMENT

The author declare that this study did not involve any human biological samples or data, or animal subjects. Consequently, formal ethics committee approval and informed consent were not required for this research.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to institutional and ethical requirements.

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