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Announcements Effect of Corporate Bond Issuance and Its Determinants

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ABSTRACT This study aims to investigate the effect of bond issuance announcements and to determine the company characteristics that could influence this effect. The findings reveal positive cumulative average abnormal returns following bond issuances, indicating that the market considers bond offers to be favorable news. Nevertheless, cross-sectional regression analysis shows an insignificant relation of company profitability, growth opportunities, asset tangibility, size, and managerial ownership with cumulative abnormal returns. The results confirm that there is a signaling effect of bond issuance announcements and that this effect is not affected by company characteristics.

KEY WORDS: bond, equity market behavior, event study

JEL Classification: G11, G32, G14

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1. Introduction

In the past, companies in many emerging countries were interested in borrowing from banks (Luengnaruemitchai & Ong, 2005). However, the interest rate charges of banks are relatively high, and they are usually reluctant to issue loans with long maturities (Eichengreen, 2004). As an alternative, companies can issue long-term bonds at low interest rates (Navarrete, 2001) and deduct interest payments as business expenses. The investigation of bond offerings to the public has been an interesting area of academic corporate finance research because bonds are gradually becoming an important corporate financing alternative.

According to a report by the Bank for International Settlement (2007), long-term interest rates may not be competitively determined and thus may not reflect the true cost of funds in economies lacking well-developed local currency bond markets. Hence, the concerted development of local currency bond markets has become a major objective of financial policy in many parts of the world. Well-functioning capital markets are fundamental for sustainable growth. In particular, deep and liquid local currency bond markets play a key role in the financial stability and economic development of a country. They ensure greater access to capital across an economy, provide stability and diversification of savings and investments, and reduce the economy's susceptibility to external shocks.

In the 1970s, the Malaysian government started issuing bonds to meet the massive funding needs of the country's development projects; this marked the start of the Malaysian debt securities market. In the mid-1980s, the Malaysian government further developed the corporate debt market due to the over-reliance of the private sector on bank borrowings. The National Mortgage Corporation, Cagamas Bhd, was set up to provide liquidity assistance to banks so that affordable housing loans could be extended by the central bank or Bank Negara Malaysia (BNM) in December

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Table 1. Funds raised in the capital markets and banking system

Year	New issues of Bonds (RM million)	Borrowings from Banking system (RM million)	New issues of Equities (RM million)	Total Funds (RM million)
2001	37,932 (63%)	16,100 (27%)	6,124 (10%)	60,156 (100%)
2002	36,195 (52%)	19,800 (29%)	13,291 (19%)	105,481 (100%)
2003	51,853 (64%)	21,600 (26%)	7,772 (10%)	81,225 (100%)
2004	36,340 (44%)	40,200 (48%)	6,475 (8%)	83,015 (100%)
2005	38,196 (76%)	5,790 (11%)	6,315 (13%)	50,301 (100%)
2006	38,887 (76%)	10,011 (20%)	1,916 (4%)	50,814 (100%)
2007	69,356 (69%)	24,376 (24%)	7,126 (7%)	170,214 (100%)

Source: Bank Negara Malaysia annual report (2005; 2006; 2007)

of 1986. This was the first step in developing the debt securities market in this country. The bond market in Malaysia further gained attention in 1990s, when conventional bank borrowing was found to be inadequate for funding long-term infrastructure and development projects by the private sector. The Malaysian government therefore increased its effort to develop corporate bond markets in order to offer the private sector an alternative source of financing and with the hope of helping to reduce funding mismatches (Ibrahim & Wong, 2005).

The development of the bond market from an inactive to a developing market can be seen in Table 1, which shows that the bond market is becoming a larger source of borrowed funds than the banking system and the equity market. More than 50% of the funds in the capital markets and banking system were raised through the issuance of bonds, whereas less than 30% were raised from bank borrowings (except in 2004) and less than 20% were raised from equity issues.

As the bond market becomes the major source of funds, there is a possibility that it could affect the equity market. As noted by Gebhardt, Hvidkjaer, and Swaminathan (2005), bonds and stocks have the same underlying operating cash flows and are affected by the same company fundamentals. Therefore, bonds cannot evolve independently of equities. Thus, some correlations between bonds and equity market behavior are expected. However, there is still little research in this area. The present study aims to address the impact of bonds on the equity returns of the issuing companies, which still an under-researched subject, especially in emerging markets such as Malaysia. Thus far, mixed results were found by those who have attempted to explore this subject matter, such as Kapoor and Pope (1997) and Lewis, Rogalski and Seward (2001) in the US market, Abhyankar and Dunning (1999) in the UK market, Schramade (2005) in the Dutch market, Carlsson, Holm, and Sello (2006) in the European markets, and Martel and Padron (2006) in the Spanish market. Hence, research analyzing the bond issuance effect on share price performance and examining the cross-sectional determinants of this effect for listed companies in Malaysia is needed.

The following section presents a literature review of underlying theories and prior empirical evidence, followed by the research design in section three. The analysis of the results is subsequently presented in section four. Finally, section five concludes the study and suggests some possible future research areas.

2. Underlying theories and empirical evidence on the effect of bond issuance and its determinants

According to Lewis et al. (1999), corporate events often lead to changes in the trading activities of a company's common stock. Though Fama and French (1998) argue that a company's financing decisions have no effect on its market value and thus that security holders are indifferent to debt versus equity financing, their argument relies entirely on the existence of a perfect capital market and assumes that companies

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maximize both shareholders' and bondholders' wealth. This argument is consistent with Modigliani and Miller (1958), who suggest that company value and debt level are independent. In contrast, Masulis (1983) found that changes in stock prices are positively related to leverage changes, indicating that company value is positively affected by changes in debt level. However, Masulis (1983) did not address the notion of risk. Financial leverage could increase a company's value but also increases a company's risk. Masulis (1983) showed that when companies increase their use of leverage, returns and values can be magnified.

Ross (1977) demonstrated that a change in financing policy changes investors' perceptions of a company and is therefore a market signal. The signaling model assumes that corporate financing decisions are designed primarily to communicate managers' confidence in the company's prospects. Increasing leverage has been suggested as a potentially effective signaling device. Debt obligates the company to make a fixed set of cash payments over the term of maturity; if payments are missed, there are potentially serious consequences, including bankruptcy. Therefore, adding more debt to a company's capital structure can serve as a credible signal of higher expected future cash flows (Barclay & Smith, 2005). The managers of companies that have raised their levels of debt are, in effect, signaling to the markets that they are aware of the states of their companies, which are favorable, and they are confident that the companies' performances will allow them to pay off their additional debts.

Signaling theory is based on a strong assumption that corporate managers are better informed about their companies than their creditors or investors. This indicates that they are in a better position to foresee their companies' future cash flows. Any signal they send suggests that cash flows that are better than expected may enable an investor to create value. Investors are therefore constantly watching for these types of signals. Ross (1977) affirms that the financial structure of a company provides information about its financial situation and company quality and that the values of companies will increase with their levels of leverage. Higher debt ratios could signal positive management expectations concerning future cash flows.

In contrast, Myers and Majluf (1984), and Miller and Rock (1985) showed that the announcement of new external financing conveys unfavorable information, which has a negative impact on the market. Myers and Majluf (1984) concluded that the market reacts negatively to a company's external financing by arguing that the issuance of a security will create demand for a discount in order to hedge against the risk that the security is overvalued. Similarly, Miller and Rock (1985) suggested that a company's decisions about obtaining funds reveal negative information about future internal financing. Furthermore, according to Myers and Majluf (1984), in an environment with asymmetric information, shareholders will interpret risky security offerings as a signal that the issuing company is overvalued. The more sensitive a security's payoff to the issuing company value, the more skeptically shareholders will react upon its announcement.

Conflicting empirical results are found for changes in company value and return. Ammann, Fehr, and Seiz (2006) and Chen, Dong, and Wen (2005) found significant negative abnormal returns following the issuance of bonds. In contrast, Martel and Padron (2006) registered positive abnormal returns after bonds issuance. For the Japanese market, Kim and Stulz (1992) found -0.23% stock price reactions to bond issue announcements. They attributed this result to tax advantages in offshore markets. Due the conflicting findings in prior studies, more empirical evidence is required.

Six key variables are commonly used in previous studies to examine the influence of company characteristics on the bond issuance effect: company size, asset tangibility, profitability, growth opportunities, business sector, and managerial ownership (Rajan & Zingales, 1995; Lee et al., 2000; Hovakimian et al., 2004; Buferna, 2005; Guha & Kar, 2006; and Abor, 2008). Rajan and Zingales (1995) found that the determinants of capital structure that have been reported for the US, i.e., company size, growth, profitability, and tangible assets, are also important for other countries. This is further supported by Hovakimian et al. (2004), who showed that the effects associated with profitability and growth opportunities have been found to be especially important.

Chen et al. (2005) observed a negative influence of company size on investor reactions in the Japanese market whereas Arshanapalli et al. (2004) and Dutordoir and Van de Gucht (2004) found a positive impact on the US market and Western European markets, re-

spectively. Stein (1992) stated that company size could be considered to be a proxy of the degree of information asymmetry because larger companies are more likely to have greater analyst coverage and to undergo greater scrutiny by institutional investors. In addition, company size could also be a proxy of financial distress costs. In either case, cumulative abnormal returns are expected to be positively related to company size. On the other hand, several previous empirical works investigating the impact of size did not find any correlation with investor reactions, including De Roon and Veld (1998), Abhyankar and Dunning (1999), Lewis et al. (1999, 2003), and Ammann et al. (2006).

Brennan and Kraus (1987) and Brennan and Schwartz (1988) suggested that announcement period abnormal returns were negatively related to credit quality and firm value but positively related to investment policy, whereas Green (1984) showed that announcement period abnormal returns will be positively related to future growth opportunities after controlling for differences in corporate investment policy shifts and underinvestment. This is further supported by Lewis et al. (1999), Dutordoir and Van de Gucht (2004), and Chen et al. (2005). However, Mollemans (2002) and Arshanapalli et al. (2004) observed a significant negative impact whereas Abhyankar and Dunning (1999), Lewis et al. (2003), and Ammann et al. (2006) did not notice any significant relation. Bradley et al. (1984) proposed that companies with high sales growth rates often need to expand their capacity, implying that high growth companies have greater future needs for funds.

No significant influence of profitability was found by Lewis et al. (2003) in the US market and Dutordoir and Van der Gucht (2004) in Western Europe. In contrast, Stein (1992) found that profitability is inversely correlated with the probability of the occurrence of financial distress. Low profitability not only increases anticipated financial distress costs but also implies higher risk uncertainty and the greater probability of a shift to a riskier investment policy. Hence, a negative correlation is expected between the market reaction and the level of profitability.

Trade-off theory (Modigliani & Miller, 1963) suggests that companies with more tangible assets can incur high debt because of their ability to provide sufficient collateral and security to lenders. Bradley, Jarrel, and Kim (1984) asserted that companies that heavily invest in tangible assets also have higher financial leverage because they can borrow at lower interest rates if their debt is secured with these types of assets. As such, companies with more tangible assets may have an advantage over smaller companies in accessing debt markets and borrowing under better terms and conditions (Ferri & Jones, 1979; Wiwattanakantang, 1999).

According to agency theory, the principal-agent conflict can be mitigated by a larger ownership share held by managers. Jensen (1986) argues that the use of debt can reduce agency costs between managers and shareholders by reducing the 'free' cash available for managers to pursue their own interests. Therefore, companies with higher managerial ownership may not need to incur much debt financing because managers who own shares would most likely act towards increasing shareholder wealth. As noted by Jensen (1986), debt forces managers to disgorge cash rather than spend it on investments with negative net present values. This effect might be stronger for public debt than for private debt.

3. Research design

This study's sample comprises observations from public listed Malaysian companies during the eight consecutive years from 2000 to 2007. The main data sources are the Securities Commission of Malaysia, Bursa Malaysia, Bank Negara Malaysia, the Rating Agency of Malaysia, and the Malaysian Rating Agency Corporation. The annual reports of the sample companies were obtained from the Bursa Malaysia website and library and Datastream was used to extract market information.

The sample includes public debt issuances by companies that have no outstanding debt securities at the time of issuance. The study excludes private placement of debt issues. Of the 626 bond issuers that are listed on the Securities Commission of Malaysia website, the final data used in this study were reduced to 100 sample companies (issuers) after excluding non-public listed companies, financial institutions and insurance companies, and companies with other major corporate events such as bonus issuances, dividend announcements and stock splits, as well as those with missing data and outliers. Furthermore, to have clean data, companies with existing long-term debt on their balance sheets were also excluded.

Because it is quite common for companies to issue securities several times during one year, meaning that

there are multiple yearly issues, the method of De Haan and Hinloopen (1999) is employed to make the necessary adjustment so that the multiple issues are aggregated into a single annual figure. In addition, an incremental approach is used to analyze the determinants of new debt issues (Hovakimian et al., 2001; Denis & Mihov, 2003). This approach allows for the identification of companies that have no outstanding debt securities at the time of issuance and therefore enables a more accurate investigation of the company variables that contribute to the debt securities issuance decision.

Event study is used to estimate and draw inferences about the impact of bond issuance on the issuing companies' equity market behavior. The issue date is used instead of the announcement date because the issuance of bonds is generally associated with major corporate events, as evidenced by the 60% of bonds issued for new investment and merger and acquisition (M&A) activities in 2007 (Bank Negara Malaysia, 2007). When the announcement was initially made, the major corporate activities were most likely of higher concern to the market and its reaction can therefore be attributed to the corporate news on M&A or investment activities. As such, it is believed that those earlier announcements indicated more concern over the major corporate events rather than their accompanying financing choices. The actual effect on the financing choice would be felt only upon the issuance announcement. Moreover, according to Kapoor and Pope (1997), it is appropriate to use the issue dates to avoid the problem of uncertainty because some announced proposed bonds are withdrawn. Market reaction therefore may not occur until just before the issue date. This is further supported by Chen et al. (2005), who found that only one-third of announced debt issuances were successfully issued.

The investigation window is from day t=-60 through day t=+60. The pre-event investigation window therefore ranges from day t=-60 to t=-1 and the post-event investigation window ranges from day t=+1 to t=+60. The confounding effect is not an issue because companies with major corporate events that are not associated with bond financing are excluded from the sample.

This study uses daily data to compute abnormal returns because this approach provides smaller standard deviations than using monthly returns (Brown & Warner, 1985). The use of daily returns is potentially more effective in that it permits researchers to take advantage of precise information about the specific day of the month on which an event takes place. In accordance with Martel and Padron (2006), the use of daily data reduces the possibility of other types of news being included in the effect. Likewise, Kothari and Warner (2006) also state that the use of daily rather than monthly security return data permits more precise measurement of abnormal returns and more informative studies of announcement effects.

The present study examines market behavior during the 60 days before and after the event day in accordance with Abdullah (1999), who concludes that 60 days is an appropriate period for the detection of any unusual stock price movements in her study of rights issue announcements in Malaysia. A drawback of past studies is the use of a shorter event window, ranging from one to 20 days before and after the event (De Roon & Veld, 1998; Abhyankar & Dunning, 1999; Chen et al., 2005; Martel & Padron, 2006). The present study explores more than 20 days around the event window because the market may need a longer time to adjust. Moreover, bonds are not commonly understood by many in the Malaysian capital markets. The corporate bonds market tends to be dominated by large institutional investors who are arguably more sophisticated and better informed than individual investors. As such, the market as a whole may need more than one month to fully understand the consequences of bond offers and react accordingly.

The abnormal returns in this study are calculated using the market-adjusted returns (MAR) model. There are two reasons for the selection of this model. First, it is a simple, straight-forward and widely used model (Brown, 1999; Barnes & Ma, 2001; Gao & Tse, 2003; Altman, Gande & Saunders, 2004; Charitou, Vafeas & Zachariades, 2005; Agrawal, Kishore & Rao, 2006; Soongswang, 2007). Second, many studies have shown that results obtained using the market-adjusted returns model and other models, such as the market model and mean adjusted returns model, do not exhibit many differences (Kang et al., 1995; Barnes & Ma, 2001; Gao & Tse, 2003; Altman et al., 2004; Charitou et al., 2005; Agrawal et al., 2006; Soongswang, 2007). Brown and Warner (1985) also confirmed that event studies based on the market model and the market-adjusted returns model are similarly powerful in detecting abnormal returns. In the MAR model, stock returns are compared to an expected return of the market over the event pe-

riod. For each sample security, the return on security i ($R_{i,t}$) for time period t relative to the event is:

$$R_{i,t} = R_{m,t} + e_{i,t} \quad (1)$$

where $R_{m,t}$ is the market return at time t, as calculated from a market portfolio or a market index, and $e_{i,t}$ is the component of returns that is abnormal or unexpected. The MAR model assumes that $\alpha = 0$ and $\beta = 1$. Given this return decomposition, the abnormal return, $e_{i,t}$ is the difference between the observed return and the market return:

$$e_{i,t} = R_{i,t} - R_{m,t} \quad (2)$$

Equivalently, $e_{i,t}$ is the difference between the return that is conditional on the event and the expected return that is not conditional on the event or the market return. Thus, the abnormal return is a direct measure of the (unexpected) changes in company value and returns associated with the event.

Following MacKinlay (1997), the abnormal return observations must be aggregated to draw general inferences related to the event. The aggregation is made along two dimensions: through time and across stocks. The following average company-unique return, in this case the average abnormal return (AAR), is estimated for each day surrounding the issuance of bonds:

$$AAR_t = \sum_{t=1}^{N} e_{i,t} / N \quad (3)$$

where AAR_t equals the average abnormal return for the number of bond issues N examined in a given day t. The calculation is performed for the whole event period of 60 days before and after the bonds offers. A t-test is then calculated for each event day to see whether there is a significant effect due to the bond offers. The AAR would then be summed throughout the event days to form the cumulative average abnormal return (CAAR) presented in equation (4):

$$CAAR_t = \sum_{t=1}^{N} AAR_t \quad (4)$$

It is expected that the value of CAAR is zero in the absence of abnormal performance. Hence, a t-statistic is performed on the pre- and post-issue estimates of the CAAR over different intervals surrounding the event period.

3.1 Multiple regression technique

To explain the reactions of investors to bond issues, previous studies have chosen to focus on the various company characteristics that presumably contribute to such reactions. There are a total of five independent variables used in this study: profitability, asset tangibility, company size, growth opportunities, and managerial ownership. Data for profitability, asset tangibility, company size, and managerial ownership are extracted from the annual reports of issuing firms one year prior to the bonds issuance whereas data for growth opportunities are taken from two years prior to the issuance. This is consistent with the methods employed in previous studies, such as Rajan & Zingales (1995), Lee at al. (2000), Devic & Krstic (2001), Hovakimian et al. (2004), Isachenkova & Mickiewicz (2004), Pandey (2004), Buferna (2005), and Guha & Kar (2006). The dependent variable used in this study is cumulative abnormal returns (CAR), which is obtained by summing up the abnormal returns of each of the 100 observation from day t=-60 to t=+60. The following regression model is used in the study:

$$CAR_i = \alpha + \beta_{i1}\,SIZE + \beta_{i2}\,PROFITABILITY + \beta_{i3}\,TANGIBILITY + \beta_{i4}\,GROWTH + \beta_{i5}\,OWNER + \varepsilon \quad (5)$$

where

Company size [SIZE] = Natural logarithm of total sales (Titman & Wessel, 1988; Rajan & Zingales, 1995; Devic & Krstic, 2001; Gaud et al., 2005).

Profitability [PROFITABILITY] = Earnings before interest and taxes divided by total assets (Rajan & Zingales, 1995; Gaud et al., 2005).

Asset tangibility [TANGIBILITY] = Fixed assets plus inventory divided by total assets (Devic & Krstic, 2001; Chen, 2004; Gaud et al., 2005).

Growth opportunities [GROWTH] = Annual sales growth rate (Titman & Wessel, 1988; Chen, 2004).

Managerial ownership [OWNER] = Natural logarithm of ratio of directors' shares to total outstanding shares (Denis & Mihov, 2003; Isachenkova & Mickiewicz, 2004)

4. Findings and discussion

As seen in Table 2, profit margins range from -55.5% to 19.5%, with an average profit margin of 4.7% among the 100 sample companies. This variable has the lowest

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Table 2. Descriptive statistics

Variables	Min	Max	Mean	SD
Profitability (%)	-55.5	19.5	4.7	10.57
Company Size (RM million)	14	12,053	754	1699.47
Growth opportunity (%)	-100	263	18.9	42.38
Tangibility (FA/TA)	0.006	0.91	0.45	19.20
Managerial Ownership (%)	0	64.67	11.5	169.3
Bonds issue value (RM million)	1.9	2,213	225	341.80

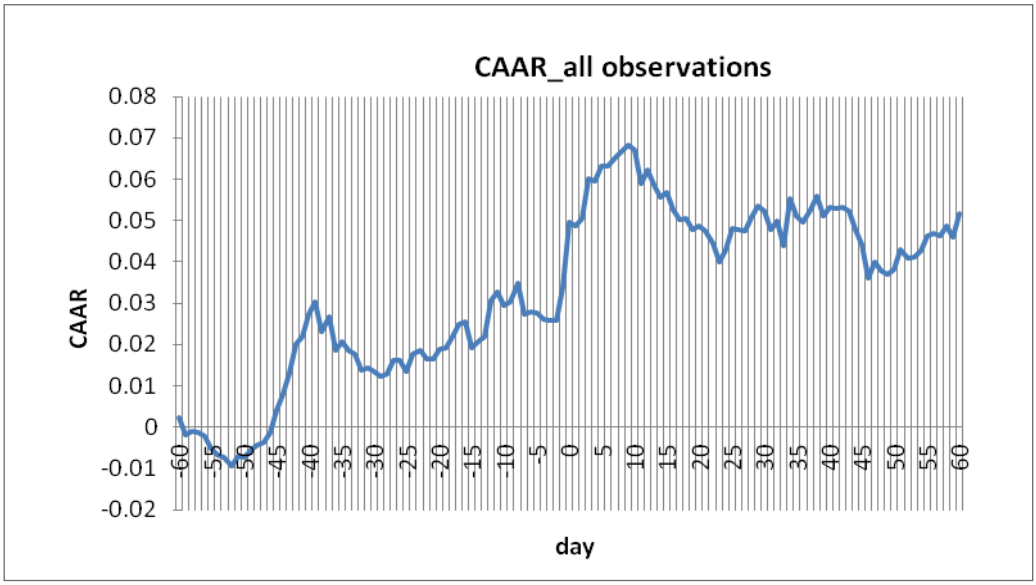

Figure 1. Graph of cumulative average abnormal returns for all observations

standard deviation, 10.57, among the studied variables. Company size has a standard deviation of 1,699.47, the largest value among the studied variables, and ranges from RM14 million to RM12.05 billion, with an average company size of RM754 million. Growth opportunities range from -100% to 263%, with an average growth rate of 18.9%. Tangibility has a standard deviation of 19.20 and ranges from 0.6% to 91%, with an average of 45%. Managerial ownership ranges from 0% to 64.67%, with an average of 11.5%. Finally, the bond offers among the 100 sample companies range from RM1.9 million to RM2.21 billion. On average, the bond offer amount is RM225 million (USD1.00 = RM3.11).

4.1 Event study results

Figure 1 presents the cumulative average abnormal return (CAAR) for bond issuers. Bond issuers generally experience an increasing CAAR trend over the 60 days before (t=-60) the event day or the bond issuance date (t=0) and over the first 10 days (t=+10) of the post-event period. There was a decline in CAAR from 60 days to 55 days before the event date when there were abnormal losses. Thereafter, the cumulative average abnormal return surged to a positive value starting from day t=-45, fluctuated between 1% and 3%, and finally increased substantially after day t=-1, one day prior to the event day. After the event day, the CAAR

continued to rise for three days and finally reached a peak of 6.84% on day t=+9. However, immediately after the ninth day, the CAAR began to show a declining trend, dropping to a low of 4% at day t=+23. The CAAR rose again after day t=+24 and fluctuated between 4.5% and 5.5% until 45 days (t=+45) after the issuance date, but failed to be sustained thereafter.

To examine the null hypothesis of whether there are significant cumulative average abnormal returns, a t-test is carried out over different intervals and the result is shown in Table 3. Overall, bond issuers enjoy a significant positive cumulative average abnormal return 10 days after the issuance date and 21 days surrounding the event day at the α=0.10 and α=0.05 levels, rejecting the null hypothesis. A positive relationship between bond issuance and equity market return implies that increasing the leverage position of a company can have a positive impact on stock prices. The favorable information content and signal could also be attributed to the use of the funds from the bond instruments that are generally meant for productive purposes such as company growth and expansion. In summary, the equity market appears to generally react positively to the issuance of bonds.

A significant and positive cumulative average abnormal return 21 days surrounding the bond issuance date explains the signaling model of Ross (1977), which suggests that increased debt levels convey positive news. Market participants perceive that higher debt levels show insiders' confidence that future cash flows will increase to service the higher debt levels. Furthermore, Ross's (1977) signaling model also states that the information asymmetry between a company and outsiders leads the former to make certain changes in its capital structure that could change the relative position and/or power of capital providers (e.g., stockholders and debtors). Thus, the equity market reacts according to the changing capital structure. The finding of this study does not support the implication of Myers and Majluf's (1984), and Miller and Rock's (1985) asymmetric information model, which suggests that an announcement of external financing signals that a company's stock is overvalued, causing negative stock price reactions. In contrast, the higher leverage is a signal that a company is confident about its ability to meet interest obligations and thereby indicates its ability to generate future cash flows, which ultimately translates into a higher company value. This result contradicts the studies of Abhyankar and Dunning (1999), Ammann et al. (2006) and Chen et al. (2005), who found negative bond issuance effects. Nevertheless, the positive abnormal returns support the findings of De Roon and Veld (1998), and Martel and Padron (2006), who demonstrated that the market reacts positively and significantly to debt issue announcements.

4.2 Cross-sectional regression results

Both correlation and multiple regression techniques are used to examine the relationship between bond issuance effects and company characteristics. The correlation matrix in Table 4 shows that company profitability, growth opportunities, asset tangibility, company size, and ownership structure are not associated with cumulative abnormal returns. However, there is a significant correlation of -0.692 ($\alpha < 0.01$) between PROFITABILITY and TANGIBILITY, and of 0.413 ($\alpha < 0.01$) between PROFITABILITY and SIZE_LN. Nevertheless, all associations are less than 0.70. Thus, it is likely that collinearity between the independent variables poses no threat to this study.

To ensure that no multicollinearity problem exists, tolerance statistics and variance inflation factors (VIFs) are calculated and reported in Table 5. Although the target value is largely debated, a tolerance value of 0.50 or higher is generally considered to be acceptable. In terms of the VIF statistic, some researchers use a VIF of five as a critical threshold whereas others use a VIF of 10. Based on these guidelines, the multicollinearity problem is not a threat in this study.

Table 6 presents the findings of the multiple regression analysis. The lack of correlation of the explanatory variables with the dependent variable is further supported, whereas the F-test shows an insignificant model, indicating a weak influence of company characteristics on the bond issuance effect. The R-squared value of 4.4% also implies the lack of power of the company profitability, tangibility, growth opportunity, size, and ownership structure variables to explain the variation in cumulative abnormal returns. In other words, the finding implies that the positive effect of the abnormal returns is solely caused by the bond issuance announcement. Hence, investors could buy the stock of a bond issuer to gain abnormal returns. However, this is only possible by investing in approximately 100 companies.

Table 3. T-test over different CAAR intervals

Interval	CAAR	Interval	CAAR
-5 to -1	0.59%	-30 to -1	1.93%
+1 to +5	1.37%	+1 to +30	0.29%
-5 to +5	3.54%	-30 to +30	3.80%
-10 to -1	0.12%	-40 to -1	1.19%
+1 to +10	1.74%*	+1 to +40	0.38%
-10 to +10	3.42%**	-40 to +40	3.14%
-20 to -1	1.74%	-60 to -1	3.38%
+1 to +20	-0.09%	+1 to +60	0.21%
-20 to +20	3.22%	-60 to +60	5.16%

** significant at $\alpha = 0.05$; *significant at $\alpha = 0.10$

Table 4. Correlation matrix

	CAR	PROFITABILITY	TANGIBILITY	GROWTH	SIZE_LN
PROFITABILITY	-0.040	-	-	-	-
TANGIBILITY	0.039	-0.692***	-	-	-
GROWTH	-0.025	0.156	-0.088	-	-
SIZE_LN	-0.051	0.413***	-0.250*	0.024	-
OWNER_LN	-0.064	-0.047	0.145	0.026	-0.405***

*** significant at $\alpha = 0.01$;* significant at $\alpha = 0.10$

Table 5. Multicollinearity test

Independent variables	Collinearity statistics	
	Tolerance	VIF
PROFITABILITY	.835	1.172
TANGIBILITY	.970	1.031
GROWTH	.992	1.008
SIZE_LN	.725	1.380
OWNER_LN	.811	1.233

Table 6. Multiple regression

	Standardized Coefficient		
	Beta	**t**	**Sig.**
PROFITABILITY	-0.100	-0.827	0.411
TANGIBILITY	0.135	1.196	0.236
GROWTH	-0.024	-0.218	0.828
SIZE_LN	-0.067	-0.514	0.609
OWNER_LN	-0.115	-0.927	0.357
Adjusted R2	0.044		
F	0.709		
Sig	0.619		

Note: Dependent variable: CAR

The regression result is not consistent with the argument of Green (1984) that abnormal returns are related to future growth opportunities. Furthermore, the expected positive relationship of company size and cumulative abnormal returns as well as the expected negative relationship of company profitability and cumulative abnormal returns proposed by Stein (1992) is also not supported. Nevertheless, the results for company size and company profitability support the work of De Roon and Veld (1998), Abhyankar and Dunning (1999), Lewis et al. (1999, 2003), and Ammann et al. (2006). The findings are also consistent with Lewis et al. (2003), Abhyankar and Dunning (1999) and Ammann et al. (2006), who found an insignificant influence of growth opportunities on cumulative abnormal returns.

5. Conclusion

Based on 100 bond issuance announcements by listed Malaysian companies from 2000 to 2007, the findings reveal an increase in the equity returns of bond issuers. However, they are insignificant except during the 21 days surrounding the issuance date. A positive cumulative average abnormal return implies that an increase in debt has a positive effect on stock prices. This indicates that the announcement of corporate bond issues in Malaysia could serve as a market signal to investors.

In the correlation analysis, company profitability, asset tangibility, growth opportunity, size, and ownership structure do not have a significant effect on cumulative abnormal returns, which is further supported by the multiple regression analysis. None of the company characteristics could explain the variations related to the effect of corporate bond issuance announcements in Malaysia, implying that the positive cumulative abnormal returns are solely caused by the bond issuance announcements.

There are limitations of this study. First, the results could be affected by other factors. As highlighted by Davidson, Glasrock and Schwartz (1995) and Lewis et al. (2003), abnormal returns depend on the design of a corporate bond. Thus, it is recommended that the types of debt securities, as well as the design and features of debt securities, such as maturity, coupon rate, puttable or callable features, convertible or straight debts, reputation of the underwriter, and purpose of the debts and bond offers, be incorporated into future studies. Furthermore, different proxies for the independent variables used in the study could also be considered. In addition, the sample could also be aggregated based on business sector classifications. The effect of bond issuance announcements might differ for companies in different sectors. Given the small sample used in this study, this type of approach was not possible.

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