DECLARATION

I Ujjwal Das, hereby declare that the work submitted in this thesis entitled "**Cost Structure Strategies - A Study on Selected Companies in India"** for the degree of DOCTOR OF PHILOSOPHY, to the Department of Business Administration, Assam University, Silchar, is a genuine and original research work. Any part of this thesis has not been used for any other purpose or has not been presented to any other Institution/ University for the award of any other degree.

DATE: UJJWAL DAS

ACKNOWLEDGEMENT

To carry out this PhD research work entitled, “Cost Structure Strategies -A Study on Selected Companies in India”, I have received help and guidance from many persons directly as well as indirectly; I extend my heartfelt thanks to all of them. I express my sense of gratitude to the almighty for his grace during the course of my study.

I acknowledge with a deep sense of gratitude for the outstanding guidance provided by my supervisor, Prof. A L Ghosh, Professor & Head, Department of Business Administration, Assam University for his guidance throughout this research work. It is indeed a privilege to work under his supervision. I would like to mention that his inspirations, encouragement and unconditional supply of wisdom definitely acted as a beacon in my research.

With a sense of gratitude, I acknowledge the help of the Dean, Jawaharlal Nehru School of Management Studies, Prof. A Mazumder in completing my research work; I remain indebted to Late Prof. R K Raul who gave the initial direction to my work and inspirations. I sincerely acknowledge the support of other faculty members of the Department of Business Administration, Assam University for giving advices during my various presentations in the Department. I do acknowledge the contribution of all other experts for their kind suggestions during presentations. I also extend my thanks to the support staffs of the Department, especially, Mr. S. Deb and Mr. A. Sen.

I also take the opportunity to express my thanks to Prof. Bhabatosh Banerjee, Former Professor of Commerce & Dean of Commerce and Management, University of Calcutta, for his advice and comments. The work could not have been done but for the support of Dr. D P Nandi, Director (Research & Journal), The Institute of Cost Accountants of India.

Word cannot express my heartfelt thanks to Dr. S G Majhi, Assistant Professor, NEHU, Shillong, Dr. Soma De of Kolkata, Dr. Manas Kumar Baidya, Assistant Professor, Malda College. Mr. Chandan K Choudhury of Kolkata, Mr. Debashish Adak of Capital Market Publishers India Pvt. Ltd, Kolkata, and all others persons from where I have received help and support.

The family is the backbone of an individual. I offer sincere and heartfelt regards to all of my family members, especially to my elder sisters for their inspiration and support. I also remember my parents, my father Late Lakshman Chandra Das and my mother Late Padma Rani Das who did not live to see me to complete my research work for the award of the doctorate degree.

It is a pleasure for me to offer my heartfelt thanks to my close friends, Mrs. Debasree Adak, Mr. Mrinal Kanti De and Dr. Suvendu Mukhopadhaya who have wished me well throughout the duration of the work. A bouquet of thanks to Mr. S Choudhury, Proprietor, S Cube, Silchar for his professionalism in getting the thesis printed and bounded. During the course of the research work the researcher might have received help and support from many others; I acknowledge and convey my heartfelt thanks to all of those whose name I may not have mentioned in the above paragraphs.

While utmost care was taken towards the accuracy of the work, it goes without saying that the researcher fully shoulders the responsibility of any inadvertent error that might have crept in.

Silchar UJJWAL DAS

CONTENTS

		Page No.
DECLARATION		ii
CERTIFICATE		iii
ACKNOWLEDGEMENT		iv
CONTENTS		vi
LIST OF TABLES		ix
LIST OF FIGURES		xii
LIST OF BOXES		xiii
LIST OF SYMBOLS AND ABBREVIATIONS		xiii
CHAPTER 1: INTRODUCTRY		**1-9**
1.1	Introduction	2
1.2	Statement of the Problem	4
1.3	Objectives of the Study	5
1.4	Hypotheses of the Study	5
1.5	Conceptual Framework	6
1.6	Scope of the Study	8
1.7	Organization of the Study	9
CHAPTER 2: LITERATURE REVIEW		**10-37**
2.1	Introduction	11
2.2	Cost Components	11
2.3	Cost Behavior	12
2.4	Firm Size and Firm Performance	15
2.5	Cost Efficiency	17
2.6	Strategic Cost Control	24
2.7	Cost Optimization	27
2.8	Cost Strategy	27
CHAPTER 3: RESEARCH METHODOLOGY		**38-52**
3.1	Introduction	39
3.2	Source of Data and Data Collection	39
3.3	Sampling Design	39
3.4	Data Analysis Techniques	42
3.4.1	Methodology Applied for Objective Number One	42
3.4.2	Methodology Applied for Objective Number Two	43
3.4.3	Methodology Applied for Objective Number Three	44
3.4.4	Methodology Applied for Objective Number Four	49

3.5 Limitations of the Study 51
3.6 Summary 52

CHAPTER 4: COST COMPONENTS AND ITS BEHAVIOURS 53-73

4.1 Introduction 54
4.2 Objective 54
4.3 Methodology Applied 54
4.4 Analysis and Interpretation 54
4.4.1 IT-Software Industry 54
4.4.2 Banking Industry 58
4.4.3 Finance Industry 61
4.4.4 Refineries Industry 64
4.4.5 Power Generation and Distribution Industry 67
4.4.6 Steel Industry 70
4.5 Summary 73

CHAPTER 5: IMPACT OF COST STRUCTURE ON FIRM PERFORMANCE 74-99

5.1 Introduction 75
5.2 Objective 75
5.3 Hypothesis 75
5.4 Methodology Applied 75
5.5 Analysis and Interpretation 75
5.5.1 IT-Software Industry 75
5.5.2 Banking Industry 79
5.5.3 Finance Industry 84
5.5.4 Refineries Industry 88
5.5.5 Power Generation and Distribution Industry 91
5.5.6 Steel Industry 95
5.6 Summary 99

CHAPTER 6: COST EFFICIENCY OF THE COMPANIES IN PRE AND POST RECESSION PERIODS 100-139

6.1 Introduction 101
6.2 Objective 101
6.3 Hypothesis 101
6.4 Methodology Applied 101
6.5 Analysis and Interpretation 102
6.5.1 IT-Software Industry 102
6.5.2 Banking Industry 109
6.5.3 Finance Industry 116
6.5.4 Refineries Industry 122
6.5.5 Power Generation and Distribution Industry 127

6.5.6 Steel Industry 133
6.6 Summary 139

CHAPTER 7: COST STRATEGIES ADOPTED BY THE FIRMS 140-160

7.1 Introduction 141
7.2 Objective 141
7.3 Methodology Applied 141
7.4 Analysis and Interpretation 141
7.4.1 IT-Software Industry 141
7.4.2 Banking Industry 145
7.4.3 Finance Industry 148
7.4.4 Refineries Industry 151
7.4.5 Power Generation and distribution Industry 153
7.4.6 Steel Industry 157
7.5 Summary 160

CHAPTER 8: EPILOGUE 161-173

8.1 Introduction 162
8.2 Summary of Findings 162
8.2.1 Major Findings for Objective Number One 162
8.2.2 Major Findings for Objective Number Two 164
8.2.3 Major Findings for Objective Number Three 167
8.2.4 Major Findings for Objective Number Four 168
8.3 Conclusion 172
8.4 Practical Utility of the Study 172
8.5 Aid for Future Research 173

BIBLIOGRAPHY 174-189

ANNEXURE – (TABLES I-IX) (i)-(xi)
ANNEXURE –X (Publication No 1) (xii)-(xviii)
ANNEXURE – XI (Publication No 2) (xix.)-(xxxi.)
ANNEXURE – XII (List of Other Publications) (xxxii)

LIST OF TABLES

No.	Title	Page no.
2.1	Different Efficiency Measures Under DEA Models	20
3.1	Companies Listed on Stock Exchanges	40
3.2	Selection of Industries Based on Average Ranking Method	40
3.3	Market Share of Selected Companies of Total Sales Turnover of the Respective Industry	41
4.1	Results of the ABJ's Regression Model for Various Cost Categories Under IT-Software Industry	57
4.2	Results of the ABJ's Regression Model for Various Cost Categories Under Banking Industry	60
4.3	Results of the ABJ's Regression Model for Various Cost Categories Under Finance Industry	63
4.4	Results of the ABJ's Regression Model for Various Cost Categories Under Refineries Industry	66
4.5	Results of the ABJ's Regression Model for Various Cost Categories Under Power Generation & Distribution Industry	69
4.6	Results of the ABJ's Regression Model for Various Cost Categories Under Steel Industry	72
5.1	Multiple Regression Results of IT–Software Industry (RNP as Dependent Variable) For the Year End 2003 to 2014.	76
5.2	Multiple Regression Results of IT–Software Industry (ROA as Dependent Variable) For the Year End 2003 to 2014.	78
5.3	Multiple Regression Results of Banking Industry (RNP as Dependent Variable) for the Year End 2003 to 2014.	80
5.4	Multiple Regression Results of Banking Industry (ROA as Dependent Variable) for the Year End 2003 To 2014	82
5.5	Multiple Regression Results of Banking Industry (RNP as Dependent Variable) for the Year End 2003 to 2014	85
5.6	Multiple Regression Results of Finance Industry (ROA as Dependent Variable) for the Year End 2003 to 2014	87
5.7	Multiple Regression Results of Refineries Industry (RNP as Dependent Variable) for the Year End 2003 to 2014	89
5.8	Multiple Regression Results of Refineries Industry (ROA as Dependent Variable) for the Year End 2003 to 2014	90
5.9	Multiple Regression Results of Power Generation & Distribution Industry (RNP as Dependent Variable) for the Year End 2003 to 2014	92

5.10	Multiple Regression Results of Power Generation & Distribution Industry (ROA as Dependent Variable) for the Year End 2003 to 2014	94
5.11	Multiple Regression Results of Steel Industry (RNP as Dependent Variable) for the Year End 2003 to 2014	96
5.12	Multiple Regression Results of Steel Industry (ROA as Dependent Variable) for the Year End 2003 to 2014	98
6.1	Descriptive Statistics of Efficiency Scores of Selected IT-Software Companies	103
6.2	Efficiency Scores of the Selected IT-Software Companies	104
6.3	Input Output Improvement Plan for the Inefficient IT-Software Companies During Pre-Recession Periods	107
6.4	Input Output Improvement Plan for the Inefficient IT-Software Companies During Post-Recession Periods	108
6.5	Descriptive Statistics of Efficiency Scores of Selected Banking Companies	110
6.6	Efficiency Scores of the Selected Banks	112
6.7	Input Output Improvement Plan for the Inefficient Banking Companies During Pre- Recession Periods	114
6.8	Input Output Improvement Plan for the Inefficient Banking Companies During Post-Recession Periods	115
6.9	Descriptive Statistics of Efficiency Scores of Selected finance companies	117
6.10	Efficiency Scores of the Selected Finance Companies	118
6.11	Input Output Improvement Plan for the Inefficient Finance Companies During Pre-Recession Periods	120
6.12	Input Output Improvement Plan for the Inefficient Finance Companies During Post-Recession Periods	121
6.13	Descriptive Statistics of Efficiency Scores of Selected Refineries Industry	123
6.14	Efficiency Scores of the Selected Refineries Companies	124
6.15	Input Output Improvement Plan for the Inefficient Refineries Companies During Pre-Recession Periods	126
6.16	Input Output Improvement Plan for the Inefficient Refineries Companies During Post-Recession Periods	126
6.17	Descriptive Statistics of Efficiency Scores of Selected power generation & distribution companies	128
6.18	Efficiency Scores of the Selected power generation & distribution companies	129

6.19	Input Output Improvement Plan for the Inefficient Power Generation & Distribution Companies During Pre-Recession Periods	131
6.20	Input Output Improvement Plan for the Inefficient Power Generation & Distribution Companies During Post-Recession Periods	132
6.21	Descriptive Statistics of Efficiency Scores of Selected Steel Companies	134
6.22	Efficiency Scores of the Selected Steel Companies	135
6.23	Input Output Improvement Plan for the Inefficient Steel Companies During Pre-Recession Periods	137
6.24	Input Output Improvement Plan for the Inefficient Steel Companies During Post-Recession Periods	138
7.1	Modified DuPont Model Analysis of IT-Software Industry During Pre (2003-08) And Post-Recession (2009-14) Periods.	142
7.2	IT-Software Industry Average of Different Indicators	144
7.3	Modified DuPont Model Analysis of Banking Industry During Pre (2003-08) and Post (2009-14) Recession Periods.	145
7.4	Banking Industry Average of Different Indicators	146
7.5	Modified DuPont Model Analysis of Finance Industry During Pre (2003-08) and Post (2009-14) Recession Periods.	148
7.6	Finance Industry Average of Different Indicators	149
7.7	Modified DuPont Model Analysis of Refineries Industry During Pre (2003-08) and Post (2009-14) Recession Periods.	151
7.8	Refineries Industry Average of Different Indicators	152
7.9	Modified DuPont Model Analysis of Power Industry During Pre (2003-08) and Post (2009-14) Recession Periods.	154
7.10	Power Generation & Distributions Industry Average of Different Indicators	155
7.11	Modified DuPont Model Analysis of Steel Industry During Pre (2003-08) and Post (2009-14) Recession Periods.	157
7.12	Steel Industry Average of Different Indicators	158

LIST OF FIGURES

No.	Title	Page no.
2.1	CCR and BCC Frontier	19
2.2	ROA and Profit Margin-Asset Turnover Mix	36
4.1	Cost Structure of IT-Software Industry for 12 Years	55
4.2	Cost Structure of Selected Companies Under IT-Software Industry, During Pre-Recession (2003-08) and Post-Recession (2009-14) Periods	56
4.3	Cost Structure of Banking Industry for 12 Years.	58
4.4	Cost Structure of Selected Companies Under Banking Industry, During Pre-Recession (2003-08) and Post-Recession (2009-14) Periods	59
4.5	Cost Structure of Finance Industry for 12 Years.	61
4.6	Cost Structure of Selected Companies Under Finance Industry, During Pre-Recession (2003-08) and Post-Recession (2009-14) Periods	62
4.7	Cost Structure of Refineries Industry for 12 Years.	64
4.8	Cost Structure of Selected Companies Under Refineries Industry, During Pre-Recession (2003-08) and Post-Recession (2009-14) Periods	65
4.9	Cost Structure of Power Generation & Distribution Industry for 12 Years.	67
4.10	Cost Structure of Selected Companies Under Power Generation & Distribution Industry, During Pre-Recession (2003-08) and Post-Recession (2009-14) Periods	68
4.11	Cost Structure of Steel Industry for 12 Years.	70
4.12	Cost Structure of Selected Companies Under Steel Industry, During Pre-Recession (2003-08) and Post-Recession (2009-14) Periods	71

LIST OF BOXES

No.	Title	Page no.
6.1	Input and Output Variables for IT-Software Industry	102
6.2	Input and Output Variables for Banking Industry	110
6.3	Input and Output Variables for Finance Industry	116
6.4	Input and Output Variables for Refineries Industry	122
6.5	Input and Output Variables for Power Generation & Distribution Industry	127
6.6	Input and Output Variables for Steel Industry	133

LIST OF SYMBOLS AND ABBREVIATIONS

SYMBOLS

λ	- BCC Decision Variable
m	- Different Inputs
s	- Different Outputs
D_t	- Distance Function at Time Period t
D_{t1}	- Distance Function at Time Period t+1
DMU_o	- DMU Under Consideration
n	- Number of DMU
0	- Relative Efficiency
B	- Beta

ABBREVIATIONS

ABJ	- Anderson, Banker and Janakiraman
APATM	- Adjusted Profit After Tax Margin
AT	- Assets Turnover
BCC	- Banker, Charnes and Cooper
BSE	- Bombay Stock Exchange
CCR	- Charnes, Cooper and Rhodes
CoQ	- Cost of Quality
CRS	- Constant Returns to Scale
CSR	- Corporate Social Responsibility
CSS	- Cost Structure Strategies
DEA	- Data Envelopment Analysis
DMU	- Decision Making Unit
DRS	- Decreasing Returns to Scale
ESG	- Environmental, Social and Corporate Governance
GDP	- Gross Domestic Product
IRS	- Increasing Returns to Scale
IPP	- Independent Power Producers
MPSS	- Most Productive Scale Size
MS	- Market Share
NSE	- National Sock Exchange
OP	- Operating Profit
OTE	- Technical Efficiency
OPM	- Operating Profit Margin
PBIDTM	- Profit Before Interest Deprecation Tax Margin
PTE	- Pure Technical Efficiency
RNP	- Reported Net Profit
ROA	- Return on Assets
ROE	- Relative Operational Efficiency
ROI	- Return on Investment
RONOA	- Return on Net Operating Assets
ROS	- Return on Sales
RTS	- Returns to Scale
SBM	- Slack-Based Measurement
SE	- Scale Efficiency
VRS	- Variable Returns to Scale