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หลักฐานเชิงประจักษ์จากตลาดหลักทรัพย์แห่งประเทศไทย

นายสมศักดิ์ ประถมศรีเมฆ

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FACTORS LEADING TO THE SUCCESS IN THE REHABILITATION PROCESS: AN EMPIRICAL EVIDENCE FROM THE STOCK EXCHANGE OF THAILAND

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สมศักดิ์ ประถมศรีเมฆ : ปัจจัยที่นำไปสู่ความสำเร็จในการฟื้นฟูกิจการ หลักฐานเชิงประจักษ์จากตลาดหลักทรัพย์แห่งประเทศไทย. (FACTORS LEADING TO THE SUCCESS IN THE REHABILITATION PROCESS: AN EMPIRICAL EVIDENCE FROM THE STOCK EXCHANGE OF THAILAND) อ. ที่ปรึกษา : อ.ดร.พงศ์พรต ฉัตราภรณ์, อ.ที่ปรึกษาร่วม : รศ.ดร.สุพล ดุรงค์วัฒนา 162 หน้า. ISBN 974-53-2755-7.

การศึกษาครั้งนี้แสดงหลักฐานเชิงประจักษ์เกี่ยวกับปัจจัยที่นำไปสู่ความสำเร็จ ของการฟื้นฟูกิจการของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยที่เคยหรือกำลังประสบปัญหาทางการเงินอย่างรุนแรง จนต้องเข้าสู่กระบวนการฟื้นฟูการดำเนินงานที่กำหนดขึ้นโดยตลาดหลักทรัพย์แห่งประเทศไทยเพื่อหลีกเลี่ยงมิให้ถูกเพิกถอนหลักทรัพย์ของตนออกจากตลาดหลักทรัพย์ฯ กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้ประกอบด้วยกิจการจดทะเบียนที่อยู่ระหว่างฟื้นฟูการดำเนินงาน 68 แห่งที่แบ่งออกเป็นกิจการที่ประสบความสำเร็จในการฟื้นฟูจำนวน 48 แห่ง และกิจการที่ล้มเหลวจำนวน 20 แห่ง โดยปัจจัยที่อยู่ในความสนใจของการศึกษาครั้งนี้สืบเนื่องจากแนวคิดและทฤษฎีที่สำคัญสามประการคือ แนวคิดเกี่ยวกับมูลค่าปัจจุบันของกระแสเงินสดอิสระ (Discounted Free Cash Flow) ทฤษฎีตัวแทน (Agency Theory) และทฤษฎีการบัญชีแบบโพสิทีฟ (Positive Accounting Theory) โดยมีปัจจัยที่ประกอบด้วยปัจจัยที่สร้างมูลค่าเพิ่มแก่กิจการ (Value Creation Factors) การปรับปรุงบรรษัทภิบาลที่ดี (Good Corporate Governance) และการตกแต่งกำไร (Earnings Management) จากการใช้เทคนิคการวิเคราะห์ความถดถอยแบบไบนารีโลจิสติก (Binary Logistic Regression) ผลจากการศึกษาครั้งนี้ พบว่ากิจการที่ประสบความสำเร็จในการฟื้นฟูกิจการนั้น มีคุณลักษณะที่ดีซึ่งบ่งบอกถึงความสามารถในการฟื้นตัว (good recovery prospects) อันประกอบไปด้วยความเจริญเติบโตของยอดขาย และความสำเร็จในการปรับปรุงโครงสร้างหนี้ที่มีปัญหา มีการเปิดเผยข้อมูลขององค์กรที่โปร่งใสมากขึ้น ตลอดจนมีระดับของรายการคงค้างที่เกิดจากความตั้งใจ (discretionary accruals) เพิ่มขึ้นอย่างมีนัยสำคัญอันนำไปสู่ผลกำไรที่เป็นบวก เพื่อวัตถุประสงค์ในการดึงดูดเงินทุนจากภายนอกและเพื่อให้เป็นไปตามเงื่อนไขของการฟื้นฟูกิจการที่กำหนดขึ้นโดยตลาดหลักทรัพย์แห่งประเทศไทย

ภาควิชา...การบัญชี.....	ลายมือชื่อนิสิต.....
สาขาวิชา...การบัญชี.....	ลายมือชื่ออาจารย์ที่ปรึกษา.....
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KEY WORD: CORPORATE RESTRUCTURING / COMPANIES UNDER REHABILITATION / MARKET VALUE ADDED / CORPORATE GOVERNANCE / EARNINGS MANAGEMENT

SOMSAK PRATOMSRIMEK: FACTORS LEADING TO THE SUCCESS IN THE REHABILITATION PROCESS: AN EMPIRICAL EVIDENCE FROM THE STOCK EXCHANGE OF THAILAND. THESIS ADVISOR: PONGPROT CHATRAPHORN, Ph.D. ASSOC. PROF. SUPOL DURONGWATANA, Ph.D. 162 pp. ISBN 974-53-2755-7.

This study provides some empirical evidence about factors leading to the success in the rehabilitation process that REHABCO firms—severe financially distressed listed firms in Thailand—must accomplish to avoid the delisting status established by the Stock Exchange of Thailand (SET). The sample in this study consisted of 68 REHABCO firms that were classified as 48 successfully rehabilitated firms and 20 unsuccessful ones. Based on the relevant concept and theories—the Discounted Free Cash Flow, the Agency Theory, and the Positive Accounting Theory—the factors of interest in this study consisted of the Value Creation Factors, the Good Corporate Governance Improvement Factors, and the Earnings Management Factor. After using the binary logistic regression as the statistical analysis technique, this study found that the Successful REHABCO firms possessed some good recovery prospects—the Sales growth, and the Success in the troubled debt restructuring, disclosed their corporate information more transparently, and significantly increased the level of Discretionary accruals that led to the positive amount of net income, in order to attract the external funds providers and to meet the SET's rehabilitation criteria.

Department of Accountancy.....Student's signature.....

Field of study...Accountancy.....Advisor's signature.....

Academic year 2005..... Co-advisor's signature.....

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TABLE OF CONTENTS

ABSTRACT (IN THAI) IV

ABSTRACT (IN ENGLISH) V

ACKNOWLEDGEMENTS VI

TABLE OF CONTENTS VII

LIST OF TABLES XI

LIST OF FIGURES XII

CHAPTER I INTRODUCTION 1

1.1 MOTIVATION OF THE RESEARCH 1

1.2 RESEARCH OBJECTIVES 2

1.3 THE SCOPE OF THE STUDY 3

1.4 CONTRIBUTIONS 4

1.5 RESEARCH STRUCTURE 4

CHAPTER II THE CORPORATE REHABILITATION CONCEPTS AND THE STOCK EXCHANGE OF THAILAND REGULATIONS 6

2.1 THE CORPORATE REHABILITATION CONCEPTS 6

2.2 THE TROUBLE DEBT RESTRUCTURING CONCEPTS 7

2.3 CORPORATE RESTRUCTURING PROCESS 8

2.4 INFORMAL DEBT RESTRUCTURING 8

2.5 FORMAL REORGANIZATION 11

2.5.1 The Automatic Stay Provision 12

2.5.2 Financial supports 13

2.5.3 The right to elect the restructuring planner 13

2.6 THE SET'S DELISTING REGULATIONS 16

2.7 THE SET'S CORPORATE REHABILITATION REQUIREMENTS 18

CHAPTER III LITERATURE REVIEW AND DEVELOPMENT OF RESEARCH HYPOTHESES 24

3.1 INTRODUCTION 24

3.2 THEORETICAL CONCEPTS 24

3.2.1 Corporate Valuation 24

3.2.2 Agency Theory 27

3.2.3 Positive Accounting Theory 30

3.3 PRIOR RESEARCH 31

3.3.1 Corporate restructuring 31

3.3.1.1 Debt restructuring 31

3.3.1.2 Corporate reorganization 32

3.3.1.2.1 Corporate downsizing and expansion 32

3.3.1.2.2 Post reorganized capital structure 34

3.3.2 Value creation means 34

3.3.2.1 Market share 34

3.3.2.2 Growth opportunities 34

3.3.2.3 Cost of capital 35

3.3.2.4 Operating profitability 36

3.3.2.5 Capital availability 37

3.3.3 The improvement in the Good Corporate Governance 37

3.3.3.1 The definition of Corporate Governance 38

3.3.3.2 The role of the good governance to protect the investors' right 41

3.3.3.3 The relationship between the Corporate Governance factors and stock price 42

3.3.3.4 The relationship between Good Corporate Governance and operating results 43

3.3.3.5 The equitable treatment of shareholders 45

3.3.3.6 The Influence of the institutional investors 47

3.3.3.7 The founding family as the ultimate ownership 48

3.3.4 Earnings management 49

3.3.4.1 Research design in the earnings management 49

3.4 DEVELOPMENT OF RESEARCH HYPOTHESES 51

3.4.1 Value Creation Factors 51

3.4.1.1 Market Share 51

3.4.1.2 Growth Opportunities....52
3.4.1.3 Effective Cost of Debt....52
3.4.1.4 Operating Performance....53
3.4.1.5 Capital Availability....54
3.4.2 Corporate Governance Improvement....55
3.4.2.1 Transparency and disclosure....55
3.4.2.2 CEO Duality....55
3.4.2.3 Percentage of outsiders on board and their independence....56
3.4.2.4 Founding Family....57
3.4.3 Earnings Management....58
CHAPTER IV RESEARCH DESIGN....60
4.1 INTRODUCTION....60
4.2 SAMPLE SELECTION....60
4.3 DATA SOURCES....64
4.4 VARIABLE MEASUREMENT....64
4.4.1 Value Creation Factors....65
4.4.1.1 Market Share Improvement....65
4.4.1.2 Growth Opportunities....67
4.4.1.3 Success in the Corporate Debt Restructuring....68
4.4.1.4 Operating Performance....70
4.4.1.5 Capital Availability....71
4.4.2 Corporate Governance Improvement....72
4.4.2.1 Transparency and disclosure....72
4.4.2.2 CEO non-duality....73
4.4.2.3 Percentage of outsiders on the board....74
4.4.2.4 Percentage of independent directors on board....74
4.4.2.5 Founding Family....75
4.4.3 Earnings Management....76
4.4.3.1 Discretionary accruals....76
4.5 MODEL SPECIFICATIONS....78
4.6 CUTOFF SCORE DETERMINATION....81
4.7 HYPOTHESES AND TESTS OF SIGNIFICANCE....82

Independent Variable *84*

CHAPTER V EMPIRICAL RESULTS 87

5.1 DESCRIPTIVE STATISTICS 87

5.1.1 Profile of the Companies Under Rehabilitation Process (REHABCO firms) *87*

5.1.2 Pre-rehabilitation characteristics *88*

5.1.3 Post-rehabilitation characteristics *89*

5.1.4 Match-paired comparisons of the Pre- and Post-rehabilitation characteristics *92*

5.2 UNIVARIATE TEST AND SPEARMAN CORRELATIONS 94

5.3 SPEARMAN CORRELATION 96

5.4 LOGISTIC REGRESSION ANALYSIS AND CLASSIFICATION ACCURACY 97

5.5 ASSESSMENT OF THE REGRESSION MODELS 97

5.5.1 The Full Model *98*

5.5.2 The Reduced Model *98*

5.6 ASSESSING THE SIGNIFICANCE OF THE VARIABLES TO THE BEST FIT LOGISTIC REGRESSION MODEL 99

5.6.1 WALD Statistic *99*

5.6.2 The Coefficient Sign (+,-) *100*

5.6.3 Estimated Odds Ratio *100*

5.7 HYPOTHESES TESTING 101

5.7.1 Value Creation Hypotheses *101*

5.7.2 Corporate Governance Improvement Hypotheses *104*

5.7.3 Earnings Management Hypothesis *107*

5.8 ADDITIONAL TEST 108

5.9 CONCLUSION 108

CHAPTER VI CONCLUSIONS 132

6.1 OVERVIEW OF THE STUDY 132

6.2 DISCUSSION AND INTERPRETATION OF THE RESULTS 133

6.2.1 The Variables *133*

6.2.1.1 Value Creation Factors 133

6.2.1.2 Good Corporate Governance improvements 134

6.2.1.3 Earnings management 135

6.2.1.4 Conclusion of the findings 135

6.3 LIMITATIONS 135

6.4 SUGGESTIONS FOR THE FUTURE RESEARCH 137

REFERENCES 139

APPENDICE 154

APPENDIX A 155

APPENDIX B 159

APPENDIX C 161

VITA 162

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

LIST OF TABLES

TABLE 1	Statistics of the Companies Under Delisting Jeopardy	62
TABLE 2	List of Definition of the Variables	84
TABLE 3	Detail of the Companies Under Rehabilitation (REHABCO)	110
TABLE 4	Comparison of the Success in Rehabilitation Process Firms to the Failure in Rehabilitation Process Firms	112
TABLE 5	Match-Paired Comparison of the REHABCO Firms Between the Period of the Inception and the End of the Rehabilitation Process	126
TABLE 6	Test of Difference for the Factors of Interest Between the Sample Groups	118
TABLE 7	Correlations Coefficient Among the Variables Based on the Whole Sample	120
TABLE 8	Results of Logistic Regression Analysis	122
TABLE 9	Prediction Results	124
TABLE 10	Additional Results of Logistic Regression Analysis	126
TABLE 11	Prediction Results of the Additional Test	128
TABLE 12	Summary Results of Hypothesis Testing	130
TABLE A1	Sample Firms from the Stock Exchange of Thailand	155
TABLE B1	Test for Normality of the Pre- and the Post-rehabilitation Characteristics of the REHABCO Firms	159

TABLE C1 Prediction Results of the Reduced Model: The leaves-One-Out Cross Validation Procedure 161

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

LIST OF FIGURES

FIGURE 1 Payoff for the two Creditors Under the Common Pool Problem 10

FIGURE 2 Factors Leading to the Success in the Rehabilitation Process 59

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

CHAPTER I
INTRODUCTION

1.1 Motivation of the Research

The financial crisis originating in Thailand in 1997 was one of the major causes of the severe operation problems faced by many Thai corporations. A substantial portion of Thai firms either went bankrupt or could not stay in their business and finally ceased businesses. After the crisis, there were major efforts from various parties, both private and public sectors, trying to analyze the crisis and finding the way to protect the country from the crisis. The Bank of Thailand (BOT), for example, issued the practical guidelines and regulations and established the Corporate Debt Restructuring Advisory Committee (CDRAC) to speed up the troubled debt restructuring process of Thai firms. The committee was supported by various regulators. For example, the Revenue Department offered tax incentives for the parties entering the debt restructuring process. The Stock Exchange of Thailand (SET) and the Securities Exchange Commission (SEC) also established the Good Corporate Governance rules and guidelines for all listed firms to improve quality of the listed firms and the market's reputation as a whole. These efforts and the economic recovery since early 1999 made a number of financially distressed firms able to successfully rehabilitate and then survive in their business again (Jaratianranat, 2000).

Although there are several studies of corporate restructuring in well-established capital markets such as the United States of America and the United Kingdom, these results might not be properly applicable and generalizable for the Thai capital market, which is classified as the less developed small emerging capital market (Park and Van Agtmael, 1993; Johnson et al., 2000). The up-and-down of the Thai economy since 1997 beginning with the financial crisis and then the recovery, created the unique research opportunity to investigate two critical questions:

1. How did Thai firms escape their severely financial position and operating performance to avoid delisting from the Stock Exchange of Thailand?

2. Which factors are useful for the rehabilitation process?

A major motivation of this study came from the policies established by the SET to give a chance for the severe financially distressed firms which are the firms with negative shareholders' equity, to choose either entering the corporate rehabilitation process or delisting their securities from the stock market voluntarily. If the firms chose to join the rehabilitation process, the SET would transfer these firms' securities from a regular business sector to the "Companies Under Rehabilitation (REHABCO)" title and suspend trading activities of securities until the firms showed some significant progress in rehabilitating their financial position and operating performance.

There are many undesirable consequences due to the delisting from securities market such as a loss of their reputations in the view of investor community, suppliers, customers, and other stakeholder groups. The delisted firms also lost the accessibility to the capital market, which is considered as the most stable and the largest source of long-term capital. These firms would, therefore, have a strong motivation to successfully rehabilitate their businesses to escape from the delisting status. From 1996 to 2005, a hundred of non-financial institutions were classified into the REHABCO sector. The nine-year period until 2005 has been long enough to observe how the firms could successfully rehabilitate to avoid the delisting threat, which is the major point of this study.

1.2 Research Objectives

The goal of this study is to examine the factors beneficial to the rehabilitation process of the severe financially distressed Thai firms. The outcome of this study would increase knowledge and understanding of the rehabilitation process of the Thai Capital Market. Three objectives of this study to achieve this end are as follows:

1. To investigate the contributions of the Value Creation Factors and the Corporate Governance improvements to the success in the corporate rehabilitation process.

2. To examine whether the severe financially distressed firms manipulated their earnings to meet the SETs' rehabilitation requirements.

3. To assess the successful rehabilitation prediction model incorporating value creation, the Corporate Governance, and the earnings management variables.

1.3 The Scope of the Study

As previously discussed, this study aimed at investigating the methods and the factors leading to the success of the rehabilitation process. The definitions of the "success" in the rehabilitation process of the REHABCO firms were established by the SET as follows: 1) the securities of the REHABCO firms were allowed to trade again,[1] and 2) the securities of the REHABCO firms were reinstated to their regular business sector.[2] The aforementioned successes are quite difficult to achieve by non-financial institution REHABCO firms because they must show a substantial improvement in the financial position, the operating performance, the operating cash flow, and the proper progress in debt restructuring to convince the SET that they could successfully stay in their businesses.

This study focused on the period from 1996 to 2005. The 1996 period was the first year the SET established the rehabilitation requirements to force the severe financially distressed firms to enter the rehabilitation process. The variables used in this study mainly consisted of the firm's financial information and the Corporate Governance information such as the ownership structure of the firm, the composition of the board of directors, the level of transparency and disclosure of the necessary information provided by the firms. All non-financial institutions REHABCO firms are considered as the initial

---

[1] A REHABCO firm being able to restructure at least 50% of its total debt, having the resolution of the rehabilitation plan passed by its shareholders, or having the rehabilitation plan approved by the Bankruptcy Court will be allowed to trade its securities under the REHABCO sector (SET 2000).

[2] A REHABCO firm being able to show a positive amount of stockholders equities, net profit, and cash flow from operations, and being able to restructure at least 75% of its total debt, will be allowed to transfer its securities back to a regular business sector.

sample of this study. The financial institutions (Commercial banks, insurance companies, financial companies) are excluded from this study because these firms operated under strict regulations by regulators such as the Bank of Thailand and the Department of Insurance. Including these firms in this study would lead to a false conclusion.

1.4 Contributions

This empirical study provided both theoretical contributions and practical contributions to the Thai capital market. For the theoretical point of view, there are a few studies about the corporate restructuring in Thailand;[3] this study would add an additional body of knowledge to the Thai capital market and points to the new avenues for the research about corporate restructuring discipline. Moreover, due to the unique characteristics of the Thai social and economic conditions and the SET enforcement, the previous studies conducted in well-developed capital markets might not properly explain this unique phenomenon in Thailand. For the practical point of view, the mentioned body of knowledge would benefit the capital market investors to select the good prosperous securities instead of the low quality ones, which would also indirectly benefit the financial resource allocation process of the Thai capital market. The results also benefited the policy-makers by giving some guidelines for the success of the rehabilitation process.

1.5 Research Structure

[3] See for the examples of Wongwibhanont et al. (2002) who investigated the economic roles of the Bankruptcy Acts and the Bankruptcy Court, and the Applied Economic Research Institute (2003) who assessed the efficiency and the effectiveness of the corporate debt restructuring process in Thailand.

Chapter two presents the corporate rehabilitation concepts and the Stock Exchange of Thailand regulations. Chapter three, a literature review and the development of research hypotheses are discussed. Chapter four, research design provides the details about the sample selection, models for hypotheses testing and data analyses. Chapter five presents the empirical results. Finally, chapter six concludes the research results.

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CHAPTER II
THE CORPORATE REHABILITATION CONCEPTS AND THE STOCK EXCHANGE OF THAILAND REGULATIONS

2.1 The Corporate Rehabilitation Concepts

While profit is one of the most important factors driving the growth of business, firms also faced with a number of risky factors that might bring into financial distress. Financial distress could be defined as a situation that firms are unable to meet their financial obligations or when cash flow projections indicate that they will soon be unable to do so (Brigham and Ehrhardt, 2002).

According to Dun and Bradstreet Inc. (Cited by Brigham and Ehrhardt, 2002: 942), the major causes of business failure consist of economic factors, financial factors, and mismanagement. On the other hand, the Applied Economics Research Institute (2003) reported that the exchange rate depreciation in 1997 caused the amount of firms' debt to dramatically increase. In addition, a firm's mismanagement included an over-investment or an investment in the unrelated business to their core business, and a mismatch of their fund. Consequently, these factors led the firms into the high debt level because the Debt to Equity ratio of the Thai firms in the period of 1988-1996 was average 2.01x, which was doubled when compared to the U.S. firms in the same period (Claessens, Djankov, and Xu, 2000). Coupled with demand shrinking, measured by the change in the GDP level,[4] many Thai firms faced with the severely financial difficulties and could not viably stay.

When firms experienced financial distress, their alternatives depend on whether the going concern value exceeded the liquidation value or not (Haugen and Senbet, 1978). Their management must try to solve the problem either informally or formally under the direction of the Bankruptcy Court. Management of the firms might choose either to liquidate assets and distribute the amount received to the firms' claimholders, or to rehabilitate their operations if the financial difficulties the firms are

---

[4] In the period of 1997 and 1998, the level of the GDP growth of Thailand was -1.37% and -10.51%, respectively.

facing appeared to be temporary and more valuable to continue their operations than being liquidated.

It appeared that rehabilitation usually better than liquidation. Alderson and Betger (1995) found that 80% of 89 firms that were reorganized under the Chapter XI of the U.S. Bankruptcy Act created more wealth by continuation than liquidation. A study in Thailand also found the similar result because the rehabilitation firms could repay 49% of their total debt amount while the liquidation firms could repay only 17% (Wongvibhanont et al., 2002).

To cope with the recent financial crisis, the Thai Bankruptcy Act was largely amended in 1998 by shifting its focus from punishing default debtors to give a chance for firms that are worth more as ongoing concerns than being liquidated.

The debt restructuring is one of the most crucial attempts in the rehabilitation process that firms must put their efforts. The main purposes of debt restructuring are to reduce the existing debt to a manageable level by the expected firms' future cash flow, and to be able to viably stay in their businesses. Therefore, the success in debt restructuring is one of the necessary requirements that the SET used to consider which firms should be reinstated to their original business sectors (the Stock Exchange of Thailand, 1999c, 2000, 2003a). The following sections discuss the concepts, the ways, and the studies related to debt restructuring.

2.2 The Trouble Debt Restructuring Concepts

The Troubled Debt Restructuring process occurs when creditor granted a concession to the debtor that it would not otherwise consider (Statement of Financial Accounting Standards No. 15, 4). Firms could restructure their debts by transferring assets, swapping debts with shareholders' equity, or modifying debt contracts. The modified debt contracts could either be categorized as an extension or composition. The extension means an expansion of the due date of interest and principal payments by creditors, while the composition means a reduction of claims by creditors. The

survey result conducted by the Bank of Thailand (2001) from the period 1999 to 2001 showed that the extension was the most favorable method that the Thai financial institutions chose.[5] Approximately 40% of debt was extended while just only 6% of debt was found composed.

2.3 Corporate Restructuring Process

The corporate restructuring process could be categorized as the formal restructuring under the direction of the Bankruptcy Court and the informal restructuring that commonly called "workouts," which is the voluntary negotiation process between the debtors and the creditors. The workouts process could be more frequently arranged and conducted by a moderator. In Thailand, after the recent financial crisis, the most influential moderator is the Corporate Debt Restructuring Advisory Committee (CDRAC) established in 1998 by the Joint Public-Private Consultative Committee (JPPCC), a co-operation from various private and public institutions, and led by the Bank of Thailand.[6] The CDRAC is responsible for mapping out the debt restructuring measures in support of efficient negotiations in corporate debt restructuring between the debtor and financial creditors. At the same time, the BOT established the Corporate Debt Restructuring Group (CDRG) to coordinate and facilitate the informal debt restructuring between related parties and to operate in accordance with the resolutions of CDRAC (the Bank of Thailand, 2001), while the formal reorganization in the direction of the 1998 amendment of the Thai Bankruptcy Act was aimed at avoiding having firms that are worth more as ongoing concerns put out of business by individual creditors who could force liquidation without regard to the effects on other parties.

2.4 Informal Debt Restructuring

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[5] The results of the survey are consistent with the Bangkok framework (2000)-the framework for the corporate debt restructuring in Thailand, which specified that debt forgiveness should be the last resort the creditors chose.

[6] The Governor of the Bank of Thailand is the Chairman of CDRAC, while its members are represented by the chairpersons from both the creditor and debtor associations, namely the Thai Bankers Association, the Foreign Banks Association, the Association of Finance Companies, the Federation of Thai Industries, and the Board of Trade of Thailand.

The goal of the informal debt restructuring is to achieve a permanent resolution of the core business problem that required the participation of the key affected parties in a legally binding agreement. Gilson (1990) defined the informal restructuring as an exchange of financial claims that a firm made to avoid defaulting on its debt or filing for the bankruptcy. The informal restructuring intended to be effectuated out-of-court, avoid the cost, uncertainties, and delays of the adversarial process (Dinapoli et al., 1999).

There are various favorable features of the informal reorganization. First, due to the shorter time duration, simplicity, and minimized legal and administrative expenses, the informal procedure is less expensive (Gilson et al., 1990). The creditors thus generally received the largest return. Second, the debtor firms could maintain their reputations because the informal reorganization is always kept confidentially between the debtor firms and the financial institutions. Finally, the debtors' managements could also keep their jobs because the debtors usually controlled the business during reorganization (Applied Economic Research Institute, 2003). According to these reasons, the informal restructuring is more attractive to management, shareholders, and creditors.

After the financial crisis in 1997, there were various attempts from both public and private sectors to restructure corporate debts. In addition to the establishment of the Corporate Debt Restructuring Group (CDRG) to coordinate and to facilitate the debt restructuring process, various regulators granted incentives attracting creditors and debtors to voluntarily restructure their debts. For example, the Revenue Department offered tax incentives for the parties entering the debt restructuring process, the Department of Land reduced the real estate transferring fee, etc. The aforementioned co-ordinations made the restructuring results satisfying because 76% of the debt amount entering the CDRG campaign or 1.3 trillion Baht was successfully restructured (the Bank of Thailand, 2002).

However, the informal restructuring might bring two major drawbacks, that are the common pool problem—the situation that the financially distressed firm's individual creditors tried to enforce the debtor firm to pay their claims in full amount while the debtor firm is unable to do so, and the hold out problem—the situation that some creditors, especially the ones who did not participate in the debt restructuring process, still held their existing debt to seek full payments.

The following example of Pairote et al. (2002) showed the common pool problem. A firm facing financial difficulties has the liquidation value equaling $5 million and the going concern value equaling $7 million. Assume that it has two non-collateralized creditors: UC1 and UC2 who lent the firm $5 million and $4 million, respectively. Any creditors could maximize their benefit by enforcing the firm to pay their claim. If the UC1 enforced the firm while the UC2 not, the UC1 will receive the full amount of his claim or $5 million. Conversely, if the UC2 enforced the firm while the UC1 did not enforce, the UC2 will receive the full amount or $4 million. As both creditors have incentive to enforce the firm, if they both enforced the firm, they will receive $3 million and $2 million, respectively, which is the sum of the firm's liquidation value. Now suppose both creditors give a chance of the rehabilitation to the firm, they will receive $3.9 million and $3.1 million, respectively, which is the sum of the firm's going concern value. This situation resembled the Prisoners' Dilemma (Axelrod, 1984) derived from the famous Game Theory (Neumann and Morgenstern, 1944). As both parties failed to co-ordinate, they received only the liquidation value, which is considered as the fewest amounts they would receive.

Figure 1 Payoff for the two Creditors Under the Common Pool Problem

		UC2	
		Force	Not Force
UC1	Force	3, 2	5, 0
	Not Force	1, 4	3.9, 3.1

The informal restructuring process might bring another drawback, the hold out problem. As a firm cannot force all existing creditors to accept the restructuring plan, which reduces the claim amounts of creditors, some creditors might continue holding the existing debt to seek the full payment. This situation results in the delay in the restructuring process and might reduce the chance of the success in the debt restructuring. The holdout problem usually occurred in a firm with widely dispersed creditors, especially a firm that issued public debt such as bond (Brigham and Ehrhardt, 2002).

As previously discussed, due to the two major disadvantages of the informal restructuring process, creditors might force the debtor firms to liquidate by selling all of assets to pay to claimants. This situation brought the worst outcome to all financial stakeholders because they will receive the liquidation value only.

2.5 Formal Reorganization

There were many attempts of the Thai government to resolve the 1997 financial crisis. One of the attempts was the amendment of the 1940 Thai Bankruptcy Act. The major deficiency of the 1940 Act was that it only recognized the dissolution of the legal status of an entity when such entity could no longer meet its financial obligations and had undergone a liquidation procedure or absolute receivership. The Act has been amended several times since 1940, and the three latest amendments were made in 1998, 1999 and 2000 respectively, which focused on the reorganization matter. Similar to the Chapter XI of the U.S. Bankruptcy Act, the 1998 amendment added a new Chapter 3/1 (Sections 90/1 through 90/90) to the original Bankruptcy Act of 1940. The 1998 amendment first introduced the concept of the corporate restructuring designed to rehabilitate a debtor's business, especially the distress caused by temporary liquidity problems, while protect the interest of creditors.[7] The Act gave a chance for the debtor

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[7] Under the Section 90/14 of the 1998 amendment of the Bankruptcy Act, a financially distressed firm must show that its reorganization plan is in the best interests of all claimants; that is, each creditor class must get at least as much as they would receive in case of liquidation.

firms, which owed at least 10 million Baht to reorganize if a creditor or the debtor filed a petition with the Bankruptcy Court. Once the petition is filed, either voluntarily by the debtors or involuntarily by the creditors, and accepted by the court, the court will determine whether the debtor firm is insolvent and whether there is potential for the debtor firm to successfully reorganize itself. If the court feels that such potential existed, the court will issue a reorganization order. Otherwise, the court will dismiss the petition. The reorganization under the direction of the Bankruptcy Court offered the distressed debtors various restructuring options that are not available in the out-of-court context (Dominic et al. (1999). There are three advantages the debtor would receive under the formal reorganization: the automatic stay provision, the financial supports, and the right to elect the restructuring planner.

2.5.1 The Automatic Stay Provision

The Automatic Stay Provision is one of the most important advantages that the Bankruptcy Act granted to the debtor firm. To immediately solve the common pool problem upon the filling for reorganization with the Bankruptcy Court, the court protected the debtor by limiting the ability of the creditors to collect their individual claims. The court also protected all acts against the debtor or the property of the debtor must be ceased upon the filing of the bankruptcy. Moreover, the court also prohibited the right of the public utility providers such as electricity, water, telephone, etc., from suspending their service for the debtor firm. The automatic stay gives a chance to the debtor firm to continue running its day-to-day business operations, and enables it to attempt a repayment plan, but all significant business decisions must be approved by the Bankruptcy Court.[8] Due to the reduction in the financial drains while providing chances for the firms to generate funds internally, a better financial position is expected to result. This automatic stay remains in effect until the firm emerged from the bankruptcy, unless waived by the court.

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[8] Under the Section 90/12(9) of the Bankruptcy Act, the debtor management is prohibited to sell, transfer, lease, repay debt, incur debt, or take any actions that might increase more burdens to the firm's assets.

The formal reorganization also mitigates the holdout problem that usually emerged with the firms with complex capital structures (**Gilson et al., 1990**). Under the Section 90/46 of the 1999 amendment of the Act, creditors are lumped into the following classes depending on their rights: 1) each secured creditor with at least 15% of the total debt formed a separate class, 2) all other secured creditors formed a class, and 3) unsecured creditors are grouped according to the similar interests (such as suppliers, subordinate lenders, bondholders, etc.). Each class is considered to accept a reorganization plan if the majority (two-third in value and one-half in number) of at least one class of creditors, and one-half in value of all debts vote for the plan. The court will approve the plan if it is deemed to be a fair and reasonable plan on the dissenting parties. These requirements are considered as a less restrictive approval process for the reorganization plan when compared to the informal restructuring that must seek approval from all participating claimholders.

2.5.2 Financial supports

A new fund is necessary for a restructuring firm under the financial difficulties, especially for the firms that are in need of the short-term trade financing and have few free assets to pledge as the security (Gilson et al., 1990). The Thai Bankruptcy Act (under Section 90/75(3)) provides the first priority to the post-petition loans together with other administrative claims such as the professional fees and the cost of administration of the debtor firm. This provision not only reduces an incentive to under-invest in the positive-NPV projects that enrich senior claimholders (Myers, 1977), but also motivates new creditors to put fresh funds into the firms, which will increase the probability of the rehabilitation success (Dahiya et al., 2003).

2.5.3 The right to elect the restructuring planner

After the court approved the reorganization plan, the management right of the debtor firm ended. The court will appoint the restructuring planner—the one who is responsible for continuing the business and preparing the restructuring plan. The petitioner, either the debtor or creditors, has the privilege in appointing the planner. The

right to elect the planner is important because the amended Bankruptcy Act granted broad and powerful right to the planner. After the planner was appointed by the court, the powers and the duties of the debtor's directors in managing the business, as well as all legal rights of the debtor's shareholders, except the right to receive dividends, are all transferred to the planner. Therefore, the planner is given a wide range of administrative powers to enable him to take over the business.

Although the court will appoint the person nominated by the petitioner (Section 90/6), if there are no objections from the debtor or creditor, the debtor still have some privilege in nominating the planner. If the debtor filed for petition and nominated the planner, it would require the creditors to owe two thirds of the debt to override the debtor’s nomination and replace with their own nominee. While the debtor can objects to the creditors nomination and get this privilege. Therefore, the privilege to appoint a restructuring planner is granted to the petitioner, the debtor, and the creditors, respectively. A recent survey of the Department of Debtor Rehabilitation showed that the majority debtors still possessed the business because 77.22% of the planner of the firms filing for the formal reorganization are the debtor or are nominated by the debtor (Pirote et al., 2002).

The formal reorganization might also bring some major drawbacks. First, although the bankruptcy law was designed to protect the firms experiencing the short-term financial difficulties, maintaining firms unfit for survival might seriously disturb the competitive process and prevent the transition of an industry to a long-term equilibrium (Barla and Koo, 1999: 102). The automatic stay provision under the formal reorganization helped the financially distressed firms cut costs by renegotiating contracts, while the normal firms could not. Therefore, they could set up an unreasonable price that only covered the firms’ short-term marginal cost to raise cash or compete with their rivals. These behaviors might lead to the unwanted price war that

harmed the overall performance of the industry as a whole.[9] Second, the cost of the formal reorganization is quite high. Moulton and Thomas (1993) found that the related direct costs such as attorney's fees and loss from disrupted operations frequently approached 20% of firm's total liabilities. The Applied Economic Research Institute (2003) also found the similar result in Thailand. The average direct cost of the formal debt restructuring of 50 distressed firms was 34.26 million Baht, which was far more than 6.47 Million Baht of the 29 distress firms, which chose to restructure their debts informally. Moreover, the indirect costs[10] far exceeded the direct costs. These results indicated that the formal reorganization under the direction of the Bankruptcy Court might not be the best solution of the financially distressed firms. This is because the distressed firms' managers who are facing with the prospect of the unemployment have strong incentives to keep their firms to operate, whether profitably or not (Pulvino, 1999).

The advantages of both the informal workout and the formal bankruptcy reorganization formed the new hybrid reorganization approach called a prepackaged bankruptcy. The Prepackaged Bankruptcy is the process that the debtor firm negotiated with all or most of their creditors to agree with the reorganization plan prior to the filing for bankruptcy. The result of the survey conducted by the Applied Economic Research Institute (2003) indicated that more than 90% of the Thai distressed firms negotiated with their creditors, especially with the large ones, before filing for the formal reorganization with the Bankruptcy Court. The prepackaged bankruptcy process could benefit both parties in several ways. First, the negotiation under the informal workout process could avoid the cost of the formal reorganization, either direct or indirect ones. Second, the debtor firms could get the automatic stay provision after filing for the formal reorganization that reduced the holdout problem. Third, filing for the formal

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[9] See for the example of Barla and Koo (1999) who investigated the effects of bankruptcy protection (Chapter XI) on the airlines to their rivals' pricing strategies. The study showed that filling for the bankruptcy protections of some airlines had reduced the operating performance of the U.S. airline industries as a whole.

[10] The indirect costs consisted of an increase in the interest rates for the lines of credit, a reduction in the bargaining power with suppliers, a devoting time by senior managers to comply with the formal reorganization process, and a difficulty in entering long-term commitments, etc.

reorganization could preserve the creditors' claims. Fourth, both parties got the benefits from the taxes and the incentives granted by various regulators, which were previously discussed.

The SET also established guidelines to reinforce the corporate restructuring process of the listed financially distressed firms. The present Delisting rules established by the SET gave an opportunity for firms to choose either to voluntarily delist their securities or to rehabilitate their firms. The rehabilitation under the SET rules assumed that the distressed firms would ultimately emerge from the financial distressed situation; thus, in this instance, the severe financially distressed situation did not necessarily equal the corporate death. Under the SET's rehabilitation guidelines, the rehabilitation plan of the financially distressed firms must not reduce the book value of the existing shareholders into zero, and must restructure their debts into the proper amount that the firms could viably stay. To be reinstated to their original business sector, the financially distressed firms must restructure their debt at least 75% of their total debts. Therefore, these SET's guidelines effectively reinforced various financially distressed firms to voluntarily enter the debt restructuring process.

2.6 The SET's Delisting Regulations

Maintaining quality of the listed firms and protection of the benefits of shareholders, especially the minorities, are two important factors for effectively allocating limited financial resources in the economy. To achieve these requirements, the SET established the delisting criteria to force the listed firms that failed to comply with the SET's listing regulations (1998). Delisting a listed firm, however, caused various negative effects on the minority shareholders such as a liquidity problem or inadequate information of the firms. The SET, therefore, granted the opportunity to the severe financially distressed firms to choose the best option for their stockholders from the followings: 1) preparing a rehabilitation plan to propose to the firm's shareholders, 2) voluntarily delisting their securities out of the SET, 3) filing for the rehabilitation under the Bankruptcy Act, or 4) trying another option that would benefit all firm's stakeholders.

It appeared that preparing of the rehabilitation plan was the choice virtually chosen by all of the REHABCO firms because only four firms out of the 102 financially distressed firms voluntarily delisted their securities out of the SET. The decision to rehabilitate the firms is consistent with the conclusion of Alderson and Baker (1995b). As the going concern value usually exceeded the liquidation value, almost all of the firm's stakeholders benefited from the corporate rehabilitation process. When the value of equity was greater than zero, the creditors have better chance to receive the amount greater than the auction value (Lynn and Neyland, 1992), and the firms' executives and employees can keep their job (Bradley and Rosenzweig, 1992; Daily, 1992).

The procedures and the guidelines for the listed firms facing possible delisting and being subject to the preparation of the rehabilitation plans, have been established by the SET since 1995. They have been used to enforce the financially distressed firms to enter the corporate rehabilitation process to maintain their listing status. Couple with the 1997 financial crisis, 102 listed firms failed to maintain a healthy operation and the financial position, and 98 firms formally intended to rehabilitate themselves under the scheduled time frame. This phenomenon provided a good chance to investigate the rehabilitation process of the Thai financially distressed firms to avoid the delisting status.

There are two major differences between the sample firms in this study and in the studies conducted abroad. First, the SET's rehabilitation guidelines required firms to improve their financial position, operating performance, and operating cash flow and to show the proper progress in the corporate debt restructuring, while the samples of the studies abroad often used the firms that filed for the formal reorganization under the Chapter XI of the Bankruptcy Law[11] that mainly aims at the restructuring corporate

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[11] See for the example of Anderson and Baker (1995) who compared the benefits between filing for the bankruptcy reorganization and liquidating the firm by using 89 formal reorganization firms as the sample, Daily (1995) who investigated the relationship of the board of directors composition and the board leadership to the success of the corporate reorganization by using 72 firms, Hotchkiss and Mooradian (1998) who compared the operating

debts. Second, the REHABCO firms are categorized as the firms facing the balance sheet insolvency. Almost all of these firms had shown the negative amount of the shareholders equities. While the studies conducted abroad were based on the sample firms that could be categorized as the firms facing the financial insolvency, or declining in their financial resources or being unable to pay their financial obligations.[12] Due to the difference in the sample firms' characteristics, the conclusion of the studies abroad might not properly explain this unique phenomenon of the Thai capital market. The result of this study would bring some new empirical evidence about the corporate reorganization in Thailand.

2.7 The SET's Corporate Rehabilitation Requirements

The SET's corporate rehabilitation requirements began when firms submitted their audited financial statements to the SET.[13] In the period of January 3rd, 1996 to July 1st, 1998, the SET had used the following criteria, as specified in the Clause 30 (6) of the Regulations of the SET, to determine which firm subjected to a rehabilitation requirement (the Stock Exchange of Thailand, 1998):

(a) The assets used in the operation of the listed firms had significantly lessened or were going to lessen significantly, or the listed company stopped the operation entirely or almost entirely.

(b) The auditor issued a disclaimer or an adverse opinion on the financial statements of the listed firm for three consecutive years.

(c) The listed company had a net loss for two years during the last three years, and the latest audited book value of the net tangible assets was less than forty

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performances between the firms that merged with the bankrupt firms and the firms that merged with the non-bankrupt ones by using 55 financially distressed firms as the sample, and Donoher (2003) who investigated the factors that led to the filling for the formal reorganization by using 110 sample firms.

[12] See for the example of Kang and Shivadasini (1997) who investigated the corporate reorganization in Japan in 1986 – 1990 of 92 corporations that faced with the decline in their operating performance.

[13] Listed firms must submit their audited financial statements within 3 months of the end of the fiscal year.

million baht if the listed firm's main operation was located in a provincial zone, and sixty million baht otherwise.

(d) The listed company had a net loss for three years during the last four years, and the latest audited book value of the net tangible assets of the listed firm was less than eighty million baht if the listed firm's main operation was located in a provincial zone and one hundred and twenty million baht otherwise.

(e) The latest audited book value of the net tangible assets of the listed firm was less than fifty percent of its paid-up capital.

(f) The listed firm had a net loss for 5 consecutive years.

(g) The business of the listed company had a net loss of a significant amount, which rendered it unable to exist.

Some complex rehabilitation requirements criteria mentioned above required the substantial judgment. The SET, therefore, simplified these criteria in August 3rd, 1998 (SET 1998) by replacing the criterion (c), (d), (e), (f), and (g) with the following criterion:

(c)* The financial condition of the listed company disclosed in the most recent year of the audited financial statements or the consolidated financial statements represented that the shareholders' equity was lower than zero.

The criterion (c)* is the rehabilitation requirement that almost all of the firms, which had been forced into the rehabilitation process after the implementation date (July 1st, 1998), failed to comply.

Additionally, the SET had refined the rehabilitation requirement criteria in August 2000 (SET, 2000) as the following descriptions:

1. The shareholders' equity of a listed firm, as shown in its audited financial statements, was less than zero.

2. The shareholders' equity of a listed firm, as shown in its audited financial statements, is more than zero, but its auditor reported a qualified opinion, a disclaimer of opinion, or an adverse opinion. If so, the firm's financial statements must be adjusted in accordance with the auditor's opinion. If the adjustment caused its

shareholders' equity to be less than zero, the SET will announce that the firm may be subject to a rehabilitation requirement. The basis of the adjustments will be as follows:

2.1 If the auditors specified an exact qualified figure, this specified figure will be subtracted from the shareholders' equity.

2.2 If the auditors qualified that a firm did not set up an allowance for the possible losses on the assets such as the account receivables, the inventories, the investments, etc., and also did not specify an exact figure for adjustments, the total amount for any possible losses in the asset value would be subtracted from the shareholders' equity.

2.3 If a firm did not record the investments in its subsidiaries and associated firms using the equity method, the total amount of the investment would represent the possible loss on such investments, and the amount would be subtracted from the shareholders' equity.

2.4 If the auditors qualified that a firm faced a legal, off balance sheet, or any other contingent liabilities, an appropriate figure specified by the auditors' opinion will be subtracted from the shareholders' equity.

3. The SET will waive the unrealized foreign exchange losses for the SET's consideration. If a listed firm preferred this exclusion, it must provide the following additional information:

3.1 Details on any losses mentioned in the management report, including the complete data on the impact of any changes in the Baht exchange rate system and how the firm distinguished between the realized losses and the unrealized losses. A listed firm must also carefully detail the exact proportion of the foreign debt due in the current fiscal year, and the proportion of the foreign debt due in each successive accounting period.

3.2 The management report mentioned in 3.1 must be reviewed by an auditor and submitted together with the firm's financial statements to the SET.

However, the SET will not accept any appraisal of the assets that increased their value, as a result of a change in the Baht value, as a reason to exempt from the criteria.

4. The SET will not announce that a firm had been subject to the rehabilitation requirement if the firm is able to solve the problem by increasing its shareholders' equity to be more than zero. However, a firm could not rely solely on the capital decreases to offset with the negative amount of its retained earnings, but should use this technique in conjunction with other strategies such as an increase in the capital, a strategic partner injecting new capital, or some other methods that achieved the same result.

After the listed firms met the criteria for the rehabilitation requirement, the SET will suspend the trading activity of the firms' securities for 30 days, and transfer those securities to a sector called "Companies Under Rehabilitation" or REHABCO. During the 30-day period of suspending the trading activity, the REHABCO firms must decide about the firms' future, whether to prepare the rehabilitation plans or to voluntarily delist their securities out of the SET. If the REHABCO firms considered the preparation of the rehabilitation plan, they must team up with the rehabilitation planners, consisting of the independent financial advisors and the firms' management. The rehabilitation planners must develop realistic 2-year period rehabilitation plans, which included the forecasted quarterly financial statements reviewed by the firm's auditor, the quarterly information on production, distribution, details of operations, and any other relevant information. The rehabilitation plan must be presented to the firms' shareholders for their approval. In the case that the REHABCO firms filed for petition under the reorganization scheme of the Bankruptcy Act, the planners who were appointed by the court are responsible for preparing the rehabilitation plan and reporting to the SET.

If the REHABCO firms want to stay in the REHABCO sector, during the rehabilitation period, they must maintain their ability to stay in business. The SET might consider to delist the firms' securities at any time if 1) they have no core assets or their core business could not viably stay, 2) the debt restructuring plans do not protect the minority shareholders' benefit, or reduce the former shareholders' wealth into zero, 3) the firms' management does not intend to restructure their debts, and 4) they have no

progress in the debt restructuring, or the amount of the restructured debt is still greater than the firms' ability to pay. The REHABCO firms must continually report the progress in implementing the rehabilitation plan with a comparison of the actual results with the plan to the SET every six-month period. Under the SET's delisting regulation, the rehabilitation period is approximately three years. The SET will revise the status of the listed firms under the REHABCO sector at the end of the three-year period from the announcement of the rehabilitation. If the firms have no progress in resolving the problem and still showed negative value of shareholders' equities or still have no core operation, the SET may consider delisting the firms' securities.

The progress in the rehabilitation plan implementation is the most important factor used by the SET to determine transferring of the REHABCO firms' securities back to their regular sectors. The SET would allow trading of a listed firm under the REHABCO sector, if the debt restructuring has been completed by more than 50% worth of total debts and the rehabilitation plans has been approved either by their shareholders or by the Bankruptcy Court. The SET will transfer the REHABCO firms' securities back to their regular sector if the REHABCO firms can strongly show the evidence about the emergence from the severe financially distressed situation, by using the following criteria (the Stock Exchange of Thailand, 1999c, 2000, 2003a):

1. The firms showed a positive amount in their shareholders' equities, after the adjustment as per auditors' opinion.[14]

2. The firms showed a positive amount in their operating performance from the core businesses at least three consecutive quarters or one year.

3. The firms successfully restructured debt at least 75% of their total debt amounts and pay their financial obligations to creditors on time.

4. The firms show a positive cash flow from operations.

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[14] The SET prohibited the ways that did not truly resolve the firms' problem such as the revaluation of the assets, and the reduction in the capital to reduce the accumulated loss.

5. The firms show other evidences on the stability of their financial position and operating performance and can viably stay in their businesses.

Although the listed firms are not automatically delisted by the SET after their shareholders equities fell down below zero, entering the rehabilitation process imposed various unwanted costs to the firms. The firms will lose their liquidity caused by the prohibition of their trading activities unless they can show some positive signs in their operations. The firms also lost their reputation in the investment community because their securities became the inferior goods in the stock market. They are also responsible to prepare and implement the rehabilitation plan, and to continuously report the progress to the SET every six-month period. These firms will, therefore, have a strong motivation to successfully rehabilitate their firms to escape from the delisting status.

The balance sheet insolvency or the negative amount of the shareholders equity can be a result of the financial distress, the economic distress, or their interaction. We can infer that, however, the firms emerging from the SET's rehabilitation requirements (the Success REHABCO firms) are the ones that have only faced with the financial distress, but still be the economically viable firms. Therefore, the main purpose of this study tried to investigate the factors that relate to the economic viability of the REHABCO firms.

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CHAPTER III
LITERATURE REVIEW AND DEVELOPMENT OF RESEARCH HYPOTHESES

3.1 Introduction

New funds are necessary for the rehabilitation process. The REHABCO firms being able to emerge from their difficult situations must possess the valuable assets and the resources that attracted the external investors to inject funds into the firms. The firms must also create or regain the confidence to ensure the external investors that the corporate insiders will not expropriate their funds. Additionally, the distressed firms may also manage their earnings to attract the present and the potential investors and to avoid the delisting regulation. The following section will discuss the underlying theories, the concepts, the relevant literature related to the rehabilitation success and the development of the hypotheses.

3.2 Theoretical Concepts

Theoretical concepts related to the success in the rehabilitation process consisted of the concept of the corporate valuation, the Agency Theory, and the Positive Accounting Theory which could be concluded as follows:

3.2.1 Corporate Valuation

The thorough valuation is necessary for the investment decision, especially the investment in the firms facing with the financial difficulties situation. In this section, the two following concepts—first, the concept of the corporate valuation as the present value of the expected future free cash flows discounted by the weighted average cost of the capital, and second, the value-based management, which is the underlying concept of the investment decision—would be discussed.

Williams (1938) stated in his seminal book that the value of any stock, bond or business today is determined by cash inflows and outflows discounted at an appropriate interest rate that could be expected to occur during the remaining life of the

asset. Brigham and Ehrhardt (2002) categorized the firm's assets into two categories—operating assets and non-operating ones. The operating assets consisted of the assets-in-place and the growth options, both provided an expected stream of cash flows,[15] While the non-operating assets are composed of the marketable securities and investments in other businesses.

The operating assets are the major sources of the value of operations, which is the present value of the free cash flows available for distribution to the firms' investors (stockholders, bondholders, and preferred stockholders) that could be expressed as:

$$V_{op} = \sum_{t=1}^{\infty} \frac{FCF_t}{(1+WACC)^t} \quad (1)$$

V_{op} = Value of operations or the present value of the expected future free cash flow,

FCF_t = Free cash flow at the end of period t,

$WACC$ = Weighted average cost of capital.

However, in many situations, the stream of the free cash flow is expected to grow at a constant rate, therefore, the value of operations can be expressed by the constant growth model (Gordon and Eli, 1956) as

$$V_{op} = \frac{FCF_{t+1}}{WACC - g} \quad (2)$$

g = The constant growth rate of the free cash flow.

And the remaining variables are as defined above.

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[15] The Assets–in-place consist of land, buildings, machines and inventory, plus intangible assets such as patents, customer lists, reputation, and general know-how. Growth options are opportunities to expand and arise from the firm's current operating knowledge, experience, and other resources.

According to Brigham and Ehrhardt (2002), the firm's value could be driven by four fundamental drivers: 1) growth in sales (g), 2) operating profitability (OP) that equal the net operating income after tax divided by sales, or NOPAT / Sales, 3) capital requirements (CR) that equal the ratio of the operating capital / sales, and 4) weighted average cost of capital (WACC). According to the approach of Brigham and Ehrhardt (2002: 475), the value of operation could now be rewritten in terms of the value drivers as:

$$V_{op} = Capital_t + \left[\frac{Sales_t(1+g)}{WACC - g}\right]\left[OP - WACC\left(\frac{CR}{1+g}\right)\right]. \quad (3)$$

V_{op} = Value of operations or the present value of the expected future free cash flow,

$Capital_t$ = The dollars of the operating capital provided by the investors at the period t,

$Sales_t$ = Sales amount at the period t,

OP = Operating profitability, or the ratio of the NOPAT / Sales,

CR = Capital requirements or the ratio of operating capital / Sales.

And the remaining variables are as defined above.

The equation (3) showed that the value of operations could be divided into two components: 1) the dollar amount of the operating capital provided by the investors and 2) the market value added (MVA),[16] which is an additional value that the management had added or subtracted. The first bracket of Equation (3) is the present

[16] The concepts of the wealth creation introduced by Stewart (1991), which is the difference between the total market value of the firm's stock and the amount of the equity capital that was supplied by the shareholders.

value of the growing sales discounted at the WACC, while the second bracket is the operating profit margin subtracted by the cost of capital requirements.

The equation (3) suggested that firm's value could be created by various means. First of all, it can be increased by an additional invested capital from investors. Second, it can be created by add value through proper manage the firms, such as an increase in sales, an increase in growth possibility by creating competitive advantages to it's operations, a reduction in cost of capital, an increase in operating profitability via cost reduction schemes, and a reduction in amount of operating capital requirements.

The above valuation concept is important to this study. As the REHABCO firms required a huge amount of the new equity capital to restructure their businesses, they must motivate the prospective investors by showing strong evidences that they could create the proper wealth to compensate for the risky investment the new capital providers must face.

3.2.2 Agency Theory

Although the REHABCO firms could show strong evidences about the good recovery prospect of their firms, other important attempts that the REHABCO firms must do are to create or restore the confidence from the investment community that the firms will sincerely operate to maximize the claimholders' benefit. In this section, the Agency Theory—theory used to explain the principal-agent relationships (Jensen and Meckling, 1976) is discussed.

Jensen and Meckling (1976, 5) gave a definition of an agency relationship as follow;

> "A contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent."

The relationship could exist in various forms. First, the manager-shareholder relationship states that a manager acts as an agent for the shareholders who are the owners. Under the separation of ownership and control of the corporate entity, shareholders do not control firm, instead, they hired a manager to manage the operation of firm. Second, the shareholder-creditor relationship indicates that as a manager acts on behalf of the shareholders, the creditor is the principal and the shareholders become the agent. Third, the controlling shareholders-external shareholders relationship states that the major aim of the external shareholders is the share on cash flow stream, dividend, and firm's net assets, which are created by the firms under control of the controlling shareholders. The controlling shareholders, therefore, act as the agents of the external shareholders.[17]

In any of these relationships, both parties are utility maximizers, the agent, therefore, would not always act in the best interest of the principal.[18] In an attempt to align the interest of the agent, the agency costs are incurred. Jensen and Meckling (1976) defined the agency costs as the sum of 1) the monitoring expenditures by the principal 2) the bonding expenditures by the agent, and 3) the residual loss.

The monitoring costs are the costs associated with overseeing the agent's behavior. These costs are initiated by the principle and then transferred to the agent through contracting. The examples of the monitoring costs could be described as follows: 1) the bonus plan in a management remuneration package, that emerged from the relationship between a manager and the shareholders setting (Godfrey et al., 1992), 2) the restrictions on either an additional investment or a

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[17] To be consistent with this study, I limited the agency relationship as the relationship between the principles that are the outsiders (the creditors, the non-controlling shareholders, and the prospective investors) and the agents that are the insiders (the controlling shareholders, the board of directors, and the firm's management).

[18] For example, if a firm paid only the straight salary to the top executives of the firm, they might not be motivated to take actions that maximized the value of the firm to the shareholders. They might over-consume the firm's resources in the unnecessary expenditures such as a purchase of a luxury car or a corporate jet, etc. to benefit themselves.

dividend payment stated in the debt covenants, that emerged from the relationship between the shareholders and the creditors setting, and 3) the reduction in the preference level of investment in a firm's equity securities or willing to invest in a deeply discounted price (Daines, 2001; Claessens and Fan, 2002), that emerged from the relationship between the controlling shareholders and the external shareholders setting.

The bonding costs are the costs that the agent spent to guarantee to the principal that he would act in alignment to the interest of the principal. The examples of the bonding cost are the cost of the preparing financial statements (Jensen and Meckling, 1976), the explicit bonding against malfeasance by the agent, and the limitation on the decision making power of the agent such as establishing a restrictive debt covenant or securing the debt with the claims to the tangible assets (Nash et al., 2003). The bonding cost limited the agent's ability to harm the principal, and could also limit the ability to take advantages from some profitable opportunities in the same time.

The last category of the Agency Cost classified by Jensen and Meckling (1976) is the residual loss—the cost incurred after the monitoring and the bonding cost. This loss is borne by the principal and is caused by the agent acting in his own interest at the expense of the principal.

Although the agency costs are difficult to be directly observed,[19] there are evidences which showed the negative relationship between the level of the agency costs and the willingness of the external investors to inject the funds into the firms.[20] Therefore, the listed firms which need funds from the external sources are

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[19] Some literature indirectly measured the agency costs. For example, Collier (1999) used the leverage level to proxy the agency cost of the debt.

[20] See for an example of the Global Investor Opinion Survey conducted by McKinsey & Company (2002) which concluded that the majority of the institutional investors were willing to pay a premium, averaged 20-25%, for the Asian companies which exhibited the high governance standards.

required to reduce their agency cost. One of many ways that could accomplish this objective is to create the practice of Good Corporate Governance—the mechanism which is aimed at controlling the agency problem and aligning an agent interest with the principal, which would be discussed later.

3.2.3 Positive Accounting Theory

The contracts between the principal and the agent are usually written in term of the accounting numbers.[21] The accounting information, therefore, played an important role in reducing the agency costs (Riahi-Belkaoui, 2000). As the accounting is an integral part of the contracts (Watts and Zimmerman, 1986: 180), it appeared effects of the contracting process to the firms' accounting practices. Watts and Zimmerman (1986) reviewed the related literature and highlighted three key hypotheses as follows;

1) The bonus plan hypothesis: maintained that the management has the incentives to select the accounting procedures that increase the current period report income, when the bonus plan is tied to the reported earnings figures, to increase bonus.[22]

2) The debt/equity hypothesis: maintained that the higher the firm's debt/equity ratio, the more likely that management selected the accounting procedures that increase the current period report income, to reduce the probability of a covenant violation and of the incurrence of the technical default cost.[23]

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[21] For example, the restrictive covenants of the lending agreement were usually defined by the maximum level of the firm's debt-to-equity ratio (D/E ratio).

[22] See for the examples Healy (1985); Darrough, Pourjalali, and Saudagaran (1998), who found the evidences about the earnings management behavior to meet the compensation agreements.

[23] See for the examples Defond and Jiambalvo (1994); Sweeney (1994) who found that the managers of the firms close to violating debt covenants are likely to select the accounting procedures and the accruals to lower the probability of the debt covenants violation.

3) The Political Costs Hypothesis: maintained that the politicians have the power to effect upon firms, the wealth re-distributions by way of corporate taxes, regulations, subsidies, etc. The big firm tends to choose accounting procedures that defer the reported earnings from the current to the future periods, to reduce the likelihood of the adverse political actions.[24]

We could infer from the aforementioned hypotheses that firms can exercise their discretion to manipulate their reported earnings figures in the desired direction. As the SET's criteria on the success of the rehabilitation process required the REHABCO firms to show the positive amount of shareholders equities, and to show the positive net income at least three consecutive quarters, I, therefore, expected that these firms might manage their earnings upwards to avoid the mandatory delisting threat.

3.3 Prior Research

This section reviews the previous research concerning the corporate restructuring studies, which includes the debt restructuring, the corporate reorganization, the value creation means, the good governance factors that affected the rehabilitation process, the earnings management studies, and the models used to detect the Earnings Management Behavior.

3.3.1 Corporate restructuring

The relevant concepts of the corporate restructuring used in this study consisted of the debt restructuring and the corporate reorganization, which are concluded as follows:

3.3.1.1 Debt restructuring

[24] See for the examples Jones 1991; Cahan 1992; Cahan et al., 1997; Han and Wang 1998, who revealed that the firms appeared to manipulate the discretionary accruals to report the lower income in the periods that was scrutinized by the regulators.

Kahl (2002) developed models explaining the decisions of creditors whether to immediately liquidate the distressed debtors or to allow the debtors to recover from financial distress. Results from their analytical process showed that the choices of creditors depend on the economic viability and the growth opportunities of the debtor firms. Because the continuation value of good prospects firms usually higher than their liquidation value, creditors postpone the liquidation decision and wait for enough information about the firm's prospects in the case that there are uncertainties about the viability of the debtor firms. In the restructuring period, creditors decide to keep their debt claims by extending the payment due date or "controlling liquidation" if there is sufficient uncertainty about firms' recovery prospects. Creditors choose to swap their debt into equity if the debtor firms possess Good Recovery Prospects and attractive growth opportunities. Because the controlled liquidation brings the debt overhang problem, the financially distressed firm cannot attract financing for discretionary projects. Therefore, swapping debt claim into equity by creditors is one of the necessary factors for the restructuring process of the financially distressed firms. The distressed firms must show strong recovery prospects and the attractive growth opportunities to motivate their creditors to swap the debt claims.

3.3.1.2 Corporate reorganization

Only success in debt restructuring might not be enough for the corporate rehabilitation if the major operational problems of the financially distressed firms still existed. Markides and Singh (1997) described 4 reasons that firms must restructure as follows: 1) to respond to the external forces such as globalization, deregulation, and strategic innovation on the part of the global competitors, 2) to follow other firms, 3) to improve their performance, and 4) to remedy the situation of the financial difficulties. Consistent with the SET delisting regulation, the last reason is an important one the SET required the financially distressed firms to improve to be the healthy ones. The relevant corporate restructuring literatures could be concluded as follows:

3.3.1.2.1 Corporate downsizing and expansion

Previous literature showed the same conclusion that retrenchment was the way that the firms under the financial difficulties usually reacted to the difficult situation. These firms might also correct their operations by expanding the core operations or investing in good prospect projects.

John et al. (1992) studied the voluntary restructurings in response to declining performance by using a sample of the 46 U.S. large firms in the period of 1980s. They found that these firms quickly retrenched, by focusing on their core businesses, reducing the labor force by 5%, cutting cost of the goods sold, decreasing research and development, increasing investment, and reducing their leverage level.

Kang and Shivdasani (1997) compared the restructuring means of 92 Japanese corporations and 114 U.S. corporations that experienced a substantial decline, at least 50%, in operating performance at least one year during the 1986 and 1990 period. They found that both sample groups implemented the similar means responding to the decline in operating performance. The restructuring means were composed of 1) downsizing, 2) expanding and diversifying, 3) internal reorganizing, and 4) changing the internal control.[25] After using the logistic regression technique, Kang and Shivadasani (1997) also found that the corporate downsizing and the change in the board of director structure were statistically related to the change in the ownership structure, especially the fraction of the equity ownership by the firm's largest bank lender, and the fraction of the equity ownership by the firm's blockholders.[26]

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[25] The downsizing is composed of asset sales, plant closures, and employee layoffs. The expanding and diversifying are composed of joint venture, expanding the existing production facilities, new facility construction, establishing subsidiary, increasing capital expenditures, etc. The internal reorganizing composes of cutting operating costs, modernizing production techniques/equipment, reorganizing the existing production processes, reorganizing subsidiaries/units, etc. Finally, the change in the internal control is composed of changing the president /CEO, separating CEO from the board chairman, etc.

[26] Kang and Shivdasina (1997) identified the ownership by blockholders as the fraction of the equity held by the firm's ten largest shareholders other than the bank which is the firms' largest lender.

3.3.1.2.2 Post reorganized capital structure

Alderson and Betker (1995a) investigated the relationship between the post-formal reorganized capital structure and the level of liquidation cost.[27] After using 88 firms reorganized under the Chapter XI of the U.S. Bankruptcy Code, they found that the firms with high liquidation cost that emerged from the formal reorganization chose the capital structure that made future financial distress less likely such as low debt ratios, and also more likely to raise the new equity capital.

3.3.2 Value creation means

New equity fund is necessary for the financially distressed firms. The firms must motivate the prospective investors by showing strong evidences that they could create the proper wealth to compensate for the risky investment the new capital providers must face. In this section, the market value added (MVA) that is composed of various Value Creation Factors are discussed. These factors consisted of 1) market share, 2) growth opportunities, 3) cost of the capital, 4) operating profitability, and 5) capital requirement.

3.3.2.1 Market share

The market share is a key factor in turnaround (Hambrick and Schecter, 1980; Schendel and Patton, 1976). Strong market share indicated the competitive advantages of firms because the increment in market share usually brought the achievement of firm's economies of scale, market power to influence prices (Dranove et al., 1993, cited in Eldenburg and Krishnan, 2003), market channels (Chowdhury and Lang, 1996), and profitability (Joh, 2003). Therefore, firms with strong market share are likely to be acquired (Turetsky, 2003).

3.3.2.2 Growth opportunities

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[27] The liquidation cost could be defined as the difference between the going concern value and the liquidation value (Alderson and Betker 1995a), which could be very high if the asset is highly specialized (Shleifer and Vishny 1992).

The growth opportunities could be defined as options to make future investments at an above-normal rate of return (Collins and Kothari, 1989). As the growth opportunities are not directly observable, various studies used the market-to-book value of equity ratio or the Tobin's Q ratio as the proxy of a firm's growth opportunities. The financial difficulty situation could threaten firms' growth opportunities because the financially distressed firms did not have enough resources and liquidity to invest in profitable discretionary projects (Alderson and Betker, 1995a). However, the stock returns are highly sensitive to the strong growth opportunities (Bushman and Smith, 2001), therefore, the growth opportunity is one of the necessary feature attracting either debt holders to exchange their debt into equity (Kahl, 2002), or new investors to inject new funds into the financially distressed firm.

3.3.2.3 Cost of capital

The cost of capital is a critical element in the investment decisions and assesses the value of firm. The cost of capital could be calculated by weighting required rate of return on each capital component, which mainly consisted of debt, preferred stock, and common stock. Generally, the cost of debt and preferred stock are fixed at a specified rate; therefore, the residuals belonged to the common stockholders. The weighted average cost of capital (WACC) and the portion of cost of equities could be derived as:

$$WACC = w_d k_d (1-T) + w_{ps} k_{ps} + w_{ce} k_s \quad \text{and,}$$

$$w_{ce} k_s = WACC - \left[w_d k_d (1-T) + w_{ps} k_{ps} \right] \tag{4}$$

$WACC =$ The weighted average cost of capital (WACC),

$w_d, w_{ps}, w_{ce} =$ The weights used for debt, preferred, and common equity, respectively,

$k_d(1-T), k_{ps}, k_s =$ The after tax cost of debt, the cost of preferred, and common equity, respectively.

On one hand, the Troubled Debt restructuring (TDR) process could increase value of the financially distressed firms by lowering risk level of firms that would eventually increase value of firms by paying less cost of capital (Brigham and Ehrhardt, 2002).[28] On the other hand, common stockholders received their returns equaling the residual amount after being paid to debt-holders and preferred stockholders. Therefore, the lesser the amount paid to the other capital providers, the larger the amount the stockholders would receive. The success in the TDR process, therefore, is the feature attracting investors to invest in the financially distressed firms.

3.3.2.4 Operating profitability

One of the features showing that the financially distressed firms are still viable in the economic sense is their operating profitability that could be achieved by either increasing revenue or lowering cost (Zimmerman, 1991). The firms' profitability reflected the operating profit. Turetsky (2003) found that the return on sales is the predominant factor attracting fund providers injecting funds into a financially distressed firm.

Brigham and Ehrhardt (2002) defined the operating profitability as the net operating profit after tax divided by sales (NOPAT/Sales). NOPAT omitted the cost of debt financing; therefore it is appropriate to measure the operating efficiency of a firm, especially the financially distressed firms that used a substantial portion of debt to finance their investments. NOPAT has a high correlation with the Market Value Added (MVA). Pablo (2001) studied the correlation between MVA and three value creation measures, EVA, NOPAT, and WACC. After using the data of 296 U.S. companies provided by Stern Stewart, Pablo (2001),he found strong correlation between MVA and NOPAT (21%), which was higher than both EVA (16%), and WACC (-21.4%). As

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[28] One of the cost of equity estimation approaches is "the Bond-Yield-plus-Risk-Premium Approach" that estimate the cost of equity by simply adding a judgmental risk premium to interest rate on the firm's own long-term debt. Therefore, the lower cost of debt the firm paid, the less cost of equity and the less cost of capital responsible for the firm's financial stakeholders.

investors sought the proper returns to compensate the risk, I expected that the improvement in the operating profitability would positively correlate with the likelihood of the rehabilitation success.

3.3.2.5 Capital availability

Over-leveraged—using too much debt to finance the firms' assets—is a reason that brought the firms into the financial difficulties situation (DiNapoli et al., 1999). On the other hand, these firms substantially over-invested for their future. The over-invested amount of assets could attract the new funds providers. The firm with the large amount of invested assets could generate more income in the future while require lesser amount of the future capital investment. Therefore, the level of the available assets should positively correlate with the likelihood of the success in the corporate rehabilitation.

3.3.3 The improvement in the Good Corporate Governance

The weakness in Corporate Governance was one of the major explanations for the emergence of the 1997 financial crisis.[29] The term 'Corporate Governance' referred to a set of mechanisms through which the outside investors protected themselves against the expropriation by the insiders who are the firm's managers and the controlling shareholders (La Porta et al., 2000: 4). Specifically, Corporate Governance dealt with the ways in which suppliers of fund to corporations assured themselves of getting a return on their investment (Shleifer and Vishy, 1997: 737). Because of the organization form of listed firms with widely dispersed shareholders, who are no longer involved in setting corporate policy, professional managers are appointed to run day-to-day business, and board of directors is elected as the agent of shareholders to monitor the firms' operations. The separation between owners and managers in the organizational setting often originated the agency problem that the insiders used profits of the firm to benefit themselves rather than repaid to the

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[29] See for the example of Nikomborirak et al. (1999).

outside investors (Jensen and Meckling, 1976). It appeared that the outside investors faced the expropriation risk from the insiders. The expropriation could take a variety of forms such as transferring resources from a subsidiary to another (Joh, 2003; La Porta et al., 2000), and insiders trading, etc. The factors that caused the expropriation consisted of weakness in legal protection of shareholders and creditors (La Porta, Lopes-de-Silanes, Shleifer and Vishny, 1997; 1998; Claessens and Fan, 2002), complexity of ownership structure (Buysschaerta et al., 2004), level of insider's ownership concentration (Shleifer and Vishny, 1997), and weakness in disclosure and transparency. As the degree of expropriation is negatively related to the size of the capital market (Johnson et al., 2000), the protection of investors against expropriation by the corporate insiders is necessary for the development of capital markets (La Porta et al., 1999).

The Good Corporate Governance acts an important role for the firms under the rehabilitation process. To emerge from the rehabilitation process, the REHABCO firms could not avoid raising fund from the external sources. Therefore, the success in external financing should be a strong motivation for the financially distressed firms to improve their governance practices into a proper level. I expected that the improvements in the governance practices are one of the means that the REHABCO firms must initiate.

3.3.3.1 The definition of Corporate Governance

In 1999, the Organization for Economic Co-operation and Development established the OECD Principles of Corporate Governance (OECD, 1999). The principles covered five areas: 1) the rights of shareholders, 2) the equitable treatment of shareholders, 3) the role of stakeholders, 4) disclosure and transparency, and 5) the responsibilities of the board. The OECD principles, subsequently, are one of the most influential principles that the SET had adopted as its own Corporate Governance principles (SET, 2001).

OECD (1999, 2) had defined the Corporate Governance as

> "A set of relationships between firm's management, its board, its shareholders and other stakeholders. Corporate Governance also provides the structure through which the objectives of the firm are set and the means of attaining those objectives and monitoring performance are determined."

The Corporate Governance could also be defined as the designed institutional practices to get optimal performance out of managers (Yefah, 2000: 74), and the protection mechanism of the minority shareholders from expropriation by the managers or the controlling shareholders (Mitton, 2001) to ensure that all financial stakeholders (shareholders and creditors) received their fair share of firm's earnings and assets (Standard and Poor's, 2003).

The Stock Exchange of Thailand (SET, 2001) also defined the Corporate Governance as:

> "A set of structure and process of relationships between firm's management, its board, and its shareholders to enhance its competitiveness towards business prosperity and long term shareholder value by taking into consideration the interests of other stakeholders."

The aforementioned definitions of the Corporate Governance could imply that the Corporate Governance is the mechanism that aimed at mitigating the agency problem between the firm and its stakeholders—shareholders, creditors, managements, employees, customers, and communities. Due to the inefficiency of the financial market and the information asymmetry between the external stakeholders and the insiders, the Good Corporate Governance could create equalities between groups. Moreover, the Good Corporate Governance also attracted new funds into the economy (Claessens, Djankov, and Xu, 2000). La Porta et al. (1997) found that the country that

have high level of investor protection also have larger capital market.[30] It appeared that the firms with higher level of good governance also have higher operating performance (Klapper and love, 2003), higher wealth[31] (Mitton, 2002; Campos et al., 2002; Back et al., 2002; Cole et al., 2001), and lower level of expropriation from the corporate insiders (La Porta et al., 2002). The Good Corporate Governance practices also raised the level of confidence from the institutional investors (McKinsey and Co., 2000; 2002). After interviewing 200 major funds managers around the world, who managed funds amounting to $2 trillion, the researchers found that the funds managers are willing to pay up to 25% premium for the Asia's shares of well-governed firms (McKinsey and Co., 2002). The result implied that the Good Corporate Governance is an important selection criterion for the investors, which benefited the good firms by paying less for their cost of capital.

The Thai economy, however, has been absence of practices of the Good Corporate Governance (La Porta et al., 1998). The Thai Corporate Governance practices has been characterized as ineffective board of directors, weak internal controls, unreliable financial report, inadequate protection of the minority shareholder rights, lack of adequate disclosure, poor audits, and lack of enforcement to ensure compliance. After the recent financial crisis in 1997, Thailand has continually supported the implementation of the good governance. The implementations consisted of tightening the listed firms' disclosure by amending both accounting standards and auditing standards, establishing the Institute of Directors (IOD) to train directors of the listed firms, and granting privileges to the well-governed firms that showed the high level of good governance rating. The SET also established various regulations to enforce the Good Corporate Governance practices. For example, all listed firms were required to set up the audit committee within the year 1999. The audit committee members are

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[30] La Porta et al. (1997) measured the size of the capital markets by the IPO amount per capita and the numbers of the IPO activities.

[31] The literature measured wealth by stock price, the Economic Value Added (EVA), and the Market Value Added (MVA).

composed of at least three members who are financially literate and at least a member has the accounting or related financial management expertise. The audit committee is able to enhance the accuracy of financial reports, selecting the appropriate accounting policies, and protecting the firms' assets from the misappropriation by the corporate insiders. The audit committee is able to enhancing the accuracy of financial reports, selecting the appropriate accounting policies, and protecting firms' assets from the misappropriation by the corporate insiders. The audit committee is also responsible to assist the board in fulfilling the financial control, to provide visions of the business, to maintain the objectivity on financial reporting and internal control system, and to provide management and external auditors a chance to manage all risks (SET, 1999: 1).[32] Additionally, the SET also issued the best practice guidelines to protect the outside investors. The guidelines consisted of the best practice for directors (SET, 1998a), shareholders meeting (SET, 1999a), and audit committee (SET, 1999b). The aforementioned efforts of various regulators showed the good prospect of the Thai Corporate Governance reform that would directly benefit all listed firms and the Thai economy as a whole.

It appeared that the major portion of the listed firms, however, only complied with the standard's minimum requirements.[33] Therefore, the level of the Thai Corporate Governance practices might still be skeptical (IMD, 2000 cited by Nikomborirak, 2001).

3.3.3.2 The role of the good governance to protect the investors' right

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[32] The listed firms must disclose the results of the application of their policies on the Corporate Governance in the annual reports, starting from Dec 31, 2002.

[33] For example, the result of the Good Corporate Assessment of the Listed Companies conducted by the SET (2003) showed that the listed firms had averaged only 3 independent directors in 2002, which are the minimum standard required by the SET.

Two necessary factors that promote good governance are the legal protections of the investors' right (La Porta et al., 1997) and the participation of the firms' stakeholders. The legal protection of the investors' right is important to capital market development. La Porta et al. (1997) found a significant relation between level of the protection of investors against expropriation from insiders and the efficiency of capital market. The participation of the firms' stakeholders is considered as an interchangeable mechanism of the investor protection because the level of ownership concentration is high in the countries that did not well protect the rights of ownership (Shleifer and Vishney, 1997). The large portion of ownership could protect the expropriation behavior from corporate insiders who are accessible to firm's information and are able to control significant operation and financial policies of firms.[34]

3.3.3.3 The relationship between the Corporate Governance factors and stock price

As the Good Corporate Governance is aimed at establishing the proper relationship between various stakeholders of the firm, which would eventually bring favorable returns to them. There are various studies showing the positive relationship between the Good Corporate Governance and the firm's stock price:

Mitton (2002) investigated the relationship between the Good Corporate Governance in the period of 1997 to 1998 of 398 listed firms from five countries facing financial crisis. The sampled countries are South Korea, Indonesia, Malaysia, Thailand, and the Philippines. He found that the high disclosure quality firms,[35] the high portion of the outside ownership concentration firms, and the highly focus on the core business firms, had better stock price performance.

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[34] The Section 85 of the Public Limited Company Act (B.E. 2535) stated that the shareholders who owned more than 5% of firm's ownership have the right to ask the court to withdraw any resolution or action that might cause damage to the firm, and sue directors for negligence of fiduciary duty.

[35] The two variables used as the measurement of the disclosure quality in Mitton (2002) are 1) the firms which have ADRs (American Depository Receipt—A share representing equity in a foreign company), and 2) the firms which are audited by the Big Six auditors.

Campos et al. (2002) investigated the relationship between the Good Corporate Governance factors and stock price of emerging countries' capital markets. They used 15 elements of the Good Corporate Governance derived from the OECD (1999) Corporate Governance principles as the rating criteria of 188 firms from six emerging markets.[36] The results of least squared regression analysis showed that the firms receiving the highest score from the rating also have significantly 10%-12% higher level of price-to-book ratios, when compared to the lowest score firm in the same industries.

Baek, Keng and Park (2002) investigated an effect of the level of ownership concentration held by foreign institutional investors to firms' stock price. After using 664 South Korean firms in the period after 1997 crisis as a sample, they found that the higher the level of ownership held by foreign institutional investors, the lesser the stock price depreciation, which significantly differed from the family-owned firms. They also found that quality of disclosure and external financing also prevented the firms from stock price depreciation.

3.3.3.4 The relationship between Good Corporate Governance and operating results

Various Corporate Governance literatures harmoniously agreed on the positive relationship between the good governance practices and the better operating results as the following examples:

Core, Holthausen, and Larcker (1998) investigated the relationship among the board of director, the ownership structure, and the amount of CEO compensation. After using 205 publicly traded U.S. firms in the period from 1982 to 1984, they found that both of the board and the ownership structures were significantly related to the amount of CEO compensation. First, the CEO influence board of directors drove up the CEO compensation. For instance, the CEO compensation was positively

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[36] The six emerging countries are India, Korea, Malaysia, Mexico, Taiwan, and Turkey.

related to the CEO duality,[37] and the percentage of the outside directors appointed by the CEO. Second, the effectiveness of the board, measured by the percentage of the outside directors aged over 69 and the busy outside directors who served on three or more other board, were positively related to the level of CEO compensation. Third, the existence of a non-CEO internal board member who owned at least 5% of the shares was negatively related to the level of CEO compensation. The results of this study indicated that both of the board of directors and the ownership structure are significantly related to the firms' operational performance.

The study of the Institute of Management and Development that ranked the Corporate Governance factors of 46 countries around the world, gave a rank of the Thai Corporate Governance in 2000 at 33.9 (the best is 1 and the worst is 46), which was the lowest rank when compared to 5 ASIAN countries except Indonesia (IMD, 2000 cited by Nikomborirak, 2001). The study also ranked the characteristics of the Thai Corporate Governance. In the section of investors' protection such as such as rights and responsibilities of shareholders, minority investors' protection, and insiders trading, Thailand also received the unfavorable rank or 42, 38, and 41 respectively. The survey result of IMD (2000) clearly reflected the Corporate Governance problem in Thailand, especially in the investor protection issue.

Standard and Poor's (2002) developed the S&P Transparency and Disclosure (T&D) scoring based on the firms' annual reports and the proxy statements. The 98 disclosure items of the T&D scoring mainly focused on three board categories of the Corporate Governance components, which are: 1) The ownership structure and the investor rights, 2) The financial transparency and the information disclosure, and 3) The board and management structure and process. After using the T&D scoring to examine the relationship between the level of transparency and disclosure and the firms' value of

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[37] CEO duality meant the same person who served simultaneously as CEO and chairperson of the board

1,500 firms in developed and emerging countries,[38] Standard and Poor's (2002) found that the level of transparency and disclosure positively correlated with the firms' price per earnings ratio. The results of this study indicated that the Good Corporate Governance practice could create firms' value, especially in the emerging markets that possessed the low level of transparency and disclosure.

3.3.3.5 The equitable treatment of shareholders

The investors' confidence is an important factor in the capital market (OECD, 1999). Their confidence would emerge from the perception that their funds would be properly protected from the expropriation of insiders, who are firms' management, board of directors, or controlling shareholders. La Porta et al. (2000) also indicated that the ownership structure is one of the influential factors of the good governance. Stockholders are composed of non-controlling shareholders who owned only firms' cash flow right in the portion that they invested, and controlling shareholders who could control the firms' significant operational and financing policies. The non-controlling shareholders are outsiders who could not access the firms' important information. They required proper returns to compensate their investment and must share firms' operational risk with the controlling ones. While the controlling shareholders aim is to create more wealth by raising funds from outsiders.

It appeared that the ownership among the Thai corporations is concentrated in the control of some major shareholders. Claessens et al. (1999) found that the ten largest families in Thailand controlled 42% of market capitalization of the corporate sector in 1996. Consistent with the conclusion of Nikomborirak et al. (1999), the control of the Thai firms is often in the hand of a single individual or family. This unique ownership characteristic of the Thai firms might either result from the influences of the Chinese merchant families (Nikomborirak et al., 1999), or the reaction to

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[38] The sample included the firms in Europe, the U.S., Japan, Asia-Pacific, Latin America, and Emerging Countries in Asia.

deficiency of the Thai legal enforcement mechanism in the investor protection aspects (La Porta et al., 1998, Pedro et al., 1998).[39]

Ownership concentration could benefit firms in various ways. The major shareholders often possessed good relationship with the firms' suppliers, customers, and investors (Nikomborirak, 1999). These relationships could reduce transaction cost in running the business (Jensen and Meckling, 1976), and reduce agency cost (Jung and Kwan, 2002). Finally, the blockholders could also increase the value of the firms because they are more likely to monitor the management actively (Shleifer and Vishney, 1986).

The high level of ownership concentration, however, could also bring some drawback. As the significant operational and financial decisions depend only on the controlling shareholders, it appeared that a firm with the high level of ownership concentration often possessed a weaker internal control mechanism (Jagannathan, 1996). The large shareholders might have other interests that deviated from maximizing shareholders' wealth and could extract the firm benefit as their own such as lending the firms' money to their relatives without the collateral, siphoning the firm's fund by buying the firm assets at a below-market price, and selling them for personal profit, trading firms' stock by using inside information, or even hiring incompetent relatives as the firms' management (Gibson, 2002).

The separation of ownership and control is one of the major explanations that could properly explain the pros and cons of the ownership concentration (Claessens et al., 2000). Due to the complicated ownership structure of the firms in the East Asian countries, after the pyramid structures of the ownership and the cross-holdings among the firms were used, it appeared that the voting rights

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[39] A shareholder with the 25 percent of votes has sufficient legal rights to ask the court to withdraw a resolution that failed to comply with the articles of the firms association, the right to inspect the operation and financial status of the firm, the right to call an extraordinary general meeting at any time, and the right to ask the court to dissolute the firm that could not viably stay.

frequently exceeded the formal cash flow right. Consequently, the controlling shareholders have the ability and incentives to expropriate from the minority shareholders because they could gain the control right of firms and do not necessarily inject the considerable amount of cash into the firms.

There are some evidences which showed the negative consequences of the separation of control right and cash flow right of the firms' ownership. The consequences could affect firms' operating result (Joh, 2003) or firms' value (Claessens et al., 2000, 2000a). According to the result of the studies using the corporate data set of 9 countries in the East Asia, including Thailand, Claessens et al. (2000) and Claessens et al. (2000a) found that the concentration of control is negatively associated with the market valuation, particularly in the case of families and widely held financial institutions. At the margin, a ten percentage points increased in the ratio of cash flow right over control rights resulted in about a 5 percentage points decline in valuation (Claessens et al., 2000a: 3). The result of the aforementioned studies showed that capital markets have negative reaction to the firms that the ultimate shareholders has control rights exceeding the amounts they invested. Therefore, the outside investors are vulnerable to the expropriation activities of the ultimate shareholders who controlled the firms.

3.3.3.6 The Influence of the institutional investors

The capability to invest is the most important bargaining power of the non-controlling shareholders. The institutional investors took an active role in promoting the good governance in firms. Due to the huge amount of funds under control, ability, and the incentives to monitor the operations of firms they invested.[40] This group of investors could effectively force the firms they invested to be transparently operated. The institutional investors could also lead stock markets and give a signal to

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[40] For example, the California Public Employees Retirement System (CalPERs) played an active role in monitoring its investees to minimize the downside risk and to maximize the returns on investment for the $150 billion retirement funds.

firms to improve their Corporate Governance in the proper direction. The study of Wu (2004) provided an evidence of the power of the California Public Employees Retirement System (CalPERs), the biggest U.S. retirement funds, which publicly announced a list of firms having poor Corporate Governance in the 1990s. Wu (2004) found that the named firms attempted to improve their Corporate Governance by decreasing the number of inside directors, reducing the chance of inside directors to take up future directorship, and changing CEO, especially in the firms that showed unfavorable operating result. Consistent with Wu (2004), Park and Shin (2003), who found a negative correlation between the level of Discretionary accruals of the listed Canadian firms and the existence of the board member who is a representative of the 3 biggest national retirement funds. Both studies showed the influences of institutional investors to the transparency and quality of the financial reports that are the main components of the Good Corporate Governance practices.

3.3.3.7 The founding family as the ultimate ownership

Beyond the objective of maximizing wealth to stockholders, the founding family who became stockholders might have additional unique incentives; that is, the desire to pass the firm onto the subsequent generations, and concerns over the family and firm reputation (Anderson et al., 2003: 264). Both incentives caused the founding family stockholders' aim to the long-term survival of firm instead of the short-term benefits from the appreciation of stock price. Anderson et al. (2003) investigated the relationship between the ownership level of the founding family, and the reduction in the agency cost, using the averaged cost the debt as the proxy. After studying 252 large S&P 500 firms, Anderson et al. (2003) found that the founding family ownership was associated with a lower cost of debt. The result suggested that the incentive to survive firms of the founding families could reduce conflicts between creditors and stockholders.[41]

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[41] An example of the conflict of interest between creditors and stockholders is the decision to invest in the risky projects that increased firm's default risk. If the projects are successful, stockholders get the full benefit, but creditors marginally receive nothing.

3.3.4 Earnings management

Earnings are one of the most important figures for investing decision and setting up agreements between a firm and various stakeholders (Watts and Zimmerman, 1986). [42] Because of its importance, there are evidences of various studies that managers tried to manage firms' earnings into the desired directions either to maximize the firms' value, or to fulfill the contracts.

Earnings management is a purposeful intervention in the external financial reporting process, with the intent to obtain some private gain (Schipper, 1989, 92). Firms could manage their earnings either up or down (Beneish, 2001). Due to the accrual basis accounting, the accruals represented the difference between cash received (paid) and income (expenses) recognized in the current period (e.g., the difference between total sales amount and cash received from customers), managing of accruals is one mean that firms could use to manage earnings. Beneish (2001) stated that there are various situations that motivate firm to manage its earnings upwards such as 1) Debt covenant default avoidance 2) Compensation agreements 3) Equity offerings 4) Insider trading. Firm could also manage its earnings downward such as Jones' (1991) results showing that firms attempted to manage their earnings downwards during the import relief investigations to maintain their competitive advantages.

There are a few earnings management studies in Thailand. An example is the study conducted by Black et al. (2003), who investigated the behavior of the Thai listed companies that issued its Initial Public Offering (IPO) from 1991 to 1995. They found that the accruals of the Thai IPO firms significantly increased in the IPO year and one year before.

3.3.4.1 Research design in the earnings management

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[42] For example, the lending agreements between the firms' managers and their banks often required the firms to maintain the interest coverage ratios (earnings before interest and taxes to interest) above a certain level (Watts and Zimmerman 1986).

As the accrual accounting allowed firm to recognize its income before receiving cash, firms could manage their earnings through various accrual items. The examples are to accelerate their credit sales to recognize income and produce more goods to decrease unit cost, etc. Therefore, the research design to detect the Earnings Management Behavior mainly focused on firms' accruals. There are three approaches to detect earnings management (McNichols, 2000; Beneish, 2001; Healy and Wahlen, 1999) that would be discussed as follows; 1) Aggregate accruals study, 2) Specific Accruals study, and 3) Statistical Properties of Earnings examination.

The different approaches possessed different advantages and disadvantages. The advantages of the aggregate accruals study are as follows; 1) It is quite easy to calculate the amount of discretionary accruals. 2) As earnings management is difficult to observe, the Discretionary accruals is the proper items that reflected this behavior. 3) As the aggregate accruals approach did not specify any accruals item, therefore, the sample size of this approach is quite large. The major drawback of the aggregate accruals study, however, is the power in detecting the earnings management. McNichols (2000) found that the managed earnings level that was less than 5% of total assets is likely to go undetected by the aggregate accruals test. Moreover, the aggregate accruals test could not distinguish the ordinary firms that have extreme financial performance from the earnings management firms (Dechow et al., 1995; McNichols, 2000).

Second, the specific accruals study, which focus on the industry settings in which a single accrual is sizable and required substantial judgment (McNichols, 2000: 318), is a better alternative to detect the earnings management. As researchers could properly identify the discretionary component of a given accrual, therefore, the power of test of this approach is higher as compare to the aggregate accruals approach. However, the specific accruals study also possessed weak points, as well. Firstly, researchers who used this approach must have proper knowledge of the institutional arrangements to characterize the likely non-discretionary and discretionary behavior of the accruals (McNichols, 2000: 315). Secondly, due to the smaller number

of firms for which a specific accrual was managed, the findings from studies might not bring about a generalized conclusion.

The last technique used in the earnings management studies is the statistical properties of earnings examination or the Distribution-Based Test approach. It was accepted as a better method compared with the Aggregate Accruals because the distribution-based test did not require any specification model that could lead to the measurement error. This approach, therefore, provided fewer error caused by measurement of non-Discretionary accruals (McNichols, 2000; Healy and Wahlen, 1999). An example of the studies that used this technique is Degeorge et al. (1999), who found that there are three unusual points in the profit distribution, which are 1) at the point that earnings equal to zero, 2) at the point that earnings equal to the last year's earnings, and 3) at the point that earnings equal to the analysts' forecasts. For the characteristics of the technique that depended on the statistical properties, the result of study would be reliable only if data are normally distributed or else the result could not be reached to a proper conclusion for earnings management (Holland, 2004).

3.4 Development of Research Hypotheses

3.4.1 Value Creation Factors

The first set of the hypotheses relates to the viability of the REHABCO firms. According to the concept of Market Value Added (MVA) introduced by Stewart (1991), the Value Creation Factors are used to set the hypotheses. The Value Creation Factors, which are expected to be the functions of success in the rehabilitation process of the REHABCO firms, consist of 1) market share, 2) growth opportunities, 3) effective cost of debt, 4) operating profitability, and 5) capital availability.

3.4.1.1 Market Share

Sales amount could directly create the value of a firm. The relative measurement of the ability to generate sales is market share. According to Barla and Koo (1999) who used market share to measure the market dominance and the

competitiveness of the firms, I used the improvement in market share of the sample firms' core business as the surrogate of the firms' revenue generating ability. The first hypothesis (stated in a form of the alternative hypothesis) is set as follow:

H_1: The firms' market share improvement is positively related to the success of the rehabilitation process of the REHABCO firms.

3.4.1.2 Growth Opportunities

It is common in the accounting and finance literature to use either the market-to-book-ratio[43] or the Tobin's Q ratio[44] as the surrogates for a firm's future growth opportunities.[45] Unfortunately, both of these surrogates are unobservable for the REHABCO firms because these firms had been suspended trading activities of their securities during the rehabilitation period. Hence, following Bodnar and Weintrop (1997), I used the Sales growth as the measure of the growth opportunities. The Sales growth significantly correlated with the market-to-book ratio and is a reasonable indicator for higher future net cash flows (Bodnar and Weintrop, 1997). Additionally, Doidge et al. (2004) regressed the Tobin's q ratio with the Sales growth by using 4,788 listed firms in 40 countries, and found that the Sales growth positively correlated with the Tobin's q ratio. Therefore, the Sales growth is appropriately used as the surrogate of the growth opportunities of the REHABCO firms. The research hypothesis for testing the effect of the firms' growth opportunities is set as follow:

H_2: The growth of sales amount during the rehabilitation period is positively related to the success of the rehabilitation process of the REHABCO firms.

3.4.1.3 Effective Cost of Debt

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[43] See for the examples of Collins and Kothari (1989), Smith and Watts, 1992).

[44] Tobin's q is defined as the market value of the total assets of the firm divided by the book value of the assets.

[45] See for the examples of McConnell and Servaes (1995), Lang et al. (1996), Garner et al. (2002).

The level of the effective cost of debt commenced the firms' financial leverage risk level (Brigham and Ehrhardt, 2002), the cost of capital, and the pay off for the equity capital providers. The success in the troubled debt restructuring—reducing the book value of debt and/or lowering the effective cost of debt—would attract equity investors, either the former debt holders to exchange debt for equities or the new investors to inject fund to firms. Therefore, the amount of gain from debt restructuring and the level of restructured effective cost of debt are used as the surrogate of the level of firms' financial leverage risk—the lesser the risk, the higher the value of firms.

The effects of the gain on corporate debt restructuring and the level of restructured effective cost of debt could be set as the alternative hypotheses as follows;

H_{3a}: The amount of gain from debt restructuring is positively related to the success of the rehabilitation process of the REHABCO firms.

H_{3b}: The reduction in the effective cost of debt is positively related to the success of the rehabilitation process of the REHABCO firms.

3.4.1.4 Operating Performance

Operating performance is one of the most important selection criteria used by investors to select stock.[46] Therefore, I expected that investors used the firms' recorded earnings during the rehabilitation period as one of the investment selection criteria.[47] According to the suggestion of Brigham and Ehrhardt (2002), the ratio of the Net Operating Profit after Taxes (NOPAT) divided by Sales is used. The

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[46] For example, Buffett and Munger (2002 cited in Frobs Magazine February 13, 2004) revealed in the Berkshire Hathaway's 2002 annual report that one of their stocks acquisition criteria is firms operating performance at least $50 million in pretax earnings, consistent earnings power, good return on equity, etc.

[47] Andrade and Kaplan (1998) classified the financially distressed firms that their operating margins in the distressed years exceeded the industry median as the economically viable firms.

NOPAT/Sales ratio could properly measure the operating efficiency for the leveraged firms. The effects of operating performance could be set as the alternative hypothesis as follow:

H_4: The improvement in operating performance of the REHABCO firms during the rehabilitation period is positively related to the success of the rehabilitation process of the REHABCO firms.

3.4.1.5 Capital Availability

The lower level of future capital requirement leads to the higher value of firms (Brigham and Ehrhardt, 2002). The measurement of future required capital, however, is practically impossible. Intuitively, the firms that have already possessed a substantial amount of assets would likely require less capital expenditure in the future. Additionally, the invested assets could also benefit the financially distressed firms in other ways. First, they could sell assets to increase liquidity. Second, although the operating cost of the firms that have substantial amount of fixed assets is high, the major portion of their cost structure is the non-cash expenses such as depreciation. These firms could easily reach the cash break-even point and could freely use price strategies to increase the firms' liquidity or to compete with their competitors. Finally, intangible assets are harder to monitor by outside investors and easier to expropriate by corporate insiders. Hence, high portion of tangibles could reduce the information asymmetry between the insiders and the outside investors to scrutinize the intrinsic value of the firms[48] (Klapper and Love, 2002). I, therefore, used the ratio of Tangible Assets / Sales, which is analogous to the ratio of Operating Capital / sales introduced by Brigham and Ehrhardt (2002: 473-475),[49] as the measurement of the invested amount of the tangibles. The higher level of the ratio indicated the higher level

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[48] Klapper and Love (2002) argued that the intangibles are harder to monitor by the outside investors and easier to expropriate by the corporate insiders.

[49] Net sales divided by net tangible assets. This is a measurement of how well tangible assets are being used to produce revenue.

of the ideal capacity firms already possessed, which required lesser amount of the future capital requirement.

H_5: The level of the ratio of Tangible Assets / Sales at the inception of the rehabilitation period is positively related to the success of the rehabilitation process of the REHABCO firms.

3.4.2 Corporate Governance Improvement

There is no formal agreement between shareholders and management; however, the relationship between both parties is trust (Davis Global Advisors, 2001: 21). The improvement in the Corporate Governance is crucial for the financially distressed firms to gain confidence from outside investors. The second set of the hypotheses, therefore, is related to the improvement of the firms' good governance practices. The area of improvements could consist of the transparency and disclosure, the equitable between the corporate insiders and the outside investors, and the accountabilities of directors and executives.

3.4.2.1 Transparency and disclosure

Under the Corporate Governance framework of OECD (1999), firm should ensure timely and accurate disclosure on all material matters regarding the corporation. As the equity holders received their claims after all groups of stakeholders, they required the proper disclosure that could distinguish the firm's good risk from bad and properly present the accountability of management. Hence, the transparency and the proper disclosure are crucial for the firms which are trying to raise funds from external investors. The effect of these attempts on the success of the rehabilitation process would be set as the research hypothesis as follow:

H_6: The improvement in the firms' level of transparency and disclosure is positively related to the success of the rehabilitation process of the REHABCO firms.

3.4.2.2 CEO Duality

The OECD (1999) defined the responsibilities of firm directors as, acting in good faith with due diligence, caring in the best interest of firm, and treating all shareholders fairly. The directors also have the role in supervising actions of management, providing advice, and vetoing on behalf of the stockholders (Anderson et al., 1993). However, the directors might not act in full responsibility if they acted under the influence of CEO. The CEO duality or the same person serving simultaneously as the CEO and the chairperson of the board, could harm the firm's profitability by reducing the board's monitoring activities (Core et al., 1999) and increasing the likelihood of illegal corporate behavior (Dunn, 2003). I, therefore, expected that the REHABCO firms should improve the responsibilities of the firm directors by separating the management function from the control function. The related research hypothesis in term of the alternative hypothesis is set as follow:

H_7: The CEO duality is negatively related to the success of the rehabilitation process of the REHABCO firms.

3.4.2.3 Percentage of outsiders on board and their independence

Typically, board of directors consisted of both inside and outside directors. Although inside directors gained better understanding about firm projects, they might have potentially distorted incentives that resulted from lack of independence from the firm's CEO[50] (Bushman et al., 2003). Therefore, the board that is mainly composed of independent outside directors could proactively serve an additional role in monitoring and replacing the senior management, especially the CEO, who are not well performed (Weisbach, 1988). Moreover, outside directors could contribute firms operations in many ways such as providing the bank debt market expertise (Booth and Dali, 1999), complementing knowledge to help managers with specialized decision

[50] Shleifer and Vishny (1989) argued that the outside directors are more effective in monitoring a firm's performance than the insiders who are usually under the control of CEO.

problems (Fama and Jensen, 1983; Dahya and McKornnell, 2004),[51] increasing audit committee activity (Collier and Gragory, 1999), and reducing the incidence of financial fraud (Dechow et al., 1996). As the major portion of outside directors could enhance their independence of management (Band, 1992; Dechow et al. 1996; Eng and Mak, 2003), the related hypothesis would be set as follow:

H_{8a}: The increment in the percentage of the outside directors is positively related to the rehabilitation success of the REHABCO firms.

The directors who perform the monitoring function should be independent from the management whom being monitored (Cohen et al., 2000). The independence of the outside directors could enhance the auditing role, either by the firms' audit committee or the external auditors (Deli and Gillan, 2000). However, the outside directors could not necessarily be independent from the managerial influence. Core et al. (1999) defined three groups of the outside directors that lack of independence from CEO: the outside directors appointed by CEO, the gray outside directors, and the interlocked outside directors. These directors could reduce the effectiveness of the board monitoring activity. Core et al. (1999) found that the portion of these directors positively correlated with the level of CEO compensation. Therefore, the effect of the board independence would be set as the research hypothesis as follow:

H_{8b}: The increment in the level of the board's independence is positively related to the success of the rehabilitation process.

3.4.2.4 Founding Family

Nikomborirak and Tangkitvanich (1999) argued that the control of the Thai firms is often in the hand of a single individual or family. Anderson et al. (2003) found that the founding family ownership is associated with a lower cost of debt because they have strong incentives to pass the firm onto subsequent generations and

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[51] Dahya and Mckornnell (2004) found that the percentage of the outside CEO appointments positively correlated with the percentage of the outside directors.

concern over family and firm reputation (Anderson et al., 2003: 264). As the founding family ownership could reduce the agency cost of firms, the related research hypothesis would be set as follow:

H_9: The increment in the level of founding family ownership at the rehabilitation period is positively related to the success of the rehabilitation process.

The high level of ownership concentration in the hand of the founding family, however, could also weaken the firm's internal control mechanism (Jagannathan, 1996). The effect of the founding family ownership might be different from the expected result as described earlier.

3.4.3 Earnings Management

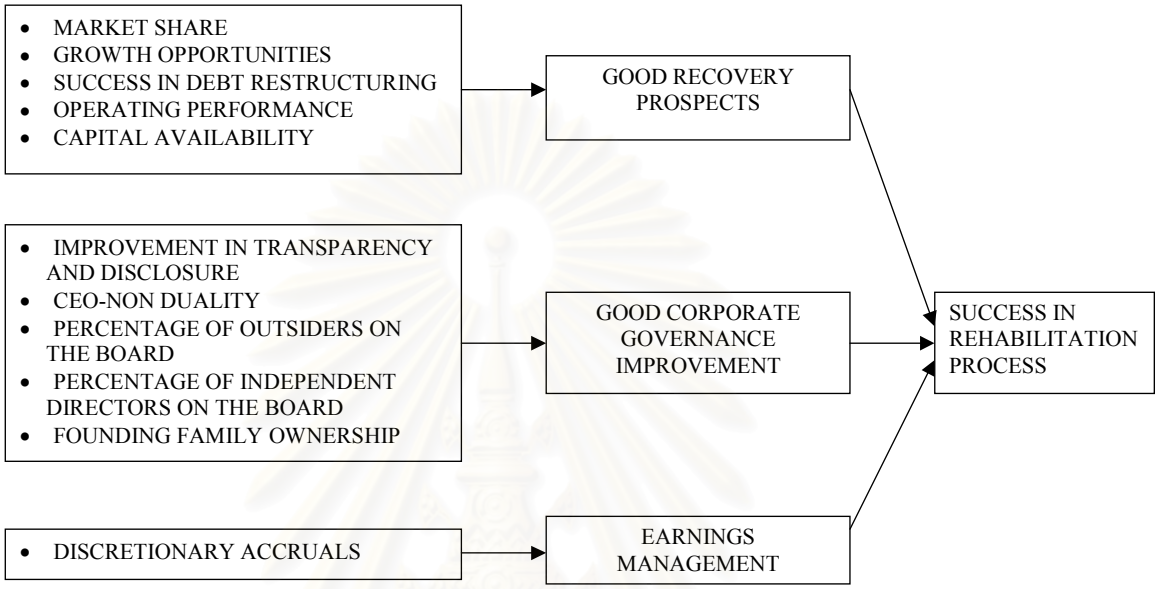
One of the criteria used by the SET to determine the REHABCO firms' success in the rehabilitation process is the positive net income for at least three consecutive quarters. The REHABCO firms might accomplish this criterion by managing their accrual items upwards. Therefore, the last research hypothesis related to the Earnings Management Behavior would be set.

H_{10}: The level of the Discretionary accruals during the rehabilitation period is positively related to the success of the rehabilitation process.

The Figure 2 illustrated factors leading to the success in the rehabilitation process. This depiction showed that the Value Creation Factors such as market share, growth opportunities, success in corporate debt restructuring, operating performance, and capital requirement could motivate the prospectus investors by showing the Good Recovery Prospects of the REHABCO firms. While the Good Corporate Governance improvement factors such as improvement in transparency and disclosure, CEO non-duality, percentage of outsiders on the board, percentage of independent directors on the board, and founding family ownership could make the prospectus investors to ensure that their rights will be properly protected. The last factor is the Discretionary

accruals that the REHABCO firms may use to manage earnings upward to meet the SET's rehabilitation requirement.

Figure 2: Factors Leading to the Success in the Rehabilitation Process



CHAPTER IV
RESEARCH DESIGN

4.1 Introduction

The main objectives of this study are to investigate the factors that contributed to the success in the corporate rehabilitation process. This chapter explained the specific research tools and approaches used to test the proposed hypotheses. The details of sample selection procedures and data sources are presented. The definitions of variables and their measurements are discussed. Finally, the logistic regression analysis, the main statistical technique used in this study is presented.

4.2 Sample Selection

The initial sample used in this study is all firms considered by the Stock Exchange of Thailand (SET) as the ones who faced with the severely financial difficulties. Since 1996, the SET has begun to force the distressed firms to rehabilitate their operations and financial positions. The SET then established the seventeenth business sector called the "Companies Under Rehabilitation (REHABCO)" and transferred-in 102 listed firms in the period from 1998 to December 2005. The name of the 102 REHABCO firms is recorded in the I-SIMS database that is accessible by using a database management software package. As shown in Panel A of Table 1, the statistics of the Companies Under Delisting Jeopardy displayed that 27 firms (26%) out of 102 firms had successfully rehabilitated and reinstated into their normal sectors. The statistics also showed that there are 31 firms (30%) which were delisted and left 44 firms under the rehabilitation status.

As shown in Panel B of Table 2, the 102 sample firms were then categorized into four groups depending on the success in the rehabilitation process. The four groups consisted of 1) 27 successfully rehabilitated firms—firms that were reinstated to their regular business sector, 2) 11 partially successful firms in the rehabilitation firms—the firms that were allowed to trade their securities in the REHABCO

sector again, 3) 33 non-progress in the rehabilitation process firms—the REHABCO firms that are still suspended the trading activity of their securities, and 4) 31 unsuccessfully rehabilitated firms—the firms whose securities were mandatorily delisted from the SET. The progress of the rehabilitation process was determined from a number of sources including the SET's I-SIMS database, the archived stock exchange news, and the delisting statistics provided by the SET.

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Table1

Panel A: Statistics of The Companies Under Delisting Jeopardy

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Grand Total
Entered	2	16	31	19	7	10	4	4	3	6	102
Reinstated back to the original sectors					-3	-2	-4	-8	-6	-4	-27
Delisted from the SET			-11	-8	-7	-3		-2			-31
Balance	2	16	20	11	-3	5	0	-6	-3	2	44
Accumulated REHABCO firms	2	18	38	49	46	51	51	45	42	44	44

All of the companies under delisting jeopardy in the period of 1996 - 1997 were entered into the REHABCO sector in the period of 1998, since the SET had established the REHABCO sector in that year.

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62

Table 1 (continued)

Panel B: Sample dataset construction

	Reinstated to normal sectors	Rehabilitating		Delisted	Total
		Tradable	Suspended		
The listed firms being transferred into the REHABCO sector sometime from 1998 to 2005	27	11	33	31	102
less:					
Voluntarily delisted firms				(5)	(5)
firms in excluded industries					
Banking				(1)	(1)
Insurance				(1)	(1)
Firm entered into REHABCO by any reason other than it's Shareholder Equities < 0	(1)				(1)
Unclassifiable firms			(15)		(15)
Firms with incomplete financial data		(1)		(10)	(11)
Total Samples	26	10	18	14	68

The sample was further categorized into two groups as 1) the successfully rehabilitated firms and 2) the unsuccessfully rehabilitated firms. The firms were identified as the Success in the Rehabilitation Process Firms if 1) the SET reinstated their securities back to their original sectors, 2) the SET allowed their securities to be traded again in the REHABCO sector, and 3) the most recent financial statements showed a positive amount of the shareholders equities. The firms were identified as the Failure in the Rehabilitation Process Firms if 1) the SET mandatorily delisted their securities out of the exchange, and 2) the most recent financial statements showed some less amount of their shareholders equities as compared to the amount at the inception of the rehabilitation process. I excluded 34 firms from the study for the following reasons: 1) 15 non-progress in the rehabilitation process firms that were unable to categorize to any groups, 2) five of the voluntarily delisted firms, because these firms could not have any incentive to rehabilitate their operations and financial positions, 3) two of the financial institution firms, and 4) one firm that was subjected to improve its financial reporting system. After excluding the aforementioned 34 firms, the remaining 68 sample firms consisted of 48 successfully rehabilitated firms and 20 unsuccessful ones.

4.3 Data Sources

The data used in this study were obtained from the following sources: 1) the I-SIMS Database prepared by the Stock Exchange of Thailand (SET)—this database provided the detailed financial statements from the first quarter of the year 1996 until now, the ownership data, the board of directors data, and the exchange news archive and 2) the firms' annual report and the Form 56-1 proxy statements available at the library and the website of the SET. These materials provided the information concerning the restructuring efforts and the good governance improvements of the REHABCO firms.

4.4 Variable Measurement

The variables used in this study consisted of six Value Creation Factors variables, five Corporate Governance variables, one earnings management variable, and

one control variable. Therefore, the total of 13 variables is used in this study. The measurements of these variables are described below.

4.4.1 Value Creation Factors

4.4.1.1 Market Share Improvement

Market share is the relative figure indicating the ability to generate revenue. The higher level of market share usually led to the better operating performance either by the result of the economies of scale or the ability to gain the above-normal profit (Buzzell et al., 1975). The level of market share could also indicate the viability of firms (Drucker, 1974) and protect the market from competitors (Buzzell et al. 1975). Therefore, I expected that the improvement in the level of market share is positively related to the success in the rehabilitation process. The improvement would be assessed by comparing the level of the market share in the period between the inception and the end, or the most recent year of the rehabilitation process. The higher improvement in the level of market share is expected to be positively related to a greater probability of the success in the rehabilitation process of the REHABCO firms.

Although some of the listed companies revealed their unit sales or dollar values market share in their 56-1 proxy statements, the figures were resulted from various measurement methods that might not be reliable and non-comparable. To cope with these measurement problems, I calculated the market share figures of the sample firms by using the company sales amount divided by the sum of sales amount of all Large Taxation Organization (LTO) firms within the industry. The LTO firms are the large taxpayers classified by the Revenue Department, which consisted of approximately 3,000 firms from 52 industries with annual sales higher than 500 Million Baht.[52] There are some advantages of calculating the market share figures from the LTO industries. First, the LTO

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[52]The Revenue Department has established the Large Business Tax Administration Office to control the tax remittances of approximately 3,000 large organizations. Members of the Large Business Tax Administration Office are grouped into teams by industry. Each team is responsible for building close relationships with and overlooking the payment processes for the particular organizations.

firms consisted of large firms, either listed with the SET or not, as measured by the total sales amount. As almost of the listed firms are large, therefore, calculation of the market share in this way is more reliable and comparable. Second, the market share figures calculated from the total sales of the listed companies only without regarding the sales amount of the non-listed firms might contain the severe measurement error because there are just approximately 500 firms listed with the SET and several large firms are non-listed firms. Finally, the LTO industries sales amount contained fewer inter-company sales as compared with the sum of the sales amount of all companies in an industry. The market share figure calculated from the LTO industries sales, therefore, could avoid the double-counting problem and provide more reliable proxy of the firm's market share.

To measure the market share, as expressed in the equation (5), the amount of the annual sales revenue of each REHABCO firm is divided by the total sales revenue of the LTO firms in the same industry. The sales revenue of the LTO firms since 1995 until now are available in the Business Online (BOL) Bingo database by Business Online Public Company Limited.[53]

$$\Delta MKTSHR_i = (MKTSHR_{ie} - MKTSHR_{ib});$$ and,

$$MKTSHR_{it} = \frac{S_{ijt}}{S_{jt}} \qquad (5)$$

Where:

ΔMKTSHR$_i$ = The market share difference in the period between the inception and the end, or the most recent year of the rehabilitation process of the firm i

[53] The Bingo database is the online checking on the Thai company information through www.bol.co.th. Bingo offered the wide range of the business information including financial status, industry analysis, financial commentary, directors, and shareholder information.

$MKTSHR_{ie}$, $MKTSHR_{ib}$=The market share of the firm i at the end, or the most recent year of the rehabilitation process, and at the inception of the rehabilitation process.

S_{ijt}= Sales Revenue of the firm i from the LTO's industry j as at the period t.

S_{jt}= Sales Revenue of the LTO's industry j at the period t.

4.4.1.2 Growth Opportunities

As previously discussed, the literatures usually used either market-to-book value of equity ratio, or the Tobin's Q ratio as the proxy of the growth opportunities of firm. These proxies, however, are not appropriate for the REHABCO firms that were restricted their stocks trading activities by the SET. As a result, their stock prices might not properly reflect their fundamentals. Hence, the averaged yearly sales growth, as the proxy of the growth opportunities (Bodnar and Weintrop, 1997) of the firms in the rehabilitation period, was used. The higher level of the Sales growth reflects a better prospect of the REHABCO firms to their prospective investors.

The averaged yearly sales growth was calculated as:

$$SLGWTH_i = \left(\sum_{t=b}^{e} \frac{(S_{it} - S_{it-1})}{S_{it-1}} \right) \left(\frac{1}{T} \right) \qquad (6)$$

where:

$SLGWTH_i$= The averaged yearly sales growth in the rehabilitation period.

S_{it}= Sale revenue of the firm i at the period t

b= The period at the inception of the rehabilitation process

e= The period at the end, or the most recent year of the rehabilitation process.

T= The Number of years from the period at the inception, to the end of the rehabilitation period.

4.4.1.3 Success in the Corporate Debt Restructuring

The success in the corporate debt restructuring could directly add value to the REHABCO firms by reducing their financial leverage risk that would eventually increase the value of firms by reducing the firms' cost of debt. According to the Thai Accounting Standard No. 34—The Accounting for the Troubled Debt Restructuring—the benefits from the debt restructuring process for the debtor firms could either be recorded directly as "the gain on debt restructuring" or reflected indirectly in the form of the reduction in the future period's interest expenses. Both benefits emerging from the rehabilitation period would be used as the surrogates of the level of the firms' financial leverage risk. To reduce the heteroskedasticity problem, I deflated the gain on debt restructuring amount by the total liabilities amount of the REHABCO firms. Although the gain on debt restructuring could be directly observed in the extraordinary section of the Profit and Loss Statements, the restructured effective cost of debt could not. Therefore, I calculated the "interest rate reduction" resulting from the debt restructuring process of the REHABCO firms by using the difference between the effective interest payment rate and the Minimum Lending Rate (MLR) of the four largest Thai Banks[54] at the end, or the most recent year of the rehabilitation process. The success in the debt restructuring process of the REHABCO firms would increase the likelihood of the rehabilitation success by attracting prospective investors to inject new funds to the firms.

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[54] The Minimum Lending Rate (MLR) of the four largest Thai Banks was available in the website of the Bank of Thailand www.bot.or.th.

The gain on the debt restructuring was calculated as:

$$TDRGAIN_i = \frac{\left(\sum_{t=b}^{e} TDRGAIN_{it}\right)}{TL_{ib}} \qquad (7)$$

Where:

$TDRGAIN_i$ = The gain on debt restructuring of the firm i during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

TL_{ib}= The total Liabilities of the firm i at the inception of the rehabilitation process.

The interest rate reduction was calculated as:

$$RERATE_i = \left(\left(\sum_{k=1}^{4} MLR_{ke}\right)\left(\frac{1}{4}\right)\right) - \left(\frac{IntExp_{ie} + IntCap_{ie}}{IntDebt_{ie-1}}\right) \qquad (8)$$

Where:

$RERATE_i$= The difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate of the firm i in the period between the inception and the end, or the most recent year of the rehabilitation process.

$IntExp_{ie}$= The Interest Expense of the firm i at the end, or the most recent year of the rehabilitation process.

$IntCap_{ie}$ = The Interest Capitalized as fixed assets of the firm i at the end, or the most recent year of the rehabilitation process.

$IntDebt_{ie-1}$ = The interest baring debt, which consist of 1) Bank overdraft, 2) Current portion of long-term liabilities, 3) Due from related companies, 4) Debenture, and 5) Long-term loan, of the firm i at one year before the end, or the most recent year of the rehabilitation process.

MLR_{ke} = The minimum lending rate of one out of the four largest Thai banks (The largest Thai Banks consisted of Bangkok Bank PLC., Krungthai Bank PLC., Kasikorn Bank PLC., and Siam Commercial Bank PLC.) at the end, or the most recent year of the rehabilitation process.

4.4.1.4 Operating Performance

In accordance with the suggestion of Brigham and Ehrhardt (2002), the Change in the Net Operating Profit after Taxes divided by Sales (NOPAT/Sales)—the amount of the profit a company would generate if it has no debt and hold no financial assets—is used as the surrogate of the firm's operating performance. The improvement would be assessed by comparing the NOPAT/Sales ratio in the period between the inception and the end, or the most recent year of the rehabilitation process. The higher improvement in the level of the market share is expected to be related to a greater probability of the success in the rehabilitation process of the REHABCO firms.

The NOPAT/Sales improvement was calculated as:

$$\Delta NOPAT_i = (NOPAT_{ie} - NOPAT_{ib});$$

$$NOPAT_{it} = \frac{(S_{it} - CGS_{it} - S\&A_{it} - TX_{it})}{S_{it}} \quad (9)$$

Where:

$\Delta NOPAT_i$ = The difference in the level of the net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

$NOPAT_{ie}$, $NOPAT_{ib}$=Net Operating Profit after Taxes divided by the Sales of the firm i at the end, or the most recent year of the rehabilitation process, and at the inception of the rehabilitation process.

CGS_{it} = Cost of goods sold of the firm i at the period t.

$S\&A_{it}$= Selling and Administrative Expenses of the firm i at the period t.

TX_{it}= Corporate Income Taxes of the firm i at the period t.

4.4.1.5 Capital Availability

The Improvement in the productivity of the company's assets is one of the sources of value creation (The Boston Consulting Group, 1999). Core and Guay (2001) used the Research and Development (R&D) expenditures as the proxy of the future capital requirement. The R&D expenditures, however, could not properly be used as the proxy for the capital requirement of the REHABCO firms because these firms do not require the extensive research and development. Hence, the ratio of Tangible Assets / Sales at the inception of the rehabilitation process of the REHABCO firms is used in this study to proxy for the level of capital availability. On one hand, the high level of the ratio indicated that the firms over-invested in the assets and could not easily reach the

economy of scale. On the other hand, the high level of the ratio also informed the prospective investors that these firms have plenty underutilized facilities that required lesser amount of the future capital requirement. I, therefore, expected that the level of Tangible Assets / Sales ratio at the inception of the rehabilitation process—adjusted by the revaluation surplus of fixed assets—is positively related to the success in the rehabilitation process of the REHABCO firms.

The ratio of Tangible Assets Availability was calculated as:

$$TNGAVAI_i = \frac{(TA_{ib} - InTNG_{ib} - SURPLUS_{ib})}{S_{ib}} \quad (10)$$

Where:

$TNGAVAI_i$ = The ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

TA_{ib} = Total assets of the firm i at the inception of the rehabilitation process.

$InTNG_{ib}$ = Intangible assets of the firm i at the inception of the rehabilitation process.

$SURPLUS_{ib}$ = Revaluation surplus of the firm i at the inception of the rehabilitation process.

4.4.2 Corporate Governance Improvement

4.4.2.1 Transparency and disclosure

Recently, there have been various Corporate Governance assessments.[55] In this study, the S&P Transparency and Disclosure (T&D) scoring (Standard and Poor's, 2002) was used. There are advantages of the T&D scoring: 1) the

[55] See for the example of Standard and Poors (2002); Credit Lyonnais Securities Asia (CLSA 2001; 2002).

tool objectively identifies 98 disclosure items that could be used to evaluate the disclosure patterns in the firms' 56-1 proxy statements that the listed firms are required to prepare within five months after the end of the fiscal year, 2) the tool is aimed at assessing three sub-categories of the Corporate Governance that could properly address the level of the firms' Corporate Governance practices in the investors' point of view,[56] and 3) each question is evaluated on a binary basis, therefore, the score is objective and verifiable.

To gain confidence from the external investors, the improvement in T&D scoring is expected. I, therefore, assessed the improvement by comparing the T&D score in the period between the inception and the end, or the most recent year of the rehabilitation process. The higher improvement in the transparency and disclosure level is expected to correlate with a greater probability of the success in the rehabilitation process of the REHABCO firms.

4.4.2.2 CEO non-duality

When the same person serves simultaneously as the CEO and the chairperson of the board, the Corporate Governance is likely to weaken. Moreover, the insiders are easier to expropriate firms' benefit at the expense of the outside stakeholders. According to the definition of CEO non-duality defined by Jaikengkit (2003), the variable CEO non-duality was used. The CEO Non-duality is an indicator variable that equaled one if two different persons acted as a chairman of the board and a CEO position, and both of them are not blockholders. While the value of zero is assigned to any of the following three cases: 1) the positions of the CEO and the chairman of the board are simultaneously served by a person, 2) the positions of the CEO or the chairman of the board are held separately by different persons but any of the position is served by a blockholder, 3) the positions of the CEO or the chairman of the board are held separately by different persons but both of them are served by blockholders. The CEO duality at the

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[56] The three sub-categories consisted of 1) Ownership structure and investor rights, 2) Financial transparency and information disclosure, and 3) Board and management structure and process.

end, or the most recent year of the rehabilitation process is negatively related to the likelihood of the success in the rehabilitation process.

4.4.2.3 Percentage of outsiders on the board

The past literature used the percentage of outside directors on board as a measurement of the board independence.[57] According to Jaikengkit (2003), the outside directors are defined as board members who do not hold the managerial position within the firm and do not hold greater than 0.5 percent of total shares of the firm. The outside directors usually brought some expertise necessary for the firms' operations and enhanced the decision control (Anderson et al., 1993). Therefore, the increment in the percentage of outsiders on board is expected to be positively related to the likelihood of the success in the rehabilitation process. I assessed the increment by comparing the percentage of outsiders on board in the period between the inception and the end, or the most recent year of the rehabilitation process.

4.4.2.4 Percentage of independent directors on board

The outside directors could not necessarily be independent from the influence of corporate insiders. In this study, the Corporate Governance Rules of the New York Stock Exchange (2003: Section 303A of the NYSE's Listed Company Manual) definitions of an independent director are used. The outside directors who are considered to have less independence from the influence of the corporate insiders are the ones who : I) Have not been employed by the firm within the last three years; II) Have not been an employee or affiliate of any present or former internal or external auditor of the firm within the last three years; III) Have not been an executive officer or employee of a company that made payments to, or received payments from, the firm for property or services in an amount exceeding the greater of $1 million (roughly ฿40 million) or 2 percent of such other company's consolidated gross revenues during the current fiscal year or any of the last three completed fiscal years; IV) Have not been employed by a

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[57] See as an example from Core et al. (1999).

company of which an executive officer of the firm has been a director within the last three years; V) Are not affiliated with a not-for-profit entity that received contributions from the firm exceeding the greater of $1 million (roughly ฿40 million) or 2 percent of such charitable organization's consolidated gross revenues during the current fiscal year or any of the last three completed fiscal years; VI) Have not had any of the relationships described above with an affiliate of the firm; and finally, VII) Are not members of the immediate family of any person described above. An "immediate family member" includes a person's spouse, parents, children, siblings, mothers and fathers-in-law, sons and daughters-in-law, brothers and sisters-in-law and anyone (other than domestic employees) who shares such person's home. The independent directors could force the equitable treatment of the shareholders by guarding the expropriation activity of the corporate insiders (SET, 2003). Therefore, the increment in the percentage of independent directors on the board is expected to be positively related to the likelihood of the success in the rehabilitation process. I assessed the increment by comparing the percentage of the independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

4.4.2.5 Founding Family

According to Anderson et al. (2003), the founding family is defined as the family equity holdings as a fraction of outstanding shares. The founding family represented a special class of large shareholders that is potentially more interested in the firm survival than other groups of shareholders (Anderson et al., 2003). Therefore, the increment in the percentage of the founding family ownership is expected to be positively related to the likelihood of the success in the rehabilitation process. I assessed the increment by comparing the percentage of the founding family ownership in the period between the inception and the end, or the most recent year of the rehabilitation process. The ownership information could be assessed from the ISIMS databases that declared all of the shareholders who owned at least 0.5 percent. I also collected the family tree information from the publication of the Brooker Group (2003) called “Thai Business Groups: A Unique Guide to Who Owns What.” This book identified 150 leading business

families in Thailand, and covered the history of each family since the time the first business was founded until today.

4.4.3 Earnings Management

4.4.3.1 Discretionary accruals

A level of the discretionary accruals, a normal surrogate of the Earnings Management Behavior, is measured as the yearly averaged residuals from the Healy Model (Healy, 1985). Healy (1985) used the yearly averaged total accruals to proxy for the expected non-discretionary accruals.[58] The mean total accruals which represented the measure of the non-Discretionary accruals could be calculated as:

$$NDA_{\tau} = \frac{\sum_{t} TACC_{t}}{T} \tag{11}$$

where

NDA= Estimated non-discretionary accruals;

TACC= Total accruals scaled by lagged total assets;

t= 1,2,…T was a year subscription for years included in the estimation period; and

T= Number of years included in the estimation period.

[58] Due to the lack of data availability, the Healy Model is the best possible choice for this study. Although Dechow, Sloan, and Sweeney (1995) suggested that the Modified Jones Model provided the most powerful test of the earnings management, since the model required many observations to estimate the parameters, I could not collect the reliable data necessary for estimating the expected non-discretionary accruals by this model (i.e., Jones (1991) required a minimum of 10 observations in her annual study, DeFond and Jiambalvo (1994), and Young (1999) required a minimum of 6 observations).

τ= A year subscription indicating a year in the event period.

There are two alternative ways to measure the total accruals—the balance sheet and the cash flow approach. The balance sheet approach measured the total accruals as the change in balance sheet accounts, while the cash flow approach measured the total accruals as the difference between income before extraordinary items and operating cash flows. Collins and Hribar (2000) found that the balance sheet approach to measure the total accruals introduced a significant measurement error into the accrual estimates, and suggested use of the cash flow approach to measure the total accruals. Moreover, Thailand has dramatically changed its Accounting Standards since 1999, hence, the balance sheet approach to measure the total accruals might not be suitable for this study. To address these concerns, the cash flow approach to measure the total accruals suggested by Collins and Hribar (2000) was used in this study. The total accruals are measured as follow:

$$TACC_{it} = \frac{(EBXT_{it} - OCF_{it})}{TA_{it-1}} \qquad (12)$$

where:

$TACC_{it}$ = Total accruals for the firm i in the year t,

$EBXT_{it}$ = Earnings before the extraordinary items and the discontinued operations for the firm i in the year t,

OCF_{it} = Operating cash flow for the firm i in the year t,

TA_{it-1} = Lagged total assets.

The Discretionary accruals, therefore, are the difference between the Total accruals (TA) and the estimated non-discretionary accruals (NDA). To reduce the heteroskedasticity problem, I deflated the Discretionary accruals by total assets at the

inception of the rehabilitation process. The measure of the Discretionary accruals could be calculated as:

$$DAC_{it} = TACC_{it} - NDA_{it}$$

where:

DAC_{it} = Discretionary Accruals of the firm i in the period t.

According to the Positive Accounting Theory (Watts and Zimmerman, 1986), firms could manage earnings either up or down into the desired directions. As one of the definitions of the success in the rehabilitation attempts is the positive net income, the amount of the Discretionary accruals is expected to be positively related to the likelihood of the success in the rehabilitation process.

4.5 Model Specifications

In this study, the logistic regression is employed to investigate the determinants of the success in the rehabilitation process. The logistic regression is a commonly used alternative to the linear probability model for dichotomous dependent variables (Aldrich and Nelson, 1984). There are some properties making the logistic regression more robust than other competing techniques[59] as 1) the dependent variable does not need to be normally distributed; 2) a linear relationship between the dependent and independent variables is not assumed; 3) the dependent variable does not need to be homoskedastic for each level of the independents; 4) the normally distributed error terms are also not assumed.

The dependent variable (Y) takes the value 1 if a REHABCO firm was successfully rehabilitated in the observation period and 0 otherwise. The independent variables are all potentially relevant factors that could lead to the success in the rehabilitation process. The logistic regression model defined the probability P(Y = 1) as:

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[59] For example, the discriminant analysis and multiple linear regression.

$$P(Y=1|X_1,...X_p)=\frac{\exp(\beta_0+\beta_i X_1+...\beta_p X_p+\varepsilon_i)}{1+\exp(\beta_0+\beta_i X_1+...\beta_p X_p+\varepsilon_i)} \quad (13)$$

and P(Y = 0) = 1—P(Y = 1). This model has a convenient representation in terms of the odds of the event y = 1 as:

$$odds(Y=1|X_1,...X_p)=\frac{P(y=1)}{P(y=0)}=\exp(\beta_0+\beta_1 X_1+...\beta_p X_p+\varepsilon_i) \quad (14)$$

The β_0 is the coefficient of the constant term; $\beta_1,\ldots,\beta_p$ are the coefficients of the independent variables; $X_1\ldots X_p$ are the independent variables and ε_i is the error term. The coefficients are estimated through the maximum likelihood estimation. The model coefficients β_i would be interpreted as the change in the log odds for a one unit increase in X_i, holding all the other dependent variables constant, or after adjusting the other dependent variables. This model could also have the convenient representation in terms of the log odds of the event y = 1 as:

$$\ln\left(odds(Y=1|X_1,...X_p)\right)=\beta_0+\beta_1 X_1+...\beta_p X_p+\varepsilon_i \quad (15)$$

The following logistic regression model is estimated.

$$\begin{aligned} SUCCESS_i = {} & \beta_0+\beta_1\Delta MKSHR_i+\beta_2 SLGWTH_i+\beta_3 TDRGAIN_i \\ & +\beta_4 RERATE_i+\beta_5\Delta NOPAT_i+\beta_6 TNGAVAI_i \\ & +\beta_7\Delta T\ \&\ D_i+\beta_8 NON_DUALITY_i \\ & +\beta_9\Delta OUTSIDER_i+\beta_{10}\Delta INDEP_i+\beta_{11}\Delta FOUNFAM_i \\ & +\beta_{12}DAC_i+\beta_{13}YRREHAB_i+\varepsilon_i \end{aligned} \quad (16)$$

Where, for sample, the firm i

$SUCCESS_i$ = 1 when the firm was successfully rehabilitated, and 0 otherwise.

$\Delta MKSHR_i$ = The difference in the level of the market share in the period between the inception and the end, or the most recent year of the rehabilitation process.

$SLGWTH_i$ = Averaged yearly sales growth in the rehabilitation period.

$TDRGAIN_i$ = Gain on debt restructuring during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

$RERATE_i$ = The difference between the Minimum Lending Rate (MLR) of the 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.

$\Delta NOPAT_i$ = The difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

$TNGAVAI_i$ = The ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

$\Delta T\&D_i$ = The difference of the Transparency and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process.

$NON_DUALITY_i$ = CEO non-duality at the end, or the most recent year of the rehabilitation process.

$\Delta OUTSIDER_i$ = The difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

$\Delta INDEP_i$ = The difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

$\Delta FOUNFAM_i$ = The difference of the percentage of the founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.

DAC_i = The yearly averaged Discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.

$YRREHAB_i$ = The Number of years staying in the REHABCO sector (the control variable capturing for the rehabilitation duration).

4.6 Cutoff Score Determination

The cutoff score is the classification criterion to determine whether a sample firm should be classified as success in the rehabilitation process. According to the previous literature,[60] this study used 0.50 as a cutoff point. If the predicted probability is greater than 0.50, then the firm is classified as the success firm, otherwise the firm is classified as the failure in the rehabilitation process firm.

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[60] See for an example as Jaikengkit (2003).

4.7 Hypotheses and Tests of Significance

The logistic regression has many analogies to the OLS regression. There are several statistics, which could be used for determining the statistical significance of the model, testing the significance of the individual independent variables, and measuring the goodness of the fit of the models. In this section, the relevant statistics are discussed.

The logistic regression uses Maximum likelihood estimation (MLE) as the method of calculating the logit coefficients. This contrasts to the use of ordinary least squares (OLS) estimation of coefficients in regression. OLS seeks to minimize the sum of squared distances of the data points to the regression line, while MLE seeks to maximize the log likelihood, which reflects how likely the probability (the odds) that the observed values of the dependent variable could be predicted from the observed values of the independents. The Log likelihood is the basis of the model chi-square test, which is a widely used statistic determining the statistical significance of a logistic regression model. The model chi-square assesses the overall logistic model by comparing the difference in -2 times the log of the likelihood value (-2 log likelihood) between the overall model and a nested model, which drops one or more of the independent variables. The chi-square is used to test of the difference between the two models. If the difference in chi-square values is at or above the critical value, then the variables dropped in the nested model are significantly in predicting the dependent variable (Woodridge, 2000).

The Wald statistic is commonly used to test the significance of individual logistic regression coefficients for each independent variable whether a particular logit effect coefficient is zero or not. This corresponds to the significance testing of beta coefficients in OLS regression. However, the Wald statistic may not be suitable with models with large logit coefficients, because standard error is inflated which lowering the Wald statistic and then leading to Type II errors.[61] In addition, the Wald statistic is sensitive to violations of the large-sample assumption of logistic regression. Therefore,

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[61] The Type II errors are false negatives, or thinking the effect is not significant when it is.

the model chi-square is an alternative of testing the significant of individual logistic regression coefficients for each independent variable (Menard, 2002).

In this study, the Wald Chi-Square is employed to test the hypotheses. Additionally, the classification accuracy test or the classification table showing the percentage of the correctly predicted result from the logistic model is employed to present the predictive efficiency of the models.

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Table 2: List of Definition of the Variables

Variables	Proxied by	Symbol	Expected Sign
Dependent Variable			
Success In The Rehabilitation Process	Dummy variable (1,0) 1 when the firm is successfully rehabilitated, and 0 otherwise.	SUCCESS	
Independent Variable			
The Value Creation Factors			
The Market Share Improvement	The market share difference in the period between the inception and the end of the rehabilitation process.	ΔMKSHR	+
The Sales growth	The averaged yearly sales growth in the rehabilitation period.	SLGWTH	+
The Gain on troubled debt restructuring	The gain on debt restructuring during the rehabilitation period / total liabilities at the inception of the rehabilitation process.	TDRGAIN	+
The Reduction in the effective interest rate	The difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.	$RERATE_i$	+
The Net Operating Profit after Taxes (NOPAT) Improvement	The NOPAT difference in the period between the inception and the end, or the most recent year of the rehabilitation process.	ΔNOPAT	+
The Tangible assets availability	The ratio of Tangible Assets / Sales at the inception of the rehabilitation process.	TNGAVAI	+

Variables	Proxied by	Symbol	Expected Sign
The Corporate Governance Improvement Factors			
The Transparency And Disclosure	The difference of the Transparency and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process	ΔT&D	+
The CEO Non-duality	Dummy variable (0,1) 1 for the case when two different persons act as a chairman of the board and a CEO position, and both of them are not blockholders. 0 for the cases a) The positions of CEO and chairman of the board are simultaneously served by a person. b) The positions of CEO, or chairman of the board are held separately by different persons but any of the position is served by a blockholder. c) The positions of CEO or chairman of the board are held separately by different persons but both of them are served by blockholders.	NON_ DUALITY	+

Variables	Proxied by	Symbol	Expected Sign
The Increment In The Percentage Of Outsiders On The Board	The difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.	ΔOUTSIDER	+
The Increment In The Percentage Of Independent Directors On The Board	The difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.	ΔINDEP	+
The Increment In The Percentage Of The Founding Family Ownership	The difference of the percentage of founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.	ΔFOUNFAM	+
The Earnings Management Factor			
The Discretionary Accruals	The yearly averaged Discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.	DAC	+
Control Variable			
The Rehabilitating Duration	The Number of years stayed in the REHABCO sector (the control variable for the rehabilitating duration).	YRREHAB	+

Chapter V
EMPIRICAL RESULTS

The purpose of this study is to determine factors leading to the success in the rehabilitation process of the severe financially distressed firms in Thailand. The factors of interest consist of the Value Creation Factors, the Good Corporate Governance factors, and the Earnings Management Behavior in order to predict firms under mandatory rehabilitation process whether they could vitally survived or not. Twelve independent variables and a control variable used in the data analysis are the Change in market share (ΔMKSHR), the Sales growth (SLGWTH), the Gain on troubled debt restructuring (TDRGAIN), the Reduction in the effective interest rate (RERATE), the Change in net operating profit after taxes (ΔNOPAT), the Tangible assets availability (TNGAVAI), the Change in transparency and disclosure score (ΔT&D), the CEO Non-duality (NON_DUALITY), the Change in outside directors proportion (ΔOUTSIDER), the Change in independent directors proportion (ΔINDEP), the Change in the founding families ownership proportion (ΔFOUNFAM), the Discretionary accruals (DAC), and the Number of years in the rehabilitation process (YRREHAB). The logistic regression analysis was used to analyze the determinants of the success in the rehabilitation process described in the previous chapter.

There were 68 companies under the rehabilitation process (REHABCO) in the sample. SUCCESS, the dichotomous dependent variable, was operationally defined as the success in the rehabilitation process, which equaled one (1) when the firm was successfully rehabilitated and zero (0) when the firm was unsuccessfully rehabilitated.

The descriptive statistics of the data were displayed first, followed by the hypothesis testing results.

5.1 Descriptive Statistics

5.1.1 Profile of the Companies Under Rehabilitation Process (REHABCO firms)

The sample firms distributed by the SET's Industrial Classification before entering into the rehabilitation process and by year the firms entering into the REHABCO sector are reported in Table 3. In Panel A, more than half of the sample firms entered the REHABCO sector in the period of 1998 - 1999 after the major financial crisis in the year 1997. The remaining sample firms were also evenly distributed over the periods from 1996 to 2003. Due to the Thai economic recovery since 1999, there are a few firms entered into the REHABCO sector during the period of 2002 – 2004.

In Panel B, the sample firms represented 21 industries, with the greatest concentration of firms (29 firms, 42.6%) in the Properties Development Industry and the Building and Furnishing Materials Industry. The remaining sample firms were evenly distributed over 19 industries.

5.1.2 Pre-rehabilitation characteristics

Table 4 provides mean and median comparison of the Success REHABCO firms to the Failure ones. As the data were highly skewed, the distribution-free Wilcoxon rank sum test provided more reliable results (Sincich, 1996). Panel A provides some basic pre-rehabilitation characteristics of these groups. The financial status and the operating performance of the Success and the Failure REHABCO firms were poor. The leverage was very high for both groups—the firms were generally insolvent based on the ratio of the book value of liabilities to assets, which was larger than one (negative shareholders equities). The firms were economically distressed based on the high level of negative profitability as measured by the ratio of net operating profit after tax (NOPAT) to sales. Overall, the pre-rehabilitation characteristics of both of the Success and the Failure REHABCO firms were not significantly different.

Panel B indicates that both groups of the REHABCO firms depend on the high proportion of interest baring debt.[62] The comparisons also indicates that these firms

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[62] Interest baring debt consisted of 1) Bank overdraft, 2) Current portion of long-term liabilities, 3) Due from related companies, 4) Debenture, and 5) Long-term loan.

had low level of bargaining power with the financial institutions, since the Effective annual rate that both groups paid were larger than the Minimum Lending Rate (MLR)—the interest rate the banks charged to their good client—of the 4 largest Thai banks. Overall, the debt structure and interest rate at the pre-rehabilitation period of the both REHABCO groups were not significantly different.

Panel C provides various measures of the REHABCO firms' performance at the inception of the rehabilitation process, which consists of Sales, Sales Growth, Market Share, the ratio of Total accruals / Total Assets, and the ratio of Total assets turnover. Although all of these measures were greater for the Success firms, the ratio of Total Assets Turnover was the only variable that was significantly different. The differences between groups' performance were consistent with the idea that the Success REHABCO firms possessed some valuable properties attracting external fund providers.

Panel D describes various aspects of the Corporate Governance Characteristics of the REHABCO firms, which consists of the Transparency and Disclosure Score,[63] the Number of Board Members, the Outside Director Percentage, the Independent Director Percentage, and the Percentage of Stock held by founding families. All of these measures, except the average member of the board of directors, were not significantly different between the Success and the Failure group.

In summary, the results of the pre-rehabilitation characteristics comparisons indicates that both groups have identical properties in various aspects, even though there was a little statistical difference in some measurements.

5.1.3 Post-rehabilitation characteristics

Table 4 also provides the post-rehabilitation characteristics of the Success REHABCO firms compared to the Failure ones. The basic post-rehabilitation characteristics provided in Panel A shows that the Success firms were quite better in

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[63] measured by the T&D Scoring developed by S&P.

various aspects. Although the financial status and the operating performance of both the Success and the Failure REHABCO firms were still poor, the Success firms were greater based on the book value of total assets in the post-rehabilitation period. The leverage of the Success firms dropped dramatically since the median (mean) ratio of book value of liabilities to assets was only 57.69% (77.01%), while the insolvency status of the Failure firms worsened as shown by the median (mean) ratio of the book value of liabilities to assets, which climbed up to 382.42% (701.99%). The profitability of the Success firms was also far better than the Failure ones as compared by the ratio of the net operating profit after tax (NOPAT) to sales, the median (mean) profitability ratio of the Success firms and the Failure firms at the post-rehabilitation period which were 1.60% (-17.32%) and -37.81% (-639.20%), respectively. Finally, the duration in the rehabilitation process of the Success firms was longer than the Failure ones. The median (mean) years spent in the rehabilitation process of the Success firms were 4.50 years (4.50 years) while the Failure firms were 2.50 years (3.50 years). When Wilcoxon Rank Sum Test was used, all of the post-rehabilitation characteristics of the Success firms were significantly better than the Failure firms at 5% level or better.

Panel B of Table 4 indicates the decrement in the proportion of the interest baring debt of both groups that might result from the Gain on troubled debt restructuring (TDR gain) during the rehabilitation period. The Success firms also paid lesser interest rate based on two measurements: the Effective annual rate and the Difference between the Minimum Lending Rate (MLR) of the 4 largest Thai banks and the Effective Annual Rate (EAR). The results indicates the bargaining power of the Success firms over financial institutions, since the median (mean) interest rate paid by the Success firms was below the MLR for 3.57% (2.29%), while the Failure firms had to pay 3.57% (3.43%) above the MLR. The amount of TDR gain of the Success firms was far more than the Failure ones. The median (mean) amount of the TDR gain for the Success firms was 827 (3,267) Million Baht while that of the Failure firms was 0 (380) Million Baht. Based on Wilcoxon Rank Sum Test, all of the post-rehabilitation debt structure and interest rate characteristics of the Success firms and the Failure firms, except the ratio of Interest baring debt / Total liabilities, were significantly different at 1% level.

The post-rehabilitation performances of the REHABCO firms are shown in Panel C of Table 4. As compared by Sales Amount, Sales Growth, Market Share, Total Accruals / Total Assets, and Total assets turnover, the overall post-rehabilitation performance of the Success firms was far better than the performance of the Failure ones. As expected, when Wilcoxon Rank Sum Test was used, four of the post-rehabilitation performance indicators—the sales amount, Sales growth, the market share, and the ratio of Total accruals / Total Assets—of the Success firms were significantly larger than those of the Failure firms at 5% level or better, and the Total Assets Turnover of the Success firms were also significantly greater than that of the Failure firms at 10% level. The negative median and mean of the ratio of Total accruals / Total Assets for the Failure firms reflected the retrenchment strategy they used, while the positive median of this ratio for the Success firms indicates the attempt to increase scale of their operations. The Success firms were also more efficiently operated as shown by the ratio of Total Assets Turnover of the Success firms, which was marginally larger than that of the Failure ones.

The comparisons of the post-rehabilitation Corporate Governance Characteristics are presented in Panel D of Table 4. The characteristics consist of the Transparency and Disclosure Score, the Number of Board Members, the Outside Director Percentage, the Independent Director Percentage, and the Percentage of Stock held by founding families. There were only two measurements that were statistically different between groups: the Transparency and Disclosure Score, and Number of Board Members. An interesting result was the mean Outside Director Percentage of both groups, which equaled 65%. The proportion was consistent with the SET's Good Corporate Governance guideline (SET, 2002) that required that listed firms should not have the inside directors proportion over 1/3 of the board.

In summary, the data showed several attempts of the REHABCO firms during the rehabilitation period, since the compared characteristics became statistically significant in the post-rehabilitation period. The comparison of post-rehabilitation characteristics indicates a wider viability gap between groups during the rehabilitation period. For the understanding about the attempts in corporate rehabilitation, the next

section displayed the Match-Paired comparison of the Pre- and Post-rehabilitation characteristics, which could distinctively show the rehabilitation progress of both groups of the REHABCO firms.

5.1.4 Match-paired comparisons of the Pre- and Post-rehabilitation characteristics

The Match-paired comparison of the Pre- and Post-rehabilitation characteristics was shown in Table 5. The results indicate the satisfactory improvement of the Success REHABCO firms in almost all aspects, while the Failure ones left the rehabilitation process with even worse situations.

As shown in Panel A of Table 5, the total assets of the both REHABCO groups at the post-rehabilitation process significantly reduced. The balance sheet insolvency situation of the Success firms eased as the median (mean) of the Total Liabilities / Total Assets ratio reduced to be 57.69% (77.01%), which was significantly lower than that of the pre-rehabilitation period. This contrasted with the insolvency situation of the Failure firms that significantly worsened as the median (mean) of the Total Liabilities / Total Assets ratio was more than three times of the pre-rehabilitation level (median and mean were 382.42% and 701.99%, respectively). The operating performance of the Success firms also recovered, as shown by the median (mean) ratio of the Net Operating Profit After Tax / Sales (NOPAT / S) that was significantly greater than that of the pre-rehabilitation level (median and mean were 1.60% and -17.91%, respectively). The operating performance of the Failure firms in the post-rehabilitation period was still under the red line (median and mean were -37.81% and -639.20%, respectively), although it was not significantly different from the pre-rehabilitation level.

Panel B of Table 5 highlights the change in the REHABCO firms' debt structure and the bargaining power over firms' creditors. While the Success firms effectively reduced their total liabilities amount, the Failure firms' liabilities significantly increased. The ratio of the Interest baring debt / Total liabilities of both sample groups in the post-rehabilitation period significantly reduced. The comparison results showed that

the REHABCO firms depended on fewer funds from financial institutions. The results also indicated the effectiveness in debt restructuring of the Success firms that reflected by the lower rate of interest payment. As compared by the Effective annual rate (EAR) and the Difference between the MLR of the 4 largest Thai banks and the EAR, the Success firms had significantly paid lesser interest rate to their creditors, while the Failure firms still paid higher cost of debt.

Panel C of Table 5 displays the results from the comparison of the firms' operating performance. Although sales amount of the Success firms were not significantly different from the pre-rehabilitation period, the median of sales amount of the Failure firms was significantly reduced. According to Wilcoxon Rank Sum Test, the Sales growth of the Success firms also significantly increased to a positive amount (median = 24.5%, $p < .001$), while the Sales growth of the Failure firms did not significantly improve and was still below zero (median = -17.8%, $p = .601$).

Panel D of Table 5 indicates the improvement of the Corporate Governance Characteristics during the rehabilitation period. While the Success firms improved their Transparency and Disclosure as shown by the significant increase in the median and mean of the Transparency and Disclosure Score, the Failure firms' scores remained the same. The results also indicate that the Number of Board Members of both groups remained unchanged from the pre-rehabilitation period. The board components of the Success firms, however, significantly improved to be more transparent, as the median (mean) Outside Director Percentage significantly increased to 65% (65%), and the median (mean) Independent Director Percentage also significantly increased to 25% (24%). This contrasted with the board components of the Failure firms. Although the median (mean) Outside Director Percentage and the median (mean) Independent Director Percentage also increased, the results were not statistically significant. Finally, the comparison results showed that the Founding Families Shareholders of the both REHABCO groups significantly lost their ownership proportion in the firms.

Based on the comparisons previously described, there were significant improvements in various aspects for the Success REHABCO firms. These results seemed promising to have a closer look at the factors related to the success in the rehabilitation process of the REHABCO firms.

5.2 Univariate Test and Spearman Correlations

According to Sincich (1996), the Non-parametric Wilcoxon rank-sum test was used to test the difference between the Success and the Failure REHABCO firms for the thirteen variables, which consist of six Value Creation Factors variables, five Corporate Governance variables, one Earnings Management variable, and one control variable. The Non-parametric test is appropriate because several variables are not normally distributed.[64] Table 6 provides a test of difference for the factors of interest between the sample groups. The mean and the median of the factors of interest are provided, as well as the test of differences between the Success firms and the Failure firms. This statistic indicates that the determinants of the success in the rehabilitation process of the Success REHABCO firms and the Failure ones are likely to be different.

When Wilcoxon rank sum test was used, there were nine out of thirteen variables, which significantly differed between the two groups. The different variables consists of all of the Value Creation Factors variables (the Change in market share[65] (ΔMKTSHR), the Sales growth (SLGWTH), the Gain on troubled debt restructuring during the Rehabilitation Period (TDRGAIN), the Reduction in the effective Lending Rate (RERATE), the Change in net operating profit after taxes (ΔNOPAT), and the Tangible assets availability (TNGAVAI)), a Good Corporate Governance variable (the Change in the Transparency and Disclosure Score (ΔT&D)) the Earnings Management variable (the Discretionary accruals (DAC)), and the Number of years in the rehabilitation process (YRREHAB)—the variable controlled for the rehabilitation duration.

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[64] See for the normality test from the Appendix B.

[65] "The difference" referred to the difference of the factors of interest in the period between the inception and the end, or the most recent year of the rehabilitation process.

According to the results shown in Table 6, the difference of the Success firms' market share level in the period between the inception and the end, or the most recent year of the rehabilitation process, was significantly greater than the Failure ones. This result indicates that the position of the Success firms was more stable in their markets. Sales growth of the Success firms was also significantly greater than the Failure ones. This result shows that the Success firms had better growth opportunities that could influence future investment activity and give a better chance to make some good returns on investment from the investors' point of view.

The Success firms also experienced a better level of success in the Troubled Debt Restructuring (TDR) process. The ratio of the TDR gain divided by total liabilities at the inception of the rehabilitation process of the Success firms was significantly greater than the Failure ones, while the effective lending rate difference was significantly lower. The results indicate that the Success firms could create their firms value by paying lesser money to their creditors.

As indicated by the significantly larger level of the ratio of the net operating profit after tax divided by sales and the significantly lower level of the ratio of the Tangible Assets divided by Sales, the results imply that the Success firms had better operating performance and more efficiently utilized their assets. The implications are consistent with the SET's rehabilitation guidelines that require the REHABCO firms to improve their financial position and operating performance in order to maintain their listing status with the exchange. In summary, the significant difference of all Value Creation Factors indicates that the Success REHABCO firms are still economically sound but financially insolvent, which is the desirable feature attracting the external fund providers.

For the Good Corporate Governance aspect, the Transparency and Disclosure Score was the only variable that was significantly different between groups. As expected, the Success firms had a larger level of the score. The result indicates that the Success firms attempted to increase their transparency in order to attract newly injected funds.

The Discretionary accruals in the rehabilitation period (the proxy for the Earnings Management Behavior of the Success firms) were significantly larger than the Failure ones. The result shows some clues that the Success firms might attempt to accomplish the SET's rehabilitation criterion—the positive net income for at least three consecutive quarters—by managing their accrual items upwards.

Finally, the Number of years in the REHABCO sector, which was the control variable for the rehabilitation duration of the Success firms was also significantly larger than the Failure ones. The explanation is due to the recovery of the Thai economy since early 1999 that brought many firms to be out of distress and vitally survive in their businesses again.

In summary, the univariate statistics provide preliminary results that the variables have discriminatory power. Based on Wilcoxon rank-sum test, the median of nine out of thirteen variables of the Success firms and the Failure ones were significantly different, which indicates that the Success firms have some properties consistent with the expectation of this research.

5.3 Spearman Correlation

Before the logistic regression analysis was carried out, Spearman Rank correlations matrix was generated to assess the relationships between the independent variables. Because of the non-normality properties of the variables, Spearman Rank correlations provide more reliable results. Table 7 shows eleven pairs of the variables with significant correlations at $p<.01$. The significant correlations exist between ΔMKTSHR and SLGWTH (.61), ΔMKTSHR and ΔNOPAT (.36), ΔMKTSHR and TNGAVAI (.33), SLGWTH and ΔNOPAT (.56), SLGWTH and YRREHAB (.32), TDRGAIN and RERATE (.36), TDRGAIN and FOUNDFAM (.33), TDRGAIN and YRREHAB (.36), RERATE and YRREHAB (.35), and TNGAVAI and ΔINDEP (.42). In addition, there were nine pairs of the variables that were found to have significant correlations at $p<.05$. They are ΔMKTSHR and DAC (.28), SLGWTH and TDRGAIN (.31), SLGWTH and FOUNDFAM (.24), SLGWTH and DAC (.28), SLGWTH and YRREHAB (.32), RERATE and ΔNOPAT

(.25), RERATE and FOUNDFAM (.25), ΔNOPAT and YRREHAB (.25), DUALITY and ΔINDEP (.25), and ΔOUTSIDER and YRREHAB (.26). In summary, the results of Spearman Rank correlations indicate that there might be the existence of multicollinearity. Therefore, introducing all variables simultaneously might lead to the acceptance of the null hypothesis (Gujarati, 2003).

5.4 Logistic Regression Analysis and Classification Accuracy

Binary logistic regression models were used to investigate the relationship between the Value Creation Factors, the Corporate Governance, the Earnings management, and the likelihood of success in the rehabilitation process. The dependent variable is binary with the value one assigned to indicate the Success in the rehabilitation firms, and zero for the Failure in the rehabilitation firms. Table 8 shows the models used to test the hypotheses. This Table shows the parameter estimates, standard error, and their Wald chi-square values. The backward elimination procedure was used to identify a more parsimonious model. The procedure started with a model that contained all the predictors, and then systematically removed the largest non-significant p-value terms until a subset that consisted of entirely statistically significant terms remained. The backward elimination model selection procedure was necessary for this study, since the possible multicollinearity might arise from the effect of the small sample size (Gujarati, 2003).

5.5 Assessment of the Regression Models

The assessment of the logistic regression models was conducted to determine how effective the models can explain whether the REHABCO firms accomplish in the rehabilitation process. The assessment included the log likelihood ratio, the Nagelkerke R-Square, and the overall percent correct prediction. The model Chi-Square was used to determine the overall significance of the model for predicting the success of the REHABCO firms in the rehabilitation process. The overall percent correct prediction generates the proportion of the REHABCO firms classified as success or failure. The Nagelkerke R-Square was used to determine the percent of variance the models accounted for the dependent variable. The model assessment began with an evaluation

of the Full Model, followed by the Reduced Model which was derived from the backward elimination procedure. The logistic regression results are presented in Table 8.

5.5.1 The Full Model

The thirteen variables: the twelve independent variables and the control variable—were added to the Full Model. The model Chi-Square (82.39) was statistically significant at $p < .001$. This suggested that the Full Model is a good estimator for predicting whether the REHABCO firms would accomplish their rehabilitation process. The Nagelkerke R-square statistic (>0.999), for the Full Model, suggests that the model explained almost 100% of the variance whether the REHABCO firms would accomplish their rehabilitation process. The Full Model correctly predicted 100% of the result of the rehabilitation process. The calculation for the overall percent correct prediction for the Full Model is shown in Table 9.

5.5.2 The Reduced Model

The Reduced Model is a more parsimonious model when compared to the Full Model. According to the backward elimination procedure, only variables with $p<0.10$ were added to the Reduced Model. The six variables added to the Reduced Model are SLGWTH, TDRGAIN, TNGAVAI, ΔT&D, DAC, and YRREHAB. The model Chi-Square (62.66) was also statistically significant at $p<0.001$. The result suggests that the Reduced Model is also a good estimator for predicting whether the REHABCO firms would accomplish their rehabilitation process. The Nagelkerke R-square statistic (0.857) for the Reduced Model suggests that the model explained 85.7% of the variance in whether the REHABCO firms would accomplish their rehabilitation process. The Reduced Model correctly predicted 97.1% of the result of the rehabilitation process with only 5% Type I error.[66] Although the Reduced Model could not perfectly predict the result of the rehabilitation process like the Full Model, the more parsimonious property is desirable

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[66] The Type I error—the classification of a Failure firms as a Success one—is considered as more costly to most users than type II errors—the classification of a Success firms as a Failure ones.

since less than a half of variables, as compared to thirteen variables of the Full one, were added to the model. The overall percent correct prediction for the Reduced Model is shown in Table 9.[67]

5.6 Assessing the Significance of the Variables to the Best Fit Logistic Regression Model

Since none of any variables in the Full Model was statistically significant, the Reduced Model with six statistically significant independent variables was assessed to determine the significance for predicting whether the REHABCO firms were successful in the rehabilitation process. Three steps were constructed to assess the significance of the variables to predict the odds of the accomplishment of the REHABCO firms. First, the WALD statistic was assessed for significance. For the purposes of this study, the WALD statistic was considered to be statistically significant at $p < .10$. The p value, $p < .10$ represented the probability of having a relationship between the independent variables and the dependent variable with a 10% probability of error. The second step was the assessment of the sign (+, -) of the estimated regression coefficient. Finally, the estimated odds ratio (exponent of the estimated regression coefficients) was evaluated. This section began with the significance of the WALD statistic ($p < .10$), followed by the explanation of the estimated regression coefficient sign, and the assessment concluded with the evaluation of the estimated odds ratio.

5.6.1 WALD Statistic

For the Full Model, although the Nagelkerke R-Square almost equaled 1, none of any variables shows significant parameter estimates. The Full Model, therefore, shows the symptom of multicollinearity (Gujarati, 2003: 359).

To solve the multicollinearity problem, I re-estimated the model by using the backward elimination procedure in order to reduce the independent variables. This

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[67] However, after using 29%—the proportion of the Failure firms in the sample set (20 firms out of 68 firms)—as the cutoff point, the Reduced Model can correctly predicted the rehabilitation success by 92.6% with 25% of the Type I error (See for Table 9).

method resulted in a more parsimonious model with six significantly parameters estimate at $p < 0.10$. The variables in the Reduced Model consist of three Value Creation variables: SLGWTH, TDRGAIN, TNGAVAI, one Corporate Governance variable—ΔT&D, the earnings management variable—DAC, and the control variable—YRREHAB.

5.6.2 The Coefficient Sign (+,-)

Next, the assessment focused on the sign (+, -) for the estimated logistic regression coefficients. A positive sign (+) indicates that the likelihood of the accomplishment in the rehabilitation process, and a negative sign (-) indicates that the likelihood of the failure in the rehabilitation process. The regression results are largely consistent with the prior expectation. All of these variables, except TNGAVAI, have the positive parameter estimates as predicted. The opposite signs of the coefficient on TNGAVAI, the ratio of Tangible Assets / Sales at the inception of the rehabilitation process, suggested an interesting interpretation. Although the high level of the ratio meant that the firms had already possessed a substantial amount of under utilized assets, or these assets might be inferior in quality or possessed a low recoverable amount. Investors, therefore, might pay more attention to the firms that efficiently utilized their assets.

5.6.3 Estimated Odds Ratio

In the third step of the assessment of variables, the estimated odds ratio (the exponent of the estimated logistic regression coefficients) was evaluated to determine the odds of the individual variables in the model predicting whether the REHABCO firms would accomplish in the rehabilitation process. The odds ratio which equals to or greater than one (1) suggests that the odds of being a REHABCO firm that would accomplish in the rehabilitation process increases when the independent variables increase. The odds ratio which is less than one (1) suggests that the odds of being a REHABCO firm that would accomplish in the rehabilitation process decrease when the independent variables increase.

The odds ratio for the SLGWTH variable (7.68), the TDRGAIN variable (6,150.85), the ΔT&D variable (2.07), the DAC variable (345,107,676.60), and the YRREHAB variable (2.25) which were greater than one (1), suggested that the odds of being a REHABCO firm that would accomplish in the rehabilitation process increase when those variables increase. For example, the odds of the REHABCO firms which accomplished in the rehabilitation process when the SLGWTH variable increased was estimated to be 7.68 times larger than the odds of the REHABCO firms which did not accomplish in the rehabilitation process when the SLGWTH variable increase. However, the odds ratio for the TNGAVAI variable (0.97) was less than one (1), suggesting that the odds of the REHABCO firms accomplishing in the rehabilitation process decrease when the TNGAVAI variable increases.

5.7 Hypotheses testing

All of twelve hypotheses were tested through the two logistic regression models which consist of the Full Model and the Reduced Model as shown in Table 8. All of the hypotheses were hypothesized to be positively related to the success of the rehabilitation process of the REHABCO firms.

5.7.1 Value Creation Hypotheses

The first six hypotheses were derived form the concept of Market Value Added (MVA) introduced by Stewart (1991). The derived factors consist of 1) market share, 2) growth opportunities, 3) effective cost of debt, 4) operating profitability, and 5) capital availability.

H_1: The firms' market share improvement is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of ΔMKTSHR variable—the Difference in the level of market share in the period between the inception and the end, or the most recent year of the rehabilitation process—was positive but statistically insignificant in the Full Model (B = 2591.67, p = .98) and did not enter to the Reduced Model. Therefore, the hypothesis 1

was not supported. The insignificance might result from either highly significant level of correlation between the ΔMKTSHR variable and the SLGWTH variable (ρ = .61), or the problem of micronumerosity, which means small sample size (Gujarati, 2003: 342). Because of few observations available for this study, it is difficult to attain significant results of the Wald test.

H_2: The Sales growth during the rehabilitation period is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of SLGWTH variable—the Averaged yearly sales growth in the rehabilitation period—was positive and statistically significant (B = 2.039, p=.03) in the Reduced Model. Therefore, the hypothesis 2 was supported. The result is consistent with the study of Kahl (2002), who stated that the distressed firms must show the strong recovery prospects and the attractive growth opportunities in order to motivate their creditors to swap the debt claims.

H_{3a}: The amount of gain from debt restructuring is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of TDRGAIN variable—the Gain on debt restructuring during the rehabilitation period deflated by total debt at the inception of the rehabilitation process—was positive and statistically significant (B = 8.724, p = 0.017) in the Reduced Model. Therefore, the hypothesis 3a was supported. The result is consistent with one of the SET's rehabilitation requirements that require the REHABCO firms to restructure their debt at least 75% of their total debt amounts and pay their financial obligations to creditors on time.

H_{3b}: The reduction in the effective cost of debt is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of RERATE variable—the Difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation

process—was positive but statistically insignificant in the Full Model (B = 145.20, p = 0.995), and did not entered to the Reduced Model. Therefore, the hypothesis 3b was not supported. The result is consistent with the debt restructuring practice reported by the Bank of Thailand (2001), since the majority of the financial distressed firms restructured their debt by a) extending maturity dates, b) reducing stated interest rates for the remaining original life of the debt, and c) issuing or granting an equity interest to creditors. While there were just only six percent of debtors who effectively restructured their debt by reducing the principal amount of debt and accrued interest. Therefore, even both groups of firms paid lesser interest rate to their creditors, the reduction in the effective cost of debt for both groups was not statistically significant in the logistic regression model.

H_4: The improvement in operating performance of the REHABCO firms during the rehabilitation period is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of ΔNOPAT variable—the Difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process—was positive but statistically insignificant in the Full Model (B = 13.93, p = 0.987), and did not entered to the Reduced Model. Therefore, the hypothesis 4 was not supported. Similar to the explanations for the Hypothesis 1, the insignificance might result from either highly significant level of correlation between the ΔNOPAT variable and the SLGWTH variable (ρ = .56), or the problem of micronumerosity. Because of few observations available for this study, it is difficult to attain significant results of the Wald test.

H_5: The level of the ratio of Tangible Assets / Sales at the inception of the rehabilitation period is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of TNGAVAI variable—the Ratio of Tangible Assets / Sales at the inception of the rehabilitation process—was negative and marginally significant (B = -.034, p = .098) in the Reduced Model. This contrasted with the Hypothesis 5, which

hypothesized the positive relation between the ratio of Tangible Assets / Sales and the success in the rehabilitation process. Therefore, the hypothesis 5 was not supported. Since the higher level of the TNGAVAI ratio meant the lower level of efficiency, the result of this hypothesis is consistent with Drucker (1954) (cited by Winn, 1997: 586) who stated that efficient asset utilization has long been recognized as crucial for business success, and with Landau (1988) (cited by Winn, 1997: 586) who stated that the efficient asset utilization is the most effective way to increase economic growth. The result, therefore, suggests that investors relied on quality of assets instead of quantity of the less efficiently utilized ones.

5.7.2 Corporate Governance Improvement Hypotheses

The second set of hypotheses is related to the improvement of the firms' Good Corporate Governance practices. The areas of improvements consist of the transparency and disclosure, the equitable between corporate insiders and outside investors, and the accountability of directors and executives.

H_6: The improvement in the firms' level of transparency and disclosure is positively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of ΔT&D variable—the Difference of the Transparency and Disclosure Score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process—was positive and statistically significant (B = .725, p = .02) in the Reduced Model. Therefore, the hypothesis 6 was supported. The result shows that the Success REHABCO firms improved their transparency and disclosure in order to gain confidence from the external fund providers.

H_7: The CEO duality is negatively related to the success of the rehabilitation process of the REHABCO firms.

The coefficient of NON_DUALITY—an indicator variable that equaled one (1) if two different persons acted as a chairman of the board and a CEO position at the

end, or the most recent year of the rehabilitation process, and both of them were not blockholders, and equaled zero (0) if the positions of CEO and chairman of the board were the same, or some of them was a blockholder—was positive but statistically insignificant in the Full Model (B = 44.75, p = 0.994) and did not entered into the Reduced Model. Therefore, the hypothesis 7 was not supported. A possible explanation was derived from the study about the role of venture capitalist, called "vulture investors",[68] in the management of distressed firms conducted by Hotchkiss and Muradian (1996). They found that the vulture investors, who actively influenced restructurings and disciplined managers of distressed firms, frequently gained control of boards and management of the target companies, either joined the board of directors, or acted as the CEO. The result of the hypothesis 7, therefore, became insignificant.

H_{8a}: The increment in the percentage of the outside directors is positively related to the rehabilitation success of the REHABCO firms.

The coefficient of ΔOUTSIDER—the Difference of the percentage of outsiders of the board in the period between the inception and the end, or the most recent year of the rehabilitation process—was negative and statistically insignificant in the Full Model (B = -113.06, p = 0.990) and did not entered to the Reduced Model. Therefore, the hypothesis 8a was not supported. The possible explanation is related to the survival motivation of the REHABCO firms. Since the outside investors are typically reluctant to provide capital to restructure firms whose boards are completely controlled by insiders (Peng et al., 2003), both of the Success and the Failure REHABCO firms, therefore, attempted to reduce the controlling power of the insiders in order to gain confidence from the fund providers. As shown in Table 4, the mean of the percentage of the outsiders of the board of both of the Success and the Failure REHABCO firms increased to be 65%.[69]

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[68] A vulture fund is a financial organization that specialized in buying securities in distressed environments, such as high-yield bonds in or near default, or equities that are in or near bankruptcy.

[69] This figure is the percentage of outsider directors on board at the end of the rehabilitation process, or the most recent period.

The proportion did not only indicate that both groups tried to reduce agency cost between the insiders and outside financial stakeholders,[70] but was also consistent with the suggestion from the Government Pension Fund (2003) that the listed firms should equally maintain the proportions among the inside directors, outside directors, and independent directors. The result of the hypothesis 8a, therefore, became insignificant.

H_{8b}: The increment in the level of the board's independence is positively related to the success of the rehabilitation process.

The coefficient of ΔINDEP—the Difference of the percentage of independent directors of the board in the period between the inception and the end, or the most recent year of the rehabilitation process—was positive and statistically insignificant in the Full Model (B = 205.92, p = 0.985) and did not entered to the Reduced Model. Therefore, the hypothesis 8b was not supported. The result is consistent with the latest study by the World Bank (2005), stating that the board of directors of the Thai listed companies are dominated by controlling shareholders. The World Bank study also showed that director's independence of the Thai listed companies, particularly in smaller companies is quite limited. The result of the hypothesis 8b, therefore, became insignificant.

H_9: The increment in the level of founding family ownership at the rehabilitation period is positively related to the success of the rehabilitation process.

The coefficient of ΔFOUNDFAM—the Difference of the percentage of the founding family ownership in the period between the inception and the end, or the most recent year of the rehabilitation process—was positive and statistically insignificant in the Full Model (B = 11.09, p = 0.998) and did not entered to the Reduced Model. Therefore, the hypothesis 9 was not supported. Since the distressed firms required the substantial amount of newly injected funds to restructure their operations and capital structure, the

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[70] The firms' insiders consisted of controlling shareholders and managers. Firms' outside financial stakeholders consisted of debtholders and non-controlling shareholders.

existing shareholders unavoidably suffered in the form of share dilution due to debt-to-equity swaps with debtors, or issued new equity stakes to the new capitalists in exchange with the required funds (Dasri, 2000). The founding families, therefore, hardly maintained their ownership stakes in the REHABCO firms.

5.7.3 Earnings Management Hypothesis

One of the criteria used by the SET to determine the REHABCO firms' success in the rehabilitation process is the positive net income for at least three consecutive quarters. The REHABCO firms, therefore, might manage earnings upwards in order to accomplish the SET's criterion.

H_{10}: The level of the Discretionary accruals during the rehabilitation period is positively related to the success of the rehabilitation process.

The coefficient of DAC variable—the Yearly averaged Discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process—was positive and statistically significant (B = 19.659, p = .027) in the Reduced Model. Therefore, the hypothesis 10 was supported.[71] The result is consistent with the Positive Accounting Theory (Watt and Zimmerman, 1986), stating that firms could exercise their discretion to manipulate their reported earnings figures in the desired directions. Since the Aggregate accruals technique in detecting the earnings management behavior could not distinguish the ordinary firms that have extreme financial performance from the earnings management firms (Dechow et al., 1995; McNichols, 2000), this hypothesis, therefore, should be cautiously interpreted, because the positive level of the Discretionary accruals of the Success firms might be resulted from expanding of their operations during the rehabilitation process instead of intentionally managed by their managements.

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[71] I also found that the switching of the external auditors from the Big 4 auditing firms—Price Waterhouse Coopers, Deloitte Touche Tohmatsu,Earnst and Young, and KPMG Phoomchai Audit—to the local auditing firms were significantly related to the Success in the rehabilitation process of the REHABCO firm (p=0.02).

5.8 Additional test

Since there are three groups of the interesting factors containing in this study, the additional three logistic models were generated to assess the significance of the variables. The three logistic models consisted of the Value Creation Factors Variables Only, the Corporate Governance Improvement Variables only, and the Earnings Management Variable Only. As displayed in Table 10, there were two statistical significances in the model of Value Creation Factors Variables only. The significant variables consisted of ΔMKTSHR ($p<.10$) and TDRGAIN ($p<.01$). When compared to the Reduced Model of Table 8, the ΔMKTSHR variable became marginally significant instead of the SLGWTH variable because there was the high level of significant correlations between ΔMKTSHR and SLGWTH as displayed in Table 7. The results of the model of Corporate Governance Improvement Variables only displayed the ΔT&D as the only significant variable ($p<.01$) which was consistent with the result of the Reduced Model. Finally, the model of Earnings Management Variable Only was also consistent with the Reduced Model since the DAC variable was statistically significant at $p<.01$. The overall results of the additional three logistic models are quite consistent with the Reduced Model used for the hypotheses testing purpose.

5.9 Conclusion

The results of this study show various factors related to the success of the rehabilitation process of the companies under the mandatory rehabilitation process. After the logistic regression analysis was used, the five out of the twelve factors of interest were statistically significant. The factors consist of three Value Creation Factors—the Sales growth, the Gain from Debt Restructuring, and the Tangible assets availability, a Good Corporate Governance factor—the Transparency and Disclosure improvement, and an Earnings Management Behavior—Increase in Discretionary Accruals.[72]

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[72] The results of the logistic regression remained the same after rejecting an outlier observation with the studentized residuals greater than 3.00.

The result implied that the REHABCO firms emerging from the severe financially distressed status possessed some Value Creation Factors, and strongly attempted to transparently disclose their corporate information in order to attract new fresh funds from the external fund providers. The results also indicated that the REHABCO firms, either the Success or the Failure ones, tried to reduce the agency cost between the corporate insiders and the external financial stakeholders, as shown by the increase in the proportion of the outside directors, and the increase in the proportion of independent directors on the board from the period of the inception of the rehabilitation process. The result, however, also inferred that the board of directors of the REHABCO firms might not act in full responsibility, since the controlling shareholders of these firms still influenced firms operations via chairman of the board of directors, or CEO. Moreover, the result indicated that the founding families had substantially lost their ownership stakes to new fund providers in exchange with the vitality of the firms. Finally, in order to accomplish the SET's rehabilitation criteria, the Success REHABCO firms might attempted to manage their earnings upwards as shown by the substantial increment in the Discretionary accruals during the rehabilitation period.

This study, therefore, showed the evidences consistent with the purposed theories—the Agency Theory, and the Positive Accounting Theory, and the Discounted Free Cash Flow concept—which are related to the success in the rehabilitation process of the severe financially distressed firms.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Table 3

Details of the Companies Under Rehabilitation (REHABCO)

Panel A Sample distribution by Year entered into the REHABCO sector

Year	Success		Failure		Total	
	Firms	%	Firms	%	Firms	%
1997	4	8%	6	30%	10	15%
1998	14	29%	6	30%	20	29%
1999	13	27%	3	15%	16	24%
2000	5	10%	2	10%	7	10%
2001	5	10%	3	15%	8	12%
2002	3	6%	0	0%	3	4%
2003	3	6%	0	0%	3	4%
2004	1	2%	0	0%	1	1%
Total	48	100%	20	100%	68	100%

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Table 3, continued

Details of the Companies Under Rehabilitation (REHABCO)

Panel B Sample distribution by industry

Industry	Success		Failure		Total	
Name	Firms	%	Firms	%	Firms	%
Agribusiness	2	4%	2	10%	4	6%
Building and Furnishing Materials	10	21%	3	15%	13	19%
Chemicals and Plastics	3	6%	0	0%	3	4%
Commerce	1	2%	1	5%	2	3%
Electrical Products and Computer	5	10%	1	5%	6	9%
Electronic Components	1	2%	0	0%	1	1%
Entertainment and Recreation	1	2%	0	0%	1	1%
Foods and Beverages	1	2%	0	0%	1	1%
Health Care Services	2	4%	0	0%	2	3%
Hotels and Travel Services	0	0%	1	5%	1	1%
Household Goods	0	0%	1	5%	1	1%
Jewelry and Ornaments	0	0%	2	10%	2	3%
Machinary and Equipment	1	2%	1	5%	2	3%
Mining	1	2%	0	0%	1	1%
Others	0	0%	2	10%	2	3%
Packaging	1	2%	1	5%	2	3%
Printing and Publishing	1	2%	0	0%	1	1%
Property Development	14	29%	2	10%	16	24%
Pulp and Paper	0	0%	1	5%	1	1%
Textiles, Clothing and Footwear	2	4%	2	10%	4	6%
Vehicles and Parts	2	4%	0	0%	2	3%
Total	48	100%	20	100%	68	100%

Table 4

Comparison of the Success in the Rehabilitation Process Firms to the Failure in the Rehabilitation Process Firms

The sample consists of 68 firms entered into the mandatory rehabilitation process since 1996. Firms are identified as the Success in Rehabilitation Process Firms if 1) the SET transferred their securities back to their original sectors, 2) the SET allowed their securities to be traded again in the REHABCO sector, and 3) the most recent financial statement showed a positive amount of shareholders equities. Firms are identified as the Failure in Rehabilitation Process Firms if 1) the SET mandatorily delisted their securities out of the exchance, and 2) the most recent financial statement showed the worst amount of their shareholders equities as compared to the amount at the inception of the rehabilition process.

	At the inception period						At the end / most recent yr					
	Success firms (N = 48)		Failure Firms (N = 20)		p-value		Success firms (N = 48)		Failure Firms (N = 20)		p-value	
	mean	median	mean	median	t-test	Wilcoxon	mean	median	mean	median	t-test	Wilcoxon
Panel A Firms Characteristics												
Total Assets (Million Baht)	8,159	2,514	7,347	2,249	0.861	0.989	6,862	1,627	4,774	666	0.624	0.013
Total Liabilities / Total Assets	118.23%	113.38%	171.13%	101.02%	0.358	0.282	77.01%	57.69%	701.99%	382.42%	0.002	0.000
Net operating profit after tax / Sales (NOPAT / S)	-107.94%	-31.79%	-152.21%	-38.64%	0.521	0.228	-17.32%	1.60%	-639.20%	-37.81%	0.172	0.000
Years Spent in the rehabilitation process							4.50	4.50	3.05	2.50	0.007	0.011

Table 4

Comparison of The Success in Rehabilitation Process Firms to the Failure in Rehabilitation Process Firms (Continued)

	At the inception period						At the end / most recent yr					
	Success firms (N = 48)		Failure Firms (N = 20)		p-value		Success firms (N = 48)		Failure Firms (N = 20)		p-value	
	mean	median	mean	median	t-test	Wilcoxon	mean	median	mean	median	t-test	Wilcoxon
Panel B Debt Structure and interest rate												
Total Liabilities (M.B.)	9,475	3,287	7,801	3,160	0.725	0.851	5,322	1,008	9,563	3,484	0.373	0.003
Interest baring debt / Total liabilities	73.62%	75.13%	87.17%	85.95%	0.017	0.010	62.13%	74.77%	73.92%	72.60%	0.049	0.236
Effective Annual rate (EAR)	13.52%	13.82%	15.10%	13.79%	0.371	0.628	8.58%	2.61%	12.79%	15.22%	0.397	0.000
MLR of the 4 largest Thai banks - EAR	-1.63%	-0.91%	-2.62%	-1.25%	0.518	0.677	2.29%	3.57%	-3.43%	-3.57%	0.000	0.000
TDRgain (Million Baht)							3,267	867	380	0	0.000	0.000

Table 4

Comparison of The Success in Rehabilitation Process Firms to the Failure in Rehabilitation Process Firms (Continued)

	At the inception period						At the end / most recent yr					
	Success firms (N = 48)		Failure Firms (N = 20)		p-value		Success firms (N = 48)		Failure Firms (N = 20)		p-value	
	mean	median	mean	median	t-test	Wilcoxon	mean	median	mean	median	t-test	Wilcoxon
Panel C Operating Performance												
Sales (Million Baht)	3,164	844	1,027	634	0.172	0.216	5,420	1,375	1,129	217	0.195	0.000
Sales Growth	-23.2%	-20.0%	-25.9%	-28.0%	0.862	0.716	863.0%	24.5%	5.0%	-17.8%	0.219	0.003
Market Share	3.0%	1.1%	2.4%	1.0%	0.630	0.716	3.3%	1.1%	1.3%	0.5%	0.046	0.024
Total accruals / Total Assets	-0.22	-0.19	-0.29	-0.19	0.421	0.914	0.06	0.02	-0.27	-0.20	0.000	0.000
Total assets turnover	0.55	0.48	0.31	0.18	0.033	0.042	0.99	0.76	0.63	0.38	0.116	0.098

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

114

Table 4

Comparison of The Success in Rehabilitation Process Firms to the Failure in Rehabilitation Process Firms (Continued)

	At the inception period						At the end / most recent yr					
	Success firms (N = 48)		Failure Firms (N = 20)		p-value		Success firms (N = 48)		Failure Firms (N = 20)		p-value	
	mean	median	mean	median	t-test	Wilcoxon	mean	median	mean	median	t-test	Wilcoxon
Panel D Corporate Governance Charistics												
Transparency and Disclosure Score	41.15	42.00	42.35	39.50	0.645	0.301	45.25	45.00	42.65	41.00	0.351	0.005
Number of board members	9.85	9.00	7.70	8.00	0.048	0.029	9.10	9.00	6.85	7.00	0.002	0.003
% Outside director	0.60	0.61	0.56	0.57	0.536	0.706	0.65	0.65	0.65	0.69	0.985	0.798
% Independent Director	0.20	0.18	0.21	0.20	0.806	0.772	0.24	0.25	0.27	0.24	0.646	0.957
% stock held by founding families	0.31	0.33	0.23	0.22	0.181	0.175	0.12	0.00	0.15	0.02	0.598	0.308

115

Table 5

Match-Paired Comparison of The REHABCO firms Between the Period of the Inception and the End of the Rehabilitation Process

The sample consists of 68 firms entered into the mandatory rehabilitation process since 1996. Firms are identified as the Success in Rehabilitation Process Firms if 1) the SET transferred their securities back to their original sectors, 2) the SET allowed their securities to be traded again in the REHABCO sector, and 3) the most recent financial statement showed a positive amount of shareholders equities. Firms are identified as the Failure in Rehabilitation Process Firms if 1) the SET mandatorily delisted their securities out of the exchance, and 2) the most recent financial statement showed the worst amount of their shareholders equities as compared to the amount at the inception of the rehabilition process.

	Success REHABCO Firms						Failure REHABCO Firms					
	inception		end		p - value		inception		end		p - value	
	mean	median	mean	median	t-test	Wilcoxor	mean	median	mean	median	t-test	Wilcoxon
Panel A Firms Characteristics												
Total Assets (Million Baht)	8,159	2,514	6,862	1,627	0.020	0.003	7,347	2,249	4,774	666	0.005	0.000
Total Liabilities / Total Assets	118.23%	113.38%	77.01%	57.69%	0.000	0.000	171.13%	101.02%	701.99%	382.42%	0.002	0.000
Net operating profit after tax / Sales (NOPAT / S)	-107.94%	-31.79%	-17.91%	1.60%	0.014	0.000	-152.21%	-38.64%	-639.20%	-37.81%	0.282	0.940
Panel B Debt Structure and interest rate												
Total Liabilities (M.B.)	9,475	3,287	5,322	1,008	0.000	0.000	7,801	3,160	9,563	3,484	0.032	0.005
Interest baring debt / Total liabilities	73.62%	75.13%	62.13%	74.77%	0.046	0.059	87.17%	85.95%	73.92%	72.60%	0.013	0.009
Effective Annual rate (EAR)	13.52%	13.82%	8.58%	2.61%	0.309	0.000	15.10%	13.79%	12.79%	15.22%	0.204	0.478
MLR of the 4 largest Thai banks - EAR	-1.63%	-0.91%	2.29%	3.57%	0.000	0.000	-2.62%	-1.25%	-3.43%	-3.57%	0.609	0.433

116

Table 5 (continued)

Match-Paired Comparison of The REHABCO firms Between the Period of the Inception and the End of the Rehabilitation Process

	Success REHABCO Firms						Failure REHABCO Firms					
	inception		end		p - value		inception		end		p - value	
	mean	median	mean	median	t-test	Wilcoxor	mean	median	mean	median	t-test	Wilcoxon
Panel C Operating Performance												
Sales (Million Baht)	3,164	844	5,420	1,375	0.207	0.182	1,027	634	1,129	217	0.768	0.052
Sales Growth	-23.2%	-20.0%	863.0%	24.5%	0.206	0.000	-25.9%	-28.0%	5.0%	-17.8%	0.230	0.601
Market Share	3.0%	1.1%	3.3%	1.1%	0.396	0.735	2.4%	1.0%	1.3%	0.5%	0.117	0.004
Total accruals / Total Assets	-0.22	-0.19	0.06	0.02	0.000	0.000	-0.29	-0.19	-0.27	-0.20	0.934	0.296
Total assets turnover	0.55	0.48	0.99	0.76	0.020	0.001	0.32	0.18	0.63	0.38	0.002	0.008
Panel D Corporate Governance Characteristics												
Transparency and Disclosure Score	41.15	42.00	45.25	45.00	0.000	0.000	42.35	39.50	42.65	41.00	0.743	0.694
Number of board members	9.85	9.00	9.10	9.00	0.164	0.238	7.70	8.00	6.85	7.00	0.429	0.283
% Outside director	0.60	0.61	0.65	0.65	0.042	0.052	0.56	0.57	0.65	0.69	0.121	0.267
% Independent Director	0.20	0.18	0.24	0.25	0.064	0.039	0.21	0.20	0.27	0.24	0.228	0.248
% stock held by founding families	0.31	0.33	0.12	0.00	0.000	0.000	0.23	0.22	0.15	0.02	0.083	0.084

117

Table 6

Test of Difference for the Factors of Interest Between the Sample Groups

	Success Firms		Failure Firms		p-value	
Variables	Mean	Median	Mean	Median	t-test	wilcoxon
ΔMKTSHR	0.003	-0.001	-0.012	-0.004	0.075	0.017
SLGWTH	1.940	0.161	-0.164	-0.175	0.136	0.000
TDRGAIN	0.461	0.468	0.062	0.000	0.000	0.000
RERATE	0.039	0.037	-0.008	-0.022	0.016	0.006
ΔNOPAT	0.886	0.165	-4.870	0.055	0.208	0.046
TNGAVAI	18.183	2.097	12.583	6.355	0.450	0.021
ΔT&D	4.333	4.000	0.000	0.000	0.000	0.002
NON_DUALITY	0.188	0.000	0.100	0.000	0.332	0.375
ΔOUTSIDER	0.042	0.021	0.102	0.013	0.348	0.919
ΔINDEP	0.044	0.064	0.041	0.009	0.964	0.514
ΔFOUNDFAM	-0.187	-0.151	-0.144	-0.014	0.468	0.226
DAC	-0.089	-0.077	-0.387	-0.284	0.000	0.000
YRREHAB	4.500	4.500	3.050	2.500	0.007	0.011

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Table 6

Test of difference for the factors of interest between the sample groups (continued)

Definition of variables:

ΔMKSHR = the difference in the level of market share in the period between the inception and the end, or the most recent year of the rehabilitation process.

SLGWTH = averaged yearly sales growth in the rehabilitation period.

TDRGAIN = gain on debt restructuring during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

RERATE = the difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔNOPAT = the difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

TNGAVAI = the ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

ΔT&D = the difference of the Transparancy and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process.

NON_DUALITY = CEO non-duality at the end, or the most recent year of the rehabilitation

ΔOUTSIDER = the difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔINDEP = the difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔFOUNFAM = the difference of the percentage of founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.

DAC = the yearly averaged discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.

YRREHAB = the number of year stayed in the REHABCO sector (the control variable capturing for the rehabilitating duration).

Table 7

Spearman Correlations Coefficient among the Variables Based on the Whole Sample

	SLGWTH	TDRGAIN	RERATE	ΔNOPAT	TNGAVAI	ΔT&D	NON_ DUALITY	ΔOUT SIDER	ΔINDEP	ΔFOUND FAM	DAC	YRREHAB
ΔMKTSHR	0.61***	0.08	0.01	0.36***	0.33***	0.01	0.02	-0.12	-0.03	-0.22*	0.28**	0.00
SLGWTH		0.31**	0.04	0.56***	0.05	0.06	0.03	-0.03	-0.10	-0.24**	0.28**	0.32***
TDRGAIN			0.36***	0.20*	-0.10	0.18	0.03	0.04	-0.02	-0.33***	0.09	0.36***
RERATE				-0.25**	0.01	-0.15	-0.20	-0.14	-0.09	0.25**	-0.12	-0.35***
ΔNOPAT					0.20	0.02	-0.04	-0.08	-0.19	-0.21*	0.06	0.25**
TNGAVAI						0.03	-0.01	-0.09	-0.08	-0.23*	-0.36***	0.05
ΔT&D							0.15	-0.04	0.42***	0.12	0.16	0.23*
NON_DUALITY								-0.00	0.25**	-0.06	0.03	0.09
ΔOUTSIDER									0.22*	-0.18	0.00	0.26**
ΔINDEP										0.14	0.09	0.04
ΔFOUNDFAM											0.12	-0.17
DAC												-0.05

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

Table 7

Correlations Coefficient among the Variables Based on the Whole Sample

Definition of variables:

ΔMKSHR = the difference in the level of market share in the period between the inception and the end, or the most recent year of the rehabilitation process.

SLGWTH = averaged yearly sales growth in the rehabilitation period.

TDRGAIN = gain on debt restructuring during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

RERATE = the difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔNOPAT = the difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

TNGAVAI = the ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

ΔT&D = the difference of the Transparancy and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process.

NON_DUALITY = CEO non-duality at the end, or the most recent year of the rehabilitation

ΔOUTSIDER = the difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔINDEP = the difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔFOUNFAM = the difference of the percentage of founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.

DAC = the yearly averaged discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.

YRREHAB = the number of year stayed in the REHABCO sector (the control variable capturing for the rehabilitating duration).

Table 8

Results of logistic regression analysis

$$
\begin{aligned}
SUCCESS_i = \beta_0 &+ \beta_1 \Delta MKSHR_i + \beta_2 SLGWTH_i + \beta_3 TDRGAIN_i \\
&+ \beta_4 RERATE_i + \beta_5 \Delta NOPAT_i + \beta_6 TNGAVAI_i \\
&+ \beta_7 \Delta T\&D_i + \beta_8 NON_DUALITY_i \\
&+ \beta_9 \Delta OUTSIDER_i + \beta_{10} \Delta INDEP_i + \beta_{11} \Delta FOUNFAM_i \\
&+ \beta_{12} DAC_i + \beta_{13} YRREHAB_i + \varepsilon_i
\end{aligned}
$$

(Wald Statistic are in the parenthesis and p-value are in the bracket)

Variables	Predicted Sign	Full Model	Reduced Model
Constant		-43.62 (0.00) [0.984]	-0.91 (0.48) [0.488]
ΔMKTSHR	(+)	2591.67 (0.00) [0.982]	
SLGWTH	(+)	46.04 (0.00) [0.985]	2.04 (4.67) [0.031]
TDRGAIN	(+)	191.76 (0.00) [0.981]	8.72 (5.70) [0.017]
RERATE	(+)	145.92 (0.00) [0.995]	
ΔNOPAT	(+)	13.93 (0.00) [0.987]	
TNGAVAI	(+)	-1.67 (0.00) [0.978]	-0.03 (2.73) [0.098]
ΔT&D	(+)	12.51 (0.00) [0.979]	0.73 (5.45) [0.020]
NON_DUALITY	(+)	44.75 (0.00) [0.994]	
ΔOUTSIDER	(+)	-113.06 (0.00) [0.990]	
ΔINDEP	(+)	205.92 (0.00) [0.985]	
ΔFOUNDFAM	(+)	11.09 (0.00) [0.998]	
DAC	(+)	433.16 (0.00) [0.984]	19.66 (4.89) [0.027]
YRREHAB	(+)	16.61 (0.00) [0.982]	0.81 (3.22) [0.073]
Nagelkerke R^2		>0.999	0.857
Model Chi-Square		82.388 [0.000]	62.661 [0.000]
-2 Log Likelihood		-	19.727
Percent correct prediction		100.0%	97.1%
Type I error Percentage		0.0%	5.0%

Dependent variable = Success in Rehabilitation Process (1 = success, 0 = Failure). N = 68.

Table 8

Results of logistic regression analysis (continued)

Definition of variables:

ΔMKSHR = the difference in the level of market share in the period between the inception and the end, or the most recent year of the rehabilitation process.

SLGWTH = averaged yearly sales growth in the rehabilitation period.

TDRGAIN = gain on debt restructuring during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

RERATE = the difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔNOPAT = the difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

TNGAVAI = the ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

ΔT&D = the difference of the Transparancy and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process.

NON_DUALITY = CEO non-duality at the end, or the most recent year of the rehabilitation

ΔOUTSIDER = the difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔINDEP = the difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔFOUNFAM = the difference of the percentage of founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.

DAC = the yearly averaged discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.

YRREHAB = the number of year stayed in the REHABCO sector (the control variable capturing for the rehabilitating duration).

Table 9

Prediction results

Panel a: Prediction Results of the Full Model (the cut value is 0.50)

			Predicted		
			Rehabilitation outcome		Percentage
	Observed		Failure	Success	Correct
Full Model	Rehabilitation outcome	Failure	20	0	100.0%
		Success	0	48	100.0%
		Overall Percentage			100.0%

Panel b: Prediction Results of the Reduced Model (the cut value is 0.50)

			Predicted		
			Rehabilitation outcome		Percentage
	Observed		Failure	Success	Correct
Reduced Model	Rehabilitation outcome	Failure	19	1	95.0%
		Success	1	47	97.9%
		Overall Percentage			97.1%

สถาบันวิทยบริการ
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Table 9

Prediction results (continued)

Panel c: Prediction Results of the Full Model (the cut value is 0.29)

	Observed		Predicted: Rehabilitation outcome Failure	Predicted: Rehabilitation outcome Success	Percentage Correct
Full Model	Rehabilitation outcome	Failure	20	0	100.0%
		Success	0	48	100.0%
		Overall Percentage			100.0%

Panel d: Prediction Results of the Reduced Model (the cut value is 0.29)

	Observed		Predicted: Rehabilitation outcome Failure	Predicted: Rehabilitation outcome Success	Percentage Correct
Reduced Model	Rehabilitation outcome	Failure	15	5	75.0%
		Success	0	48	100.0%
		Overall Percentage			92.6%

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Table 10

Additional results of logistic regression analysis

$$SUCCESS_i = \beta_0 + \beta_1 \Delta MKSHR_i + \beta_2 SLGWTH_i + \beta_3 TDRGAIN_i + \beta_4 RERATE_i + \beta_5 \Delta NOPAT_i + \beta_6 TNGAVAI_i + \beta_7 \Delta T\&D_i + \beta_8 NON_DUALITY_i + \beta_9 \Delta OUTSIDER_i + \beta_{10} \Delta INDEP_i + \beta_{11} \Delta FOUNFAM_i + \beta_{12} DAC_i + \beta_{13} YRREHAB_i + \varepsilon_i$$

(Wald Statistic are in the parenthesis and p-value are in the bracket)

Variables	Predicted Sign	Value Creation Factors Variables Only	Corporate Governance Improvement Variables only	Earnings Management Variable Only
Constant		-0.88 (1.18) [0.278]	-0.98 (2.13) [0.144]	0.42 (0.32) [0.001]
ΔMKTSHR	(+)	43.90 (3.00) [0.083]		
SLGWTH	(+)	0.65 (1.46) [0.227]		
TDRGAIN	(+)	5.83 (7.24) [0.007]		
RERATE	(+)	8.42 (1.77) [0.184]		
ΔNOPAT	(+)	0.04 (0.13) [0.718]		
TNGAVAI	(+)	-0.02 (1.86) [0.173]		
ΔT&D	(+)		0.28 (7.17) [0.007]	
NON_DUALITY	(+)		0.51 (0.22) [0.638]	
ΔOUTSIDER	(+)		-2.41 (1.99) [0.159]	
ΔINDEP	(+)		-1.12 (0.34) [0.561]	
ΔFOUNDFAM	(+)		-1.66 (1.27) [0.259]	
DAC	(+)			8.25 (10.76) [0.009]
YRREHAB	(+)	0.19 (0.89) [0.345]	0.33 (3.85) [0.050]	0.54 (6.82) [0.573]
Nagelkerke R^2		0.599	0.385	0.508
Model Chi-Square		37.098 [0.000]	21.438 [0.000]	29.999 [0.000]
-2 Log Likelihood		45.291	60.951	52.390
Percent correct prediction		83.8%	70.6%	82.4%
Type I error Percentage		30.0%	65.0%	45.0%

Dependent variable = Success in Rehabilitation Process (1 = success, 0 = Failure). N = 68.

Table 10

Additional results of logistic regression analysis (continued)

Definition of variables:

ΔMKSHR = the difference in the level of market share in the period between the inception and the end, or the most recent year of the rehabilitation process.

SLGWTH = averaged yearly sales growth in the rehabilitation period.

TDRGAIN = gain on debt restructuring during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

RERATE = the difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔNOPAT = the difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

TNGAVAI = the ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

ΔT&D = the difference of the Transparancy and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process.

NON_DUALITY = CEO non-duality at the end, or the most recent year of the rehabilitation

ΔOUTSIDER = the difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔINDEP = the difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔFOUNFAM = the difference of the percentage of founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.

DAC = the yearly averaged discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.

YRREHAB = the number of year stayed in the REHABCO sector (the control variable capturing for the rehabilitating duration).

Table 11

Prediction results of the additional tests

Panel a: Prediction Results of the Value Creation Factors Variables only (the cut value is 0.50)

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	14	6	70.0%
	Success	5	43	89.6%
	Overall Percentage			83.8%

Panel b: Prediction Results of the Corporate Governance Improvement Variables only (the cut value is 0.50)

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	7	13	35.0%
	Success	7	41	85.4%
	Overall Percentage			70.6%

Panel c: Prediction Results of the Earnings Management Variable only (the cut value is 0.50)

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	11	9	55.0%
	Success	3	45	93.8%
	Overall Percentage			82.4%

Table 11

Prediction results of the additional tests (continued)

Panel d: Prediction Results of the Value Creation Factors Variables only (the cut value is 0.29)

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	11	9	55.0%
	Success	0	48	100.0%
	Overall Percentage			86.8%

Panel e: Prediction Results of the Corporate Governance Improvement Variables only (the cut value is 0.29)

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	5	15	25.0%
	Success	1	47	97.9%
	Overall Percentage			76.5%

Panel f: Prediction Results of the Earnings Management Variable only (the cut value is 0.29)

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	7	13	35.0%
	Success	2	46	95.8%
	Overall Percentage			77.9%

Table 12

Summary results of Hypothesis Testing

Hypothesis Number	Relationship Variables	Predicted sign	Test Result	Level of Significant
1	DMKTSHR	(+)	Not Support	
2	SLGWTH	(+)	Support	P<.05
3_a	TDRGAIN	(+)	Support	P<.05
3_b	RERATE	(-)	Not Support	
4	DNOPAT	(+)	Not Support	
5	TNGAVAI	(+)	Not Support	
6	DT&D	(+)	Support	P<.05
7	NON_DUALITY	(+)	Not Support	
8_a	DOUTSIDER	(+)	Not Support	
8_b	DINDEP	(+)	Not Support	
9	DFOUNDFAM	(+)	Not Support	
10	DAC	(+)	Support	P<.05

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Table 12

Summary results of Hypothesis Testing

Definition of variables:

ΔMKSHR = the difference in the level of market share in the period between the inception and the end, or the most recent year of the rehabilitation process.

SLGWTH = averaged yearly sales growth in the rehabilitation period.

TDRGAIN = gain on debt restructuring during the rehabilitation period deflated by total liabilities at the inception of the rehabilitation process.

RERATE = the difference between the Minimum Lending Rate (MLR) of 4 Thai largest banks and the actual effective lending rate in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔNOPAT = the difference in the level of net operating profit after taxes in the period between the inception and the end, or the most recent year of the rehabilitation process.

TNGAVAI = the ratio of Tangible Assets / Sales at the inception of the rehabilitation process.

ΔT&D = the difference of the Transparancy and Disclosure score, measured by the Standard & Poors' T&D scoring, in the period between the inception and the end, or the most recent year of the rehabilitation process.

NON_DUALITY = CEO non-duality at the end, or the most recent year of the rehabilitation

ΔOUTSIDER = the difference of the percentage of outsiders on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔINDEP = the difference of the percentage of independent directors on the board in the period between the inception and the end, or the most recent year of the rehabilitation process.

ΔFOUNFAM = the difference of the percentage of founding family ownership between the inception and the end, or the most recent year of the rehabilitation process.

DAC = the yearly averaged discretionary accruals in the period of the rehabilitation process deflated by the total assets at the inception of the rehabilitation process.

YRREHAB = the number of year stayed in the REHABCO sector (the control variable capturing for the rehabilitating duration).

Chapter 6
CONCLUSIONS

The five preceding chapters present the research problem, a review of the literature, the methodology used to conduct the study, and the results of the analytical procedures. The chapter 6, the final chapter of this study, contains four sections with a discussion and an interpretation of the results. The first section presents an overview of the study; followed by a discussion and an interpretation of the results. The third section is a discussion of the limitations of this study. The final section provides suggestions for the future research.

6.1 Overview of the Study

The purpose of this study is to determine the factors leading to the success in the rehabilitation process of the severe financially distressed firms in Thailand. The dependent variable is the Success in the rehabilitation process (SUCCESS) operationally defined as one (1) if the Firm in the Rehabilitation Process (REHABCO) successfully rehabilitated its financial status and operating results and zero (0) if such firm unsuccessfully rehabilitated. The independent variables consist of the Value Creation Factors, the Good Corporate Governance Factors, and the Earnings Management Behavior. Twelve independent variables and a control variable used in the data analysis are the Change in market share (ΔMKSHR), the Sales growth (SLGWTH), the Gain on troubled debt restructuring (TDRGAIN), the Reduction in the effective interest rate (RERATE), the Change in net operating profit after taxes (ΔNOPAT), the Tangible assets availability (TNGAVAI), the Change in transparency and disclosure score (ΔT&D), the CEO Non-duality (NON_DUALITY), the Change in outsider directors proportion (ΔOUTSIDER), the Change in independent directors proportion (ΔINDEP), the Change in the founding families ownership proportion (ΔFOUNFAM), The Discretionary accruals (DAC), and the Number of years in the rehabilitation process (YRREHAB). The sample consists of 68 companies under the rehabilitation process (REHABCO), which are the severe financially distressed firms, almost all of them showed some negative amount of

the shareholders equity in their balance sheets as of the inception of the rehabilitation process. Data were collected from electronically archived financial data and the form 56-1 proxy statements stored at the Stock Exchange of Thailand (SET).

The data analysis consisted of fitting a parsimonious logistic regression model by using the backward elimination procedure to regress the dependent variable, Success in the Rehabilitation Process, on the twelve independent variables and a control variable. The procedure has generated the Reduced model with the six statistically significant variables at $p<.10$ level—SLGWTH, TDRGAIN, TNGAVAI, ΔT&D, DAC, and YRREHAB. The Reduced model is a good predictor, which correctly predicted the result of the rehabilitation process by 97.1% with only five percent of the Type I error.

6.2 Discussion and Interpretation of the Results

The discussion of the results presents an interpretation of the findings generated by the analytical method used in this study. The interpretation begins with a discussion of the variables, and concludes with a summary of the findings.

6.2.1 The Variables

Since 1996, the Stock Exchange of Thailand has established the Delisting rules and the Rehabilitation guidelines to govern the Thai listed firms. More than 100 firms have faced the delisting risk and almost half of them has successfully rehabilitated as the vital firms again. The Success firms were hypothesized to possess some of valuable properties, to attract the external fund providers by reducing the agency cost, and to manage their earnings upwards. Consequently, this study focuses on the factors leading to the success in the rehabilitation process of these firms.

6.2.1.1 Value Creation Factors

As stated by Brigham and Ehrhardt (2002), a firm's value could be driven by four fundamental drivers which are composed of the growth in sales, the operating profitability, capital requirements, and the weighted average cost of capital. In

this study, I hypothesized that the REHABCO firms, especially the Success ones, would have strong motivation to show evidences about their ability to create wealth for the new fund providers.

The results of this study reveal that three out of six Value Creation Factors Variables are significantly related to the success in the rehabilitation process. These variables consist of the Sales growth during the **rehabilitation** period, the Success in the troubled debt restructuring during the rehabilitation period, and the Level of the tangible assets availability. The result, therefore, supports the Market Value Added Concept introduced by Stewart (1991). This study was inconclusive in the relationship between the success in the rehabilitation process and the remaining Value Creation Factors—the Change in the market share, the Reduction in the effective interest rate, and the Change in net operating profit after taxes.

6.2.1.2 Good Corporate Governance improvements

The review of the literature revealed research findings that support a relationship between the Good Corporate Governance and the firm's operating performance, and the findings that support a relationship between the Good Corporate Governance and the stock price. The past findings could imply that the Good Corporate Governance improvements are advantageous to the REHABCO firms which really need a huge amount of financial supports from the external funds providers. The result of this study appears to support this implication because the Success REHABCO firms have significantly improved their transparency and disclosure as measured by the Standard & Poors' T&D scoring. Although the rest of the Good Corporate Governance improvement variables were not statistically related to the success in the rehabilitation process, it still appeared there had been the attempts of the REHABCO firms to intensively improve their governance in several ways such as the increase in the outside director's proportion and the independent director's proportion. The result, however, also indicates that controlling shareholders still possessed a strong influence in the firms operations via the chairman of the board of directors, or CEO. The REHABCO firms' management, therefore, might not act in full responsibility to equally maximize wealth for all shareholders. The result reveals

that the founding families of both Success and Failure REHABCO firms substantially lost their ownership proportion to the new fund providers and their debtors.

6.2.1.3 Earnings management

The earnings management is a purposeful intervention in the external financial reporting process, with the intent to obtain some private gain (Schipper, 1989: 92). In this study, I hypothesized that the Success REHABCO firms might manage their earnings upwards in order to meet the rehabilitation criteria established by the SET. The results of this study appear to support the hypothesis because the averaged Discretionary accruals of the Success REHABCO firms during the rehabilitation period were significantly positive.

6.2.1.4 Conclusion of the findings

The purpose of this study is to determine the factors leading to the success in the rehabilitation process of the severe financially distressed firms in Thailand. The results of this study indicate five variables that are statistically related to the success in the rehabilitation process. These variables consist of three variables representing the Value Creation Factors (the Sales growth during the rehabilitation period, the success in the troubled debt restructuring during the rehabilitation period, and the Level of the tangible assets availability), a Good Corporate Governance improvement variable (the Transparency and Disclosure Improvement), and the earnings management variable (the Averaged level of the Discretionary accruals during the rehabilitation process).

The results of the study imply that the Success REHABCO firms possessed the Value Creation Factors, improved their transparency and disclosure, and managed their earnings to attract the external funds providers and to meet the SET's rehabilitation criteria. Overall, the study results support the Discounted Free Cash Flow Concept, the Agency Theory, and the Positive Accounting Theory.

6.3 Limitations

Although the results of this study might be useful to the investors, the securities analysts, the firms, and the capital market regulators, some of limitations are noted.

One is that the relatively small sample size (n = 68) was constrained from the data limitations that might reduce the generalizability of the study findings. The small sample size problem also reduced the power of the empirical tests because there were several variables that were significantly different between groups of the REHABCO firms but were not significantly different in the logistic regression models.

Second, although this study concluded that the Success REHABCO firms might manage their earnings in order to meet the SET's Rehabilitation criteria, the readers should be cautiously reminded that the aggregate accruals models might accept the earnings management hypothesis of the firms with the extreme financial performance (Dechow et al., 1995). Instead of the intentionally managed earnings via the discretionary accruals, the significant level of the positive Discretionary accruals might coincidently result from the Thailand's economic recovery since 1999. Moreover, due to the data limitation problem, this study could not use the Modified Jones aggregate accruals Model introduced by Dechow et al. (1995), which has superior properties as compared with other four aggregate accruals models. The results, therefore, might contain the measurement error of the Discretionary accruals level.

Third, their might be the possibility of the market share measurement error. As the Market Share figure could be calculated by the company sales divided by total industry sales, I could not collect the reliable and comparable amount of the total industry sales. The proxies of the total industry sales in this study, therefore, are the sum of the sales amount of the Large Tax Organization (LTO) that were assembled and classified by the Revenue Department. Although the Market share calculated from the LTO sales could avoid the double-counting problem and provide a more reliable proxy of the firm's market share, this method might contained some of the measurement error. As constrained by

time and financial resources, however, the market share figures calculated from this method are the best possible proxy of the market share I could obtain.

Finally, the aims of this study is to find factors leading to the success in the rehabilitation process of the REHABCO firms, readers should be cautiously reminded that the Failure REHABCO firms do not necessarily be the economically distressed firms. These firms still have a chance to emerge from the severe financially distressed situation and re-listing with the Stock Exchange of Thailand again.

6.4 Suggestions for the Future Research

In term of the corporate restructuring research, this study points to the new avenues for the further research. For example, there are possibly other factors leading to the rehabilitation success that are not addressed by this study. As several Success REHABCO firms have emerged from the severe financially distressed status with the new politically related controlling shareholders, the additional rehabilitation success factors, therefore, may be related to the types of the new controlling shareholders and the political connection of the controlling shareholders.

Although the SET aims at protecting the minority shareholders of the severe financially distressed firms by giving a rehabilitation chance to these firms instead of delisting them immediately, the procedure concerning the prohibition of the trading activities of these firm's securities in the rehabilitation period might be questioned. On one hand, the trading prohibition and the separation of the distressed firms' securities into the REHABCO sector might benefit the exchange as a whole because this procedure could clearly distinguish the inferior securities out of the good ones. On the other hand, the trading prohibition rule effectively abused the competitive mechanism in the exchange and created the enormous upside potential opportunity to the affluent investors. The future investigations, therefore, should assess whether the existing minority shareholders of the REHABCO firms have got the equality benefit from the rehabilitation rules as proposed by the SET or not.

Equally important for the future research is to investigate the alternative criteria used to specify whether a listed firm must enter the mandatory rehabilitation process. Since 1998, the negative amount of the shareholders equities has been the most important criterion specifying the listed firms who are subjected to the rehabilitation requirement. This criterion might unintentionally specify the good firms to be the inferior ones. This is because the Balance Sheet has failed to represent most of valuable properties of the firms, especially the intangible assets, which could be even more valuable than the tangibles the firms already possessed. As the rehabilitation requirements could severely diminish the value of the firms, therefore, the better justification is necessary for the development of our capital market.

Finally, the result of this study indicated the income-increasing earnings management behavior of the Success REHABCO firms. The future research should extend the examination of this issue whether these firms have switched their normal accounting practice to the more aggressive ones or not.

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จุฬาลงกรณ์มหาวิทยาลัย

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สมาคมนักบัญชีและผู้สอบบัญชีรับอนุญาตแห่งประเทศไทย มาตรฐานการบัญชีของไทยฉบับรวมเล่ม (ปรับปรุง พ.ศ. 2546) เล่ม 1 กรุงเทพ: กุมภาพันธ์ 2546.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

APPENDICE

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Appendix A

Sample Firms from the Stock Exchange of Thailand

Code	Name	Industrial Sector	Status
ABICO	Abico Holdings PLC.	Agribusiness	Failure
BIJOUX	Bijoux Holdings PLC.	Jewelry and Ornaments	Failure
BSI	Bangkok Steel Industry PLC.	Building and Furnishing Materials	Failure
CMG	Chaophya Marble-Granite PLC.	Building and Furnishing Materials	Failure
CPICO	Central Paper Industry PLC.	Pulp and Paper	Failure
GRANIT	Thai Granite PLC.	Building and Furnishing Materials	Failure
O-LAP	Oriental Lapidary PLC.	Jewelry and Ornaments	Failure
PIC	Phuket Island PLC.	Hotels and Travel Services	Failure
RENOWN	Renown Leatherwears PLC.	Others (Leatherware)	Failure
SS	Sunshine PLC.	Electrical Products and Computer	Failure
STACO	STA Group (1993) PLC.	Household Goods	Failure
SUNTEC	Sun Tech Group PLC.	Others (Scrap Provider)	Failure
S-VARA	Srivara Real Estate Group PLC.	Property Development	Failure
TEM	Thai Engine Manufacturing PLC.	Machinary and Equipment	Failure
T-FISH	Thai Fisheries PLC.	Agribusiness	Failure
TM	Thai Modern Plastic Industry PLC.	Packaging	Failure
TMP	Thai Melon Polyester PLC.	Textiles, Clothing and Footwear	Failure
TYONG	Tanayong PLC.	Property Development	Failure
VK	Vidhayakom PLC.	Commerce	Failure

Appendix A

Sample Firms from the Stock Exchange of Thailand

Code	Name	Industrial Sector	Status
WFC	Wongpaitoon Group PLC.	Textiles, Clothing and Footwear	Failure
APC	Advance Paint & Chemical (Thailand) PLC.	Building and Furnishing Materials	Success
BGES	Picnic Corporation PLC. (B.Grimm Engineering Systems PLC.)	Property Development	Success
BH	Bumrungrad Hospital PLC.	Health Care Services	Success
CNT	Christiani & Nielsen (Thai) PLC.	Property Development	Success
CNTRY	Country (Thailand) PLC.	Property Development	Success
DISTAR	Distar Electric Corporation PLC.	Electrical Products and Computer	Success
DTM	Datamat PLC.	Electrical Products and Computer	Success
EMC	EMC PLC.	Property Development	Success
EPCO	Eastern Printing PLC.	Printing and Publishing	Success
EWC	Eastern Wire PLC.	Building and Furnishing Materials	Success
GEN	General Engineering PLC.	Building and Furnishing Materials	Success
IFEC	Inter Far East Engineering PLC.	Electrical Products and Computer	Success
KKC	Kulthorn Kirby PLC.	Electrical Products and Computer	Success
KMC	Krisda Mahanakorn PLC.	Property Development	Success
MEDIAS	Media Of Medias PLC.	Entertainment and Recreation	Success

Appendix A

Sample Firms from the Stock Exchange of Thailand

Code	Name	Industrial Sector	Status
MHOME	K.C. Property PLC. (Modern Home Development PLC.)	Property Development	Success
MS	Millineum Steal PLC.	Building and Furnishing Materials	Success
NFC	National Fertilizer PLC.	Chemicals and Plastics	Success
NPARK	Natural Park PLC.	Property Development	Success
NSM	Nakornthai Strip Mill PLC.	Building and Furnishing Materials	Success
PAE	PAE (Thailand) PLC.	Property Development	Success
PERFEC	Property Perfect PLC.	Property Development	Success
PP	Power-P PLC.	Building and Furnishing Materials	Success
PRECHA	Preecha Group PLC.	Property Development	Success
RAIMON	Raimon Land PLC.	Property Development	Success
RANCH	Bangkok Ranch PLC.	Agribusiness	Success
RCI	The Royal Ceramic Industry PLC.	Building and Furnishing Materials	Success
ROBINS	Robinson Department Store PLC.	Commerce	Success
SAICO	Siam Agro-Industry Pineapple And Others PLC.	Foods and Beverages	Success
SKR	Sikarin PLC.	Health Care Services	Success
SMC	Swedish Motors Corporation PLC.	Vehicles and Parts	Success
SMPC	Sahamitr Pressure Container PLC.	Packaging	Success
STEC	Sino-Thai Engineering And Construction PLC.	Property Development	Success

Appendix A

Sample Firms from the Stock Exchange of Thailand

Code	Name	Industrial Sector	Status
STRD	Sino-Thai Resources Development PLC.	Mining	Success
SVI	Semiconductor Ventures International PLC.	Electronic Components	Success
SVOA	Sahaviriya Oa PLC.	Electrical Products and Computer	Success
SYNTEC	Siam Syntech Construction PLC.	Property Development	Success
TCJ	TCJ Motor PLC.	Machinary and Equipment	Success
TDT	Thai Durable Textile PLC.	Textiles, Clothing and Footwear	Success
TGP	Thai Gypsum Products PLC.	Building and Furnishing Materials	Success
TGPRO	Thai-German Products PLC.	Building and Furnishing Materials	Success
THECO	Thai Heat Exchange PLC.	Vehicles and Parts	Success
TNPC	Thai Nam Plastic PLC.	Chemicals and Plastics	Success
TPI	Thai Petrochemical Industry PLC.	Chemicals and Plastics	Success
TPROP	Thai Property PLC. (former Rattana Real Estate PLC.)	Property Development	Success
TUNTEX	Tuntex (Thailand) PLC.	Textiles, Clothing and Footwear	Success
TWC	Thai Wah PLC.	Agribusiness	Success
TWP	Thai Wire Products PLC.	Building and Furnishing Materials	Success

APPENDIX B

Test for Normality of the Pre- and the Post-rehabilitation Characteristics of the REHABCO Firms

	At the inception period				At the end / most recent yr			
	Success firms		Failure Firms		Success firms		Failure Firms	
	K-S*	P-value	K-S*	P-value	K-S*	P-value	K-S*	P-value
Panel A Firms Characteristics								
Total Assets	2.41	0.0000	1.67	0.0078	2.61	0.0000	1.79	0.0034
Total Liabilities / Total Assets	1.12	0.1598	1.69	0.0067	1.76	0.0042	1.08	0.1911
Net operating profit after tax / Sales (NOPAT / S)	1.95	0.0010	1.56	0.0153	2.45	0.0000	1.86	0.0020
Years Spent in the rehabilitation process					1.07	0.2003	0.97	0.2979
Panel B Debt Structure and interest rate								
Total Liabilities	2.41	0.0000	1.45	0.0291	2.68	0.0000	1.50	0.0227
Interest baring debt / Total liabilities	1.11	0.1677	0.74	0.6367	1.27	0.0784	0.50	0.9652
Effective Annual rate (EAR)	0.78	0.5831	0.74	0.6362	2.84	0.0000	0.94	0.3399
Difference between EAR and the MLR of	0.89	0.4081	0.78	0.5825	1.10	0.1786	0.46	0.9843
TDRgain					1.86	0.0020	1.67	0.0074

*K-S referred to the Kolmogorov - Smirnov statistic.

APPENDIX B, continued

Test for Normality of the Pre- and the Post-rehabilitation Characteristics of the REHABCO Firms

	At the inception period				At the end / most recent yr			
	Success firms		Failure Firms		Success firms		Failure Firms	
	K-S*	P-value	K-S*	P-value	K-S*	P-value	K-S*	P-value
Panel C Operating Performance								
Sales	2.64	0.0000	1.39	0.0425	2.85	0.0000	1.57	0.0142
Sales Growth	0.61	0.8465	0.94	0.3462	3.09	0.0000	1.11	0.1672
Market Share	2.21	0.0001	1.28	0.0751	2.04	0.0005	1.37	0.048
Total accruals / Total Assets	0.61	0.8442	1.05	0.2226	1.48	0.0251	0.63	0.8242
Total assets turnover	0.93	0.3495	1.18	0.1213	1.63	0.0100	0.83	0.4936
Panel D Corporate Governance Charistics								
Transparency and Disclosure Score	1.21	0.105	1.24	0.0936	0.97	0.2988	1.14	0.1512
Number of board members	1.09	0.1885	0.87	0.4366	0.81	0.5284	1.01	0.2611
Outside Director percentage	0.64	0.8092	0.51	0.9553	0.46	0.9836	0.59	0.8788
Independent Director percentage	0.61	0.8445	0.40	0.9973	0.6	0.8673	0.83	0.5018
% stock held by founding families	1.04	0.2264	0.79	0.5638	2.26	0.0001	1.33	0.0567

*K-S referred to the Kolmogorov - Smirnov statistics

APPENDIX C

Prediction results of the Reduced Model:

The leaves-one-out cross validation procedure*

Panel A: the cut value is 0.50

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	16	4	80.0%
	Success	4	44	91.7%
	Overall Percentage			88.2%

* Hold out 1 sample out of the 68 samples and fit model to the remaining 67 samples for 68 times and then average the results.

Panel B: the cut value is 0.29

		Predicted		
		Rehabilitation outcome		Percentage
Observed		Failure	Success	Correct
Rehabilitation outcome	Failure	15	5	75.0%
	Success	3	44	91.7%
	Overall Percentage			86.8%

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VITA

Somsak Pratomsrimek was born in Chiengmai, Thailand, on July 8th, 1972, a son of Kitti Pratomsrimek and Sriwan Pratomsrimek. He received his Bachelor of Arts from Burapha University, Chonburi, Thailand, in 1993. After graduation, Somsak went on to work for Thai Investment and Securities Public Company Limited (TISCO) as an accounting and treasury staff. During this period, he also attended Thammasat University, Thailand and received his Master of Science (Accounting) in 1996. After graduation, Somsak moved to work for Quality House Public Company Limited (QH) as an assistant accounting manager. Since 1999, Somsak worked in Burapha University as a lecturer. In June 2001, he entered the Doctor of Philosophy Program in Accountancy of Chulalongkorn University. He also earned a Certified Public Accountant License of Thailand in 2005.

Somsak had presented a research paper named "Earnings Management to Avoid Mandatory Rehabilitation Status: Empirical Evidence from the Stock Exchange of Thailand" at the 5th Asian Academic Accounting Association Annual Conference, Bangkok, Thailand on October 10, 2004.

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