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Revisit Bonds Market and Aggregate Output Nexus: The Malaysian Case

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Abstract

The capability of the bonds market to channel savings to investors plays a significant role in promoting aggregate output. However, some recent studies argue that the connection between bond market development and economic activities is uncertain. The purpose of this study is to examine how the bonds market in Malaysia may affect its aggregate output based on the period between 1990 to 2020. The autoregressive distributed lag (ARDL) bounds test is applied to study the nexus of the bonds market and the aggregate output of Malaysia. The results suggest a positive effect of private and public bonds on the economy of Malaysia. The findings imply a long-term effect running from the bonds market to aggregate output, supporting the notion that the bonds market has a direct and positive effect on channelling a surplus of funds to finance economic activities in Malaysia.

Keywords: Bonds market, Economic growth, Autoregressive Distributed Lag

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1. Introduction

An effective financial market increases the accessibility of borrowers to finance their economic activities through financial instruments. The financial market is the place to trade financial instruments such as stocks, bonds, currencies and derivatives. The financial market includes the money market, stock market and bonds market (Azwardi & Andaiyani, 2022). The bonds market channels savings from those with excess income to finance the government's spending and private companies' business expansion. Bonds pay fixed periodic income payments to savers, with a maturity date. In Malaysia, there is a mixture of public and private bonds available in the financial market.

Earlier studies established that the bond market's development enhances economic growth (Zhang et al., 2012; Thumrongvit et al., 2013). Earlier researchers agree that the bonds market induces economic growth. Growth-linked bonds, also knowns as gross domestic product (GDP) linked bonds, are bonds with fixed periodic income payments linke, stock and bonds to the performance of the economy, namely, GDP. Although the bonds market can attract those with the access to funds to directly finance businesses, more recent studies find that growth-linked bonds yield a lower return than conventional bonds (Eguren Martin et al., 2021). Many investors prefer high-yield bonds linked to the oil, gas and shipping businesses (Torvanger et al., 2021), doubting the capability of the bonds market to directly finance economic activities.

There is a change in preferences and expectations of investors in the bonds market. The current investors prefer high-yield bonds, as compared to growth-linked bonds (Torvanger et al., 2021). Ironically, the public and private bonds in Malaysia are issued to finance various economic development projects and business activities. Thus, this study addresses the support of direct financing extended through the bond market to the aggregate output of Malaysia. The identity of aggregate output constitutes aggregate demand derived from household consumption, firms' investment, government spending and net exports of an economy. The aggregate output of a country is computed as the gross domestic product (GDP).

This study explores the relationship between aggregate output, private and public bonds in Malaysia for the sampling period from 1990 to 2020. Specifically, the impact of public and private bonds in funding the economy of Malaysia is examined.

In the next section of this study, a review of Malaysia's bonds market, Endogenous Growth Theory and economic performance is discussed. The following sections deliberate the research methodology, findings, discussion and conclusion of the study.

2. The Bonds Market in Malaysia

Public bonds in Malaysia are known as Malaysian government securities issued by the central bank to finance economic development projects to promote economic growth. At present, there are four types of public bonds in the bonds market, namely, the Malaysian Government Investment Issues (MGII), the Malaysian Government Securities (MGS) and the short-term debt securities Malaysian Treasury Bills (MTB) and Malaysian Islamic Treasury Bills (MITB).

The MGS is a long-term interest-bearing debt security issued by the Government of Malaysia to raise funds from the domestic capital market to finance development expenditure in Malaysia. MTB is a short-term bond to raise funds to finance the working capital of the Malaysian government development projects. The remaining two types of public bonds are the MGII and MITB, both are Islamic bonds, issued based on the Islamic Shariah principles. The MGII is a long-term Islamic bond and MITB is a short-term Islamic discount bond issued to finance the working capital of the Malaysian government.

Malaysia is an Islamic country and motivated by Islamic religious beliefs, Islamic financial tools are designed and managed by Islamic principles. Islamic financial tools prohibit "riba", generally translated as unfair gains through interests earning, including the sale of debt and derivatives. Islamic principles also prohibit "gharar", meaning, uncertainty in business transactions (Ahmed & Elsayed, 2019). Thus, Islamic financial tools use various permissible alternative contracts to arrange for financing economic activities. Return on Islamic bonds are usually firm-specific and its yield spread does not expand with equity volatility, implying less risky debt security than conventional bonds (Saeed et al., 2021).

Islamic bonds, also known as sukuk are debt securities that are issued by both public and private firms. For equity-based sukuk, it was found that efficient credit risk management of tangible assets supporting the essential of equity-based structure to

undertake the Islamic principal and profit guarantee securitisation (Abdul Halim et al., 2020). Understanding the sukuk structure and the impact of credit risk is essential to ensure the positive economic impact of Islamic capitalisation. The quality and performance of sukuk are found to be dependent on the corporate structures of the bond's issuers and the corporate social sustainability disclosures of risks. A strong corporate governance structures and extensive sustainability disclosures increase information transparency and mitigate default risk. Sturdy corporate governance and extensive disclosure mutually benefit both sukuk investors and issuers (Rehman et al., 2022).

Apart from the public bonds issued by the Malaysian government, private medium-term bonds and commercial papers are also available in Malaysia. Effective 22 July 2016, private bonds are officially known as corporate bonds in Malaysia. Any public companies listed in Malaysia's bourse, Bursa Malaysia and licensed banks are eligible to issue corporate bonds in Malaysia. Throughout this paper, the term private bond is used instead of corporate bond.

3. The Endogenous Growth Theory and Economic Growth

With reference to the financial market, the endogenous growth theory maintains that economic growth occurs when development in the financial system creates business opportunities for business expansion. The long term growth rate is prompted by the market's ability to mobilise savings, allocate resources and diversify risks (Hassan et al., 2011). The endogenous growth model hypothesised that public debt that finances capital formation and human capital development stimulated economic growth (Greiner, 2012).

Economic growth can be directly translated as an increase in aggregate demand in the economy. An increase in aggregate demand may include higher household consumption, a greater inflow of foreign direct investment and an increase in exports of goods and services to foreign countries. In a small open economy, endogenous growth is attained through improved factors of production financed by public debt (Modesto et al., 2021). The endogenous theory suggests that economic growth is also linked to the diffusion of innovations in the mainstream market (Klein & Şener, 2022).

The connection between Kenya's economic growth and the development of its financial market was studied by Uddin et al. (2013). They deduced that the financial market significantly promoted Kenya's economic growth. Financial market development

had a favourable influence on the country's economy (Zhang et al., 2012), especially the bonds market (Thumrongvit et al., 2013). The bonds market is cointegrated into economic growth (Kapingura & Makhetha-Kosi, 2014) due to its capability to channel excess funds to investors. Economic policy designed to achieve economic growth has positively promoted economic activities (Eguren Martin et al., 2021).

However, there are mixed findings on how financing debt in the bonds market may affect the economy. Based on endogenous growth theory, a recent study found that the global financial crisis has altered the connection between bond market development and economic growth (Wahidin et al., 2021). The positive influence of finance–growth linkages is now uncertain. In the U.S., the gross domestic product linked bonds is found to yield a lower return than conventional bonds (Eguren Martin et al., 2021)

Green bonds are found to be more favourable in Sweden that stresses on sustainability and environmentally friendly business practices. Instead, bonds with high yield in the oil, gas and shipping market, are more preferred in Norway (Torvanger et al., 2021). Funding environmentally friendly businesses through bonds requires a positive regulatory system and disclosure of quality business operations (Bhutta et al., 2022). This study has revisited the Endogenous Growth model to determine how the bonds market may affect the economy.

4. Methodology

The estimation model of aggregate demand and the bonds market is analysed by employing an autoregressive econometrics model. The variable aggregate output is represented by Malaysia's Gross Domestic Product (GDP). The bonds market is proxied by the public and corporate funds raised in the Malaysian debt market. The GDP data is extracted from the World Bank Indicator database from the sampling period from 1990 to 2020. The public and corporate bonds data is obtained from the central bank, Bank Negara Malaysia’s online database.

All time series are examined for unit root test by using the Augmented Dickey Fuller- Fisher (ADF-Fisher) and Phillips-Peron Fisher (PP-Fisher) tests. The autoregressive distributed lag (ARDL) bounds test is used with both stationary and non-stationary time series and does not need the integration of all variables in the same order. The autoregressive distributed lag (ARDL) bounds test is applied to determine the long-

term relationship among time series in the estimation model. It is also suitable to alleviate any endogeneity in the estimation model (Huang et al., 2022).

The estimated model for this study is specified as equation (1), where the ARDL-unrestricted vector correction model is applied.

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-i} + \alpha_2 X_{1t-i} + \alpha_3 X_{2t-i} + \sum_{i=1}^{\rho} \alpha_{4i} \Delta Y_{t-i} + \sum_{i=1}^{q} \alpha_{5i} \Delta X_{1t-i} + \sum_{i=1}^{r} \alpha_{6i} \Delta X_{2t-i} + \varepsilon_t \quad (1)$$

where Y_t represents gross domestic product, X_{1t} represents public bonds and X_{2t} represents private bonds. The vector error correction model reduced form for this study derived from Equation (1) is estimated as follows: -

$$\Delta Y_t = C_0 + \sum_{i=1}^{\rho} \alpha_{4i} \Delta Y_{t-i} + \sum_{i=1}^{q} \alpha_{5i} \Delta X_{1t-i} + \sum_{i=1}^{r} \alpha_{6i} \Delta X_{2t-i} + \gamma ECT_{t-1} + \vartheta_t \quad (2)$$

Model diagnostics for normality, multicollinearity, heteroscedasticity and stability are performed accordingly. The normality tests of Jarque–Bera are employed in this study to ensure the normally distributed estimated error terms fulfilled. When the null hypothesis is not rejected, the error terms is comprehended as normally distributed. The Breusch-Godfrey Lagrange Multiplier (LM) test is also conducted to examine for serial correlation. Heteroscedasticity test is applied using the Breusch-Pagan-Godfrey test. When the null hypothesis of no heteroscedasticity problem is not rejected, that means the model is homoscedastic.

5. Findings

The unit root tests are conducted to avoid any spurious regression analysis of non-stationary time series. As presented in Table 1, both ADF-Fisher and PP-Fisher indicate that the public bonds, private bonds and gross domestic product time series are stationary after taking the first difference 1% level of significance. However, both ADF-Fisher and PP-Fisher tests reveal the intercept and trend for the public and private bonds are stationary at levels at 10% and 1% levels of significance, respectively.

Table 1: Unit Root Tests

ADF-Fisher	Level		First Difference	
	Intercept	Intercept and trend	Intercept	Intercept and trend
Public Bond	-0.0081	-3.3636*	-6.3507***	-6.4514***
Private Bond	-1.0345	-5.5800***	-6.9999***	-6.8517***
GDP	0.2833	-2.3750	-5.4781***	-5.4551***
PP-Fisher	Level		First Difference	
	Intercept	Intercept and trend	Intercept	Intercept and trend
Public Bond	0.4479	-3.2819*	-6.3645***	-6.4842***
Private Bond	-5.5876***	-5.587592***	-14.4091***	-13.8829***
GDP	0.4420	-2.3750	-5.4781***	-5.3576***

Note: *** and * denote 1% and 10% levels of significance

Since the ADF-Fisher and PP-Fisher unit root tests reveals mixed stationarity for the variables, the augmented distributed lag (ARDL) estimation method is applied. The ARDL method is applied to review the bounds test of the long run cointegrating relationship of the variables. The estimation model is found to exhibit a long run cointegrating relationship among public bonds, private bonds and the aggregate output at 1% level of significance. See Table 2 for details.

Table 2: Bounds test

Model	F-statistic	
GDP	5.3107***	
Significance Level	Lower Bound I(0)	Upper Bound I(1)
10%	2.63	3.35
5%	3.1	3.87
2.5%	3.55	4.38
1%	4.13	5

Note: *** denotes 1% level of significance

Based on the cointegration results, the long-run relationship of the ARDL Equation (2) is examined to determine the impact of the public and private bonds on GDP. Both public and private bonds positively influence the GDP of Malaysia at 10% and 5% levels of significance, respectively. See Table 3 for details.

Table 3 : Long-run Coefficients Estimates

Variable	Coefficient	Std. Error	t-Statistic
Public Bond	58951.97	30008.20	1.9645*
Private Bond	96972.37	37008.23	2.6203**
C	-00000003.4	0.00000001.34	-0.2531

Note: ** and * denote 5% and 10% levels of significance

Diagnostic checking for Equation (2) is conducted to test for normality, serial correlation, heteroscedasticity and stability of the model estimates. The Jarque- Berra test is applied to check if the observed sample is from the normally distributed population. The Jarque-Berra critical value of 1.3627 could not reject the null hypothesis of normally distributed population, an indication of normally distributed sampling of the estimated model.

The Breusch-Godfrey LM test could not reject the null hypothesis of no serial correlation which suggests no serial correlation problem. The Breusch-Pagan-Godfrey test also could not reject the null hypothesis of heteroscedasticity problem. See Table 4 for details.

Table 4: Diagnostic Tests

Tests	**F-statistics**	**Probability**
Breusch-Godfrey LM Test	1.967893	0.3999
Breusch-Pagan-Godfrey Test	1.239890	0.3298

Further to the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMQ) are conducted to check for instability in the variance of the estimated error term. Both CUSUM and CUSUMQ confirm that the estimation model is stable. See Figure 1 and Figure 2 for details.

Figure 1: CUSUM

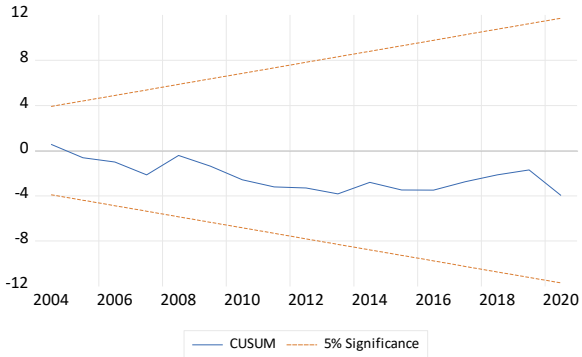
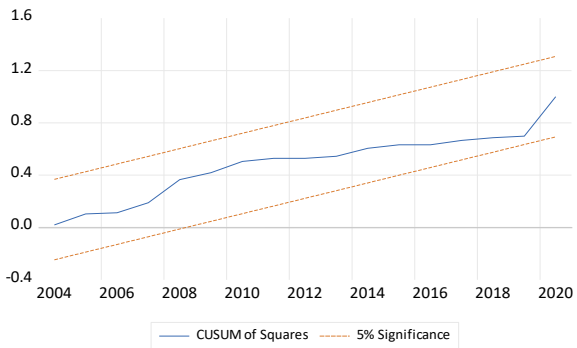


Figure 2: CUSUMQ



6. Discussion and Implication of the Study

The Endogenous Growth theory supports that financial system development will create business opportunities and facilitate aggregate output growth. The mobility of savings to investors in the financial market plays a significant role in promoting economic growth (Zhang et al., 2012; Eguren Martin et al., 2021). However, recent studies argue that the connection between the bonds market development and economic activities has become uncertain (Wahidin et al., 2021).

This study examined how the bonds market in Malaysia may affect its aggregate output from 1990 to 2020. The results analysis obtained revealed that both public and private bonds positively influence the GDP of Malaysia at 10% and 5% levels of significance, respectively. The findings suggest a positive impact of private and public bonds on the economy of Malaysia. The private bonds are significant source of funds to finance business expansion and growth.

This study implies a long-term effect running from the bonds market to aggregate output. The finding supports the notion that the bond market has a positive and direct impact on channelling a surplus of funds to finance economic activities in Malaysia.

7. Conclusion

In conclusion, this study provides evidence of a significant and positive relationship between the bond market and aggregate output in the long run. The positive and significant relationship between GDP and the bonds market suggests that development in debt securities could promote economic growth in a small developing economy like Malaysia. Besides external credit from commercial banks, the private debt securities of the bonds market are another potential source of external funds to finance business expansion.

In this study, data limitations on Islamic and non-Islamic public and private bonds make it challenging to run a more robust evaluation of the development and capability of the bonds market to finance economic activities. As such, future studies could focus on the impact of Islamic bonds compared to conventional bonds in direct financing public projects and private business enterprises.

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