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The Effect of Debt Securities Issuance towards Equity Market Behavior in Malaysia

(Kesan Penerbitan Sekuriti Hutang terhadap Kelakuan Pasaran Ekuiti di Malaysia)

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ABSTRACT

The study investigates the impact of debt securities issuance on the equity market behavior of the issuers. Event study results reveal that overall debt securities issuers experience an increase in equity return and a decrease in systematic risk, while total risk remains unchanged. The further examination of the 100 debt securities issuing companies finds significant differences between hybrid and non-hybrid debt securities issues. Hybrid debt securities experience a significant increase in equity return, decline in systematic risk and increase in total risk. Non-hybrid debt securities issues, however, are found to have no impact on equity market behavior. The findings of the study imply that the general decline in systematic risk for debt securities issuing companies could motivate the issuance of debt securities, particularly the hybrid type, and thus improve market liquidity. Further, non-hybrid debt securities may not be the appropriate alternative for sending a market signal as no impact on market behavior is found following the issuance.

ABSTRAK

Kajian ini menguji kesan penerbitan sekuriti hutang terhadap kelakuan pasaran ekuiti penerbit. Keputusan kajian peristiwa menunjukkan syarikat yang menerbitkan sekuriti hutang mengalami peningkatan dalam pulangan ekuiti dan penurunan dalam risiko sistematik manakala risiko keseluruhan tidak berubah. Pemeriksaan selanjutnya ke atas 100 syarikat yang menerbitkan sekuriti hutang mendapati wujud perbezaan antara sekuriti hutang kacukan dengan bukan-kacukan. Sekuriti hutang kacukan mengalami perubahan yang signifikan iaitu peningkatan dalam pulangan ekuiti, penurunan dalam risiko sistematik dan peningkatan dalam risiko keseluruhan. Sebaliknya, terbitan sekuriti hutang bukan-kacukan didapati tidak mempengaruhi kelakuan pasaran ekuiti. Implikasi hasil kajian ini adalah penurunan risiko sistematik bagi syarikat yang menerbitkan sekuriti hutang mampu mendorong penerbitan sekuriti ini, terutamanya jenis kacukan, yang akhirnya dapat meningkatkan kecairan pasaran. Selain daripada itu, sekuriti hutang bukan-kacukan mungkin bukan pilihan yang sesuai untuk memberi isyarat pasaran kerana terbitan sekuriti ini tidak memberi kesan kepada kelakuan pasaran ekuiti.

Keywords: Debt Securities; Equity Market Behavior; Hybrid Debt Securities; Non-Hybrid Debt Securities; Systematic Risks; Total Risks

INTRODUCTION

One important instrument in capital market is debt securities. Deep and liquid local currency debt securities markets have a key role to play in promoting the financial stability and economic development within a country. These capital market instruments allow greater access to capital across an economy, thus providing stability; diversification of savings and investment; and reducing an economy's susceptibility to external shocks. In the aftermath of the 1997 Asian financial crisis, several Asian countries have developed measures to promote local debt securities markets as a result of the need for a greater financial stability and funding diversification.

Currently, more research efforts are concentrated on the stock market rather than the debt securities market. In Malaysia, the number of studies done on corporate debt securities is considerably less than studies examining the stock market. Meanwhile, the existing studies on the debt market principally treat both bank borrowings and debt securities offer as debts in general (Pandey 2004). As such, further empirical research is needed to examine the issuance of corporate debt securities from the micro perspective, including the spillover effect of debt securities on the behavior of the equity market, in terms of both returns and risks. This is to improve the understanding of the influences of different type of debt securities on the financial system.

As pointed out by Gebhardt, Hvidkjaer and Swaminathan (2005), bonds (or debt securities) and stocks are claims on the same underlying operating cash flows and are affected by the same fundamental elements of companies. Debt securities, therefore, cannot evolve independently from equities. Thus, it is expected that there is a correlation between debt securities and equity market behavior. To date, little research has been performed in this area, especially in the context of an emerging market such as Malaysia. Mixed results have been documented

in studies focusing upon such issues within developed countries, for instance by Kapoor and Pope (1997) and Lewis, Rogalski and Seward (2002) in the US; Abhyankar and Dunning (1999) in the UK; Schramade (2005) in the Netherlands; Carlsson, Holm and Sello (2006) in Europe; and Martel and Padron (2006) in Spain. Furthermore, this study ackowledges the recent trend, whereby debt securities are issued with equity-linked features. Commonly known as hybrid debt securities, these issues provide investors with both the downside protection of straight debt (non-hybrid debt securities) and the upside return of equities. The differences of the effect of debt securities issuance on equity returns and the risks between hybrid and non-hybrid debt securities issuing company are the main focus of this study. In short, the objective of this study is to investigate the impact of debt securities on the equity risks and returns of the issuing companies and examine the differences of the effect of debt securities issuance on equity risks and returns between hybrid and non-hybrid debt securities issuing companies.

The remainder of this paper is divided into six sections. Section two provides a background of debt securities in Malaysia, which is then followed by a discussion on the underlying theories and empirical evidence in section three. Section four presents the research design and section five analyses the results and discusses the findings. Finally, concluding remarks are offered in section six.

DEBT SECURITIES MARKET IN MALAYSIA

Over the last few years, debt securities or bond issuance in the Asian region has increased significantly, as shown in Table 1. From 2005 to 2007, debt securities issuance of several Asian countries indicates a growing trend. For example, the Malaysian debt securities market indicates a growth rate from 9.67 percent in 2005 to 26.77 percent in 2007, the third highest growth rate after Vietnam (98.11%) and China (33.42%).

TABLE 1. Size and composition of East Asian local currency debt securities markets (in USD billions)

Country	2005		2006		2007	
	Amount	Growth (%)	Amount	Growth (%)	Amount	Growth (%)
China	899.24	40.57	1,184.12	27.35	1,689.83	33.42
Hong Kong	85.59	9.18	96.19	12.72	97.98	2.15
Indonesia	54.15	(5.28)	76.72	29.64	87.55	19.27
Korea	983.53	14.20	1,192.72	11.66	1,313.81	10.87
Malaysia	106.70	9.67	121.38	6.19	164.16	26.77
Philippines	41.66	9.73	46.36	2.73	58.02	5.30
Singapore	83.10	5.90	99.39	10.35	118.11	11.53
Thailand	78.84	24.69	112.01	22.75	153.93	15.52
Vietnam	4.30	14.52	4.93	15.57	9.79	98.11
Japan	7,046.41	8.55	7,096.10	1.83	7,653.25	1.18

Source: Asia Bond Monitor, April 2008

In Malaysia, the debt securities market gained substantial attention when conventional bank borrowings can no longer meet the demand from the private sector in 1990s to fund long-term infrastructure and development projects. The increasing demand was due to the strong economic growth in this country and region during this period. The 1997 Asian financial crisis further highlights the setbacks associated with the country's over-reliance on bank loans. The Malaysian government is relatively quick in stepping up its effort to develop the corporate debt market, in order to offer an alternative source of financing to the private sectors. This measure is expected to help in reducing the funding mismatches (Ibrahim & Wong 2005).

Although the development of debt securities was initially rather slow, it subsequently gained momentum by the late 1990s. As presented in Table 2, the debt securities market surges substantially after 2001. As indicated in the table, the new issuing of debt securities have been slow, with no issuing at all for years 1981, 1985 and 1986. Subsequently, the new issuing of debt securities gradually increase over the years, from RM395 million in 1987 to RM4.4 billion in 1992, and later surge to RM19.6 billion in 1997. Starting in 2001, the new issuances of debt securities are maintained at above RM36 billion until 2006, before they soar to a record high of RM69.4 billion in 2007.

TABLE 2. New issues of debt securities (RM million), 1980-2007

Year	1980	1981	1982	1983	1984	1985	1986
Amount	20.0	0.0	50.0	136.9	392.1	0.0	0.0
Year	1987	1988	1989	1990	1991	1992	1993
Amount	395.0	1,880.7	1,903.6	2,602.7	2,146.2	4,383.9	5,014.0
Year	1994	1995	1996	1997	1998	1999	2000
Amount	10,266.2	12,222.7	17,048.7	19,596.9	14,151.8	17,904.2	20,211.9
Year	2001	2002	2003	2004	2005	2006	2007
Amount	37,932	36,195	51,853	36,340	38,196	38,887	69,356

Source: Bank Negara Malaysia [BNM] Monthly Statistical Bulletin

Despite the tremendous improvement, the debt securities market is still lagging behind the equity market in Malaysia. As indicated in Table 3, the number of equity issues is generally higher than debt securities issues (except in 2001). Nevertheless, the number of debt securities issued has been growing significantly over the years. From only 36 proposals in 2000, the number increases to 102 proposals in 2007. This trend implies greater awareness and better acceptance of debt securities as a financing choice among corporations.

TABLE 3. Total proposals of debt securities versus equity, 2000-2007

Type of proposal	2000	2001	2002	2003	2004	2005	2006	2007
No. of Equity Issues	107	62	71	108	195	180	157	155
Changes (%)	–	–42%	14.5%	52%	80.6%	–7.7%	–12.8%	–1.3%
No. of Debt Issues	36	76	70	64	90	97	94	102
Changes (%)	–	111%	–7.9%	–8.6%	40.6%	7.8%	–3.1%	8.5%

Source: Securities Commission annual reports

Next, Table 4 segregates the new issues of debt securities by sector from 2005 to 2007. Generally, the major players in Malaysian debt securities market are the finance, insurance, real estate and business services sectors. These sectors collectively issue a total of RM23.9 billion in debt securities in 2007, to account for 36 percent of the total new issues of debt securities. During the same year, new issuances of corporate debt securities by the transport, storage and communication sectors surge substantially to RM21.5 billion, from RM1.6 billion in the previous year, accounting for approximately 32 percent of the total new issuances of debt securities in 2007. New issuances of debt securities from all the other sectors are relatively small, from a mere 0.5 percent in the agriculture, forestry and fishing sector to 7.8 percent in the construction sector.

TABLE 4. New issues of debt securities by sector (RM million), 2005 to 2007

Sector	2007	2006	2005
Agriculture, Forestry and Fishing	320	285	893
Mining and Quarrying	–	1,346	630
Manufacturing	3,004	796	2,796
Construction	5,181	6,545	6,356
Electricity, Gas and Water	11,756	5,584	6,976
Transport, Storage and Communications	21,483	1,575	2,623
Finance, Insurance, Real Estates and Business Services	23,972	13,176	13,123
Wholesale, Retail Trade, Hotels and Restaurants	770	1,331	1,132
Total	66,486	30,638	34,529

Source: BNM annual reports

The low supply of debt securities issues is also highlighted by Sharma (2000), who concludes that this is one of the reasons that discourages trading in the secondary market. This has resulted in a research gap that requires immediate attention from various concerned parties that are involved in the development of the debt securities market in Malaysia.

UNDERLYING THEORIES AND EMPIRICAL EVIDENCES OF THE EFFECT OF DEBT SECURITIES ISSUANCE ON EQUITY RISKS AND RETURNS

According to Lewis, Rogalski and Seward (1999), corporate events often lead to changes in the trading activities of the company's common stock. Fama and French (1998) argue that a company's financing decisions have no effect on its market value and, thus, security holders are indifferent to debt against equity financing choice. However, the authors' argument relies entirely on the existence of a perfect capital market and on the assumption that companies maximize the wealth of both the shareholders and bondholders. Company value is a key actual performance factor because value maximization is the primary goal of corporate financial management. Models of the association between company value and debt by Modigliani and Miller (1958) suggest that debt level is irrelevant to company value. Masulis (1983) examines the valuation effects of capital structure changes and finds that changes in stock prices are positively related to leverage changes; and changes in company values are positively related to changes in debt level. However, Masulis (1983) does not address the notion of risk. This is despite the theoretical argument that while financial leverage could increase the value of a company, it also increases the company's riskiness.

Ross (1977) has demonstrated that changes in financing policies alter investors' perception about companies because the action triggers a certain signal to the market. The signaling model assumes that corporate financing decisions are made primarily to communicate managers' confidence in the company's prospects. Barclay and Smith (2005) argue that when management thinks that the company is undervalued, an issuance of debt could increase the value of the shares. This is because adding more debt to the company's capital structure can serve as a credible signal about expected future cash flows. Companies that have raised their gearing rate are, in effect, signaling to the markets that they are aware of the state of nature; that it is favorable; and that they are confident about the company's ability to pay the additional financial expenses. On the other side of the coin, debt financing obligates a company to make a fixed set of cash payments over the term of debt security. If companies fail to make these payments, they will potentially face consequences as severe as bankruptcy.

The signaling theory (Ross 1977) is based on an assumption that corporate managers are better informed about their companies than the creditors or investors. This means that corporate managers, both in charge of and involved in the company's daily operations, are in a better position to foresee the company's future cash flows. Investors are, therefore, constantly on the watch for management actions or signals that indicate better cash flows or lower risks. Nonetheless, for the signals to be considered credible there must be a penalty for sending the wrong signals so that companies would not deliberately mislead the market. In the context of information asymmetry, markets would not understand why a corporate manager would borrow to undertake a very risky and unprofitable venture. After all, if the venture fails, the corporate manager risks losing his/her job or worse, if the venture causes the company to fail. Therefore, debt is a strong signal for equity return and value, but even more so for risk. In this sense, corporate managers have a strong incentive to send the correct signal by ensuring that the company's debt corresponds to their confidence on its repayment capacity. Ross (1977) affirms that the financial structure of a company provides information about its financial situation and quality; and that the value of the company increases with the level of leverage. A company's choice of capital structure may convey information about management expectations regarding the company's prospects. The more common assumption is that a higher debt ratio signals positive management expectations concerning the company's future cash flows.

On the other hand, Myers and Majluf (1984) and Miller and Rock (1985) defend the opposite position, as they are of the opinion that the announcement of new external financing conveys unfavorable information and, therefore, has a negative impact on the market. Myers and Majluf (1984) conclude a negative market reaction will result from a company's external financing by arguing that the issuance of the company's securities creates demand for a discount in order to hedge against the risk that the securities are overvalued. Similarly, Miller and Rock (1985) opine that a company's decision to externally source funds indicates negative information in relation to future internal financing. Furthermore, according to the Myers and Majluf (1984) model, in an environment with asymmetric information about the company value, shareholders tend to interpret risky security offerings as a signal that the issuing company is overvalued. The more sensitive a security's payoffs to the issuing company value (i.e. the more equity-like a security), the more skeptical shareholders become towards the company's announcement. Myers and Majluf (1984) model thus implies that hybrid debt securities announcements should be associated with more negative shareholder reactions than non-hybrid debt securities announcements, but with less negative shareholder reactions than pure equity announcements.

Most empirical studies in later years also find evidence in contrast to the irrelevance theory proposed by Modigliani and Miller (1958), even though the impacts or relationships may not necessarily result from the same signals. For instance, Ammann, Fehr and Seiz (2004) and Chen, Dong and Wen (2005) find a significant negative abnormal return following the issuance of debt securities. Whereas, Martel and Padron (2006) find the opposite result, as the sample companies register positive abnormal returns after debt securities issuances. While evidence for the relevance of debt financing is strongly established, new empirical evidence is needed to explain the different impacts. Kish and Miles (1993) study market reactions to different types of debt (callable and non-callable issues) and find that markets react more favorably to callable bond issues than to non-callable bond issues. However, the study also finds that non-callable debt is still issued by companies in great numbers, suggesting that callable debt does not provide substantial advantages over non-callable debt to the issuing companies. This notion is supported when the study finds that market reactions to callable debt are not significantly different from zero. Using cumulative average returns, Kish and Miles (1993) also find evidence that suggests that the market reacts negatively to short-term bonds, but positively to long-term bonds.

Prior studies have documented a negative long-run abnormal post-issuance equity return performance of convertible bond issuers (Abhyankar & Dunning 1999; Chen et al. 2005; Lee & Loughran 1998). This finding could be supported by Ammann et al. (2004), who determine that companies perform poorly following the issuance of convertible debt. In the study, a company's performance is measured using both long-run stock and operating performance. The operating performance (measured by abnormal returns) of convertible debt issuers subsequently declines from the pre-convertible debt offer levels and during the post-issue period. Mayers (2000) suggests that hybrid debt securities can be viewed as "deferred equity" offerings that add value for companies with promising future growth opportunities. Based on a survey, Mayers (2000) concludes that corporations generally value hybrid debt securities as these securities provide a signal about the future prospects of the company. In the survey, most managers report that issuing hybrid debt securities has significantly positive net benefits as opposed to other financing alternatives. According to Carlsson et al. (2006), due to the hybrids' combined equity- and debt-like nature, it is difficult to predict how debt securities perform in an uncertain market. Investors fear that hybrids may actually behave more like common stocks and less like bonds, which translates into substantially higher risks. According to Suchard and Singh (2006), among the non-equity securities, convertible debt generally receives the most negative reaction, followed by convertible preference shares. In contrast, straight debt and preference share abnormal returns are generally insignificantly different from zero.

Several studies for the US market document a significantly negative (on average -1.5%) market response to convertible bond issues (Ammann et al. 2004). However, studies by Kang et al. (1995) in the Japanese market and De Roon and Veld (1998) in the Dutch market show an opposite result with positive abnormal returns. Kang et al. (1995) use convertible bonds as a sample and document positive and significant reactions at the time of the issuance announcement. The different result may be attributed to the differences in regulatory environments and corporate governance in Japan and the US. De Roon and Veld (1998) report positive, yet insignificant stock price reactions. For the UK market, Abhyanker and Dunning (1999) document a negative stock price reaction (-1.21%), which is similar to the result found in the US market. The different findings of market reaction to convertible bond issuances may be attributed to the different market structure in each country. Therefore, investigating the stock price reactions to the issuance of hybrid debt securities in the Malaysian market contributes to the existing literature and provides insight regarding the effects in this fast growing market.

A potential drawback noticed in previous studies is the small number of data points used, ranging from 1 to 20 days before and after the event period (Abhyankar & Dunning 1999; Chen et al. 2005; De Roon & Veld 1998; Martel & Padron 2006). The present study explores beyond the 20 day period around the event window, arguing that the market may take a longer period of time to recognize the costs and risks for assuming additional corporate debt securities.

Similar to the effect on equity returns, conflicting results are also found with respect to changes in equity risks. Previous research finds controversial evidences regarding changes in systematic risk around debt securities offerings. Kapoor and Pope (1997) use daily returns data and find results that suggest the issuance of debt does not have an effect on the beta or systematic risk of the underlying securities. The reason is that the beta is equally likely to increase or decrease after the issue date of corporate debts. Lewis, Rogalski and Seward (2003) document a decline in systematic equity risk around convertible debt offerings, whereas Kleidt and Schiereck (2006) find an increase in systematic risk following debt securities offer. The increase is due to an increase in financial risk and persists when effects of thin trading and price adjustment delays are controlled for, as in Scholes and Williams (1977). Lewis et al. (2003) find that the issuer's estimated residual variance from the market model increases significantly following a convertible debt offering. The authors also find that systematic risk declines for convertible debt issuers. They argue that price revisions at the offer announcement date could reflect updated investor assessments of changes in systematic risk. According to Aitken and Segara (2005), hybrid securities are rather similar to derivative securities and could encourage speculation in the spot market, resulting

in an increase in spot price volatility. Similarly, Kleidt and Schiereck (2006) also find a significant increase in systematic risk following the convertible debt offers. As highlighted by Henderson (2005), existing shareholders and managers with residual ownership may wish to use debt proceeds to invest in riskier projects which increase the riskiness of the companies' assets and, thus, increase their expected stock returns. If this risk shifting hypothesis is true, the company's return volatility (risks) is expected to increase following a convertible bond issue.

RESEARCH DESIGN

This study uses a total of 100 sample companies (issuers), of which 29 are hybrid debt securities issuers and 71 are non-hybrid debt securities issuers. As shown in Table 5, the number of debt securities issued is small in year 2000, with only one hybrid and three non-hybrid issuers. The number of issuers gradually improves over the next few years and finally registers a total of 17 to 19 issuers from 2003 to 2005. Generally, there are more non-hybrid than hybrid issuers, except in year 2002, where there are 6 issuers of hybrid debt securities as opposed to only 4 issuers of non-hybrid debt securities.

TABLE 5. Number of debt securities observations by issuance year, 2000-2007

Year	All sample	Hybrid	Non-hybrid
2000	4	1	3
2001	9	2	7
2002	10	6	4
2003	17	4	13
2004	17	7	10
2005	19	4	15
2006	11	3	8
2007	13	2	11
Total	100	29	71

Table 6 categorizes the 100 sample companies into their respective business sector or industry based on classification by Datastream. As shown in the table, debt securities are randomly distributed among all sectors. There are 17 sectors for hybrid sample and 24 sectors for non-hybrid sample. Many business sectors comprise only one or two companies under the category, i.e., aerospace and defense; chemicals; electronic and electrical equipments; forestry and paper; gas, water and multiutilities; healthcare equipment; industrial metals; mining; oil and gas; producers; and pharmaceuticals and biotechnology. Therefore, industry concentration is not a serious concern in either sample.

TABLE 6. Number of debt securities issues by industry, 2000-2007

Industry	All sample	Hybrid	Non-hybrid
Aerospace & defense	1	0	1
Automobile & parts	6	1	5
Construction & materials	12	5	7
Chemicals	4	2	2
Electronic & electrical equipments	3	1	2
Food producers	9	2	7
Forestry & paper	1	0	1
Gas, water & multiutilities	2	1	1
General industrials	6	1	5
General retailers	6	2	4
Health care equipment	2	0	2
Household goods	4	2	2
Industrial engineering	8	2	6
Industrial metals & mining	2	0	2
Industrial transportation	4	1	3
Mining	1	0	1
Oil equipment & services	4	1	3
Oil & gas producers	1	0	1
Personal goods	5	1	4
Pharmaceuticals & biotechnology	1	0	1
Real estate investment	8	4	4
Travel & leisure	4	1	3
Support services	3	1	2
Software & computer	3	1	2
Total	100	29	71

The business sector that consists of the highest number of companies is the construction and materials sector (13 companies), followed by 9 companies in the food producers and real estate investment sectors, respectively. As reported in Table 6, the construction and materials sector possess the highest industry concentration of hybrid and non-hybrid sample companies, with a respective 17.24 percent and 9.86 percent. Other than these sectors, hybrid sample companies are also more popular in the real estate investment sector (13.79%), whilst non-hybrid sample companies concentrate in the food producers sector (9.86%) and the industrial engineering sector (8.45%).

THEORETICAL FRAMEWORK

Figure 1 illustrates the theoretical framework of this study. In order to examine the effects of debt securities issuance on the issuing company's equity market behavior, an event study using the market adjusted return (MAR) approach is utilized. The sample is split to ensure that the effect of hybrid and non-hybrid sub-samples can be identified. Apart from that, this study also investigates whether there is any significant difference between hybrid and non-hybrid debt securities in terms of their equity market behavior following the respective debt securities offers. The second part of the study performs a pre- and post-issue comparison of the effects of debt securities issuance on the total risk and systematic risk of the issuing companies between hybrid and non-hybrid debt securities.

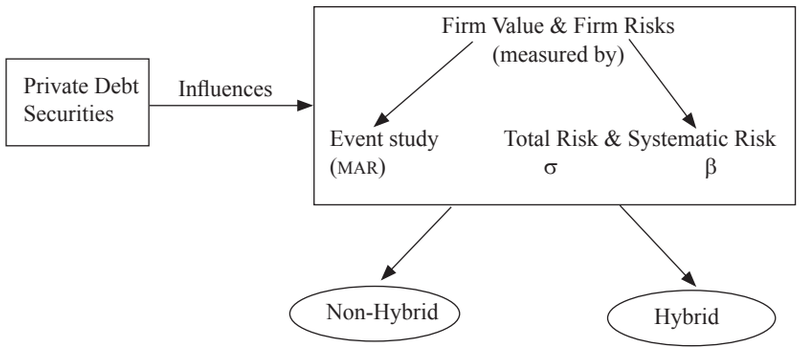

FIGURE 1. Research framework

ESTIMATION OF EQUITY RETURN

The event study method is used to estimate and draw inferences about the impact of debt securities issuance in a particular period or over several periods. The issue date, rather than the announcement date, is used. This is because the announcement of debt securities are generally associated with major corporate events and exercises, evidenced by the 60 percent of debt securities issued for new investment and merger and acquisition (M & A) activities in 2007, as reported in the Bank Negara Malaysia annual report 2007. When the announcement is made initially, the major corporate exercises are generally of higher concern within the market and, therefore, market reaction could be due to corporate news regarding corporate investment or M & A exercises. As such, it is believed that those earlier announcements raise greater concerns regarding the major corporate events than the accompanying financing choice. The actual effect of the financing choice, on the other hand, would only be realized upon debt issuance. Moreover, according to Kapoor and Pope (1997), it is appropriate to use the issue dates in order to avoid the problem of uncertainty as some announced proposed debt securities are later withdrawn. Markets, therefore, may not react until just before the issue date. This is further supported by Chen et al. (2005), who find that only one-third of debt issues announced are successfully issued. The event window covers from day t = -60 until day t = +60. The confounding effect is not an issue as companies with major corporate events not associated with debt securities financing are excluded from the sample. Moreover, the average time from announcement to issue date is generally 4 to 6 months and therefore would not be leading to confounded result.

The abnormal returns for this study are estimated using the market-adjusted returns model (MAR). There are two reasons for selecting this model. Firstly, this is a simple, straight-forward and widely used model (Agrawal, Kishore & Rao 2006; Altman, Gande & Saunders 2004; Barnes & Ma 2001; Brown 1999; Charitou, Vafeas & Zachariades 2005; Gao & Tse 2004; Jones & Danbolt 2004; Soongswang 2007; Travlos, Trigeorgis & Vafeas 2001). Secondly, many studies (Agrawal et al. 2006; Altman et al. 2004; Barnes & Ma 2001; Charitou et al. 2005; Gao & Tse 2004; Kang et al. 1995; Soongswang 2007; Travlos et al. 2001) have shown that results obtained from market-adjusted returns model and other models, such as the market model and mean adjusted returns model, do not exhibit significant differences. Brown and Warner (1980, 1985) also confirm that event studies based on both the market model and the market-adjusted returns model indicate that the two models are equally as powerful in detecting abnormal returns. In addition, since this study uses daily data, the adjustment to index returns is small and negligible. In this model, stock returns are compared to an expected return of the market over the event period. For each sample of security *i*, the return ($R_{i,t}$) 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 calculated from a market portfolio or a market index, and $e_{i,t}$ is the component of returns which 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;

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

or, equivalently, $e_{i,t}$ is the difference between the return conditional on the event and the expected return unconditional on the event or the market return. Thus, the

abnormal return is a direct measure of the (unexpected) change in company value and return associated with the event. Following MacKinlay (1997), the abnormal return observations have to be aggregated in order to draw overall inferences for the event. The aggregation is along two dimensions-across time and across stocks. The average abnormal return (AAR) is then estimated for each of the 120 days (60 days before and 60 days after) surrounding the issuance of debt securities, The average company-unique return is estimated as follows:

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

where AAR_t equals the average abnormal return of the N number of debt securities issues examined in a given day t. The calculation would be done for the whole 120-day event period. A t-test is then executed on each event day to see whether there exists a significant effect due to debt securities offers. The AAR would then be summated throughout the event days to form the cumulative average abnormal return (CAAR) such as 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 time intervals surrounding the event period.

ESTIMATION OF RISK

This study examines two types of risks, systematic and total. Systematic risk is the volatility of a particular stock due to changes in the market and reflects the degree to which returns of a given stock tends to move up or down with the market. This tendency of the stock is reflected in its beta coefficient. The following equation, which could be reflected by the market model, is used to estimate the systematic risk or beta:

$$R_{i,t} = \alpha_i + \beta_{i,} R_{mt} + e_{i,t} \quad (5)$$

where $R_{i,t}$ is the return on the stock, α_i is the intercept term, $\beta_{i,t}$ is the beta coefficient, R_{mt} is return on the market portfolio and $e_{i,t}$ is the error term.

An ordinary least square (OLS) regression is used to find α_i and $\beta_{i,t}$. Daily return is used in this study as the use of monthly returns would greatly increase the interval over which betas are estimated, so the effect of any particular debt issue would also be subjected to the longer interval and contaminated by other events within the interval. As a result, this would reduce the strength of any conclusion reached (Caroll & Sears 1994; Kapoor & Pop 1997). In addition, the use of daily stock returns allows this study to focus on a narrow window around the event which may minimize any possible confounding effect over the study period.

Nevertheless, as thin trading phenomenon exists in the Malaysian stock market, the Scholes-William technique for adjustment of thin trading problem (Cohen et al. 1983; Scholes & William 1977) is applied in this study to determine a consistent, less biased estimator (β_j) for the true beta as follows:

$$\beta_j = (b_j + b_{j+1} + b_{j-1})/(1+2b_{m+1}) \quad (6)$$

where b_j is the OLS regression estimator of the observed beta, $b_{j+1 \text{ is the}}$ OLS regression estimator of the lead beta, b_{j-1} is the OLS regression estimator of the lag beta, and b_{m+1} is the OLS regression estimator of the market lead beta.

Next, total risk is defined as the total dispersion or volatility of the expected returns on a security or portfolio, and it reflects uncertainty about the future. The operational definition of total risk, as commonly used investment theory and practice, is the standard deviation of the security or portfolio's returns (Markowitz 1952). According to the United States Risk Model Handbook by BARRA Inc. (1998), the standard deviation of return is a universal, symmetric and flexible way of measuring risk. Reilly and Brown (2009) also contend that variance or standard deviation of return is a good measure of risk because it is somewhat intuitive and correct as well as widely accepted. In empirical studies, Lewis, Rogalski and Seward (2002) and Jung and Sullivan (2009) use standard deviation as an alternative measure of companies' business and financial risks. In a similar spirit, the present study estimates total risk using the standard deviation of the daily stock returns;

$$\sigma = \sqrt{\frac{\sum (r - \bar{r})^2}{(n-1)}} \quad (7)$$

where σ is the standard deviation or square root of the variances, *r* is the daily stock returns, is the average daily stock returns, and n is the total number of days within the time frame.

Finally, to examine the change (D) in the risk parameters, the differences of risks for each stock are computed as follows;

$$D(\beta) = \beta_{i,\,post} - \beta_{i,\,pre} \quad (8)$$

$$D(\sigma) = \sigma_{i,\,post} - \sigma_{i,\,pre} \quad (9)$$

where β and σ are as defined in Equations (6) and (7), respectively. The subscripts pre and post referred to the period prior to and after the event or the issue date, respectively.

To address the non-normality and for robustness check, a non-parametric test is also performed. Moreover, as highlighted by Barakat and Terry (2008), parametric tests reject more often than non-parametric tests. In financial event studies, a sign test is commonly used to specify

statistical significance independently of an assumption concerning the distribution of the excess return population from which data are collected. Corrado and Zivney (1992) evaluate a nonparametric sign test for abnormal security price performance in event studies and conclude that the sign test is better specified under the null hypothesis and often more powerful under the alternative hypothesis than a parametric t-test. However, the performance of the sign test is dominated by the performance of a rank test, indicating that the rank test is preferable to the sign test in obtaining non-parametric inferences concerning abnormal security price performance in event studies. Hence, in addition to parametric test, the present study employs Wilcoxon signed-rank test to verify the statistical significance of the result.

FINDINGS AND DISCUSSIONS

Figure 2 shows the cumulative average abnormal return (CAAR) for all observations, hybrid and non-hybrid issuers. Generally, all debt securities issuers experience an increasing trend of CAAR over the 60 days before the event day (t = 0) and first 10 days of the post-event period. On day t = –60 to t= –55, the CAAR declines. Thereafter, the CAAR surges to a positive value on day t = –45 and fluctuates between 1 percent and 3 percent before increasing substantially from day t = –1. After the event day, the CAAR continues to rise and finally reaches a peak of 6.84 percent on day t = +9. However, immediately after the 9th day, the CAAR begins to show a declining trend, dropping to a low of 4 percent at day t = +23. The CAAR then increases again from day t = +24 and fluctuates between 4.5 percent and 5.5 percent until day t = +60.

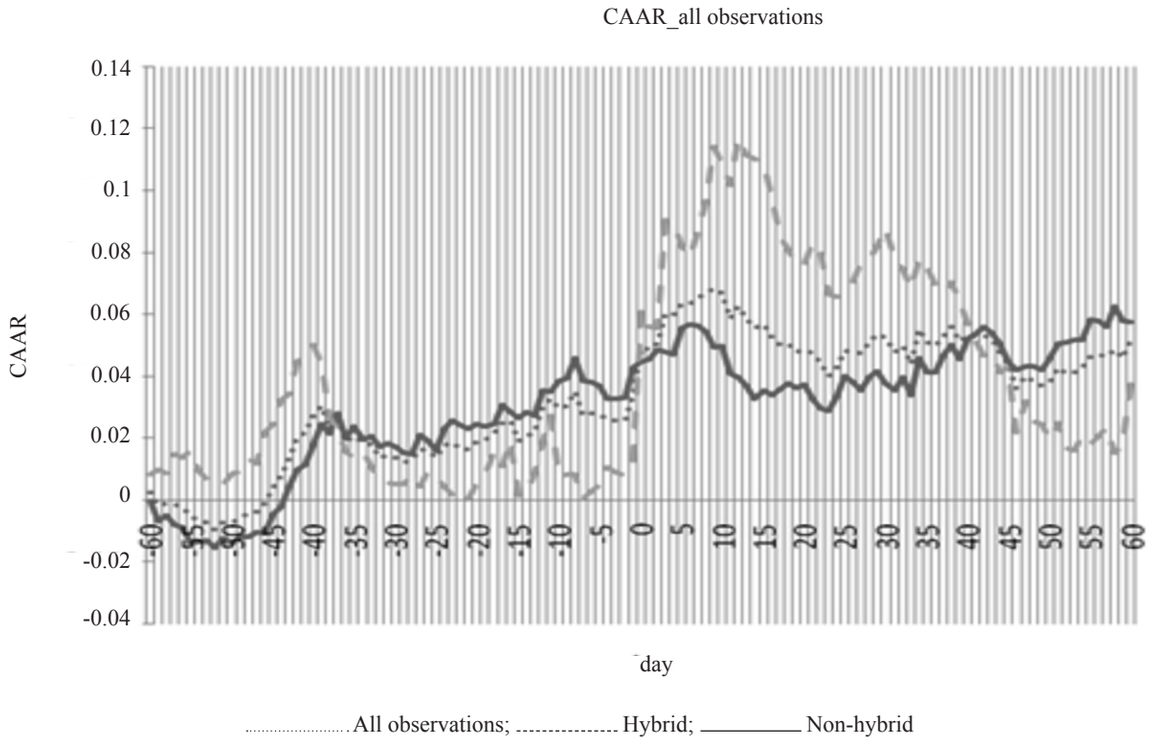

FIGURE 2. Cumulative average abnormal return for all observations, hybrid and non-hybrid issuers

Next, we check the significance of the results using a t-test that is carried out over different intervals. The results are reported in Table 7. Overall, debt securities issuers enjoy a positive CAAR 10 days after the issuance date (CAAR = 1.74%, t-value = 1.8052) and 21 days surrounding the event day (CAAR = 3.42%, t-value = 2.2470). The positive relationship between debt securities 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 funds from the debt securities instruments that are generally intended for productive purposes, such as company growth and expansion. The equity market appears to react positively to the issuance of debt securities as a whole.

For hybrid debt securities, the CAAR continues to increase for a few days before a downturn from day t = –39 to t = –2. The CAAR generally fluctuates within a range of less than 1% for approximately 15 days before the event day and starts to increase to above 1% on day t = –1. Thereafter, the CAAR increases for more than 10 days and reaches its peak on day t = +12 at 11.7 percent.

After day t = +13, the graph shows a declining trend until the end of the study period. It is important to note that the CAAR is moving rather horizontally about 30 days before the event and then surges substantially following the debt securities offers. This trend seems to imply strong influence of hybrid debt securities issuance on the issuer's equity returns. Fifteen days after the event day, the CAAR gradually decreases until the end of the event period. Further analysis on the different intervals of CAAR (Table 7) reveals that hybrid debt securities issuers enjoy a positive CAAR within 21 days surrounding the event day (CAAR = 5.15%, t-value = 1.8344) and a negative CAAR within 40 days after the issuance of debt securities (CAAR = –1.46%, t-value = –1.7436) and 81 days surrounding the event day (CAAR = –2.19%, t-value = –2.0957).

Finally, for non-hybrid debt issuers, there is a gradual increase in CAAR between day t = –45 and day t = –7, ranging from 1 percent to 3 percent, and finally reaches 4 percent on day t = –8. Thereafter, the CAAR declines to below 4 percent and then increases again, to above 4 percent, on the day before the event. The increase sustains until it reaches the peak at 5.7 percent on day t = +6. As depicted in Figure 2, the market seems to react positively to the non-hybrid debt securities offers. However, the t-test over different intervals in Table 7 shows that none of these movements are significant. This would mean that there is no abnormal return upon the non-hybrid debt securities issuance.

TABLE 7. Results of t-test of CAAR over different event intervals

Windows	All sample	Hybrid	Non-hybrid
11 Days Around Event Day			
-5 to -1	0.59%	0.96%	0.44%
+1 to +5	1.37%	1.07%	1.08%
-5 to +5	3.54%	4.9%	1.72%
21 Days Around Event Day			
-10 to -1	0.12%	1.45%	0.77%
+1 to +10	1.74%* (t = 1.8052)	4.73%	0.50%
-10 to +10	3.42%** (t = 2.2470)	5.15%* (t = 1.8344)	1.46%
41 Days Around Event Day			
-20 to -1	1.74%	1.19%	1.97%
+1 to +20	-0.086%	1.49%	-0.74%
-20 to +20	3.22%	4.55%	1.59%
61 Days Around Event Day			
-30 to -1	1.93%	0.72%	-0.069%
+1 to +30	0.29%	2.64%	0.35%
-30 to +30	3.80%	5.23%	1.96%
81 Days Around Event Day			
-40 to -1	1.19%	-3.5%	2.21%
+1 to +40	0.38%	-1.46%* (t = -1.7436)	0.73%
-40 to +40	3.14%	-2.91%** (t = -2.0957)	3.68%
121 Days Around Event Day			
-60 to -1	3.38%	1.26%	4.27%
+1 to +60	0.21%	-2.34%	1.08%
-60 to +60	5.16%	3.79%	5.74%

Notes: ** significant at α = 0.05; *significant at α = 0.10. the t-value s are only provided for significant CAARs.

In summary, the graphical presentations of all the 3 sample groups discussed above show that the equity market behavior is influenced by the issuance of debt securities. Generally, the CAAR graph shows that there is a reversal trend surrounding day t = +10. This is most likely due to the overreaction by the market to the debt securities issuance, such that a correction takes place (between day t = +9 to t = +12) to revert to normal price levels. Subsequently, the analysis on t-test over different intervals of CAARs confirms that there is an abnormal return following debt securities offers within 21 days surrounding the event day. While the abnormal returns of hybrid debt securities issuers are evidenced over 21 days and 81 days surrounding the event day, no abnormal

returns are observed for non-hybrid debt securities issuers during these intervals. In other words, debt securities offers by companies are associated with abnormal returns for both the overall debt securities issuers and hybrid issuers, but not in the case of non-hybrid issuers.

Overall, the upward trend for all debt securities issuances supports the signaling model of Ross (1977), which suggests that an increase in debt levels conveys positive news. Market participants perceive that higher debt levels show insiders' confidence that future cash flows will increase to service the higher debt levels. This is consistent with models of optimal capital structure and with the hypothesis that changes in debt level release information about changes in company value (Modigliani & Miller 1958). As pointed out by Kabir (2003) a company receives additional external funds by issuing debt securities, while at the same time increasing its leverage and external monitoring from debtholders. The capital market interprets debt securities issues as a mixed signal. The fact that a company needs new financing indicates a shortage of internal funds which the market may consider as bad news. The additional debt obligations imply companies will have to assume a higher risk, which is perceived as unfavorable by the market. On the other hand, the higher leverage is a signal that the company is confident about its ability to meet higher interest obligations and generate higher cash flows. Based on the argument, the result of the present study seems to indicate the market treats hybrid debt securities offer as good news at first, but bad news after a while. The result is also consistent to the model of Myers and Majluf (1984), which suggests that convertible debt offers should be associated with more negative stockholder reactions than non-hybrid debt securities.

Furthermore, the initial positive market reaction to hybrid debt securities offers is well supported by the survey done Bancel and Mittoo (2004), who report that most of the companies issue hybrid debt securities as a form of "delayed equity". The companies also favor the issuance of hybrid debt securities as a ameans to provide a signal about the future and prospects of the company. The significantly negative CAAR found in the present study for hybrid debt securities issues also concurs with the prediction of Miller and Rock (1985) that external financing should result in a negative stock price reaction.

Table 8 shows the findings for the effects on systematic risk following issuances of debt securities. The paired sample t-test and Wilcoxon signed-rank test show consistent results on the adjusted beta for overall debt securities issuers. All debts issuers generally report decreases on post-event beta. However, no difference is found between pre- and post-event beta for non-hybrid issuers after the observed beta is adjusted using Scholes and Williams (1977) adjustment of thin trading technique. Generally, companies that issue debt securities would experience a substantial decline in their systematic risk following the offers (t-stats = –2.086, $\alpha = 0.05$). The finding contradicts Modigliani and Miller's (1958) proposition that the higher the financial leverage, the higher the financial risk. As highlighted by Hamada (1972), the issuance of new debt may be used to finance a new investment project, in which case the project's characteristics will also be reflected in the systematic risk measure. Moreover, the market may not fully consider the new debt issue if it believes the increase in debt securities is minimum and negligible. This could be true in Malaysia as, in most cases, equity-financing and bank borrowings are still the preferred choice for many corporations. Overall, the results of the study are consistent with Lewis et al. (2002), who find that systematic risk declines after a debt issuance. The present study, however, contradicts Kapoor and Pope (1997), who find no effect on systematic risk following debt securities issuance. The result is also inconsistent with the findings of Kleidt and Schiereck (2006) that systematic risk increases after companies issue debt securities. On the other hand, no significant result is found for non-hybrid issuers, implying no change in the post-event beta following non-hybrid debt securities offers.

TABLE 8. Systematic risk (S-W beta) pre-and post-issuance of debt securities

	Paired sample t-test	Wilcoxon signed-rank test
All sample (N = 100)	t = –2.086** Post-event beta decreases	z = –2.025** Post-event beta decreases
Hybrid (N = 29)	t = –3.914*** Post-event beta decreases	z = –3.157** Post-event beta decreases
Non-hybrid (N = 71)	t = –1.03179 No difference	z = –0.594 No difference

*** significant at $\alpha = 0.01$; ** significant at $\alpha = 0.05$

The results for pre versus post debt issuance total risk are shown in Table 9. Both paired sample t-tests and Wilcoxon signed-rank tests provide the same results for total risk. Specifically, there is no difference between pre and post-event total risk for overall debt securities issuers and non-hybrid debt securities issuers. On the other hand, post-event total risk increases significantly for hybrid debt securities issuers (t-value = 2.3219, $\alpha = 0.05$), which is consistent with the argument of Ross (1977) that a high level of indebtedness is perceived to have increased company risks and also signals that a company is performing well. Hence, the value is positively correlated with increasing indebtedness to the extent that financial leverage causes an increase in company value. As the findings in the previous section reveal a decrease in systematic risk for hybrid issuers, the increase in post-event total risk is therefore attributable to the increase in unsystematic risk. While no changes are found in total risk for the overall sample and the non-hybrid sample, the hybrid debt securities sample exhibits an increase in total risk, indicating a difference does indeed exist between pre and post total risk in relation to hybrid debt securities offers.

TABLE 9. Total risk pre-and post-issuance of debt securities

Sample	Paired sample t-test	Wilcoxon signed-rank test
All sample (N = 100)	t = 1.451 No difference	z = –0.034 No difference
Hybrid (N = 29)	t = 2.3219** Post-event risk increases	z = 1.738* Post-event risk increases
Non-hybrid (N = 71)	t = –0.82252 No difference	z = –1.402 No difference

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

Overall, the offer of debt securities is found to have an impact on the company's total risk, however only as far as hybrid securities are concerned. These results indicate that stock price variability increases upon the issuance of hybrid debt securities. This finding is consistent with Lewis et al. (2002) who find an increase in total risk following convertible debt offerings. According to Carlsson et al. (2006), due to the hybrids' combined equity- and debt-like nature, it is difficult to predict how debt securities will perform in an uncertain market. Investors may fear that hybrids may actually behave like ordinary shares and not at all like debt securities, which translates into substantially higher risks. On the other hand, the results show a decline in total risk for non-hybrid debt securities issuers. The findings of the increase in equity returns coupled with the increase in total risk of hybrid debt securities issuers confirm the existence of market signal as a result of changes in corporate financing policy as posited in Ross's (1977) signaling theory.

CONCLUSION

The findings of the study reveal that debt securities issuers generally experience an increase in equity returns following debt securities issuance. The same event causes a decrease in the issuers' systematic risk, but has no significant impact on their total risks. The empirical findings further reveal that hybrid debt securities experience a positive average abnormal return initially, but witness a substantial decline in the equity returns 15 days after the offers. The result is consistent with studies in the US, which generally find significant negative abnormal returns for hybrid debt securities. On the other hand, non-hybrid debt securities experience positive, but insignificant, equity return surrounding the debt issues. Differences between hybrid and non-hybrid debt securities issuers are further noted with hybrid debt securities issuers exhibiting a decline in systematic risk, but an increase in total risk following the offers. In fact, non-hybrid debt offers do not trigger any significant changes in regards to the systematic risk and the total risk of the issuers. Nevertheless, our findings do not address the issue on project risk, which is proposed by Henderson (2005). This becomes part of the limitation in this study.

The results, which show a decline in systematic risk after debt securities issuance, imply that debt securities can be as an effective instrument in bridging the savings-investment gap of the needy corporations. The findings could motivate the issuance of debt instruments by corporations for the purpose of improving the market liquidity of the debt securities market in Malaysia. This is because the increased supply (issuance) of debt securities from corporations will be supported by the demand from corporations that use debt securities to reduce their vulnerability in the sector. The results also show that non-hybrid debt securities do not serve as a signaling device, implying that corporations may not use non-hybrid debt securities to send signals to the market. In other words, if a company intends to influence the equity market behavior with its financing choice, it should use hybrid, rather than non-hybrid, debt securities. The research results also offer important considerations for investors in managing their investment risks. This is because different types

of debt securities have different risk and return effects. Investors who are more risk-tolerant may take a short-term investment in hybrid debt securities to enjoy the positive return which compensates for the higher total risk. Investors who are more risk-averse can still enjoy the high returns from hybrid debt securities, as long as this is accomplished in the form of a diversified portfolio so that they can mitigate the high total risk of hybrid debt securities through diversification.

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