國立交通大學

管理科學系

博 士 論 文

No.013

進入國際市場之決策訂定
-以台灣銀行業為例

Decision Making for International Market Entry: Evidence from the Banking Market in Taiwan

研 究 生：施翠倚

指導教授：張力元　教授

中 華 民 國 九 十 四 年 六 月

國立交通大學

管理科學系

博 士 論 文

No.013

進入國際市場之決策訂定
-以台灣銀行業為例

Decision Making for International Market Entry: Evidence from the Banking Market in Taiwan

研　　究　　生：施翠倚

研究指導委員會：姜　齊　教授

朱博湧　教授

指導教授：張力元　教授

中 華 民 國 九 十 四 年 六 月

進入國際市場之決策訂定
-以台灣銀行業為例

Decision Making for International Market Entry: Evidence from the Banking Market in Taiwan

研 究 生：施翠倚　　Student：Shih Tsui Yii

指導教授：張力元　　Advisor：Charles V. Trappey

國 立 交 通 大 學

管理科學系

博 士 論 文

A Dissertation

Submitted to Department of Management Science

College of Management

National Chiao Tung University

in Partial Fulfillment of the Requirements

for the Degree of

Doctor of Philosophy

in

Management

June 2005

Hsin-Chu, Taiwan, Republic of China

中華民國九十四年六月

進入國際市場之決策訂定
-以台灣銀行業為例

研究生：施翠倚　　指導教授：張力元

國立交通大學管理科學系博士班

摘　　要

本論文探討國際市場進入模式的決策訂定，研究內容鎖定台灣銀行產業，研究中對於企業國際化模式提供了調查結果與具體建議。成功國際化公司的特徵著重在國際化流程的管理、投資風險的知識、以及在風險與市場不確定性之下國外投資的績效。本研究分析 Johanson 和 Vahlne 兩位學者發展出的國際化流程模式，並輔以經理人在制定國際投資決策下的風險態度，推導出整數規劃模式。研究中並使用敏感度分析法來探討模式參數改變時最佳決策解的變化；進行專家訪談，瞭解台灣銀行產業之發展趨勢，並提供不同的國際投資決策修正模式以供參考。

關鍵詞：國際化流程模式、國際投資決策模式、整數規劃、敏感度分析。

Decision Making for International Market Entry: Evidence from the Banking Market in Taiwan

Student：Shih Tsui Yii　　Advisor：Dr. Charles V. Trappey

Department of Management Science
National Chiao Tung University

Abstract

This dissertation analyzes decision making for international market entry. The focus is on the Taiwan banking market. New findings are presented and suggestions provided for improving decision-making. Successful international firms are characterized by their management of the internationalization process, their knowledge of the risks of their investments and their performance investing abroad under conditions of risk and market uncertainty. This research analyzes the internationalization processes developed by Johanson and Vahlne and derives integer programming models that consider the risk attitudes of managers when making international investment decisions. The methodology includes sensitivity analysis to determine how optimal investment decisions change when the parameters of the model are changed. Expert interviews are conducted to discuss the development of the Taiwan banking market and provide different revised international investment decision models as a reference.

Key Words: internationalization process model, international investment decision model, integer programming, sensitivity analysis.

Acknowledgements

This dissertation has benefited greatly from the comments and suggestions of the research committee including Professor Po-Young Chu and Professor Chi Chiang. The study also thanks Professor Meng Kung Lai and Professor Chang Chung Li. They provided many great comments and suggestions in my oral examination to strengthen the study. I offer a thanksgiving to Professor Amy J.C. Trappey who taught me how to re-organize my logic in research. Furthermore, my great advisor, Dr. Charles V. Trappey used many strategies and methods to train me and improve my research skills. He is serious to my research work but kind to my life. He let me know what a great professor should be. I am eternally grateful to him.

The Ph. D. program is a lonely and difficult journey. Sometimes, I almost gave up the journey. However, many people sustained me in completing the journey. I thank my advisor, my father and mother, my sister and brothers, my husband and my son, Professor Wann Yih Wu, the respondents Parry Wang and Ariel Kuo, my excellent classmates, and my friends. Because of their help and encouragement, I moved forward in this journey and accomplished the task. I want to present this work to everyone that was helpful to my study.

“Where there is a will, there is a way.” “Human beings are great because of dreams.” The two proverbs are always in my mind. My work dream is research and teaching. I like students and I also like to do research. Students make me feel young. Research helps me to develop my originality and offer contributions to the society. Now, the accomplishment of completing a Ph. D. program is not an end but a start. In the future, I will insist on my dream and keep on doing.

Contents

Abstract in Chinese	……	i
Abstract in English	……	ii
Acknowledgements	……	iiii
Contents	……	iv
List of Tables	……	vi
List of Figures	……	vii
1.	Introduction ……	1
1.1	Research Motive and Background…….……..	1
1.2	Research Purpose……	2
1.3	Research Process and Research Structure……...	2
1.4	Data Analysis Methodology……	5
2.	Literature Review……	7
2.1	Introduction……..	7
2.2	The Internationalization Process Model……..	8
2.2.1	Johanson and Vahlne's Internationalization Viewpoint……..	8
2.2.2	The Application and Challenge of Johanson and Vahlne's Model…..	9
2.3	International Investment Decision Model……...….	10
2.3.1	The Literature Review of International Investment and Decision Models……..	10
2.3.2	The Impact of Risk and Risk Attitude on Decision-Making…..……..	11
3	Methodology……	13
3.1	Industry Analysis through Internationalization Process Model……..	13
3.2	Johanson and Vahlne's Commitment Decision Strategy……	15
3.3	Revised International Investment Decision Model……..	16
3.4	Theoretical Basis of the Sensitivity Analysis Method……	20
4.	Research Result……	21
4.1	The Industry Analysis of Taiwan Banking Market……	21
4.1.1	Market Knowledge……...	21
4.1.2	Market Commitment……	23
4.1.3	Commitment Decisions……	24
4.1.4	Current Activities.……	25
4.1.5	Summary……	26
4.2	Sensitivity Analysis of Revised International Investment Model……	30
4.2.1	Performing the Sensitivity Analysis of PR_j Values given Fixed P_{ij}, $Outome_{ij}$, and $Cost_j$ Values.…….…….….	30

4.2.2	Performing the Sensitivity Analysis of $Cost_j$ Values given Fixed P_{ij}, $Outome_{ij}$, and PR_j Values.....	32
4.2.3	Summary.....	35
4.3	Case Study - Confirming the Revised International Investment Decision Model.....	35
4.3.1	Financial Holding Company A.....	36
4.3.2	Financial Holding Company B.....	39
5.	Discussion and Conclusion.....	42
6.	Research Limitation and Future Research.....	45
References	.....	47
Appendix A	Taiwan Banks Web-Sites.....	53
Appendix B	The Integer Programming Example and Excel Data Example for Firm 1 in Table 3-2.....	54
Appendix C	Questionnaire Design.....	55
Autobiography	.....	58

List of Tables

Table 3-1 An example application of Johanson and Vahlne's model…… 15
Table 3-2 An example of revised investment decision model…….. 19
Table 3-3 Optimal solutions derived for Firm 1 and Firm 2 using Lingo and Excel software……. 20
Table 4-1 Investment rate comparison table for Taiwan, China, Japan, and Korea…….. 22
Table 4-2 Bank ranking by different net income before tax (2003/5)……... 22
Table 4-3 The analysis for Taiwan banking market according to Johanson's model…… 27
Table 4-4 Market 1's sensitivity analysis between PR_j and Profit Ratio……... 31
Table 4-5 Market 2's sensitivity analysis between PR_j and Profit Ratio……... 31
Table 4-6 Market 1's sensitivity analysis of $Cost_j$ and Profit Ratio given various PR_j and $Cost_j$ values……... 33
Table 4-7 Market 2's sensitivity analysis of $Cost_j$ and Profit Ratio given various PR_j and $Cost_j$ values…… 33
Table 4-8 Financial Holding Company A's application of the revised investment decision model……. 38
Table 4-9 Optimal solutions for FHC A's example using Lingo and Excel software…….. 38
Table 4-10 Financial Holding Company B's application of the revised investment decision model……. 41
Table 4-11 Optimal solutions for FHC B's example using Lingo and Excel software…….. 41
Table 5-1 Comparison of Johanson and Vahlne's model to the revised international investment decision model……..…….. 44
Table A-1 Taiwan banks web-sites ……... 53
Table C-1 An example application of Johanson and Vahlne's model…… 56
Table C-2 An example of revised investment decision model…….. 57

List of Figures

Figure 1-1 Research structure……... 04
Figure 1-2 Data analysis methodology…… 06
Figure 3-1 The computation of ERj and Variancej for market 1 and market 2 in Table 2-2……... 19
Figure 4-1 The ratio of Non-performing loans for Taiwan financial institutions……. 23
Figure 4-2 Internationalization of the Taiwan banking market……... 29
Figure 4-3 The relationship between PR_j and Profit Ratio…….. 32
Figure 4-4 The comparative diagram of PR_j values and Profit Ratio given various $Cost_j$ values and markets..…….. 33
Figure B-1 The Lingo Integer programming example for firm 1 in Table 3-2…… 54
Figure B-2 The example Excel data input for firm 1 in Table 3-2…….. 54