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CORPORATE GOVERNANCE AND IPOs SURVIVAL: EVIDENCE FROM THAILAND

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ABSTRACT

Our study adds to the literature on emerging market Initial Public Offerings (IPOs) through an exploration of the corporate governance attributes of Thai IPOs and their likelihood of survival. It examines the relationship between seven aspects of corporate governance and the probability of survival of IPOs. A sample of IPO companies listed on the Stock Exchange of Thailand 1992–2007 were tracked until 31 December 2009 to identify their status (trading or delisted). The data consisted of 166 IPOs including 20 failed and 146 non-failed IPOs. A logistic regression model identified the probability of survival of a company following the IPO. The empirical results showed that the failure or survival of IPOs in Thailand is not significantly related to corporate governance attributes, such as board size, board independence, dual leadership, ownership concentration, and company characteristics such as age and total assets.

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KEYWORDS: Corporate governance, IPOs, logistic regression, Thailand.

1. INTRODUCTION

Predictive analyses of a firm's financial distress or corporate survival has been of considerable interest to accountants and financial economists for the last three decades. Financial distress affects a firm's entire existence and results in a huge cost to the company, society and the country's economy. The ability to predict financial distress is crucial for all those involved; owners and shareholders, managers, employees, lenders, suppliers, clients, the community and the government. Interest in analyses than can predict corporate financial distress or corporate survival has grown rapidly in recent years with the global increase in the number of corporate collapses, such as the Asian financial crisis in 1997, HIH Insurance Australia in 2001, and the Enron and WorldCom collapse in the United States in 2001 and 2002, respectively.

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These collapses result in significant direct and indirect costs to stakeholders including shareholders, managers, employees, creditors, investors, stockholders, auditors, suppliers, customers and the community. For example, the collapse of HIH resulted in huge individual and social costs, as the HIH group comprised several insurance companies and was a major provider of all types of insurance in Australia (Leung and Cooper, 2003). The group deficit was estimated to be 3.6–5.3 billion dollar, 200 permanently disabled people were left with no regular income payments, retirees with superannuation in HIH shares saw their investment disappear and several non-profit organizations were liquidated as a result of the collapse (Commonwealth of Australia, 2003).

Financial distress incurs significant direct and indirect costs (Altman and Hotchkiss, 2006; Altman, 1983) and has a devastating effect. Direct costs are tangible, out of pocket expenses incurred in attempts to rescue the ailing enterprise. They include fees related to filing for bankruptcy, accountants' fees and other professional service costs such as legal fees. In addition to the economic costs resulting from corporate failure, there are social costs. Argenti (1976) point out that corporate collapse brings severe mental strain to proprietors, entrepreneurs, managers and their families. Failure ruins lives, destroys the health of its victims and can push them to the edge of suicide and beyond. Many of these costs could be avoided if it was possible to identify the factors and survival probability of the company following an Initial Public Offering (IPO).

The Asian financial crisis in 1997 highlighted the importance of good corporate governance for the long-term survival of companies. Similarly, it has been claimed that the recent economic crisis in Thailand is connected to the poor quality of corporate governance and cronyism (Alba, Claessens and Djankov, 1998; Dhnadirek and Tang, 2003; Limpaphayom and Connelly, 2004). As a result of this crisis the government shut-down about fifty-six finance firms and several banks closed; either taken over by the government or merged into larger rivals. Many of the remaining banks were forced to seek strategic foreign investment to speed their recovery. Weak corporate governance practices played a major role in these difficulties (Limpaphayom and Connelly, 2004). Similarly, Johnson *et al*. (2000) point that in countries with weak corporate governance, poor economic prospects tends to result in expropriation by managers and a greater fall in asset prices. The Bangkok Bank of Commerce is a well-documented example of expropriation by managers that worsened as the bank's financial troubles deepened.

There is a lack of corporate governance studies focusing on long-term company survival in Thailand. Rather than examining the likelihood of survival of a company, most corporate governance studies in the Thai context have focused on the issue of corporate performance. Examples include Alba, Claessens and Djankov (1998), Suehiro (2001), Wiwattanakantang (2001), Dhnadirek and Tang (2003), Sukcharoensin (2003), Connelly and Limpaphayom (2004), Kim, Kitsabunnarat and Nofsinger (2004) and Yammeesri, Lodh and Herath (2006).

To address this lack of research, we examined a sample of IPO companies, listed on the Stock Exchange of Thailand (SET) from 1992–2007. These companies were tracked until 31 December 2009 to identify their status (trading or delisted). A logistic regression model analysed the probability of survival of a company after the IPO. To the best of our knowledge, this is the first study of its kind in the Thai context. Although Kim, Kitsabunnarat and Nofsinger (2004) examined IPO companies in Thailand they focused on an exploration of managerial ownership on the company's performance. In addition, the work by Mainkamnurd (1999) and Jaikengkit (2004) examined the relationship between corporate governance variables and financial distress in the Thai context.

Our research has two innovative aspects. First, by focusing on IPO companies, we examine businesses which have characteristics that are different to those of established firms. It has been pointed that IPOs cause a dilution of stock ownership and therefore increase agency costs (Jain and Kini, 1994). The reduction in management ownership that occurs when a firm makes its transition from private to public ownership is likely to lead to the agency problem (Jensen and Meckling, 1976). Furthermore, IPOs have a crucial role in resource allocation in emerging capital markets. Thai companies are mainly owned, managed, and controlled by individuals, families and their partners. Bank loans and public stock offerings are the primary sources of capital. Therefore, firms frequently go public when they believe that they can grow faster with external financing. In addition, due to a relatively undeveloped market structure, information asymmetry between participants is much higher than in developed countries (Kim, Kitsabunnarat and Nofsinger, 2004). Consequently, corporate governance may play a more important role in the survival of emerging market firms than those of developed countries. Secondly, this study focuses on survival rather than performance, as survival is the primary goal of the firm and an unambiguous measure of performance (Chancharat, Krishnamurti and Tian, 2012).

By examining extensive corporate governance attributes as the predictor of IPO company survival in Thailand. This study will add the contribution regarding corporate survival and corporate governance literature in Thai context. Understanding the significant corporate governance factors that influence the likelihood of IPO survival may assist involved parties improving the decision making for example, IPO company administrators who may improve their policy related corporate governance attributes in order to prevent financial difficulties. Government agencies may use this research's findings to develop the related corporate governance policy for supporting IPOs. Furthermore, the researchers could conduct further researches relating IPO survival or failure prediction upon the findings of this study.

The remainder of this paper is structured as follows. The next section discusses the empirical methodology and the data collected. Then we present the empirical results of the logistic regression. Finally, we provide some concluding remarks.

2. RESEARCH DESIGN

2.1. Statistical Approach

The logistic regression model (logit) was used to calculate the probability of the failure of IPO companies based on seven corporate governance variables. Logistic regression analysis calculates the probability of a particular outcome. Compared to the multivariate discriminant analysis (MDA) corporate bankruptcy prediction models introduced by Altman (1968), the logistic model is more flexible as it makes no assumptions about the distribution of explanatory variables. In particular, in the logistic model explanatory variables do not have to be normally distributed, linearly related or have equal variance within each group (Tabachnick and Fidell, 2001).

2.2. Data and Sample

In the years 1992–2007, about 333 new firms were listed on the Stock Exchange of Thailand (Securities and Exchange Commission, 2007; Stock Exchange of Thailand, 2011). After excluding banks, finance companies and missing data, the final sample consisted of 166 IPOs. For each of these companies, we collected data from their prospectus and public information available from on-line data sources including the Capital Market Information Center of the Securities and Exchange Commission (SEC).

We used both prediction and outcome model estimates in the data analysis. To improve robustness and validate the results, the final sample of 166 firms was divided into estimation and prediction (holdout) samples. The estimation sample consisted of 111 randomly-selected companies (out of a total of 166 observations) the remaining observations formed the holdout sample (used for testing the predictive accuracy of the model). The study recorded board size, percentage of independent directors, non-executive chairpersons, dual leadership, ownership concentration and company characteristics such as age and total assets.

Table 1 is a comparison of the characteristics of delisted and surviving firms at the time of the IPO. Column 3 predicts the results of a two-tailed test of mean comparisons.

Table 1
Characteristics of Firms Making IPOs 1992–2007

	Delisted		*Surviving*		
Variable	*Mean*	*S.D.*	*Mean*	*S.D.*	*Mean difft-statistics*
Board size	11.071	2.336	10.155	2.563	1.264
Independent directors (%)	18.526	11.325	17.721	15.685	0.185
Non-executive chairperson	0.071	0.267	0.144	0.353	-0.741
Dual leadership	0.357	0.497	0.763	0.642	-2.266**
Ownership concentration (%)	93.765	10.281	93.267	18.969	0.096
Size (total assets)	45.506	68.064	9203.67	89761	-0.380
Company age	11.571	8.364	11.907	8.653	-0.136

Note: ** Statistically significant at the 5% level.

The results show that the *mean number of committee members* (an indicator of board size) was about 11.071 for delisted firms and 10.155 for surviving firms. Although the difference is around 20% it is not statistically significant at the 10% level.

The *percentage of independent directors* represents the number of independent directors as a percentage of all directors on the day of the IPO. On average, delisted firms had a higher percentage of independent directors (18.526% compared to 17.721% for surviving firms). The median was about 22%. As before, although large, this difference is not statistically significant.

Non-executive chairperson is a binary variable. The mean on the first day of IPO was 0.071 for delisted firms and about 0.144 for surviving firms. Although the difference was about 0.073, there were no statistically significant differences. However, another binary variable, *dual leadership* (an indicator of whether the chairperson listed in the prospectus is also a non-executive director) was statistically significance at the 5% level (a mean of 0.357 compared to about 0.763).

Total assets (an indicator of the size of the company) were about 45.506 million baht for delisted firms and 9,603.670 million baht for surviving firms. Although this is a difference of about 20%, again the difference was not statistically significant at the 10% level. Finally, delisted firms are not significantly older than successful companies. The *mean age* of the delisted firms was about 11.571 years, compared to 11.907 years for surviving companies.

3. EMPIRICAL RESULTS

3.1. Univariate Tests

This study implemented five corporate governance variables divided into three categories and two company-specific variables to analyse the determinants of survival or failure. Table 2 shows the results of correlation coefficients between variables. This shows that the relationships between all variables are weak. These results suggest that most of the variables employed in the study are unique.

3.2. Logistic Regression Model Estimates

The logit model assumes a nonlinear relationship between probability and explanatory variables. Therefore the change in probability for a 1-unit increase in an independent variable varies according to the starting point (Brigham and Ehrhardt, 2005). This is much easier to understand in terms of odds. The odds of an event are the ratio of the expected number of times it will occur to the expected number of times it will not occur. These ratios are shown in the last column of Table 3. Odds ratios are obtained from parameter estimates by computing e^{β}, where β is the estimated parameter (coefficient) shown in the second column of Table 3. Our interpretation of the coefficient uses these 'odds ratios' rather than the estimated coefficient. For dummy variables, the odds ratio indicates the odds that the event will occur if the

Table 2
Data Correlation Coefficients

Variable	*STATUS*	*BSIZE*	*BIND*	*NONEX*	*DUALL*	*OWNCON*	*TA*	*AGE*
STATUS	1.0000	0.1202	0.0177	-0.0708	-0.1189	0.0092	-0.0364	-0.0130
BSIZE		1.0000	-0.2397	0.0723	-0.2449	-0.2921	-0.0842	0.2049
BIND			1.0000	0.1082	0.0884	0.0742	-0.1126	-0.0286
NONEX				1.0000	-0.0898	0.1355	-0.0363	0.0710
DUALL					1.0000	0.1143	0.0934	0.1323
OWNCON						1.0000	0.0304	0.0004
TA							1.0000	-0.0658
AGE								1.0000

Notes:
STATUS: Company status (delisted or surviving)
BSIZE: The number of board directors including the chairperson
BIND: The percentage of independent directors (the ratio of non-executive directors to directors)
NONEX: Non-executive chairperson (1 if the chairperson listed in the prospectus is a non-executive director, 0 otherwise)
DUALL: Dual leadership structure (1 if the chairperson and CEO are the same person, 0 otherwise)
OWNCON: Ownership concentration (the percentage share of the top ten largest shareholders)
TA: Total assets (a measurement of company size)
AGE: Company age

dummy variable is 1, compared to if the dummy variable is not equal to 1. For quantitative variables, it is necessary to subtract 1 from the odds ratio and multiply by 100 (100 (e^{β}-1)). This figure indicates the percentage change in the odds for each 1-unit increase in the independent variable.

Table 3 shows the estimated coefficient, standard error, z-statistic and the odds ratio for each independent variable. This model shows that there are no significant variables for predicting the survival of IPOs in Thailand. The table also shows the number of observations (111) and the Akaike Info Criterion (AIC) which is relatively low and indicates a good fit. The findings and the interpretation for each variable are discussed below.

BSIZE (a representation of board size) is not significantly related to IPO survival. Using the odds ratio, a 1-unit increase in BSIZE is associated with a predicted 18.74% increase in the odds of IPO failure. This result is consistent with Yermack (1996), Parker, Peters and Turetsky (2002), Elsayed (2007) and Lamberto and Rath (2008). In their examination of Thai life insurance companies, Connelly and Limpaphayom (2004) also confirmed that board size is not significantly related to performance.

BIND (board independence) is positively associated with the probability of IPO failure. A 1-unit increase in BIND is associated with a 277.46% increase in predicted odds of IPO failure. This result is consistent with Hermalin and Weisbach (1991), Yermack (1996) and Klein (1998) who found a negative relationship between the proportion of external directors and corporate performance.

Table 3
Logistic Regression Model Estimates

Variable	*Coefficient*	*Standard Error*	*z-statistic*	*Odds Ratio*
C	-4.6768	2.5569	-1.8291	-
BSIZE	0.1718	0.1320	1.3014	1.1874
BIND	1.3283	2.1279	0.6243	3.7746
NONEX	-0.8589	1.1386	-0.7544	0.4236
DUALL	-0.5596	0.6664	-0.8397	0.5714
OWNCON	0.0129	0.0179	0.7198	1.0130
TA	-0.0006	0.0017	-0.3792	0.9994
AGE	-0.0116	0.0381	-0.3035	0.9885

Notes:
Number of observations = 111 including 97 non-failed IPOs and 14 failed IPOs.
Akaike Info Criterion (AIC) = 0.8604.
BSIZE: The number of board directors including the chairperson
BIND: The percentage of independent directors (the ratio of non-executive directors to directors)
NONEX: Non-executive chairman (1 if the chairperson listed in the prospectus is a non-executive director, 0 otherwise)
DUALL: Dual leadership structure (1 if the chairperson and CEO are the same person, 0 otherwise)
OWNCON: Ownership concentration (the percentage share of the top ten largest shareholders)
TA: Total assets (a measurement of company size)
AGE: Company age.

NONEX (non-executive chairperson) is negatively related to the probability of IPO failure. The result shows that a 1-unit increase in NONEX is associated with a 57.64% decrease in predicted odds of IPO failure. This result is consistent with Weir and Laing (2001). It suggests that a company with an independent chairperson is more likely to pursue the interests of shareholders and provide effective management (Weir and Laing, 2001). This result implies that a non-executive chairperson enhances corporate performance and the likelihood of survival.

DUALL (the chairperson and the CEO are the same person) is negatively related to the probability of IPO failure. A 1-unit increase in DUALL is associated with a 42.86% decrease in predicted odds of IPO failure. This result is consistent with the findings of Chaganti *et al*. (1985) and Elsayed (2007) who additionally found that CEO duality had no impact on corporate governance.

OWNCON (agency theory concerns) is positively related to the probability of IPO failure. A 1-unit increase in OWNCON is associated with a 1.30% increase in predicted odds of IPO failure. This result is inconsistent with some studies which have suggested that a higher concentration of company ownership is associated with higher profitability and productivity (e.g. Claessens and Djankov, 1999; Bai *et al*., 2004). However, our insignificant result is consistent with Demsetz and Lehn (1985) who found that corporate ownership concentration is not related to company profits. Moreover, Demsetz and Lehn (1985) and Hovey, Li and Naughton (2003) found that concentration of ownership does not explain company performance.

A 1-unit increase TA (total assets) is associated with a 0.06% decrease in predicted odds of IPO failure. This result is consistent with our expectations and the findings of Goktan *et al*. (2006).

Finally, AGE (company age) is negatively associated with the probability of IPO failure and a 1-unit increase in SIZE (company size) is associated with a 1.15% decrease in predicted odds of failure. This result with the findings of Jovanovic (1982), Chen and Lee (1993), Lensberg, Eilifsen and McKee (2006), Rommer (2004), Li, Zhang and Zhou (2005), Rommer (2005) and Hensher, Jones and Greene (2007) who all discuss the importance of the age of company as an explanatory factor for financial failure.

Therefore, the estimated logistic model in this study is as follow:

$$P_i = \frac{1}{1 + e^{-(-4.678 + 0.1718\text{BSIZE} + 1.3283\text{BIND} - 0.8589\text{NONEX} - 0.5596\text{DUALL} + 0.0129\text{OWNCON} - 0.0006\text{TA} - 0.0116\text{AGE})}}$$

Where:

P_i is the probability of IPO failure, e is an exponential constant (approximately equal to 2.71828). BSIZE is the board size, BIND is the percentage of independent directors, NONEX (a binary variable) indicates an independent or non-executive chairperson, DUALL (another binary variable) indicates dual leadership, OWNCON is the percentage of ownership concentration, TA is total assets and AGE is the company age.

3.3 Predictive Accuracy

The previous section presented and discussed the logistic regression model. The model is estimated by computing the maximum likelihood of the coefficients. The procedure assumes the applicability of a logistic curve. Logistic regression enables a classification to be made of IPOs as failed or non-failed according to probability estimates. IPOs with a probability estimate above a selected cut-off point are classified as failed while others are classified as non-failed. The cut-off point must be selected to minimize misclassifications. In this study, we selected 0.5 as the cut-off point. Pasiouras and Tanna (2010) discuss how variations in the cut-off point changes the classification accuracy of the model because of the trade-off between type I and type II errors. Therefore, unless there are good prior reasons for selecting a particular cut-off point, differences in classification rules will lead to arbitrary differences in the performance ranking of models. The issue of how to select an optimal cut-off point is discussed in detail in Pasiouras and Tanna (2010).

Using the estimated logistic regression model discussed in the previous section, the classification accuracy of the model is shown in Table 4. This shows that the model correctly classified 97 out of the 111 IPOs (87.39% of the sample). In addition, type I and type II errors were 0 and 12.61%, respectively. In this study, a type I error occurs when a non-failed IPO is classified as failed, whereas a type II error occurs when a

failed IPO is classified as non-failed. To confirm the predictive accuracy of the model, we used the estimated logistic regression model to predict the status of the holdout sample and formulate the classification accuracy table shown in Table 4.

Table 4
Classification Accuracy of Logistic Regression Model

Training Sample			
	Predicted		
Actual	*Failed*	*Non-failed*	*Total*
Failed	0	14	14
Non-failed	0	97	97
Total	0	111	111
Holdout Sample			
	Predicted		
Actual	*Failed*	*Non-failed*	*Total*
Failed	0	6	6
Non-failed	0	49	49
Total	0	55	55

Table 4 shows the predicted classifications based on a cut-off point of 0.5. Based on the holdout sample (consisting of 6 failed IPOs and 49 non-failed IPOs) the model correctly classified 49 out of 55 IPOs (89.09% of the sample), and type I and type II errors were 0 and 10.91%, respectively. Therefore, we conclude that the estimated logistic model is able to accurately predict failed and non-failed IPOs.

4. CONCLUSION

This research examines the probability of failure or survival of IPOs in Thailand using a logistic regression model. The development of such models is of practical value for both practitioners and policy makers. A sample of IPO companies listed on the Stock Exchange of Thailand from 1992–2007 were tracked until 31 December 2009 to identify the status of the company. All data was obtained from the Capital Market Information Center of the Securities and Exchange Commission. A logistic regression model identified the probability of survival of a company after the IPO.

We found that the failure or survival of IPO firms in Thailand was not affected by board size, board independence, dual leadership, concentration of ownership or company characteristics such as age and total assets. The accuracy of the estimated logistic regression model in classifying companies was verified by a holdout sample. Based on the training sample, we found that the model achieved an 87.39% correct classification while type I and type II errors were 0 and 12.61%, respectively. The predictive accuracy using the holdout sample showed that the model made correct predictions in 89.09% of cases, while type I and type II errors were 0 and 10.91%, respectively.

A future improvement would be to use a larger dataset to confirm the results of this study. A second improvement would be to add more explanatory variables, particularly qualitative information. Finally, improvements could be made to the methodology e.g. a survival analysis or Artificial Neural Networks.

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