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## Who Issues Debt Securities in Emerging Countries?

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### Abstract

This paper focuses on the differences of capital market accessibility and investigates the determinants of firm debt securities issuance in emerging countries. The following results are derived from the empirical analysis. First, country panel analyses showed that the debt securities market development and domestic equity market development were positively related. Second, firm panel data analyses of ASEAN countries suggest that debt securities issuers and frequent equity issuers overlap. Third, analyses of daily stock price data of ASEAN firms reveal that debt securities are not issued for infrequent equity issuers, regardless of the stock price, whereas frequent equity issuers choose debt securities issuance as a funding tool when the stock price is low. Fourth, as compared to accessible frequent equity issuers, market-inaccessible firms are less sensitive to the financial cost of debt securities issuance.

JEL Classification Code: O16, G15, G30

Keywords: Debt Securities Issuance, Asian Bond Market, Corporate Finance

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## **1. Introduction**

A number of existing corporate finance texts have discussed determinants of debt securities issuance in the past. These texts assume that a mature, developed debt securities market exists in the country. Actually, the comprehensive debt securities market statistics published by the Bank for International Settlements suggest that the number of debt securities-issuing firms is extremely small in emerging countries, while hundreds of firms have issued debt securities in the United States, the United Kingdom, and other developed countries. It appears that the number of countries in which a mature, developed debt securities market exists is rather small, and most firms presumably cannot choose the desirable funding tools, including those financially advantageous for them, depending on the degree of the funding market development. Accordingly, it is common for firms in these countries to continuously face a limited number of financing tools.

This paper assumes that potential debt securities issuers face various stages of market development, although the existing literature presupposes the existence of a mature, developed debt securities market in different countries. In other words, we regard that immature stages of funding market development influence the managerial funding decision of the firms especially in emerging countries. Few existing studies have discussed who issues debt securities in emerging countries.

Corporate financing papers have pointed out that trade-off theory and pecking order theory are two major determinants of firm capital structure. Trade-off theory asserts that a firm's securities issuance decisions move its capital structure toward an optimum that is determined by a tradeoff between the marginal costs and benefits. Bankruptcy and agency costs are typical examples of such costs, and typical benefits include debt tax shields and reduction of free cash flow problems. The recent study of Van Binsbergen et al. (2011) empirically verified these costs of debt and compared differences across the various costs. Pecking order theory asserts that firm managers are better informed than external investors. This theory stipulates that outside investors require better information when the firm is funded by equity issuance. In such cases, investors undertake some probability of future loss of the original principal of the investment, but the future investment return is often higher than fixed-income securities. Myers and Majlufs (1984) and a number of other studies support the idea since then. However, recent studies have provided empirical evidence that neither of these theories explain firm funding behaviors in the real world of business.

Trade-off theory suggests that a firm issues debt securities when the stock price is high, since an increase in the market value of capital lowers the funding cost of debt. However, Graham and Harvey (2001) assert that a firm employs equity issuance when the stock price is high in the equity market. Baker and Wurgler (2002) also support the idea that a firm issues equity when the stock price is high. Baker and Wurgler (2002) contribute the idea that firms issue equity when the stock prices are high if a high stock price coincides with low adverse selection. Other studies, such as that

of Asquith and Mullins (1986), also supported this “timing theory.” While the empirical evidence presented by Graham and Harvey (2001) and Baker and Wurgler (2002) cast doubt on the validity of the trade-off theory, the very influential study of Fama and French (2005) concluded that more than fifty percent of the U.S. firms violated the pecking order theory. The “timing theory” and “time-varying theories” are accordingly regarded as new trends of corporate financing theory concerning a firm’s securities issuance decision.

Dittmar and Thakor (2007) developed the above recent “timing theories,” suggesting that a firm issues equities when the future perspectives of stock price and corporate performance of managers and shareholders are consistent, not necessarily when a stock price is high. Billiet et al. (2007) also pointed out that a firm does not always issue equities when a stock price is high but is likely to issue equity when the growth opportunity is high. The firm often chooses to prolong the maturity of debt securities depending on the types of debt securities’ covenants, since it mitigates agency costs of debt. Datta et al. (2005) suggested that the ownership structure of the firm also influences the debt maturities regardless of the stock price. The existing literature mostly assumes that firms automatically issue debt securities when they do not issue equity. Although there were a number of determinants of equity issuance studies, there has been relatively little scholarship on debt securities. Most previous studies hypothesize that firms issue debt securities when they do not choose equity issuance and their empirical analyses support this. Hence, determinants of equity issuance studies virtually investigate determinants of debt securities issuance to derive conclusions for when firms do not choose equity issuance. Therefore, the literature on determinants of equity issuance studies can be translated as the examination of determinants of debt securities issuance.

Many studies have predominantly employed U.S. firm data as empirical samples and assumed that equity issuance and debt securities issuance are two alternative financing tools depending on stock price. In contrast, Brav (2009) focused on firm capital market accessibility and provided evidence that it influences firm financing decisions. His study examined both publicly listed firms and private firms and pointed out the differences of the funding decision behaviors. A chief conclusion of the study is that accessibility to the market, rather than agency costs and stock price, is the major factor in determining financing. The study also posits that even the developed U.K. capital market is of a two-layer structure; that is, the corporate financing behaviors of market-accessible firms and inaccessible firms are different, with the determinant of securities issuance varying by layer. Goyal et al. (2011) also employed this approach in examining eighteen European firms. They concluded that firm debt choice decision is also different between market-accessible and inaccessible firms in other European countries. Although Billet et al. (2011) did not directly focus on the determinants of firm debt securities issuance, they examined the relationship between capital market accessibility and post-issuance firm performance. This suggests a trend in recent studies focused on examining the differences between market-accessible firms and inaccessible firms.

The purpose of the present study is to examine the determinants of firm debt securities issuance in emerging countries, where the number of market users is smaller than that in developed countries. In this study, we took the following approach. First, we empirically verified the relationship between the equity market and debt securities market development in emerging countries. This empirical analysis was designed to verify that equity market development induces debt securities market development under macroeconomic financial deepening process. Second, we verified the relationship between the number of equity issuers and that of debt securities market users with the firm data of four emerging countries in the ASEAN group (Indonesia, Malaysia, Thailand, and the Philippines.) Third, we examined the relationship between firm stock price and debt securities issuance in these four countries. Lastly, we focused on the differences of firm market accessibility in emerging countries and analyzed its influence on the firm debt securities issuance. Based on the empirical evidence derived from the above analyses, we concluded that stock market development induced debt securities market development and stock price and financing costs influenced the debt securities issuance for frequent equity issuers. However, the number of these market-accessible firms is extremely small in emerging countries, and the inaccessible firms tend not to issue debt securities no matter what the stock price and financing costs are.

## **2. Data**

We prepared four datasets. The first comprises a 27-country panel data from 1990 to 2008. The purpose of this dataset is to examine the relationship between equity market development and debt securities market development within emerging countries. The second dataset is the firm panel data from 1997 to 2008 of the four ASEAN countries: Indonesia, Malaysia, Thailand, and the Philippines. This data serves to examine the relationship between firm capital market accessibility and the debt securities issuance. The third dataset comprised ASEAN individual firm daily stock prices and data about firm managerial performance. This dataset is prepared to verify the relationship between stock price and debt securities issuance. The fourth dataset also comprises ASEAN firm panel data that examines the different funding behaviors between capital market-accessible firms and inaccessible firms. The difference between the fourth and second datasets is that while the latter excludes firms from the sample once they have issued debt securities during the sample period, the former includes firms even after the debt securities issuance and some firms issue debt securities more than twice during the period.

The first dataset is obtained from the Thomson Reuters, the Bank for International Settlements and the International Monetary Fund. We obtained the number of debt securities issuers, the number of equity issuers, and other related financial market data from the Thomson Reuters “Thomson Bank One.” We obtained the total amount of outstanding sovereign bonds data from the Bank for

International Settlements website. The market interest rate, total amount of outstanding bank lending, and gross domestic products are obtained from the IMF International Finance Statistics Yearbook CD-ROM version. The countries in the country panel data include Indonesia, Malaysia, Thailand, the Philippines, Hong Kong, Australia, New Zealand, Singapore, Korea, China, India, Japan, Argentina, Brazil, Chile, Mexico, Czech, Hungary, Russia, Turkey, Poland, Italy, Germany, France, United Kingdom, Canada, and the United States. Among these original countries, we defined the ten lowest per capita income countries (Indonesia, Malaysia, Thailand, the Philippines, Argentina, Brazil, Chile, Mexico, Turkey, and Poland) as emerging countries and compared the empirical results of the original sample with that of emerging countries.

The second dataset is obtained from Thomson Reuters “Thomson Bank One.” The data include equity issuance, debt securities issuance, and firm financial information. The data are drawn from publicly listed non-financial firms of both debt securities issuers and non-issuers in 1997–2008. We defined that “frequent equity issuers” approximates “capital market-accessible firms.” We regarded that for a firm to be considered capital market accessible, it has to issue public equity more than twice. The purpose of the second analysis is to examine who issues debt securities in emerging countries. Therefore, we excluded the firm data once the firm issued debt securities in 1997–2008. In other words, the maximum frequency of debt securities issuance is “one” for all sample firms and firms do not exist in the sample after the issuance. In addition, reflecting a study of Billett et al. (2007), which focused on types of debt securities covenants, we excluded firms that issued secured debt securities, warrant bond, convertible bond, and maturity bonds of less than one year.

The third dataset is prepared to examine the relationship between firm stock price and debt securities issuance. The above second dataset defines market-to-book ratio, that is, the market value of equity issued plus the book value of liability, divided by the book value of total assets, as a proxy of financial year-end corporate value. In the third analysis, to demonstrate the relationship between stock price and debt securities issuance, we employed firm individual daily stock price and financial data. We verified the relationship between firm stock price and debt securities issuance by using market-adjusted 3-month, 6-month and 12-month stock price returns preceding the issue. The daily stock price data is obtained from Bloomberg. The dataset employed data for firms issued equities or debt securities in 1997–2007.

The fourth empirical analysis employed the firm financial data of the four aforementioned countries. The purpose of the analysis was to verify the differences of fundraising behaviors between market-accessible firms and inaccessible firms. The employed data is obtained from Thomson Reuters “Thomson Bank One” as well as the second analysis data, but the fourth dataset includes financial data of frequent debt securities issuers in the post-issuance period.

**<Table I>**

### 3. Empirical Models

#### 3.1 Analysis of Country Panel Data

The first analysis of this paper examined the relationship between stock market development and debt securities market development on the macroeconomic level. In addition to corporate financing studies, Wurgler (2000), Demirguc-Kunt and Levine (2001) and Bondt (2005) also assert the significant relationship of the above two markets. These studies verified the hypothesis that the financial markets and economic development are positively correlated under the financial deepening process led by economic development. What they explained was that initial fixed costs are embedded in a firm when the firm initially issues equities. Therefore, marginal costs do not increase when the firm additionally issues any securities following the disbursement of the initial fixed costs. The fixed costs include those related to the prospectus of securities issuance, reform costs for intra-firm accounting system, costs for investor relations such as quarterly financial disclosure, and costs for enhancing the bilateral relationship with a lead managing underwriter.

It is also important to add control variables to examine the positive relationship between stock market and debt securities market development. Previous studies also suggest that various factors other than equity market development influence the debt securities market development. In particular, Davis (2001) and Bolton and Freixas (2006) suggest that a limit of growth in the domestic bank lending market induces debt securities market development. Their theoretical model asserts that many firms depend on commercial bank borrowings at the initial stage of economic development. However, commercial banks soon face a limit of growth in their bank capital and the fast-growing bank borrowing demands of non-financial firms exceed the required bank capital in a high-growth economy. Those non-financial firms are accordingly forced to fund the debt securities market, thereby promoting market development. In addition, Bondt (2005) concluded that the financing costs of debt securities issuance compared with the costs of equity issuance and bank borrowings is also important in determining a firm's choice of funding tool. He calculated the relative financing cost of debt securities issuance by comparing other alternative financing costs, that is, bank borrowing costs and equity issuance costs, and concluded that the relative cost influences the funding decision whether the firm chooses debt securities issuance or not.

Reflecting the existing literature, we employed the number of firms that have undergone debt securities issuance (*DSIssue*) as a dependent variable and the number of firms issued

equities (*EquityIssuer*) as an independent variable in Model A. We added independent variables that represent the size of the domestic bank lending market (*BankLoan*), financial cost (*FinanceCost*), the degree of macroeconomic development (*PerCapitaGDP*), and the size of sovereign bond market (*Sovereign*) as control variables. We employed deposit money bank claims on private sector to nominal GDP as a proxy of the size of the bank lending market. We calculated the relative cost of debt securities issuance by using the national averages of debt securities interest, bank borrowing interest rates and the inverse of stock price earnings ratio. The natural logarithm of U.S. dollar-denominated per capita GDP was employed as a proxy for macroeconomic development, and outstanding sovereign bond issued to nominal GDP, as a proxy for the sovereign bond market development.

In Models B-E, we additionally employed the following four variables: the intersection of *BankLoan* and *PerCapitaGDP*, the degree of legal system development in finance (*Legal*), the ratio of publicly offered debt securities to total debt securities issued (*PublicOffer*) and the ratio of local currency-denominated debt securities (*Currency*) to the total debt securities issued. As for the degree of legal system development in finance, we employed as a proxy variable the international comparative scores of “Shareholders’ Rights” based on survey research by the International Institute for Management Development (IMD). An additional two variables—the ratio of publicly offered debt securities to total debt securities issued and the ratio of local currency-denominated debt securities to total debt securities issued—were calculated by using data from Thomson Reuters. We employed these data because investors more aggressively participate in the debt securities market when their rights are legally protected. Investors also bolster market confidence when the market has a high publicly offered ratio. Especially, foreign investors are willing to participate in the market when the local currency of the country circulates internationally and when a high ratio of debt securities denominated in that currency are issued there. We employed the methodology of panel data estimates.

$$\begin{aligned}
 DS_{Issue}_{it} = & \alpha_0 + \alpha_1 EquityIssuer_{i,t} + \alpha_2 BankLoan_{i,t} + \alpha_3 FinanceCost_{i,t} + \alpha_4 PerCapitaGDP_{i,t} \\
 & + \alpha_5 Sovereign_{i,t} + \alpha_6 Dev_{i,t}^k + \sum \beta_t^1 YearDummy + \sum \beta_{ind}^2 IndustryDummy + \varepsilon_{i,t}
 \end{aligned}
 \tag{3. 1}$$

## <Table II>

### 3.2 Analysis with ASEAN Firm Data

#### (a) Capital Market Accessibility and Debt Securities Issuance



The second empirical analysis of this paper employed ASEAN firm data to analyze the relationship between the firm equity issuance and the debt securities issuance. We verified the hypothesis that the more a firm issues equities in the stock market, the more it also issues debt securities. We estimated empirical equation (3.2) and examined the relationship between the equity issuance and debt securities issuance to verify our hypothesis. We employed the dependent variable  $Bond^l$  that equals the value of firm  $j$ 's debt securities issued at year  $t$  divided by the book value of outstanding liability at year  $t-1$ . The independent variables that we employed included the cumulative frequency of equity issued since 1996 ( $EquityIssueFreq$ ) by year  $t-1$ , proxy of firm  $j$ 's growth opportunity ( $MBR$ ) at year  $t$ , relative financial cost of debt securities issuance ( $FinanceCost$ ) at year  $t$ , firm  $j$ 's future earnings per capita at year  $t+1$ , proxy of firm  $j$ 's internal funding ability ( $ROA$ ) at year  $t-1$ , firm size ( $ASSET$ ) at year  $t$ , and debt to equity ratio ( $DER$ ) at year  $t-1$ . The positive significant parameter of the independent variable of  $EquityIssueFreq$  was expected to fulfill the above hypothesis. The parameters of  $MBR$ ,  $FinanceCost$ ,  $EPS$ ,  $Post$ ,  $ROA$ , and  $DER$  were all expected to be negative. We estimated (3.2) by the Tobit estimator.

$$\begin{aligned}
Bond_{j,t}^l = & \delta_0 + \delta_1 EquityIssueFreq_{j,t} + \delta_2 MBR_{j,t} + \delta_3 FinanceCost_{j,t} + \delta_4 EPSPost_{j,t+1} \\
& + \delta_5 ROA_{j,t-1} + \delta_6 ASSET_{j,t} + \delta_7 DER_{j,t-1} + \sum \mu_t^1 YearDummy + \sum \mu_{ind}^2 IndustryDummy + \kappa_{j,t}
\end{aligned}
\tag{3.2}$$

$$\hat{P}(Invest) = \Phi(Z_{j,t})$$

$$\begin{aligned}
Z_{j,t} = & \lambda_0 + \lambda_1 MBR_{j,t} + \lambda_2 ROA_{j,t-1} + \lambda_3 ASSET_{j,t} + \lambda_4 DER_{j,t-1} + \sum \xi_t^1 YearDummy \\
& + \sum \xi_{ind}^2 IndustryDummy + \tau_{j,t}
\end{aligned}
\tag{3.3}$$

We also estimated equations (3.2) and (3.3) according to Heckman's two-step estimation, which serves to confirm the robustness of the above empirical results by considering possible existing sample biases. Some firms might have a strong funding demand for fixed asset investment and others might not, a difference that may influence the firm's debt issuing decision. The first-step estimation takes the fixed asset investment dummy ( $Z_{i,t}$ ) as the dependent variable and performs a probit estimation of the likelihood that the sample firm has a strong funding demand and increases fixed asset investment at year  $t$ . The second step is the linear regression of the determinants of debt securities issuance as expressed in (3.2). In model (3.3), dependent variable of firm  $j$  equals one when the firm's net increase in the fixed investment was a positive value at year  $t$ . We employed  $MBR$ ,  $ROA$ ,  $ASSET$ , and  $DER$  as independent variables in model (3.3).

### (b) Stock Price and Debt Securities Issuance

The third part of this paper investigated the relationship between firm stock price and the debt securities issuance. We extracted equity-issuing and debt security-issuing firms and matched their daily stock price and financial data. The stock prices were average market-adjusted three-, six-, and twelve-month returns preceding the issue. The market-adjusted returns were defined as raw return minus market index return. We also employed *FinanceCost*, *EPS\_Post*, *ROA*, *ASSET*, and *DER* as independent variables in this model.

$$\begin{aligned} Bond_j^1 = & \omega_0 + \omega_1 Stock\ Price_j + \omega_2 FinanceCost_j + \omega_3 EPSPost_j \\ & + \omega_4 ROA_j + \omega_5 ASSET_j + \omega_6 DER_j + \sum v_t^1 YearDummy + \sum v_d^2 FirmDummy + \zeta_j \end{aligned} \quad (3.4)$$

We used publicly listed non-manufacturing firms that experienced equity or debt securities issuance in 1997–2008. Individual firm dummy variables were added to the equation since several firms issued securities more than twice. The hypothesis of this analysis was that a firm tends to issues debt securities in emerging countries when the stock price is low. To support this hypothesis, the expected sign of the parameter of the variable “*StockPrice*” is negative.

### 3.3 Capital Market Accessibility and Debt Securities Issuance

The forth analysis of this paper investigated the relationship between capital market accessibility and debt securities issuance of the firm by using ASEAN data. The employed dataset was partly consistent with the dataset used in empirical model (3.2), but this dataset included sample firm financial data after the debt securities issuance.

$$\begin{aligned} Bond_{j,t}^2 = & \theta_0 + \theta_1 EqMBR_{j,t} + \theta_2 NonEqMBR_{j,t} + \theta_3 EqFinanceCost_{j,t} + \theta_4 NonEqFinanceCost_{j,t} \\ & + \theta_5 EqROA_{j,t-1} + \theta_6 NonEqROA_{j,t-1} + \theta_7 EqASSET_{j,t} + \theta_8 NonEqASSET_{j,t} \\ & + \theta_9 EqDER_{j,t-1} + \theta_{10} NonEqDER_{j,t-1} + \sum \zeta_t^1 YearDummy + \sum \zeta_{ind}^2 IndustryDummy + \xi_{j,t} \end{aligned} \quad (3.5)$$

The empirical equation (3.5) employed dependent variable  $Bond^2$ , which equals one when firm  $j$  issued debt securities at year  $t$ . The independent variables that we employed were the proxy of firm  $j$ 's growth opportunity (*MBR*) at year  $t$ , relative financial cost of debt securities issuance (*Finance Cost*) at year  $t$ , proxy of firm  $j$ 's internal funding ability (*ROA*) at year  $t-1$ , firm size (*ASSET*) at year

t and debt to equity ratio (*DER*) at year t-1. The major difference between equations (3.5) and (3.2) is that (3.5) employed the intersected variables with equity issuance and non-issuance dummy variables that equal one when the firm experienced equity issuance and did not experience the issuance in 1997–2008. Equity Issued X (Equity non-Issued X) is the variable X interacted with a dummy equal to one (zero) if the firm is a frequent equity issuer and zero (one) if it is an infrequent equity issuer.

The hypothesis of this analysis is that the higher the capital market accessibility of the firm, the more frequently the firm will issue debt securities. Therefore, the parameters of *EqMBR* and *EqFinanceCost* are expected to be negative since our hypothesis is that market-accessible firms issue debt securities when the growth opportunity is low and that they are sensitive to financing costs. On the other hand, we also hypothesized that capital market-inaccessible firms would not issue debt securities regardless of the growth opportunity and financial costs. Therefore, the parameters of *NonEqMBR* and *NonEqFinanceCost* were expected to be insignificant.

### <Table III>

## IV. Empirical Results

### 4.1 Results of Country Panel Data Analysis

Table IV reports empirical results of the relationship between equity market development and debt securities market based on country panel data. Empirical results (i)–(v) are those obtained by the 27-country panel data estimation, and results (vi)–(x) are derived from the data of ten emerging countries. These results suggest that the parameters related to the number of equity issuers (*EquityIssuer*) and per capita GDP (*PGDP*) are all significantly positive. These results are consistent with our hypothesis that equity market development promotes debt securities market development. The stage of economic development was proxied by per capita GDP in the empirical analysis. This result is also consistent with the discussion by Rajan and Zingales (1998) that pointed out that the economic development induced external funding market development as the financial deepening process progresses. Although we did not report the empirical results in Table IV, we first employed the natural logarithm of U.S. dollar-denominated national GDP instead of per capita GDP, but the parameters are insignificant in all ten equations.

Our results reflect those of Wurgler (2000) and Rajan and Zingales (1998), that firms in a country where a highly developed equity market exists are likely to choose debt securities issuance as a funding technique. According to Bondt (2005), frequent equity issuers cover fixed costs of

securities issuance in the past issuance, while additional costs decline as the firm repeatedly issues other securities. The macroeconomic data our study employed provided further evidence of this position. We employed several additional variables as proxies of the degree of equity market development, such as the number of publicly listed firms instead of the number of post-IPO equity issuers (*EquityIssuer*), but those results did not reflect strong performance. Accordingly, we did not include equity IPO as the frequency of the firm equity issuance in the second and fourth analyses to follow, which investigate determinants of debt securities issuance by firm micro-data.

For (i) Model (A), the parameter of the outstanding bank loan divided by nominal GDP (*BankLoan*) is significantly positive. The intersected variable between *BankLoan* and *PerGDP* is also significantly positive in (ii) Model B and (vii) Model B'. Davis (2001) and Bolton and Freixas (2006) stated that the debt securities market develops when the growth rate of bank lending market expansion is larger than the growth rate of commercial bank capital. Our results are consistent with those of these studies. The parameter of the degree of financing legal system development (*Legal*) is significantly positive in (iii) Model C and (viii) Model C'. This suggests that financing a legal system that protects investors' rights is another key to developing debt securities market development.

The parameters of the ratio of public offering debt securities (*PublicOffer*) and the ratio of local currency-denominated debt securities (*Currency*) are also significantly positive in (iv) Model D and (v) Model E, respectively. We employed the variable *PublicOffer* as a proxy of the degree of market transparency and fairness for investors. Our interpretation of this result is that national regulatory efforts to improve market fairness and transparency also invites investors and contributes to the debt securities market development. A result of (v) Model E also suggests that when the local currency of the country is internationally circulated, it promotes foreign investor participation. This is because the local currency-denominated debt securities have high liquidity as the denominated currency internationally circulates. The securities denominated in internationally circulated currency are purchased and traded by foreign investors, which promotes market development. However, the parameter of this variable is insignificant in (x) Model E since most local currencies in the sample emerging countries do not circulate in the international market.

#### <Table IV>

## 4.2 Results of ASEAN Firm Data Analysis

### a. Frequent Equity Issuers and Debt Securities Issuance

Results of the determinants of debt securities issuance of the ASEAN firms are presented in Table V. The parameters of cumulative equity issuance frequency (*EquityIssueFreq*) at the time debt

securities are issued are significantly positive in Indonesia, Thailand, Malaysia, and the Philippines based on a Tobit estimation. The parameters of *EquityIssueFreq* are also significantly positive across the four countries according to Heckman's two-step estimation. These results are accordingly robust and consistent with our hypothesis that high capital market accessibility of a firm induces debt securities issuance. In other words, the result indicated that the more frequently a firm issues equities in the stock market, the more the firm issues debt securities.

Another important variable for our hypothesis, parameters of a proxy of growth opportunity, *MBR*, is significantly negative for Indonesia and Malaysia while insignificant for the other two countries, contradicting our expectation that it would be negative.

Further investigation examined the influence of daily stock price data in the next empirical analysis. The parameter of the relative finance cost of debt securities issuance (*FinanceCost*) is significantly negative in Malaysia and insignificant in the other three countries. Our interpretation of the results is that the interest expenses of debt securities influences the debt securities issuance decision in Malaysia but does not determine financing decisions in the other three countries.

The results also suggest that firm size (*ASSET*) also positively influences the debt securities issuance. Studies by Harris and Raviv (1991) and Rajan and Zingales (1995) supported that a large size firm is allowed to have a high debt to equity ratio. However, the debt in these texts assumes both outstanding bank borrowing and debt securities and does not discuss the difference between bank borrowing and debt securities issuance. Our result suggests that the larger the firm asset size, the greater degree the firm issues debt securities. Our interpretation of the result is that much time has passed since the establishment of many of these countries' large firms. Therefore, we consider that most of these firms have historically experienced equity issuance and, accordingly, debt securities issuance.

The parameters of return on asset (*ROA*), debt equity ratio (*DER*) and earnings per stock (*EPS\_Post*) are mostly insignificant. We proxied *ROA* as a firm's internal funding ability, *DER* as dependency on bank lending (since most of the debt comes from bank lending in ASEAN countries) and *EPS\_Post* to analyze investors' perspective on future profitability of the firm. We attribute the insignificance of many of these parameters to the inclusion of numerous non-issuers in the dataset.

#### <Table V>

##### b. Stock Price and Debt Securities Issuance

Table VI illustrates the determinants of debt securities issuance of ASEAN firms, specifically, the relationship between stock price and debt securities issuance. In this dataset, we focused on only securities market user firms. The results show that nine of the twelve parameters of stock price (*StockPrice 3months, 6months, 12months*) have a significant negative influence on the debt

securities issuance in Indonesia, Thailand, Malaysia, and the Philippines. The results indicate that most of the parameters are significantly negative in each country; only three parameters—*Stock Price 3months* in Indonesia and *Stock Price 3months* and *6months* in Thailand—are not significant. The negative parameter is consistent with our hypothesis that a capital market-accessible firm would issue debt securities when the stock price in the emerging countries is also not high.

Widely cited studies by Baker and Wurgler (2002) and Dittmar and Thakor (2007) focused on the relationship between stock price and timing of equity issuance in U.S. firms. Our study, in turn, focused on the relationship between stock price and debt securities issuance in emerging countries. Dittmar and Thakor (2007) assumed that a firm automatically chooses debt securities issuance as a funding tool when equity issuance lacks “good timing.” Our results also support that a firm in an emerging country chooses debt securities issuance when equity issuance is not under “good timing.” Unfortunately, owing to limitations of the data, it is not possible for us to investigate another determinant of Dittmar and Thakor’s, namely, the consistency of future prospects between firm insiders and shareholders for firm profitability. Therefore, we cannot mention which is more appropriate in emerging countries, “timing theory” or the “disagreement theory” of Dittmar and Thakor (2007). However, our results suggest that debt securities issuance in emerging countries is not sufficiently explained by traditional theories of trade-off theory or pecking order theory, but by the fact that the financing tool of debt securities issuance is chosen when the stock price is low.

Another significant parameter that table VI reports is that that of relative financing cost of debt securities issuance (*FinanceCost*). Although these parameters are entirely insignificant in the previous analyses, they are negatively significant for Indonesia, Malaysia, and the Philippines. The major difference between the previous and this analysis is that only securities-issuing firms are employed by this dataset. Bondt (2005) asserts that the financing cost influences the debt securities issuance in Europe. His empirical results suggest that relative financing cost influences the debt securities issuance decision. We can also support the view that relative financing cost (*FinanceCost*) influences the debt securities issuance decision only for interest payment-sensitive firms, while the number of those firms is extremely small compared with non-sensitive firms in emerging countries.

#### <Table VI>

### 4.3 Capital Market Accessibility and Debt Securities Issuance

Table VII demonstrates the determinants of the firm debt securities issuance. We repeated the examination of the differences between capital market-accessible firms and inaccessible firms by another empirical approach in this analysis. Brav (2009) investigated the difference of capital market accessibility between publicly listed firms and private firms in the United Kingdom and concluded

that corporate financing patterns vary between these two groups. Our empirical model employed this approach and verified the difference in financing behaviors between capital market-accessible publicly listed firms and inaccessible listed firms in ASEAN countries. Our hypothesis is that the accessible firms chose debt securities issuance in their corporate financing activities while inaccessible firms did not.

To examine the above hypothesis, we estimated empirical model (3.5) and then tested the differences of the parameters and the predicted value means. The first test we made was to examine the difference of a pair of point estimators of each variable interacted with dummy variables. *Equity Issued X (Equity non-Issued X)* is the variable X interacted with a dummy equal to one (zero) if the firm is a frequent equity issuer and zero (one) if an infrequent equity issuer. In other words, “Test 1” reports the p-value of the test *Equity Issued X = Equity non-Issued X*. The second test we made was to examine the difference between the debt securities issuance-predicted values of capital market-accessible firms and inaccessible firms. We computed each observation of the predicted debt securities issuance of equity issuers and non-issuers. “Test 2” reports the means of these predicted values and statistically tested differences. \*, \*\* and \*\*\* denote statistical significance at the 10 percent, 5 percent and 1 percent level, respectively.

Table VII indicates that the parameters of *EqMBR*, *EqFinanceCost*, and *EqASSET* are significant in all the sample countries. The parameter of *EqMBR* was negatively significant, suggesting that capital market-accessible firm issued debt securities when the corporate value was low. The parameter of *EqFinanceCost* is also negatively significant, which suggests that the relative interest payment size influences the debt securities issuance for capital market-accessible firms. The parameter of *EqASSET* was positively significant, indicating that capital market-accessible firms are statistically large.

“Test 1” indicates that parameters differ significantly between that of *EqMBR* and that of *NonEqMBR*. Those of *EqFinanceCost* and *nonEqFinanceCost* are also significantly different. Judging from these results based on the above point estimator results, we concluded that corporate value of the firm and finance cost influence the corporate financing decision for capital market-accessible firms, but they do not for inaccessible firms. In addition, as shown in “Test 2,” the predicted value of dependent variable (debt securities issuance = 1 at year t) of market accessible firms is statistically higher than that of market inaccessible firms.

<Table VII>

## V. Conclusions

Using country panel data and ASEAN firm data, this paper examined the determinants of debt

securities issuance in emerging countries. The first conclusion we derived is that the number of equity issuers that proxies the degree of stock market development and the degree of debt securities market development are positively related in emerging countries according to macroeconomic variables. Second, while a frequent equity issuer often issues debt securities, a less frequent equity issuer does not choose the debt securities issuance in emerging countries, based on microeconomic data from non-financial ASEAN firms. The third conclusion we derived is that a firm issues debt securities when its stock price is low, but infrequent equity issuers do not issue debt securities regardless of the stock price. Fourth, a firm's market-to-book ratio and financial cost of debt securities issuance influence the debt securities issuance only for market-accessible firms, under the assumption that frequent equity issuers approximates capital market-accessible firms.

The results of this paper have important implications for the relevant literature. A firm's stock price and financial costs influence the firm's financial policy in the capital market-accessible firms of emerging countries. These results are consistent with other studies, but a unique quality of firms in emerging countries is that the significant number of capital market-inaccessible firms in these countries means they tend not to choose debt securities issuance regardless of stock price and finance costs. We speculate that they have not disbursed initial fixed costs for securities issuance in the past. These firms are not influenced in their financial policy by stock price or financial costs. This indicates a dichotomy in corporate financing patterns between market-accessible firms and inaccessible firms.

Why is the debt securities market undeveloped in emerging countries and what policy is necessary to promote its development in emerging countries? This paper concluded that too many developing countries are hindered by capital market-inaccessible firms. This paper also suggests that promoting debt securities market development by government intervention is not always appropriate, although equity market development policy or the related promotional equity market development policy might eventually serve as the driving force behind the debt securities market development. Finally, we complete this paper by indicating a few tasks that we could not perform. Emerging countries naturally face various stages of an undeveloped debt securities market. Although we excluded emerging country firms for which the number of debt securities issuers was extremely small, we expect that future research will examine the above corporate financing pattern in these countries depending on the development stage.

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**Table I**  
**Geographical and Annual Data Distribution**

(A) Annual Distribution of Country Panel Data

(a) The Number of Sample Countries

	Model A-B	Model C	Model D-E
1990	20		19
1991	20		19
1992	20		20
1993	21		20
1994	21		21
1995	22		21
1996	22		22
1997	22	22	22
1998	24	24	23
1999	24	24	24
2000	25	25	24
2001	27	27	27
2002	27	27	27
2003	27	27	27
2004	27	27	27
2005	27	27	27
2006	27	26	27
2007	27	26	27
2008	27	26	27
	457	308	451

Source: Thomson Reuters, *Thomson Bank One*, International Management Development (IMD), *World Competitiveness*, various years, and the Bank for International Settlements, <http://www.bis.org/statistics/index.htm>  
 Note: The number of sample countries varies because Eastern European countries, (Czech Republic, Hungary, Poland, etc.) were added to the original source in 1995. Besides, IMD survey data started the questionnaire surveys concerning “shareholders’ rights” in 1997 in *World Competitiveness*. The number of countries targeted for the research varies year to year.

**Table I-Continued**

**(b) Annual Average of the Number of Securities Issuers in Sample Countries**

	1990-1995	1996-2000	2001-2005	2006-2008	1991-1995	1996-2000	2001-2005	2006-2008
	Debt Securites Issuers				Equity Issuers			
Indonesia	13	18	24	29	22	34	47	21
Malaysia	14	37	80	119	26	35	71	91
Thailand	35	36	36	42	6	28	56	56
Philippines	9	16	24	38	14	19	26	45
Hong Kong	21	59	69	45	26	148	219	379
Australia	32	122	291	415	8	27	754	1,451
New Zealand	2	5	5	8	9	7	30	33
Singapore	10	31	65	62	14	35	66	129
Korea	162	329	619	225	8	20	249	558
China	4	7	6	58	9	25	25	141
India	2	6	110	238	46	27	42	198
Japan	423	629	368	365	61	220	331	292
Argentina	35	83	16	8	15	20	2	3
Brazil	100	119	63	65	43	38	10	37
Chile	11	18	34	44	36	43	13	5
Mexico	122	51	67	66	30	26	5	8
Czech	1	0	1	4	1	6	2	1
Hungary	0	0	2	4	3	10	2	0
Russia	0	3	14	44	2	8	9	25
Turkey	1	3	1	4	1	8	4	10
Poland	0	1	1	1	2	22	7	23
Italy	52	44	102	202	31	34	38	38
France	243	178	217	296	44	85	71	62
Germany	434	683	523	329	74	78	53	62
United Kingdom	106	301	241	359	115	285	448	489
Canada	95	174	235	240	18	20	165	688
United States	1,539	2,895	1,871	1,217	880	967	911	952

Source: Thomson Reuters, *Thomson Bank One*

Note: Debt securities are defined as the total of fixed income securities excluding those with less than one-year maturity, the secured debentures, convertible debentures and warrant debentures. The definition of equity issuance is issued ordinary common shares, but it does not include initial public offerings.

**(B) Annual Distribution of ASEAN Firm Panel Data**

	Indonesia			Thailand			Malaysia			Philippines		
	Total Sample Firms	Debt Securities Issuers	Equity Issuers	Total Sample Firms	Debt Securities Issuers	Equity Issuers	Total Sample Firms	Debt Securities Issuers	Equity Issuers	Total Sample Firms	Debt Securities Issuers	Equity Issuers
1997	116	31	26	192	19	3	288	50	22	100	14	10
1998	114	0	24	191	7	49	308	25	15	100	9	20
1999	127	2	19	193	38	26	316	10	39	113	9	7
2000	149	14	14	193	33	22	335	18	64	136	4	5
2001	185	6	9	263	11	28	506	109	30	173	7	2
2002	200	10	11	267	36	16	560	30	49	172	16	3
2003	212	26	9	283	36	43	596	35	88	178	17	2
2004	214	34	25	300	33	50	648	55	74	188	17	3
2005	216	18	15	337	42	48	713	92	41	195	16	7
2006	216	17	9	373	32	35	754	100	41	188	19	11
2007	216	16	12	386	49	32	740	83	95	183	22	33
2008	211	10	7	382	45	62	712	76	44	175	15	12
Total	2,176	184	180	3,360	380	414	6,476	683	602	1,901	166	115

Source: Thomson Reuters, *Thomson Bank One*

Note: The data includes firms that issued debt securities after the second issuance in 1997–2008. The definition of equity issuance does not include initial public offerings but does include preferred stocks and subordinated debentures. Debt securities are defined as the total of fixed income securities excluding those with less than one-year maturity, the secured debentures, convertible debentures and warrant debentures.

**Table II**  
**Definition of Variables and Descriptive Statistics:**  
**Country Panel Data**

(A) Definition of Variables

	<b>Definition</b>	<b>Expected Sign of Parameter</b>	<b>Source</b>
$DSIssue_{i,t}$	Number of debt securities issuers in country $i$ at year $t$	Dependent Variable	Thomson Reuters
$EquityIssuer_{i,t}$	Number of equity issuers in country $i$ at year $t$	+	Thomson Reuters
$BankLoan_{i,t}$	Outstanding commercial bank loan divided by nominal gross domestic product in country $i$ at year $t$	-	IMF <i>International Financial Statistics CD-ROM</i>
$FinanceCost_{i,t}$	Relative financing cost of debt securities in country $i$ at year $t$ ; Averaged corporate bond yield- $\{0.5*\text{averaged interest payment/outstanding liability} +0.5*1/(\text{price earning ratio}+\text{annual change in consumer price index})\}$	+	Thomson Reuters
$PerCapitaGDP_{i,t}$	Natural logarithm of dollar-denominated per capita gross domestic product in country $i$ at year $t$ ;	+	<i>International Financial Statistics CD-ROM</i>
$Sovereign_{i,t}$	Outstanding government bonds issued to nominal GDP in country $i$ at year $t$	+/-	<i>Bank for International Settlements</i>
$Legal_{i,t}(Deb_{i,t}^1)$	IMD survey score of the degree of investor protection legal system development, titled survey score of “Shareholders’ Right” published in “ <i>World Competitiveness</i> ” in country $i$ at year $t$	+	IMD Business School, <i>World Competitiveness</i> 1997–2008
$PublicOffer_{i,t}(Deb_{i,t}^2)$	Ratio of public offering debt securities to total debt securities issued in country $i$ at year $t$	+	Thomson Reuters
$Currency_{i,t}(Deb_{i,t}^3)$	Ratio of local currency denominated debt securities to total debt securities issued in country $i$ at year $t$	+	Thomson Reuters

**Table II-Continued**

(B) Descriptive Statistics

		All Countries (N=27)								
		<i>DS Issue</i>	<i>Equity Issuer</i>	<i>Bank Loan</i>	<i>Finance Cost</i>	<i>Per Capita GDP</i>	<i>Sovereign</i>	<i>Legal</i>	<i>Public Offer</i>	<i>Currency</i>
1990	Mean	40.321	34.500	0.637	0.044	8.573	0.707	N.A.	0.328	0.423
	s.d.	98.823	112.915	0.466	0.090	1.274	0.374	N.A.	0.422	0.426
1995	Mean	214.714	105.036	0.680	0.051	8.829	0.761	N.A.	0.406	0.450
	s.d.	530.469	206.896	0.470	0.063	1.275	0.300	N.A.	0.339	0.336
2000	Mean	109.148	120.482	0.694	0.143	8.759	0.826	6.376	0.527	0.591
	s.d.	163.307	231.183	0.452	0.100	1.257	0.240	1.329	0.366	0.340
2005	Mean	112.667	152.815	0.734	-0.011	9.164	0.796	5.932	0.444	0.573
	s.d.	130.228	300.535	0.405	0.252	1.214	0.197	1.135	0.331	0.324
2008	Mean	125.704	287.630	0.812	0.054	9.526	0.790	6.110	0.503	0.706
	s.d.	125.838	600.706	0.451	0.131	1.100	0.209	1.078	0.368	0.308
Total	Mean	150.630	135.270	0.720	0.057	8.882	0.739	6.180	0.429	0.537
	s.d.	359.403	323.223	0.461	0.096	1.258	0.281	1.223	0.361	0.372
		Emerging Countries (N=10)								
1990	Mean	7.600	4.100	0.364	0.088	7.587	0.715	N.A.	0.254	0.286
	s.d.	17.076	4.483	0.282	0.051	0.829	0.423	N.A.	0.428	0.488
1995	Mean	32.900	36.700	0.434	0.074	7.857	0.799	N.A.	0.372	0.421
	s.d.	34.226	24.153	0.473	0.040	0.912	0.256	N.A.	0.361	0.363
2000	Mean	30.400	18.400	0.459	0.136	7.829	0.771	6.166	0.580	0.559
	s.d.	24.740	23.028	0.391	0.095	0.965	0.344	0.725	0.390	0.387
2005	Mean	55.600	26.700	0.459	-0.074	8.091	0.762	5.681	0.393	0.525
	s.d.	54.220	34.814	0.386	0.159	0.866	0.264	0.806	0.323	0.353
2008	Mean	71.600	71.900	0.411	0.040	8.526	0.720	6.004	0.489	0.711
	s.d.	88.086	102.773	0.319	0.006	0.834	0.266	0.768	0.373	0.327
Total	Mean	44.300	27.326	0.462	0.065	7.885	0.709	6.041	0.370	0.484
	s.d.	55.552	35.056	0.447	0.106	0.900	0.294	0.855	0.344	0.405

**Note:** “Emerging Countries” are the lowest 10 per capita GDP countries/regions of Indonesia, Malaysia, Thailand, the Philippines, Argentina, Brazil, Chile, Mexico, Turkey, and Poland of the sample countries.

**Table III**  
**Definition of Variables and Descriptive Statistics:**  
**ASEAN Firm Data**

(A) Definition of Variables

Variables	Definition	Expected Sign of Parameter	Source
$Bond^1_{j,t}$	Firm $j$ 's value of debt securities issued at year $t$ divided by book value of outstanding liability at year $t-1$	Dependent Variable	Thomson Reuters
$Bond^2_{j,t}$	Equals "1" when firm $j$ issue debt securities, otherwise equals "0" at year $t$	Dependent Variable	Thomson Reuters
$EquityIssuanceFreq_{j,t}$	Firm $j$ 's cumulative frequency of equity issuance excluding initial public offering since 1996 at year $t$	+	Thomson Reuters
$MBR_{j,t}$	Market value of capital plus book value of liability divided by book value of total assets of firm $j$ at year $t$	-	Thomson Reuters
$FinanceCost_{j,t}$	Relative financing cost of debt securities of firm $j$ at year $t$ ; Corporate bond yield- $\{0.5*$ interest payment/outstanding liability $+0.5*1/(\text{price earning ratio}+\text{annual change in consumer price index})\}$	-	Thomson Reuters,Bloomberg
$EPS\_Post_{j,t+1}$	Firm $j$ 's earnings per stock at year $t+1$	-	Thomson Reuters
$ROA_{j,t-1}$	Firm $j$ 's return on assets at year $t-1$	-	Thomson Reuters
$SIZE_{j,t}$	Natural logarithm of book value of total assets of firm $j$ at year $t$	+	Thomson Reuters
$DER_{j,t-1}$	Firm $j$ 's debt to equity ratio at year $t-1$	-	Thomson Reuters
$Z_{j,t}$	Equals "1" when firm $j$ 's net fixed asset investment at year $t$ increases, otherwise "0"	Dependent Variable	Thomson Reuters
$StockPrice3Month_{jt}$	Firm $j$ 's market-adjusted stock price return (raw return-market index return) averaged for 3 months	-	Bloomberg
$StockPrice6Month_{jt}$	Firm $j$ 's market-adjusted stock price return (raw return-market index return) averaged for 6 months	-	Bloomberg
$StockPrice12Month_{jt}$	Firm $j$ 's market-adjusted stock price returns (raw return-market index return) averaged for 12 months	-	Bloomberg
$EqMBR_{j,t}$	Firm $j$ 's MBR interacted with a dummy equal to one if the firm issues equities by $t$	-	Thomson Reuters
$NonEqMBR_{j,t}$	Firm $j$ 's MBR interacted with a dummy equal to one if the firm has not issued equities by $t$	Insignificant	Thomson Reuters
$EqFinanceCost_{j,t}$	Firm $j$ 's FinanceCost interacted with a dummy equal to one if the firm issues equities by $t$	-	Thomson Reuters,Bloomberg
$NonEqFinanceCost_{j,t}$	Firm $j$ 's FinanceCost interacted with a dummy equal to one if the firm has not issued equities by $t$	Insignificant	Thomson Reuters,Bloomberg

$EqROA_{j,t-1}$	Firm $j$ 's ROA interacted with a dummy equal to one if the firm issues equities by $t-1$	-	Thomson Reuters
$NonEqROA_{j,t-1}$	Firm $j$ 's ROA interacted with a dummy equal to one if the firm has not issued equities by $t-1$	Insignificant	Thomson Reuters
$EqSIZE_{j,t}$	Firm $j$ 's SIZE interacted with a dummy equal to one if the firm issues equities by $t$	+	Thomson Reuters
$NonEqSIZE_{j,t}$	Firm $j$ 's SIZE interacted with a dummy equal to one if the firm has not issued equities by $t$	Insignificant	Thomson Reuters
$EqDER_{j,t-1}$	Firm $j$ 's DER interacted with a dummy equal to one if the firm issues equities by $t-1$	-	Thomson Reuters
$NonEqDER_{j,t-1}$	Firm $j$ 's ROA interacted with a dummy equal to one if the firm has not issued equities by $t-1$	Insignificant	Thomson Reuters



**Table III-Continued**

(B) Descriptive Statistics

(a) ASEAN Firm Financial Variables

	Debt Securities	Equity Issuance	Equity Issue Freq	MBR	Finance Cost	EPS Post	ROA	ASSET	DER
Indonesia									
Securities Issued Firms (N=227)									
mean	2.24E-04	4.41E-04	1.103	1.348	0.017	0.695	0.063	9.473	2.820
s.d.	0.001	0.003	0.641	0.989	0.192	2.326	0.113	1.492	8.357
Securities Non-Issued Firms (N=1,489)									
mean	0.000	0.000	0.000	1.231	0.012	0.513	0.060	8.929	4.770
s.d.	0.000	0.000	0.000	0.873	0.431	2.130	0.126	1.517	5.138
Difference									
mean				0.116 **	0.004	0.182 *	0.004	0.544 ***	-1.950 ***
median				0.051 **	0.011 **	0.135 **	0.008	0.811 ***	-1.096 ***
Thailand									
Securities Issued Firms (N=509)									
mean	0.000	0.002	1.148	1.280	-0.101	0.262	0.032	8.355	2.175
s.d.	0.001	0.029	0.759	0.852	0.155	4.184	0.167	1.575	5.650
Securities Non-Issued Firms (N=2,451)									
mean	0.000	0.000	0.000	1.103	-0.476	0.190	0.017	7.809	4.271
s.d.	0.000	0.000	0.000	0.776	0.195	1.414	0.162	1.312	6.177
Difference									
mean				0.177 ***	0.375 ***	0.071 ***	0.015 *	0.545 ***	-2.096 ***
median				0.115 ***	0.417 ***	-0.053 ***	0.013 ***	0.475 ***	-0.150 ***

(Continued)

(b) ASEAN Firm Financial Variables-Continued

Malaysia									
Securities Issued Firms (N=862)									
mean	0.002	0.014	1.172	1.131	0.008	0.101	0.030	6.020	2.352
s.d.	0.014	0.070	0.661	0.686	0.149	0.908	0.098	1.597	7.715
Securities Non-Issued Firms (N=4,614)									
mean	0.000	0.000	0.000	1.168	0.022	0.051	0.023	6.004	2.668
s.d.	0.000	0.000	0.000	1.057	0.203	0.890	0.109	1.514	7.854
Difference									
mean				0.037	-0.014 **	0.050 *	0.007 *	0.016	-0.316 ***
median				0.019 *	-0.004 **	0.019	0.005 **	0.186 ***	-0.023
Philippines									
Securities Issued Firms (N=155)									
mean	0.000	0.003	1.082	1.408	0.044	0.492	0.029	8.752	2.918
s.d.	0.001	0.027	0.431	0.819	0.498	3.386	0.194	2.174	8.260
Securities Non-Issued Firms (N=1,756)									
mean	0.000	0.000	0.000	0.525	0.112	0.234	-0.006	7.964	4.654
s.d.	0.000	0.000	0.000	0.865	0.573	1.049	0.281	1.833	15.497
Difference									
mean				0.882	-0.069 **	0.258 ***	0.035 **	0.788 **	-1.736 **
median				0.179 ***	-0.035 ***	0.056 **	0.031 ***	0.921 ***	-0.280 ***

Note: This table indicates the mean and median value of the capital market-accessible and inaccessible firms. The difference column is a matched paired t-test of equality of means, and in the median statistics, is a matched paired z-test of equality of medians using the Wilcoxon signed-rank test. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level respectively.

**Table III-Continued****(c) ASEAN Firm Price Variables**

		Debt Securities Issuers	Equity Issuers	Difference
<b>a) Indonesia</b>				
Market adjusted 3-month return	mean	0.098	0.369	-0.271 ***
	s.d.	0.040	0.141	
Market adjusted 6-month return	mean	0.105	0.692	-0.587 ***
	s.d.	0.045	0.172	
Market adjusted 12-month return	mean	-0.041	0.933	-0.974 ***
	s.d.	0.049	0.257	
Observations		92	102	
<b>b) Thailand</b>				
Market adjusted 3-month return	mean	0.051	0.076	-0.025 ***
	s.d.	0.022	0.037	
Market adjusted 6-month return	mean	0.054	0.271	-0.216 ***
	s.d.	0.022	0.065	
Market adjusted 12-month return	mean	-0.031	1.001	-1.033 ***
	s.d.	0.048	0.132	
Observations		145	193	
<b>c) Malaysia</b>				
Market adjusted 3-month return	mean	0.075	0.144	-0.068 ***
	s.d.	0.025	0.046	
Market adjusted 6-month return	mean	-0.040	0.242	-0.282 ***
	s.d.	0.038	0.067	
Market adjusted 12-month return	mean	-0.026	0.527	-0.554 ***
	s.d.	0.078	0.129	
Observations		283	209	
<b>d) Philippines</b>				
Market adjusted 3-month return	mean	0.026	0.154	-0.128 ***
	s.d.	0.027	0.032	
Market adjusted 6-month return	mean	0.087	0.244	-0.157 ***
	s.d.	0.027	0.073	
Market adjusted 12-month return	mean	0.095	0.435	-0.341 ***
	s.d.	0.039	0.254	
Observations		75	94	

**Note 1:** The above table provides means and standard deviations for prior period stock returns for the debt securities and equity issuing groups. \*\*\* indicates the two groups are significantly different.

**Note 2:** The employed market indices are Jakarta Composite Index, SET 100 Index, Kuala Lumpur Composite Index, and Philippine Composite Index and for stock prices of firms in Indonesia, Thailand, Malaysia, and the Philippines, respectively.

**Table IV**  
**Estimated Results of Relationship**  
**between Equity and Debt Securities Market Development**

	(i) Model A		(ii) Model B		(iii) Model C		(iv) Model D		(v) Model E	
Dependent Variable : DS Issue (All Sample Countries)										
	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Equity Issuer	0.139 ***	(2.340)	0.164 ***	(2.690)	0.091 *	(1.950)	0.152 ***	(2.800)	0.145 ***	(2.590)
Bank Loan	1.520 ***	(2.870)	3.469	(1.310)	0.315 *	(1.720)	0.759 *	(1.650)	1.025 **	(2.040)
Finance Cost	13.090 *	(1.800)	11.710 *	(1.620)	3.786	(0.640)	13.169 **	(2.010)	11.501 *	(1.640)
Per GDP	184.50 ***	(3.620)	230.70 ***	(4.060)	146.22 ***	(4.460)	125.54 ***	(3.730)	123.05 ***	(3.300)
Sovereign	-13.200	(-0.220)	-18.700	(-0.310)	-1.074	(-1.000)	-2.287 ***	(-2.390)	-2.557 ***	(-2.570)
BankLoan*PerGDP			0.590 *	(1.920)						
Legal					9.139 ***	(4.530)				
Public Offer							2.114 ***	(4.380)		
Currency									1.402 ***	(3.750)
const	-1,621.00 ***	(-3.250)	-1,988.22 ***	(-3.720)	-1,123.89 ***	(-3.670)	-1,126.20 ***	(-3.500)	-1,046.40 ***	(-2.930)
YearDummy	Yes		Yes		Yes		Yes		Yes	
Wald chi2	61.92 ***		65.95 ***		38.42 ***		88.09 ***		77.93 **	
Breush Pagan	568.2 ***		662.2 ***		110.0 ***		488.4 ***		449.4 ***	
Model (Fixed or Random)	Random		Random		Random		Random		Random	
Observations	457		457		308		451		451	
Countries	27		27		27		27		27	

*(continued)*

**Table IV-continued**

	(vi) Model A'		(vii) Model B'		(viii) Model C'		(ix) Model D'		(x) Model E'	
Dependent Variable : DS Issue (10 Emerging Countries)										
	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Equity Issuer	0.510 ***	(3.440)	0.384 ***	(2.350)	0.483 ***	(3.060)	0.516 ***	(3.460)	0.512 ***	(3.430)
Bank Loan	0.085	(1.190)	0.049	(-1.160)	0.014	(0.180)	0.096	(1.290)	0.087	(1.190)
Finance Cost	-1.947 *	(1.820)	-2.553 **	(-2.280)	1.193	(0.950)	-1.958 *	(-1.820)	-2.253 **	(-2.030)
Per GDP	21.025 ***	(3.940)	13.734 **	(2.040)	14.208 **	(2.560)	21.102 ***	(3.940)	21.481 ***	(3.950)
Sovereign	2.955	(0.270)	6.953	(0.620)	6.131	(0.530)	0.156	(0.010)	2.209	(0.180)
BankLoan*PerGDP			0.204 *	(1.760)						
Legal					5.784 *	(1.660)				
Public Offer							0.058	(0.560)		
Currency									-0.007	(-0.080)
const	-177.866 ***	(-3.530)	-124.641 **	(-2.140)	-148.683 **	(-2.650)	-180.135 ***	(-3.560)	-161.100 ***	(-3.220)
YearDummy	Yes		Yes		Yes		Yes		Yes	
Wald chi2	46.33 ***		50.11 ***		35.1 **		46.52 ***		46.86 **	
Breush Pagan	120.2 ***		117.2 ***		42.0 ***		117.7 ***		102.4 ***	
Model (Fixed or Random)	Random		Random		Random		Random		Random	
Observations	169		169		169		169		169	
Countries	10		10		10		10		10	

Note 1: \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level respectively.

Note 2: "10 Emerging Countries" are the lowest 10 income per capita countries of Indonesia, Malaysia, Thailand, the Philippines, Argentina, Brazil, Chile, Mexico, Turkey, and Poland.

**Table V**  
**Estimation Results of Determinants of Debt Securities Issuance:**  
**Frequent Equity Issuers and Debt Securities Issuance**

Dependent Variable	(A)Indonesia			(B)Thailand		
	(A)Panel Tobit Estimates	(B)Heckman Two-Step Estimates		(A)Panel Tobit Estimates	(B)Heckman Two-Step Estimates	
	Debt Securities Issuance	Debt Securities Issuance	Probit Fixed Asset Investment	Debt Securities Issuance	Debt Securities Issuance	Probit Fixed Asset Investment
Equity Issue Freq	3.74E-05 *** (3.760)	0.001 * (1.770)		1.68E-03 *** (2.630)	2.00E-04 ** (2.400)	
MBR	-1.68E-06 ** (-2.090)	-0.001 * (-1.610)	0.062 * (1.630)	5.00E-07 (0.030)	-0.001 (-0.590)	0.023 (0.610)
Finance_Cost(-1)	-1.72E-04 (-0.330)	-0.004 (-0.700)		1.10E-04 (1.140)	-4.13E-07 (-0.030)	
EPS_Post	-1.16E-06 (-0.250)	3.56E-06 (0.180)		9.48E-06 (0.790)	0.001 (0.840)	
ROA(-1)	-7.38E-06 (-0.060)	0.006 (0.360)	-0.703 ** (-2.060)	5.97E-03 (0.680)	0.002 (0.910)	1.107 *** (5.285)
ASSET	2.23E-05 (1.400)	0.005 (0.240)	0.097 *** (3.170)	7.67E-03 *** (4.610)	0.005 *** (3.460)	7.79E-05 *** (3.050)
DER(-1)	-1.41E-07 (-0.140)	-0.431 (-0.030)	-0.006 * (-1.620)	-2.23E-06 * (-1.680)	-8.40E-06 * (-1.610)	-0.024 *** (-6.370)
Const	3.44E-04 (0.170)	0.014 (0.300)	-1.101 *** (-3.660)	0.001 *** (3.600)	-0.005 ** (-2.100)	0.351 * (1.650)
Year Dummies	yes	yes	yes	yes	yes	yes
Industrial Dummies(2digit)	yes	yes	yes	yes	yes	yes
Inverse Mills Ratio			-0.002 (-0.310)			0.003 (0.750)
Wald chi2	19.74		22.25	177.83 ***		176.67 ***
Number of Obserbations	1,373		1,373	2,651		2,649
Number of Firms	222			387		

*(continued)*

**Table V-Continued**

Dependent Variable	(C)Malaysia			(D)Philippines		
	(A)Panel Tobit Estimates	(B)Heckman Two-Step Estimates		(A)Panel Tobit Estimates	(B)Heckman Two-Step Estimates	
	Debt Securities Issuance	Debt Securities Issuance	Probit Fixed Asset Investment	Debt Securities Issuance	Debt Securities Issuance	Probit Fixed Asset Investment
Equity Issue Freq	0.001 *** (4.226)	0.001 *** (3.350)		0.010 * (1.730)	0.008 * (1.670)	
MBR	-0.004 *** (-2.720)	-0.005 ** (-2.290)	0.074 *** (2.730)	8.75E-07 (0.600)	-7.84E-07 (-0.050)	-0.013 (-0.860)
Finance_Cost	-5.52E-04 * (-1.660)	-1.24E-04 * (-1.610)		9.75E-07 (0.020)	1.30E-04 (0.280)	
EPS_Post	1.66E-05 (0.150)	1.00E-04 (0.920)		0.000 (0.030)	2.78E-06 (0.130)	
ROA	0.002 (1.450)	0.004 * (1.600)	2.224 *** (8.270)	1.05E-04 (0.070)	3.57E-06 (0.020)	0.747 * (1.710)
ASSET	4.00E-04 *** (2.660)	0.002 ** (2.450)	0.054 *** (2.850)	3.30E-04 ** (1.970)	0.000 (1.290)	0.294 *** (6.700)
DER	-1.99E-05 (-1.050)	-0.001 (-1.100)	-0.048 *** (-8.710)	-1.39E-06 (-0.650)	-4.09E-06 * (-1.650)	-0.010 * (-1.690)
Const	-0.003 ** (-2.510)	-0.003 * (-1.810)	0.139 (1.050)	-2.44E-04 * (-1.700)	-3.83E-04 (-1.110)	-1.453 *** (-4.010)
Year Dummies	yes	yes	yes	yes	yes	yes
Industrial Dummies	yes	yes	yes	yes	yes	yes
Inverse Mills Ratio			0.001 (0.630)			0.002 (0.530)
Wald chi2	92.64 ***		103.42 ***	34.55		28.69
Number of Obserbations	3,915		3,883	813		813
Number of Firms	745			181		

Note: \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level respectively.

**Table VI**  
**Estimation Results of Determinants of Debt Securities Issuance:**  
**Stock Price and Debt Securities Issuance**

Dependent Variable	(A)Indonesia			(B)Thailand		
	Debt Securities Issuance=1, Equity Issuance =0			Debt Securities Issuance=1, Equity Issuance =0		
	Model A	Model B	Model C	Model A	Model B	Model C
Stock Price 3month	-0.501 (-1.520)			-0.065 (-0.260)		
Stock Price 6month		-0.492 ** (-2.450)			-0.501 (-1.400)	
Stock Price 12month			-0.263 ** (-2.430)			-0.149 * (1.640)
Finance_Cost	-0.003 *** (-2.460)	-0.003 ** (-2.160)	-0.001 * (-1.770)	0.012 (1.100)	0.022 (0.810)	0.018 (1.110)
ROA	-1.186 * (-1.620)	-0.974 (-1.460)	-0.776 (-0.820)	-0.290 (-0.270)	-0.723 (-0.650)	-0.641 (-0.610)
ASSET	0.059 (0.960)	0.056 (0.860)	0.016 (0.230)	0.443 *** (7.840)	0.424 *** (7.430)	0.435 (7.570)
DER	-0.006 (-0.310)	-0.007 (-0.320)	-0.002 (-0.080)	-0.072 *** (-3.910)	-0.079 *** (-3.930)	-0.085 *** (-3.900)
Const	1.119 (-1.560)	-1.274 * (-1.670)	-0.813 (-1.030)	3.881 *** (6.840)	3.707 *** (6.470)	3.841 *** (6.650)
Year Dummies	yes	yes	yes	yes	yes	yes
Industrial Dummies(2digit)	yes	yes	yes	yes	yes	yes
LR chi2	25.99 *	33.38 ***	32.68 ***	124.05 ***	129.83 ***	126.44 ***
Pseudo R2	0.100	0.135	0.139	0.298	0.313	0.309
Number of Obserbations	194	194	194	338	338	338

*(continued)*



**Table VI-Continued**

Dependent Variable	(C)Malaysia			(D)Philippines		
	Debt Securities Issuance=1, Equity Issuance =0			Debt Securities Issuance=1, Equity Issuance =0		
	Model A	Model B	Model C	Model A	Model B	Model C
Stock Price 3month	-0.484 ** (-2.230)			-0.322 ** (2.160)		
Stock Price 6month		-0.188 * (-1.870)			-1.455 *** (-3.050)	
Stock Price 12month			-0.201 * (-1.920)			-0.450 * (-1.680)
Finance_Cost	-0.046 ** (-2.450)	-0.033 ** (-2.220)	-0.044 ** (-2.260)	-0.110 ** (-1.990)	-0.112 * (-1.920)	-0.112 * (-1.870)
ROA	-0.848 (-0.710)	-0.805 (-0.680)	-0.812 (-0.700)	-9.562 *** (-3.055)	-9.454 *** (-2.990)	-9.476 *** (-3.070)
ASSET	-0.427 *** (-4.940)	-0.423 *** (-4.940)	-0.426 *** (-4.920)	0.381 *** (3.350)	0.408 *** (3.350)	0.368 *** (3.380)
DER	0.048 (1.120)	0.053 (1.230)	0.048 (1.160)	0.041 (1.020)	0.038 (1.240)	0.021 (0.710)
Const	2.566 *** (4.560)	2.545 *** (4.550)	2.533 *** (4.600)	4.988 *** (3.680)	5.081 *** (3.610)	4.767 *** (3.710)
Year Dummies	yes	yes	yes	yes	yes	yes
Industrial Dummies(2digit)	yes	yes	yes	yes	yes	yes
LR chi2	64.80 ***	63.98	64.50 ***	84.33 ***	94.83 ***	82.82 ***
Pseudo R2	0.252	0.248	0.224	0.442	0.433	0.385
Number of Obserbations	492	492	492	169	169	169

Note: \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level respectively.

**Table VII**  
**Probit Analysis of Determinants of**  
**Debt Securities Issuance**

Dependent Variable	Empirical Results			
	(A)Indonesia	(B)Thailand	(C)Malaysia	(D)Philippines
	Debt Securities	Debt Securities	Debt Securities	Debt Securities
Equity Issued MBR	-0.115 *	-0.632 *	-0.006 *	-6.85E-06 **
	(-1.750)	(-1.900)	(1.670)	(-0.330)
Equity non-Issued MBR	-1.753	-6.77E-01	-4.81E-06	2.40E-07
	(-0.010)	(-0.010)	(-0.340)	(0.340)
Equity Issued Finance Cost	-4.02E-04 ***	2.73E-01	-0.014 ***	-3.00E-04 *
	(-2.910)	(1.160)	(-3.110)	(-1.660)
Equity non-Issued Finance Cost	1.30E-05	-4.58E-01	-0.008 **	-7.67E-06
	(0.474)	(-0.001)	(-2.110)	(-0.230)
Equity Issued ROA(-1)	-1.174	-1.98E+00	-1.76E-04 *	-6.37E-06
	(-0.740)	(-1.010)	(-1.950)	(-0.040)
Equity non-Issued ROA(-1)	-0.805 *	1.19E+00	4.83E-05	2.98E-04
	(-1.690)	(3.250)	(0.630)	(0.200)
Equity Issued ASSET	0.372 **	1.068 ***	0.001 ***	2.86E-04 ***
	(2.070)	(5.780)	(12.980)	(2.870)
Equity non-Issued ASSET	-0.724	-7.02E-01	-3.40E-04 ***	5.88E-06
	(-0.001)	(-0.010)	(-1.430)	(0.550)
Equity Issued DER(-1)	-0.394 *	-2.89E-01 **	-0.034 **	-5.88E-06 *
	(-1.930)	(-2.410)	(-2.270)	(-1.630)
Equity non-Issued DER(-1)	-4.60E-03	2.26E-02	-0.014	-8.63E-08
	(-0.020)	(0.310)	(-1.030)	(-0.050)
Const	-5.859 **	-10.529 ***	-1.33E-04 ***	-4.84E-04 ***
	(-2.580)	(-5.570)	(-0.190)	(-0.380)
Number of Observations	1,716	2,960	5,476	1,881
Number of Firms	241	414	790	199
Test 1				
MBR	0.000 ***	0.000 ***	0.687	0.070 *
Finance Cost	0.000 ***	0.112	0.000 ***	0.071 *
ROA	0.090 *	0.000 ***	0.023 **	0.867
ASSET	0.012 **	0.989	0.000 ***	0.000 ***
DER	0.000 ***	0.009 ***	0.023 **	0.141
Test 2				
Predicted Bond Issuance by Equity Issued Firms	0.004	0.006	0.001	1.70E-04
Predicted Bond Issuance by Equity non-Issued Firms	-5.48E-05	-0.045	1.75E-04	-5.05E-06
Predicted Bond <sup>Equity</sup> > Predicted Bond <sup>non-Equity</sup>	100.0%	100.0%	100.0%	100.0%

Note 1: \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

Note 2: Test 1 reports for each variable X the p-value of the test Equity Issued X = non-Equity Issued X.

Note 3: For each observation of an infrequent and frequent equity issuer, this analysis computes its predicted debt securities issuance value (dependent variable) if it were a frequent (infrequent) issuer.