

**UNIVERSITI TEKNOLOGI MARA**

**MODELLING STOCK SELECTION  
IN MALAYSIA BASED ON  
DATA ENVELOPMENT ANALYSIS (DEA)**

**MD KHAIRU AMIN ISMAIL**

Dissertation submitted in partial fulfillment  
of the requirements for the degree of  
**Doctor of Business Administration**

**Faculty of Business Management**

October 2013

## ACKNOWLEDGEMENTS

First and foremost, I would like to thank Almighty Allah (S.W.T.) for giving me His blessings in terms of strength, health and perseverance to complete this DBA dissertation.

Secondly, I am tremendously grateful and very much indebted to my respective supervisors, primarily to my main-supervisor, Professor Dr. Norhana Salamudin, and to my co-supervisors, Dr. Badrul Hisham Kamaruddin and Associate Professor Dr. Nik Muhammad Naziman Abd Rahman, for the constructive supervision, positive thoughts and encouragement in preparing this dissertation. Without the guidance, it would not be possible for the dissertation to be in the present form.

Heartiest gratitude to Professor Dr. Ismail Ahmad, Associate Professor Dr. Norhayati Ahmad, and Associate Professor Dr. Rokiah Hassan from UiTM Shah Alam, also, Associate Professor Dr. Asry Yusoff, Associate Professor Dr. Jusoh Yaacob, Associate Professor Dr. Nik Kamaruzaman Abdullatiff, and Dr. Zulkifli Mohamed from UiTM Kelantan for the productive discussions and comments in preparing this dissertation.

Special appreciation to Professor Dr. Faridah Haji Hassan, Dean of Faculty of Business Management, Professor Dr. Zuriah Abdul Rahman, Director of Arshad Ayub Graduate Business School, Associate Professor Dr. Haji Mohd Shukri Haji Omar, Rector of UiTM Kelantan, and colleagues at UiTM Kelantan for the morale support during my years in completing this dissertation.

In addition, I would like to convey my appreciation to my employer, Universiti Teknologi MARA (UiTM), for giving me full-paid study leave, in which providing me concentration and enough time to study at Arshad Ayub Graduate Business School, UiTM Shah Alam, Malaysia.

I also owe tremendous gratitude to my beloved parents, Haji Ismail Ahmad and Hajah Minah Daud, for giving me strength in completing this dissertation. It would have been impossible without their prayers and encouragement.

A million thanks to my younger brother, Mohd Khairi Haji Ismail, for the courage and support during the years that I worked on this dissertation.

Last but not least, I am indebted to the Hairulnizam, Abdullah, Akmal Aini, Oswald, Aziam, Irfah, Nazri, Anuar and other persons, who provided me with assistance and courageousness in preparing this dissertation.

May Allah (S.W.T.) bless all of you with lots of happiness and prosperity in this world and the Hereafter.

## ABSTRACT

Stock selection has been a crucial puzzle to investors and abundant empirical works have looked at this issue. Nevertheless, there is very limited empirical evidence that employs DEA in stock selection. Therefore, the main purpose of the study is to apply DEA models on stock selection of Malaysian stocks. The scope of the study incorporates all firms of the five sectors of Bursa Malaysia Main Market, which are consumer, industrial, property, plantation, and trading & services. Two DEA models, technical-efficiency and super-efficiency, are utilized in modeling the DEA stock selection in Malaysia. Stock selection takes place during various economic conditions, specifically sideways-trend, upward-trend and downward-trend, covering from 1998 to 2005. The ex-post period of portfolio performance is evaluated based on 12-month (short-term) and 36-month (long-term) holding periods. The empirical findings show that, during sideways-trend selection, on average, both the DEA super-efficiency and technical-efficiency portfolios produce significantly positive abnormal returns over the long-term. However, during upward-trend selection, on average, the DEA super-efficiency portfolios exhibit significantly negative abnormal returns for both short-term and long-term periods. During downward-trend selection, the DEA super-efficiency portfolios show significantly negative abnormal returns over the long-term. The present study contributes to the literature by furnishing new empirical evidence on DEA stock selection literature as well as on the emerging market literature. Furthermore, it is also able to contribute to firms and policy makers as well. Overall, pertaining to the present findings, it is rendered that the DEA portfolios outperform over the long-term holding period particularly when the selection took place during side-way trend. This empirical finding suggests that the DEA models can be applied in Malaysia during side-way trend as a tool for helping investors in their stock selection.

## **TABLE OF CONTENTS**

	<b>Page</b>
<b>AUTHOR'S DECLARATION</b>	ii
<b>ABSTRACT</b>	iii
<b>ACKNOWLEDGEMENTS</b>	iv
<b>TABLE OF CONTENTS</b>	v
<b>LIST OF TABLES</b>	x
<b>LIST OF FIGURES</b>	xi
<b>LIST OF ABBREVIATIONS</b>	xii

### **CHAPTER ONE: INTRODUCTION**

1.1	Chapter Description	1
1.2	Background To The Study	2
1.3	Statement Of The Problem	6
1.4	Justification For The Study	8
1.5	Objectives Of The Study	9
1.6	Hypotheses	9
1.7	Significant Contribution Of The Study	11
1.8	Scope Of The Study	12
1.9	Definition Of Terms	13
1.10	Organization Of The Study	14

### **CHAPTER TWO: LITERATURE REVIEW**

2.1	Chapter Description	15
2.2	Literature On Malaysian Stock Market	15
2.2.1	Development On Malaysian Stock Market	15
2.3	Review Of Related Theories	19
2.3.1	Modern Portfolio Theory	19
2.3.1.1	Markowitz Portfolio Theory	20

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 CHAPTER DESCRIPTION**

Stock selection is important for the investors. Most investors are struggled with the art of picking stocks for their stock selection process. Investors also might use all kinds of information and related analyses and novelty models for their stock selection process. In general, there are two basic approaches that can be applied in the stock selection process, namely top-down and bottom-up approaches and most investors use them as part of their decision process. Using the top-down approach, the method allows the investors to start and analyze the market from the big picture of the economy along with by the industries and all the way down to individual stocks' fundamentals. In the other hand, via the bottom-up approach, the investors focuses and begins with individual stocks' fundamentals follow by industries and eventually expounds to take account of the global economy. In addition, stock selection literature is growing at a rapid pace and new instruments of delivery are being devised. Stock pickers are very concerned towards their selection ability in choosing outperforming stock at a comparable risk level especially in constructing equity portfolios for fund management. The triumph of stock selection has been disclosed in many empirical studies. Some of them are Ando (2009), Bollen and Busse (2005), Cenci and Filippini (2006), Chen (2008), Cremers (2002), Dia (2009), Edirisinghe and Zhang (2008), Faaland and Jacob (1981), Fama and French (1993), Frost and Savarino (1986), Inuiguchi and Ramík (2000), Inuiguchi and Tanino (2000), Jorion (1986), Lacagnina and Pecorella (2006), Lai (1991), Lewis (1988), Lintner (1965), Markowitz (1952), Mossin (1966), Quah (2008), Papahristodoulou and Dotzauer (2004), Ross (1976), Sharpe (1964), Tanaka and Guo (1999), Tiryaki and Ahlatcioglu (2009), Van der Hart, Slagter and Van-Dijk (2003), and Zargham and Sayeh (1999). As such, this chapter provides the background and statements of problems that highlights the issues investigated. It also gives detail of the justification, objectives, hypotheses, and significant contribution of the study. This chapter also describes the scope of the