



Determinants and market reactions to hybrid security issuances in Thailand

Varutha Yongcharoen

MASTER OF SCIENCE PROGRAM IN FINANCE
(INTERNATIONAL PROGRAM)
FACULTY OF COMMERCE AND ACCOUNTANCY
THAMMASAT UNIVERSITY, BANGKOK, THAILAND
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ABSTRACT

Hybrid securities become more popular because of attractive embedded options. These securities economize cost compared to common equities and straight debts. The research intends to study market condition, as well as firm characteristics, that determines hybrid security issuance in Thailand. In the section of security decision, the research combines total variables and settles hybrid answers as convertible bond or warrant. The outcome strengthens the assumption that security type is chosen by appearances of firms .The research further observes market reaction to convertible bond offerings and the result shows insignificant negative sign at the announcement .This explains that market has no effect to convertible bond issuance in Thailand especially in a wide range, for several reasons.

I. INTRODUCTION

Hybrid security can be defined as a type of financial instruments that is used to raise capital. There are many researches studying the topics of cost of capital, tax shield or regulatory arbitrage. Hybrid security is also used as financial leverage tool for companies, because of debt-equity proportion. Hybrid security issuance should aim to optimal capital structure corresponding to the need of financing activities. Convertible bonds reset preferred shares and warrants usually are the case studies of hybrid securities via the effects of cost of financing. The advantages of these securities are higher income yields compared to bonds, potential tax benefits from plain credits and some downside protections if options for buy back at the initial value are offered.

Additionally, market timing adjusting to capital structure influence the decision of hybrid security offerings. In judgment to introduce this accomplishment, the hybrid security choice, I also evaluate several financial ratios, such as financial leverage, growth opportunity, net changing of firm cash flow and price to earning per share, as driven factors in the hybrid security issuance. In this research, I classify the factors as firm characteristics and market factor. Many corporate finance theories are beyond this study, especially capital structure, pecking order theory, asymmetric information, agency conflict and adverse selection cost. Furthermore, the convertible bonds accompany attached risks with conversion, such as ranking after straight debt obligation and ability to cash payment of issuers. But the downward movement of economy or financial distress is a potential problem for banking and corporate sector, who try to convince retail investors to accept the hybrid issues. In international markets, many researchers concentrate on the characters of issuers, risk deviations of asset-in -place, costs of financing and types of conversion.

In this paper, I concentrate on the influencing factors of hybrid issuances between internal factors, such as the financial status of firms, and external factor, which is identified as market condition. This affects the investment and financing activities in several ways such as underinvestment in a growth stage or cost of equity-debt related to external financing.

According to this decision, I also evaluate market response to security decision. Actually, the stock price reacts significantly in negative reaction to the stock issuance. The stock price of convertible bond issued usually reacts negatively greater than the stock price of straight debt issued. But the loss of negative direction does not affect dispersedly like stock issue. Warrants and convertible bonds in Thailand are issued by firms, but warrants are usually used in public sector whereas convertible bonds are used in private groups. The main differences between convertible bonds and warrants are their status; rights versus obligations, and their valuation. Some people view warrant as a stock plus option, while they view convertible bond as a straight bond plus option. The hybrid securities in this research can be collected from Securities and Exchange Commission in Thailand and samples can be categorized as convertible bond and warrant.

This research is partially divided into seven sections. The second section concludes about the capital market background in Thailand for the past ten years. I review the related literatures including theoretical frameworks and assumptions in the section three. Section four and section five explain about methodology and sampling data. The estimated result is analyzed in section six following with the conclusion in section seven.

II. MARKET BACKGROUND IN THAILAND

For available information, Table 1 represents the issuers' names of convertible bonds in Thailand during the period 1999-2008. There are thirty-four firms issuing convertible bonds during this period.

[Table 1 is here]

And table 2 represents the issuers' names of warrants in Thailand during the period 1999-2008. There are one hundred and sixty-five firms issuing warrants during this period.

[Table 2 is here]

In addition, figure 1 shows the amount of convertible bond and warrant issues by each sector for the past ten years. The real estate sector issues both securities at the highest level.

[Figure 1 is here]

And figure 2 illustrates the amount of both security issues by each year for the past sixteen years.

[Figure 2 is here]

Interestingly, the statistics disclose that convertible bonds are published most frequently in the period 1993 - 1994 in Thai capital market, while warrants were issued largely in the year 2005. The hybrid announcements follow to the economic cycles and natures of business sectors in country. From economic outlook, the study summarizes about the trend of lending interest rate or prime rate, capital market in Thailand

During the time of 1996 - 2008, figure 3 represents the BBL lending interest rate was peak in the period 1996-1997 at the percentage of 14 and 16 per year before the lending interest rate dropped down quickly in the mid year 1997 at the percentage of 8 per year. Later, the rate declined to stay at the percentage of 6 and 7 per year in the year 2008.

[Figure 3 is here]

The period of high lending interest rate was concurrent to a lot of convertible bond issues during the period 1993-1996 .The hybrids were also used as instruments solving refinance problems subsequently in the period 1997 - 2000. From the year 1997-2001, banks limited credit loans to customers from the amount of sixty hundred million baht to forty-five million

baht and the loans were slightly up to fifty hundred million baht in 2005. Financing is cautious thinking for Thai company during that crisis period. The stock market was bull in the period 1993-1994, which is the year of SET index closing highest at 1,753.73 points as the date of Jan 4; 1994. The interest rate was also high at the percentage of 12 per year in the bull term. Convertible bond announcements were counted at eighteen issues in the year 1994. This is consistent to U.S study that firms use convertible bonds in the period of hot market and high interest rate level (Ramanlal et al.1999). Warrants were peak in the year 2005 (Rate Bear Market). This time the lending interest rate stayed at the percentage of 6 and 7 per year and SET index closed in average of 700 points.

III. LITERATURE REVIEW

3.1 Literature Review

In this research, the formal related literatures can be divided into two subjects as follow;

The first topic is the issue about determinants of security decision or security choice and the second topic represents the market reaction to convertible bond announcement.

3.1.1 Determinants of security decision

Market condition means the position that we should stand when we entry to the market.

Stewart C Myers and Nicholas S. Majluf (1983) developed model testing the asymmetric information cost, leading to financing hierarchy. Managers knew superior information and they preferred to using less risky debts rather than using equities. These hybrid products are financial instruments in reducing adverse selection cost. In addition, Jeremy C. Stein (1992) referred convertible bonds as backdoor equity financing. He implied that convertible bonds became of the capital structure by forcing conversion earlier. The research said that financial distress and continually falling in stock prices could be the reasons of initiating sub-class debts.

Subsequently, David Mayers (1998) attended to the callable feature of convertible bonds to lower the issuance cost in sequential financing. The attached options of convertible bonds reduce the overinvestment incentive problem. Mayers compared his analysis with Stein (1992) in using convertible bonds as a solving sequential financing. Stein pointed out using these bonds at the time of issue whereas Mayers argued that converse option working out in the future financing problem. Mayers concluded that these options be valuable in the period of real profitable investment occurring. Shao-Chi Change, Sheng-Syan Chen and Yichen Liu (2003) confirmed the Mayer's result in Taiwan market and found that the positive market reaction in convertible bond issuance by focused firms. Timo Korkeamaki and William T. Moore (2003) proved the investment timing and convertible debt financing by implement the

real capital expenditure model and duplicate bond duration. The firms with high growth and low cost in waiting investment should defer subsequent installation in the extended year.

For the past ten years, Craig M. Lewis, Richard J. Rogalski and James K. Seward (1997) studied more about the convertible debt security design. The research concentrated on the motive of managers in launching them as a sub-class of debt and key features on convertible debt design. The agency conflict model and asymmetric information played important roles in their result. This research paid attention to the three proxies; post conversion equity ownership, maturity and structure of call protection. The pattern of convertible bond design linked to the greater risk of company. In 2003, Craig M. Lewis, Richard J. Rogalski and James K. Seward (2003) further examined on market reactions from three types of hybrid securities; debt-like offers, hedge like- offers and equity-like offers, which were classified by the probability of conversion. They summarized that the factors; such as financial leverage and investment opportunity of hybrid securities, are more complex variables relating in cost of external financing than straight debts or equities.

At present, Jo-Ann Suchard and Manohar Singh (2006), emphasized on security decision with internal factors such as tax shield, firm risk, profitability as well as market environment like industry condition. In Australia Market, convertible bonds can not be callable and the stand alone warrants means the warrants which only use to buy the new issuing stocks not the existing stocks in the trading market. These instruments can be viewed as substitutes of debt and equity respectively. This research supports the pecking order model, financial distress and the sequential model. The benefits of hybrid securities, like tax shield of effective tax rate (Paolo M. Panteghini (2008)) or lower cost of capital, are incentive to investors interesting on these financial instruments.

3.1.2 Market reaction to hybrid security decision

Several researches extend studies to the market acceptances and post performances of corporate sectors after hybrid offerings. Frans de Roon and Chris Veld (1998) investigated the different announcement effect of convertible bonds and warrants in Dutch market. The results were both positive with abnormal returns but only significant in warrant results. These positive outcomes related to other good news of issuing firms. In contrast to the event study in Japan market, Li Cheng, Nuttawat Visaltanachoti and Puspakaran kesayan (2005) found strongly negative stock price reaction in convertible bonds issues. This result is consistent to the announcement of hybrid products in U.S. market but it is not correspondent to the former study in Japan market (Kang and Stulz (1996)). The price performance responded under perform the market. Firm size had the negative relationship with the abnormal return whereas growth option had the positive trend with stock return.

In addition, Radu Burlacu (2000) reported the results of French convertible bond announcements are significantly negative market reactions too. He further studied in the component of convertible bonds and found that mixed convertible bonds signaling significantly positive market effects. This conformed to the Modigliani-Miller theorem in revised edition. The positive effect occurred because of low uncertainty concerning in asset-in-place relative to the project value.

Craig M. Lewis, Richard J. Rogalski and James K. Seward (2001) monitored performance of firms in the operating activity and stock return changing after convertible security issuance. In other word, managers expected the good long-run performance in next period after issuances. Two years later (in 2003), they set up subsample regression to test different reactions by security issue characteristics. They also considered the investor reactions in hot, normal and cold markets. The volume of security issuances was peak in the hot market period.

3.2 Theoretical Framework and Hypothesis Testing

This research relies on some theoretical frameworks and relevant some assumptions;

H1: Market condition determines hybrid security issuances as well as financial internal factors by firm characteristics in Thailand.

From first hypothesis, I concentrate to the concept of corporate finance and I can conclude some theoretical frameworks related to these statements:

Capital structure theory

This theorem is proposed by the new way thinking of Modigliani and Miller. Under certain condition or perfect market, there is no difference of financing cost between debt and equity. The value of levered firms equals to unlevered firms. But in the real world, there are complex costs in tax transactions, bankruptcy cost or asymmetric information cost. These lead to the issuances of debts or equities in financing violate the equilibrium equation. The capital structure relates mainly to the topic of cost of capital. Some prefer to receive tax deductible gain rather than other benefits. Hence, they prefer issue debts more than equities. The financial ratios such as financial leverage, net income turnover by total assets or net changing of firm cash flow turnover by total asset can be the measurement of good mixed of proportional capital structure. The optimal proportion between debt and equity, like hybrid security design, enhance the value of firm value or stockholders.

Pecking order theory

This theory is based on asymmetric information between management of firms and investor. Stewart C. Myer and Nicolas Majluf demonstrated this theory in 1984. They concluded that firms should prefer internal financing more than external financing. Issuing risky stocks signals the bad signs to new investors. The two important rules of pecking order model are using internal financing and issuing safety security first when firms need external borrowings. Because Firms do not want to raise capital by issuing more stocks and pass up some profitable or positive NPV projects. The average opportunity loss with debts is less than equity funding and firms interest in the stock behavior. Financial Slack is the ability of firm to

pay for funding. Thus, the higher slack may lead to prefer financial hierarchy; riskless bond, hybrid debt and equity.

Information asymmetry

This theory means the situation that someone dealing others with better information. Jeremy C. Stein (1992) said that leveraged firms hesitated to issue equities because of negative stock price reactions. Stein declared some topics about private information and financial distress. This is called the “backdoor equity financing”. Companies with optimistic about their future performances outweigh this future benefit to cost of issuing hybrid products. The more management knows about information of their growth opportunities, the shorter of call features be designed to protect their advantages. Brennan and Kraus (1987), Brennan and Schwartz (1988) supported the asset substitution in financing derived from the information asymmetry. Hence, there were changes in riskiness of asset-in-place.

Adverse selection

This theory originated from the asymmetric information between firms and investors. Some analysis explained that convertible bond features can mitigate the cost of adverse selection. Krishnaswami and Yaman (2004) summarized that convertible bonds reduced the contracting cost of moral hazard, adverse selection cost and financial distress in uncertain conditions of firms and economic recession. The benefit or gain comes from the design of embedded option.

Agency conflict theory

This theory explains about the interest of management as stockholders. There is conflict between financing and investment decisions. This leads to find the optimal mix of debt and equity in targeted capital structure. Jensen and Meckling (1976) and Myers (1977) studied mainly on the role of stockholders and bondholders in firms. Some stockholders prefer to invest in over risky projects to transfer wealth from bondholders to themselves; overinvestment problem. At the same time, stockholders do not invest in some projects because they have to absorb full cost and share benefits with bondholders, underinvestment problem.

Sequential financing

David Mayer introduced this theory in 1997 by matching financing and real investment option occurring. Convertible bonds can reduce overinvestment cost because of their conversions. The providing conversion is redeemable when the option is not valuable. However the firm can call them earlier if the options are valuable. The issuance of convertible bond with desirable option will lessen the uncertainty of maturity in real profitable investment. Some further research examined that the sequential financing controlled the issue cost and agency cost with growth opportunities.

Q ratio

This theory related to the market value realization and future investment behavior. Q theory is developed by James Tobin, U.S economist. Q figure state to the market value of existing shareholders divided by the replacement cost. If the Q ratio is greater than one, it means the company should invest more in capital because market react some unmeasured valuable assets. The companies need future funding because of valuable investment options. This is the critical decision and leads to further study between sequential financing need and real investment option.

H2: The stock prices react significantly in negative direction to the date of the convertible bonds announcements during the period 1999- 2008.

From second hypothesis, I focus on market reaction to convertible announcement and I can sum up some theoretical frameworks related to this statement:

Information asymmetry theory and stock price reaction

In the concept of market response, equity issue signals the bad news to investor in market. This leads to the negative reaction in stock returns at announcement. The study of Hansen and Crutchley's (1990) indicated that the securities offering implied the unforeseen loss on earning following with the negative reaction to stock price by investors. The impact of information asymmetry signals misunderstood concept to shareholders. Moreover, in U.S market, there are significantly negative impacts of stock price because of convertible bond issues (Lewis et. Al. 2003) but the reverse reactions do not affect so much as equity offerings.

Moral Hazard

Moral Hazard can be referred as hidden information. This is the sub-sequential part of asymmetric information. The moral hazard leads to undesired events. Krishnaswami, Spindt and Subramaniam (1999) found that firms with greater asymmetric information relying on more private placement in debt offerings. But the benefits of convertible bond offerings do not always reduce the contracting cost or adverse selection so that preventing the following moral hazard outcomes. This sometimes directs to the market failure in monitoring.

IV. METHODOLOGY

I. Determinants of security decision

In this section, I choose bivariate logit regression model to compare conditions of firms issuing securities between convertible bonds or warrants. I set up equation by fixing dependent values; zero equals to convertible bonds and one equals to warrants. The equation can be written as follow

$$\text{Hybrid security decision} = f(\text{Financial leverage, Income turnover by assets, Net Changing of Firm Cash Flow turnover by assets, Market Value of Firm, Financial Slack, Tobin's Q}) \quad (1)$$

Or

$$\text{Li} = \ln\left[\frac{P_i}{1-P_i}\right] = \beta_1 + \beta_2 \text{Financial leverage} + \beta_3 \text{Income turnover by assets} + \beta_4 \text{Net Changing of Firm Cash Flow turnover by assets} + \beta_5 \text{Market Value of Firm} + \beta_6 \text{Financial Slack} + \beta_7 \text{Tobin's Q} + \mu_i \quad (2)$$

Where:

Internal Factors:

1. Financial Leverage = Long term debt over total assets at the last quarter filing to SEC prior announcement.
2. Income Turnover by assets = Net income over total assets at the last quarter filing to SEC prior announcement.
3. Net Changing of Firm Cash Flow Turnover by assets = Net Changing of firm cash flow over total assets at the last quarter filing to SEC prior announcement.
4. Market value of firm = the sums of outstanding common shares multiply the close price of stock at the last quarter filing to SEC prior announcement (Million Baht)
5. Financial Slack = Cash and market securities over total assets at the last quarter filing to SEC prior announcement.

External Factor

6. Tobin's Q=Market value of equity plus total debt over total assets at the last quarter filing to SEC prior announcement.

Furthermore, I explain the descriptive of variables in logit regression.

[Table 3 is here]

II. Market reaction to security decision

The next stage, I only examine the impacts around announcement date of convertible bonds by the market model and t-test in Thailand. The period of event study is classified as below.

1. Pre-announcement period is from day -60 through day -31. The stock data of this period is used for estimation α_i and β_i in the model.

2. Event date is the date of convertible bond and warrant announcement. The event date period is from day -30 through days 30. This event period is used for testing abnormal return and significance.

[Figure 4 is here]

Abnormal return is measure as the difference between the actual return and market return. The α_i and β_i of the market model are estimated over 30 day trading period from -60 to -30 days before the hybrid issuances. Abnormal return, cumulative abnormal return and significance of hybrid announcements are tested in this event period.

The expected return can be calculated as below.

$$E(R_{it}) = \alpha_i + \beta_i(R_{mt}) + \varepsilon_{it} \quad (1)$$

Where $E(R_{it})$ is the expected return of stock i at time t , R_{mt} is the return of market at time t , ε_{it} is the stochastic error of stock i at time t

Abnormal return of stock can be calculated as below.

$$AR_{it} = R_{it} - E(R_{it}) \quad (2)$$

Where AR_{it} is the abnormal return of stock i at time t , R_{it} is the return of stock i at time t

Cumulative abnormal return during the event period of study can be calculated as follow.

$$CAR_{it} = AR_{it} + CAR_{(it-1)} \quad (3)$$

Where CAR_{it} is the cumulative abnormal return of stock i at time t

Average abnormal return and cumulative average abnormal return can be calculated like these equations below.

$$AAR_t = \frac{\sum_{i=1}^N AR_{it}}{N} \quad (4)$$

$$CAAR_t = AAR_t + CAAR_{t-1} \quad (5)$$

Where AAR_t is the average abnormal return at time t , $CAAR_t$ is the cumulative average abnormal return at time t , N is the number of observation.

Testing for the significance of average abnormal return, I use the equation as below.

$$t\text{-test} = \frac{AAR_t}{\frac{SD(AAR_t)}{\sqrt{N}}} \quad (6)$$

Where SD is the standard deviation of average abnormal return at time t

Average abnormal return and Cumulative average abnormal return can be plotted to the graph finding the trend around issuances.

Market reaction to hybrid issues

This section I focus only on the impacts around convertible bond announcements because this security type is issued to the private placement in a bulky lot per time. This security has thin trading volumes even though they are proclaimed by the mid to big size firms in the stock market. Thus, I study the market price responding to announcement on the available information that I collect from filing to Security and Exchange Commission (SEC). The outcomes of this security type issues will be compared to international markets and distinguish the different effects between Thailand and other regions.

V. SAMPLE SELECTION AND DATA

A database of information covers issue details, annual reports and stock price during the period of 1999 to 2008 in Thailand. I collect registered hybrid securities in Thai stock market, which are convertible bonds and warrants from filing to Security and Exchange Commission (SEC) manually. Original samples of convertible bonds and warrants can be counted of 41 and 318 observations respectively. The details of information are issuer's names, type of securities, date of announcements or issuing units and prices. The daily stock return of observations can be collected from Data Stream. Observations in original samples are excluded due to the lack of missing announcement dates, missing the stock price in announcement date, issuing during the period of reconstructions or being issued with other securities. This leaves the sample of 34 convertible bonds and 165 warrants available on this research study.

VI. EMPIRICAL RESULTS

6.1 Determinants of security decision

This section I discuss the results from regression process. In table 4, the figures illustrate the descriptive statistics by types of securities.

[Table 4 is here]

The appearances of firms are identified as financial leverage, income turnover by assets, net changing of firm cash flow turnover by assets, firm size, financial slack, and Tobin's Q ratio. These proxies have explanations describing into the table 4. The firms issuing convertible bonds have the average mean value of financial leverage ratio (0.4800) more than the mean value of firms issuing warrants (0.2421) and of total samples (0.2827). The firms issuing convertible bonds are high debt leveraged. Moreover, the firms issuing these bonds have the negative mean value of income turnover by assets (-0.0077) whereas the firms issuing warrants have the positive sign (0.0288). This can be interpreted that the firms issuing warrants have better profit than the firms issuing debts at the period of announcement. But the net changing of firm cash flow turnover by assets ratio is not significantly different; in the same way that market value of firm ratio is not the main factor determining the security issuances. In contrast to financial slack ratio, the firms issuing warrants have the mean value (0.1084) more than the firms issuing convertible bonds (0.0461) and of total samples (0.0977). Tobin's Q ratio is the highest at firms issuing convertible bonds (1.3201) and the value is larger than the mean value of total observations.

The descriptive statistics show some conditions on firms issuing convertible bonds or warrants. Firms with growth opportunities, high debt levels and poor operating profits will face the borrowing problem from bank loans and from stock market in sequential financing needs. Moreover, funding by straight debts will create interest payment problem in the future. The financial distress and adverse selection problem lead firms to issue hybrid debts more than straight debts or equities including security like equity such as warrants with following the negative trend in stock price reactions and undervalued. Otherwise, the firms with better

profit announcements and no problem in information asymmetry, agency problem and moral hazard are more likely to issue security type as equity in the market.

Table 5 represents the result of logit regression of all variables that I set up the two model including Tobin's Q ratio or not.

[Table 5 is here]

The choice between convertible bond is viewed as a hybrid substitute to debt and warrant is viewed as a hybrid substitute to equity in Thailand. Initially, I run all independent factors that I identify as firm characteristics including market factor. In regression, I identify the value zero for convertible bond and one for warrant. Therefore, the positive coefficient sign represents the firm is more likely to issue warrant and the negative sign represents the firm is more likely to issue convertible bonds. Model 1 does not include market factor, Tobin's Q ratio, while Model 2 includes it.

The result of model 1 in table 5 shows the firms proxies by financial leverage ratio has significant negative coefficient across two models, -0.8331 and -0.8103 correspondingly. This result is consistent with Suchard and Singh (2006) but these coefficients are not significant in Australia market. That means capital market in Thailand views convertible bond as substitute of debt financing tool. This finding can also be explained in the way that these firms are facing the financial distress in issuing straight debt and they avoid to issue security like equity because of more negative stock price effect and underrated security in information asymmetry. Consequently, if they are confident in the future performance in investment projects or stock prices, firms choose to issue convertible debt for lower cost of capital in financing. Attached option can be mitigate the adverse selection cost of equity. If firms perform well subsequently, issuing convertible bonds will be cheap financing compared to issuing equities. They can expect the convertible bonds to be a backdoor equity financing by forcing conversion earlier (Stein 1992). The second determinant in my study is income turnover by assets. The coefficients are all positive signs for two models (3.9554 and 3.9347 respectively) and these signs show that the firms with better earning pronouncements are more likely to announce security like equity in market. This is seemed to launching equities at

the confident level of good news and because firms do not face the major problem in adverse selection cost or information asymmetry. Additionally, the coefficients of net changing of firm cash flow turnover by assets are significantly negative over two models (-10.7280 and -10.7112). This supports the way that convertible bonds like debt and they should be used by the firms with enough real cash flow for interest payment. Furthermore, the interest payment schedule should match to the pattern of firm's free cash flow. The fourth factor determining hybrid issue is the financial slack. The coefficients are positive sign for two models. This result is consistent to Suchard and Singh (2006) and Lewis et.al (1999) but these coefficients are not significant in their studies. The financial slack does not support the pecking order theory in this study. This is the result of characteristics from available information. Moreover, this result comes from the different size between the collective data. Firms issuing warrants has the higher net income announcements and the average value of generating cash flow is indifferent from firms issuing convertible bonds. Thus, the cash item in financial statement can be build up in firms issuing warrants. Additionally, Tobin's Q ratios, the market factor, have the average values greater than one for both firms issuing convertible bonds and warrants .But this ratio has no impact to the all models, because the nature of these hybrid securities can be converted to capital .Therefore, this can be interpreted that both types of firms have all growths. Moreover, Thailand is one of emerging markets and the uses of hybrid tools in security like debt and security like equity are not popular compared to international market such as U.S market.

Essentially, the results reveal that convertible bond is viewed as a hybrid instrument for restructuring whereas warrant is viewed as option to circulate the stock price in Thai market.

The next table illustrates the correlation of all coefficients in bivariate logit regression.

[Table 6 is here]

6.2 Market reaction to security decision

At the next step, I examine the short-term market reaction to convertible bond issuances for the past ten years. There are insignificant negative abnormal returns during the study period. The signs of abnormal returns are all negative for the event date period. There are significant negative average abnormal returns in day -6, -2 and +18 at the p-value of 0.06, 0.09 and 0.07 respectively. During the period day -1 to day 1, the average abnormal return has a downward negative trend. This finding is consistent to the U.S market ((Eckbo (1986), Dann and Mikkelson (1984)) which the results are negative impacts around convertible bonds announcement. Generally, the negative reaction should not indicate enormously like equity offerings. This is due to the theory of Stewart C. Myer and Nicolas Majluf (1984) that external financing perceived as unfavorable information of future investment. In Thailand, the convertible bonds offerings usually send to the private placement. Most of them are institutional investors. The negative stock price reactions of hybrid offerings are not significant in the public market like stock issues. But the negative trends after offerings may be occurred from several reasons, especially the agency problem in management incentives and moral hazard in collective actions. Moreover, Firms sometimes issue convertible bonds after the negative trends. The effect from moral hazard can overcome the benefit of attached options in mitigate the adverse selection cost for convertible bond. In offshore markets, such as Dutch market and Japanese market, the convertible bond offerings show positive signs in their markets. They declared the results originated from the packages of issues with other firms of particularly good news and the bubble economic condition. The average abnormal returns on each day are display in table 8.

[Table 7 is here]

Moreover, Figure 4 illustrates the AAR graph of convertible bond announcement.

[Figure 4 is here]

VII CONCLUSION

This research examines determinants and market reaction to the hybrid security decision in Thailand. The research assigns sub-class assets of debt and equity as convertible bond or warrant to find influent factors. The research also divides factors into firm characteristics and one market condition, Tobin's Q ratio. Thai capital market recognizes convertible bond as security like debt and recognizes warrant as security like equity. The empirical results demonstrate that internal factors such as financial leverage ratio, income turnover by assets, net changing of firm cash flow and financial slack are primarily important to firms in security decision. Capital structure that has high debt level is limited to issue straight debt. Moreover, hybrid security that is designed with proper conversion lessens sequential financing problem. Hybrid security issuances usually occur during the period of economic downturn or high interest rate. In Thai market there are two hybrid products, convertible bond, which is viewed as a financing tool for restructuring, and warrant, which is viewed as component option for free float in stock market.

Furthermore, the research studies the short-term market reaction to convertible bond issuance. The market price responds to the announcement in insignificant negative direction. This is consistent to the international market in that the security offerings seemingly send the unfavorable information of future performance to public investors. But the sales of hybrid products in Thailand are usually sent to particular investors for specific purpose. Thus, the market response does not affect enormously and the negative trend may occur from other causes, such as the asymmetric information, agency problem and moral hazard in collective data. The further study should develop a valuation related to the optimal yield and conversion which are suitable for business groups in Thailand.

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Appendix:

Table 1: List of firms issuing convertible bonds during the period of 1999-2008

YEAR	SYMBOL	NAME	SECTOR
1999	BBL	BANGKOK BANK PUBLIC COMPANY LIMITED	BANK
	DTDB	DBS THAIDHANU PUBLIC COMPANY LIMITED	BANK
	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	NOBLE	NOBLE DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	SMC	SMC MOTORS PUBLIC COMPANY LIMITED	AUTOMOTIVE
	TUF	THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED	FOOD & DRINK
2000	APURE	AGRIPURE HOLDINGS PUBLIC COMPANY LIMITED	FOOD & DRINK
	BCP	THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED	ENERGY
	BH	BUMRUNGRAD HOSPITAL PUBLIC COMPANY LIMITED	MEDICAL
	MK	M.K. REAL ESTATE DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	NWR	NAWARAT PATANAKARN PUBLIC COMPANY LIMITED	REAL ESTATE
	POMPUI	KUANG PEI SAN FOOD PRODUCTS PUBLIC COMPANY LIMITED	FOOD & DRINK
	SPALI	SUPALAI PUBLIC COMPANY LIMITED	REAL ESTATE
	SSI	SAHAVIRIYA STEEL INDUSTRIES PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	TGPRO	THAI-GERMAN PRODUCTS PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	2001	EMC	EMC PUBLIC COMPANY LIMITED
SPALI		SUPALAI PUBLIC COMPANY LIMITED	REAL ESTATE
TGPRO		THAI-GERMAN PRODUCTS PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
2002	MEDIAS	MEDIA OF MEDIAS PUBLIC COMPANY LIMITED	MEDIA
	CCET	CAL-COMP ELECTRONICS (THAILAND) PUBLIC CO., LTD	REAL ESTATE
	SPALI	SUPALAI PUBLIC COMPANY LIMITED	REAL ESTATE
	TSTH	TATA STEEL (THAILAND) PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION
2003	UMI	THE UNION MOSAIC INDUSTRY PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
2004	GEN	GENERAL ENGINEERING PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
2005	PF	PROPERTY PERFECT PUBLIC COMPANY LIMITED	REAL ESTATE
2006	BCP	THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED	ENERGY
	BGH	BANGKOK DUSIT MEDICAL SERVICES PUBLIC COMPANY LIMITED	MEDICAL
2007	TTA	THORESEN THAI AGENCIES PUBLIC COMPANY LIMITED	TRANSPORT AND LOGISTIC
2008	ITD	ITALIAN-THAI DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE

Source: Security and Exchange Commission (SEC)

Table 2: List of firms issuing alone warrants during the period of 1999-2008

YEAR	SYMBOL	NAME	SECTOR
1999	ASL	ADKINSON SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	HEMRAJ	HEMARAJ LAND AND DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	JAS	JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	PF	PROPERTY PERFECT PUBLIC COMPANY LIMITED	REAL ESTATE
	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	SIRI	SANSIRI PUBLIC COMPANY LIMITED	REAL ESTATE
	TIP	DHIPAYA INSURANCE PUBLIC COMPANY LIMITED	INSURANCE
	TTA	THORESEN THAI AGENCIES PUBLIC COMPANY LIMITED	TRANSPORT&LOGISTIC
	UV	UNIVENTURES PUBLIC COMPANY LIMITED	REAL ESTATE
	ZMICO	SEAMICO SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
2001	ADVANC	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	AP	ASIAN PROPERTY DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	BANPU	BANPU PUBLIC COMPANY LIMITED	ENERGY
	BROOK	THE BROOKER GROUP PUBLIC COMPANY LIMITED	SME
	CPF	CHAROEN POKPHAND FOODS PUBLIC COMPANY LIMITED	AGRICULTURE
	ESTAR	EASTERN STAR REAL ESTATE PUBLIC COMPANY LIMITED	REAL ESTATE
	HMEPRO	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	COMMERCIAL
	JAS	JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	KBANK	KASIKORNBANK PUBLIC COMPANY LIMITED	BANK
	KK	KIATNAKIN BANK PUBLIC COMPANY LIMITED	BANK
	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	NOBLE	NOBLE DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	QH	QUALITY HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	S&P	S & P SYNDICATE PUBLIC COMPANY LIMITED	FOOD & DRINK
	SE ED	SE-EDUCATION PUBLIC COMPANY LIMITED	MEDIA
	SVI	SVI PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	THCOM	THAICOM PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	THRE	THAI REINSURANCE PUBLIC COMPANY LIMITED	INSURANCE
	TISCO	TISCO FINANCIAL GROUP PUBLIC COMPANY LIMITED	BANK
	TT&T	TT&T PUBLIC COMPANY LIMITED	TELECOMMUNICATION
2002	ASIAN	ASIAN SEAFOODS COLDSTORAGE PUBLIC COMPANY LIMITED	AGRICULTURE
	ADVANC	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	ASL	ADKINSON SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	ESTAR	EASTERN STAR REAL ESTATE PUBLIC COMPANY LIMITED	REAL ESTATE
	HANA	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	KBANK	KASIKORNBANK PUBLIC COMPANY LIMITED	BANK
	KTB	KRUNG THAI BANK PUBLIC COMPANY LIMITED	BANK
	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	LPN	L.P.N. DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	MAJOR	MAJOR CINEPLEX GROUP PUBLIC COMPANY LIMITED	MEDIA
	MSC	METRO SYSTEMS CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	PTTEP	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	ENERGY

2003	RAIMON	RAIMON LAND PUBLIC COMPANY LIMITED	REAL ESTATE
	SCSMG	THE SIAM COMMERCIAL SAMAGGI INSURANCE PUBLIC COMPANY LIMITED	INSURANCE
	SICCO	THE SIAM INDUSTRIAL CREDIT PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	SPALI	SUPALAI PUBLIC COMPANY LIMITED	REAL ESTATE
	SPORT	SIAM SPORT SYNDICATE PUBLIC COMPANY LIMITED	MEDIA
	TISCO	TISCO FINANCIAL GROUP PUBLIC COMPANY LIMITED	BANK
	US	UNITED SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	UV	UNIVENTURES PUBLIC COMPANY LIMITED	REAL ESTATE
	ADAM	ADAMAS INCORPORATION PUBLIC COMPANY LIMITED	SME
	ADVANC	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	ASP	ASIA PLUS SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	CK	CH. KARNCHANG PUBLIC COMPANY LIMITED	REAL ESTATE
	GJS	G J STEEL PUBLIC COMPANY LIMITED	INDUSTRY
	INET	INTERNET THAILAND PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	JAS	JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	MATCH	MATCHING STUDIO PUBLIC COMPANY LIMITED	MEDIA
	PTTEP	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	ENERGY
	QH	QUALITY HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	RAIMON	RAIMON LAND PUBLIC COMPANY LIMITED	REAL ESTATE
	ROJANA	ROJANA INDUSTRIAL PARK PUBLIC COMPANY LIMITED	REAL ESTATE
	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	TISCO	TISCO FINANCIAL GROUP PUBLIC COMPANY LIMITED	BANK
TSTH	TATA STEEL (THAILAND) PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION	
TUF	THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED	FOOD & DRINK	
2004	ADVANC	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	ASP	ASIA PLUS SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	BCP	THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED	ENERGY
	EASTW	EASTERN STAR REAL ESTATE PUBLIC COMPANY LIMITED	REAL ESTATE
	HANA	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	HMPRO	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	COMMERCIAL
	IRCP	INTERNATIONAL RESEARCH CORPORATION PUBLIC CO., LTD.	SME
	KMC	KRISDAMAHANAKORN PUBLIC COMPANY LIMITED	REAL ESTATE
	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	MODERN	MODERNFORM GROUP PUBLIC COMPANY LIMITED	HOUSEHOLD & OFFICE
	PATKOL	PATKOL PUBLIC COMPANY LIMITED	INDUSTRY
	QH	QUALITY HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	SPORT	SIAM SPORT SYNDICATE PUBLIC COMPANY LIMITED	MEDIA
	STEC	SINO-THAI ENGINEERING AND CONSTRUCTION PUBLIC CO.,LTD.	REAL ESTATE
2005	AP	ASIAN PROPERTY DEVELOPMENT PUBLIC COMPANY LIMITED	REAL ESTATE
	ASP	ASIA PLUS SECURITIES PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	BCP	THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED	ENERGY
	BLISS	BLISS-TEL PUBLIC COMPANY LIMITED	TELECOMMUNICATION

2006	CAWOW	CALIFORNIA WOW XPERIENCE PUBLIC COMPANY LIMITED	TRAVEL
	CCET	CAL-COMP ELECTRONICS (THAILAND) PUBLIC CO., LTD.	ELECTRIC EQUIPMENT
	CSL	CS LOXINFO PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	DELTA	DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	EMC	EMC PUBLIC COMPANY LIMITED	REAL ESTATE
	GEN	GENERAL ENGINEERING PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION
	HMPRO	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	COMMERCIAL
	KEST	KIM ENG SECURITIES (THAILAND) PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	LH	LAND AND HOUSES PUBLIC COMPANY LIMITED	REAL ESTATE
	LVT	L.V. TECHNOLOGY PUBLIC COMPANY LIMITED	SME
	MIDA	MIDA ASSETS PUBLIC COMPANY LIMITED	COMMERCIAL
	MINT	MINOR INTERNATIONAL PUBLIC COMPANY LIMITED	FOOD & DRINK
	NCH	N. C. HOUSING PUBLIC COMPANY LIMITED	REAL ESTATE
	NNCL	NAVANAKORN PUBLIC COMPANY LIMITED	REAL ESTATE
	PTT	PTT PUBLIC COMPANY LIMITED	ENERGY
	PTTEP	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	ENERGY
	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	SPALI	SUPALAI PUBLIC COMPANY LIMITED	REAL ESTATE
	TASCO	TIPCO ASPHALT PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION
	THCOM	THAICOM PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	TICON	TICON INDUSTRIAL CONNECTION PUBLIC COMPANY LIMITED	REAL ESTATE
	TKS	T.K.S. TECHNOLOGIES PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	TLUXE	THAILUXE ENTERPRISES PUBLIC COMPANY LIMITED	AGRICULTURE
	TNITY	TRINITY WATTHANA PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	TRUE	TRUE CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	ADVANCE	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	ASCON	ASCON CONSTRUCTION PUBLIC COMPANY LIMITED	REAL ESTATE
	BLAND	BANGKOK LAND PUBLIC COMPANY LIMITED	REAL ESTATE
	CFRESH	SEAFRESH INDUSTRY PUBLIC COMPANY LIMITED	AGRICULTURE
	CSP	CSP STEEL CENTER PUBLIC COMPANY LIMITED	INDUSTRY
	GBX	GLOBLEX HOLDING MANAGEMENT PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	HANA	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	HMPRO	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	COMMERCIAL
	IRPC	IRPC PUBLIC COMPANY LIMITED	ENERGY
	MINT	MINOR INTERNATIONAL PUBLIC COMPANY LIMITED	FOOD & DRINK
	PTT	PTT PUBLIC COMPANY LIMITED	ENERGY
	PTTCH	PTT CHEMICAL PUBLIC COMPANY LIMITED	CHEMISTRY
	PTTEP	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	ENERGY
	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	TGPRO	THAI-GERMAN PRODUCTS PUBLIC COMPANY LIMITED	INDUSTRY
	THCOM	THAICOM PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	TRUE	TRUE CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	2007	AIT	ADVANCED INFORMATION TECHNOLOGY PUBLIC CO.,LTD.
	BLAND	BANGKOK LAND PUBLIC COMPANY LIMITED	REAL ESTATE

2008	CCET	CAL-COMP ELECTRONICS (THAILAND) PUBLIC CO., LTD.	ELECTRIC EQUIPMENT
	CIG	C.I.GROUP PUBLIC COMPANY LIMITED	SME
	GL	GROUP LEASE PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	HMPRO	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	COMMERCIAL
	IRPC	IRPC PUBLIC COMPANY LIMITED	ENERGY
	KCE	KCE ELECTRONICS PUBLIC COMPANY LIMITED	ELECTRIC EQUIPMENT
	L&E	LIGHTING & EQUIPMENT PUBLIC COMPANY LIMITED	SME
	MATCH	MATCHING STUDIO PUBLIC COMPANY LIMITED	MEDIA
	MFC	MFC ASSET MANAGEMENT PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY
	MINT	MINOR INTERNATIONAL PUBLIC COMPANY LIMITED	FOOD & DRINK
	MME	MIDA-MEDALIST ENTERTAINMENT PUBLIC COMPANY LIMITED	TRAVEL
	RS	RS PUBLIC COMPANY LIMITED	MEDIA
	SAM	SAMCHAI STEEL INDUSTRIES PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION
	SINGHA	SINGHA PARATECH PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION
	SPORT	SIAM SPORT SYNDICATE PUBLIC COMPANY LIMITED	MEDIA
	STPI	STP&I PUBLIC COMPANY LIMITED	PROBPERTY & CONSTRUCTION
	TT&T	TT&T PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	UMS	UNIQUE MINING SERVICES PUBLIC COMPANY LIMITED	SME
	TRUE	TRUE CORPORATION PUBLIC COMPANY LIMITED	TELECOMMUNICATION
	D1	DRAGON ONE PUBLIC COMPANY LIMITED	SME
EMC	EMC PUBLIC COMPANY LIMITED	REAL ESTATE	
GL	GROUP LEASE PUBLIC COMPANY LIMITED	FINANCIAL & SECURITY	
SALEE	SALEE INDUSTRY PUBLIC COMPANY LIMITED	SME	

Table 3: Explanation of variables in security choice decision

Dependent Variables	variable	Definition
Result	0	Convertible bonds
	1	Warrants
Independent Variables	variable	Definition
Internal Factors	Financial Leverage	Long term debt over total assets at the last quarter filing to SEC prior announcement
	Income	Net income over total assets at the last quarter filing to SEC prior announcement.
	Turnover by assets	
	Net Changing of Firm Cash Flow	Net firm cash flow over total asset at the last quarter filing to SEC prior announcement.
	Turnover by assets	
External Factors	Market value of firm	The sum of outstanding common shares multiply the close price of stock at the last quarter filing to SEC prior announcement (Million Baht)
	Financial Slack	Cash and market securities at the last quarter filing to SEC prior announcement.
	Tobin's Q	Market value of equity plus total debt over total assets at the last quarter filing to SEC prior announcement.

Table 4: Sample descriptive statistic

This table presents the descriptive statistics of 199 observations, which can be classified of 34 convertible bonds and 165 warrants during the period of 1999 to 2008.

Variable	Total samples				Convertible bonds				Warrants			
	Mean	Maximum	Minimum	Std.Dev.	Mean	Maximum	Minimum	Std.Dev.	Mean	Maximum	Minimum	Std.Dev.
Financial Leverage ¹	0.2827422	3.971491	0	0.4251544	0.4800717	3.971491	0	0.7137947	0.2420804	3.064677	0	0.3255335
Income turnover by assets ²	0.0225168	0.8300174	-0.645455	0.1097811	-0.007734	0.8300174	-0.311901	0.1830777	0.0287503	0.5627267	-0.645455	0.0870476
Net Changing of Firm Cash Flow Turnover by assets ³	0.0090991	0.3552498	-0.25223	0.0665824	0.0089524	0.1597195	-0.100724	0.0437381	0.0091293	0.3552498	-0.25223	0.0704794
Market value of firm ⁴	23830.13	755245.4	1.2	87401.56	26218.9	755245.4	1.2	129134.1	23337.9	632177.6	2.741377	76588.82
Financial Slack ⁵	0.0977358	0.7074175	0.0001708	0.1320529	0.0460849	0.1972385	0.0001708	0.0564358	0.1083791	0.7074175	0.0004734	0.1405177
Tobin's Q ⁶	1.224037	5.376212	0.0934328	0.8043732	1.32066	5.09058	0.5191465	0.8343775	1.204127	5.376212	0.0934328	0.7992079

Independent Variables

1. Financial Leverage: Long term debt over total assets at the last quarter filing to SEC before announcement.
2. Income Turnover by assets: Net income over total assets at the last quarter filing to SEC before announcement.
3. Net Changing of Firm Cash Flow Turnover by assets: Net changing of firm cash flow over total asset at the last quarter filing to SEC before announcement.
4. Market value of firm: The sums of outstanding common shares multiply the close price of stock at the last quarter filing to SEC before announcement (Million Baht).
5. Financial Slack: Cash and market securities at the last quarter filing to SEC before announcement.
6. Tobin's Q: Market value of equity plus total debt over total assets at the last quarter filing to SEC before announcement.

Table 5: Logit Analysis of security choice

This table presents the results of logit analysis for verifying factors determining security choice between convertible bonds and warrant issues in Thailand during the period of 1999-2008. The dependent variable represents the value of zero for convertible bonds and one for warrants.

Variable	1		2	
	Coefficient	P-value	Coefficient	P-value
Constant	1.185966	0.00	1.225022	0.003
Financial Leverage	-0.833063**	0.044	-0.810329***	0.067
Income turnover by total assets	3.955367***	0.083	3.934732***	0.086
Net changing of firm cash flow turnover by total assets	-10.72795**	0.043	-10.71124**	0.043
Market value of firm	- 0.00	0.186	- 0.00	0.204
Financial Slack	12.56881*	0.006	12.63982*	0.006
Tobin's Q			-0.0427868	0.883

No of observation	199	199
LR chi 2	22.56	22.58
Pseudo R*	0.124	0.124
Correct prediction	82.91	82.91

*Significant at 1% level

**Significant at 5% level

*** Significant at 10% level

Independent Variables

1. Financial Leverage: Long term debt over total assets at the last quarter filing to SEC prior announcement.
2. Income Turnover: Net income over total assets at the last quarter filing to SEC prior announcement.
3. Net Cash Flow Changing Turnover: Net changing of firm cash flow over total asset at the last quarter filing to SEC prior announcement.
4. Market value of firm: The sums of outstanding common shares multiply the close price of stock at the last quarter filing to SEC prior announcement (Million Baht).
5. Financial Slack: Cash and market securities at the last quarter filing to SEC prior announcement.
6. Tobin's Q: Market value of equity plus total debt over total assets at the last quarter filing to SEC prior announcement.

Table 6: Correlation matrix of all coefficient variables in logit model

	Financial Leverage	Income turnover by assets	Net changing of firm cash flow turnover by assets	Firm Size	Financial Slack	Tobin's Q	Constant
Financial Leverage	1.0000						
Income turnover by assets	0.0930	1.0000					
Net changing of firm cash flow turnover by assets	0.1234	-0.1507	1.0000				
Firm Size	0.1132	-0.1913	0.2567	1.0000			
Financial Slack	0.0310	0.1804	-0.6102	-0.3401	1.0000		
Tobin's Q	-0.3441	0.0580	-0.0225	-0.1835	-0.1087	1.0000	
Constant	-0.1426	-0.1474	0.1487	0.1287	-0.3394	-0.6467	1.0000

Independent Variables

1. Financial Leverage: Long term debt over total assets at the last quarter filing to SEC prior announcement.
2. Income Turnover: Net income over total assets at the last quarter filing to SEC prior announcement.
3. Net Cash Flow Changing Turnover: Net changing of firm cash flow over total asset at the last quarter filing to SEC prior announcement.
4. Market value of firm: The sums of outstanding common shares multiply the close price of stock at the last quarter filing to SEC prior announcement (Million Baht).
5. Financial Slack: Cash and market securities at the last quarter filing to SEC prior announcement.
6. Tobin's Q: Market value of equity plus total debt over total assets at the last quarter filing to SEC prior announcement.

Table 7: Average abnormal return around announcement date of convertible bonds during the period of 1999-2008

day	Convertible bonds		day	Convertible bonds	
	AAR	P value		AAR	P value
-30	-0.027061	0.5183345	0	-0.044287	0.1477825
-29	-0.035343	0.3444415	1	-0.049107	0.1113021
-28	-0.039339	0.4071006	2	-0.034011	0.1769812
-27	-0.059931	0.2011748	3	-0.027877	0.297658
-26	-0.018987	0.5953406	4	-0.046493	0.1390718
-25	-0.022041	0.4899835	5	-0.042926	0.190379
-24	-0.022074	0.3751426	6	-0.035653	0.2886791
-23	-0.040422	0.3138061	7	-0.043937	0.2008981
-22	-0.030481	0.3212422	8	-0.020992	0.4101083
-21	-0.028401	0.2447948	9	-0.034121	0.3383007
-20	-0.043588	0.220642	10	-0.041363	0.1954504
-19	-0.053987	0.2327759	11	-0.04285	0.2113166
-18	-0.035403	0.2930138	12	-0.032625	0.2592862
-17	-0.055126	0.2264938	13	-0.000229	0.9958652
-16	-0.060794	0.1286078	14	-0.050198	0.1340289
-15	-0.028611	0.3842763	15	-0.050792	0.1372047
-14	-0.047546	0.2854655	16	-0.042634	0.1517374
-13	-0.03386	0.1456424	17	-0.041868	0.2052963
-12	-0.048416	0.1366935	18	-0.052541*	0.0674337
-11	-0.013832	0.5707308	19	-0.058039	0.1376008
-10	-0.038154	0.2689066	20	-0.047267	0.1558957
-9	-0.032718	0.3121824	21	-0.046812	0.1823084
-8	-0.039021	0.244494	22	-0.057576	0.1180357
-7	-0.031222	0.4401668	23	-0.047028	0.2943552
-6	-0.04307	0.0596368*	24	-0.053667	0.2494753
-5	-0.03606	0.2093724	25	-0.03814	0.4125101
-4	-0.034411	0.1898176	26	-0.038709	0.2927111
-3	-0.045693	0.1679698	27	-0.025797	0.2824671
-2	-0.053939	0.0897293*	28	-0.047746	0.1644455
-1	-0.04219	0.1901145	29	-0.074327	0.1951851
			30	-0.033839	0.3756352

*Significant at 10% level

Figure 1: Summary of convertible bond and warrant issues by sector in Thailand during the period of 1999-2008

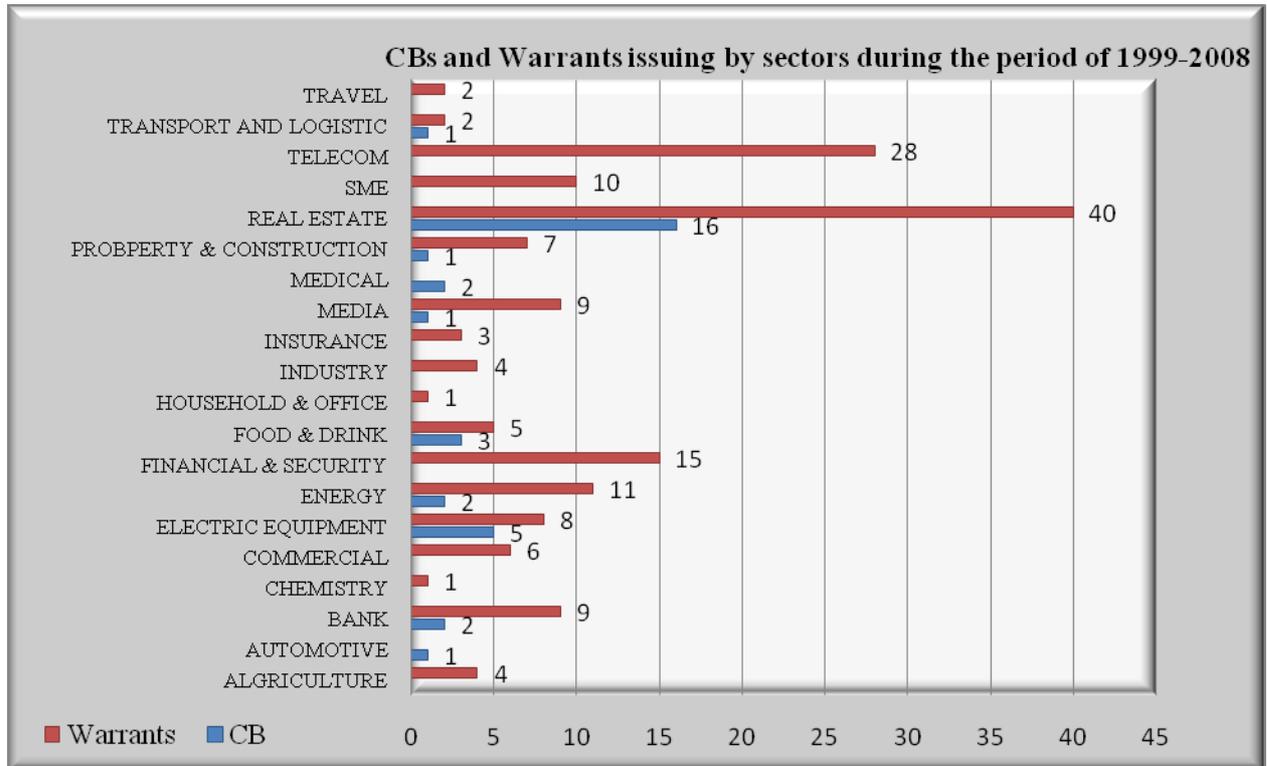


Figure 2: Summary of convertible bond and warrant issues by year during the period of 1999-2008

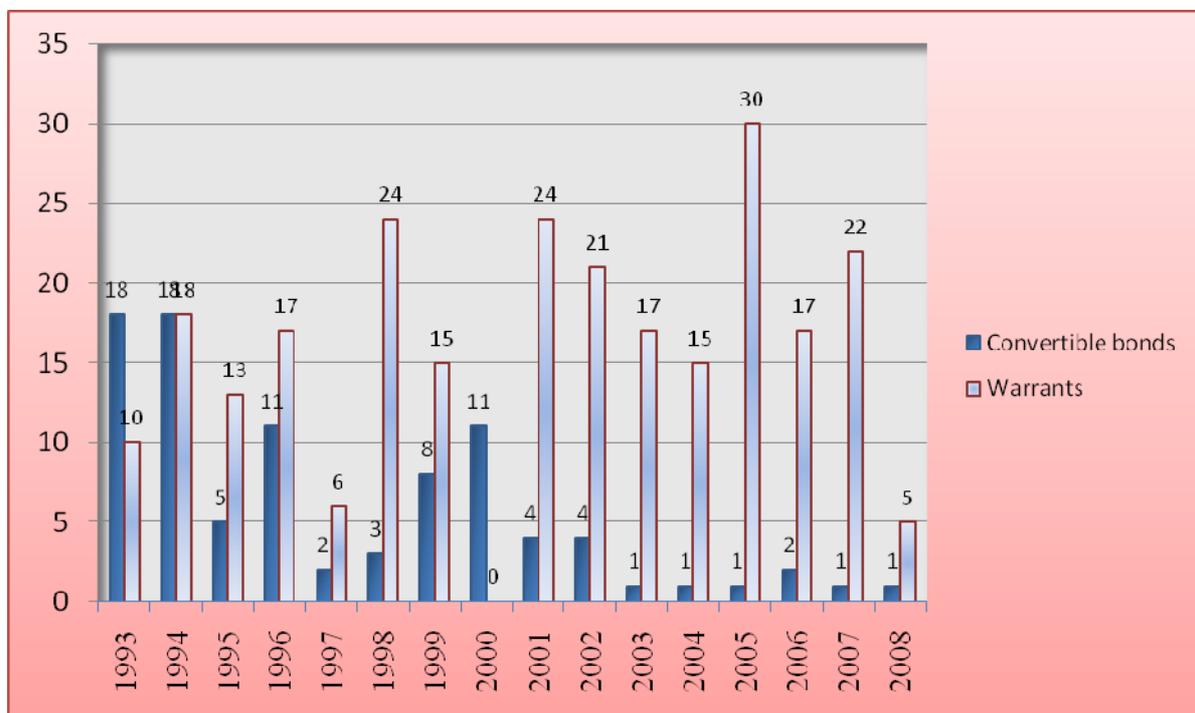


Figure 3: The summary of BBL lending interest rate during the period of 1996-2008

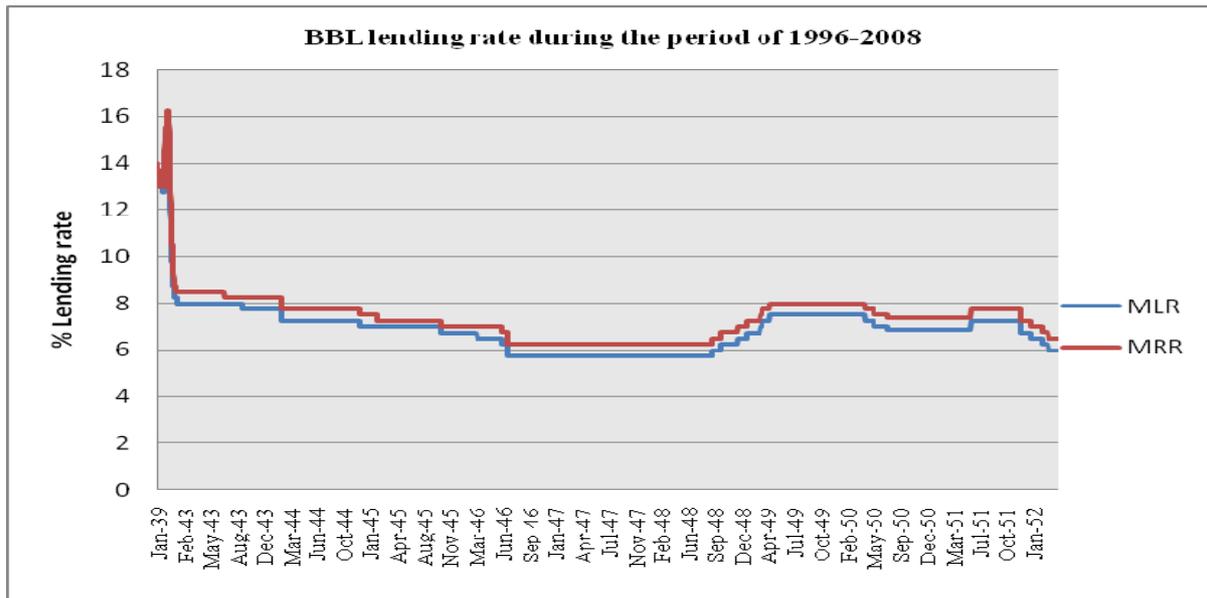


Figure 4: Period of event study

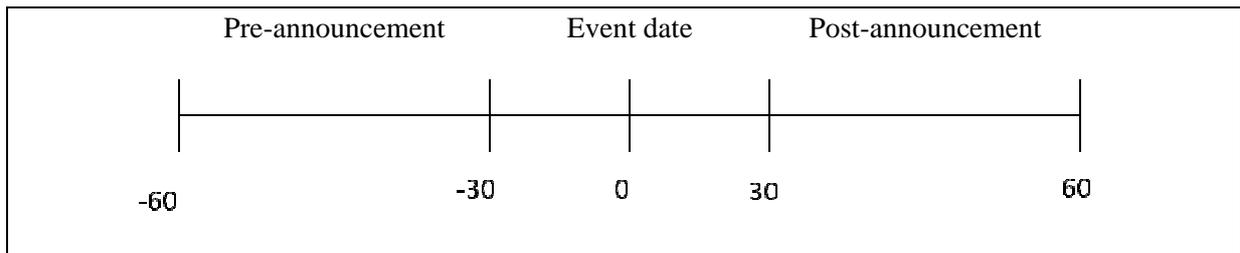


Figure 5: Average Abnormal Return of Convertible bond announcement during the period of 1999-

2008

