



UNIVERSITI PUTRA MALAYSIA

LIFE INSURANCE DEMAND IN MALAYSIA

WONG MEI FOONG

FEP 2002 1

LIFE INSURANCE DEMAND IN MALAYSIA

WONG MEI FOONG

**MASTER OF SCIENCE
UNIVERSITI PUTRA MALAYSIA**

2002



LIFE INSURANCE DEMAND IN MALAYSIA

By

WONG MEI FOONG

**Thesis Submitted in Fulfilment of the Requirement
for the Degree of Master of Science in the
Faculty of Economics and Management
Universiti Putra Malaysia**

February 2002



Specially dedicated to
My beloved parents, brother and sisters,
for their invaluable love, sacrifices and support
to make this thesis possible in every way.



Abstract of thesis submitted to the Senate of Universiti Putra Malaysia in partial fulfilment of the requirements for the degree of Masters of Science.

LIFE INSURANCE DEMAND IN MALAYSIA

By

WONG MEI FOONG

FEBRUARY 2002

Chairman: Associate Professor Dr. Tan Hui Boon, Ph.D.

Faculty: Economics and Management

Malaysia has been identified as having the second highest saving in the world; however, less than 30 percent of Malaysia's total population of about 6.4 million is insured in 1999. The fact that a large section of the society remains uninsured means that any sudden loss of property or any personal misfortune will suffered a reduction in living standard and poverty. Besides that, savings generated by life insurance companies are crucial in providing long-term savings for sustainable economic development and growth of the nation. Nevertheless, the life insurance industry in Malaysia has not been thoroughly investigated. Therefore, the objectives of this study are to identify the factors contributing individual purchasing behaviour of life insurance in Malaysia, and to investigate the macroeconomic factors influence on the aggregate demand of life insurance in Malaysia. Since the demand analysis is an important component of an attempt to understand the forces driving industry growth – its past and future prospects.

The empirical findings of individual purchasing behaviour of life insurance indicated significant demographic variables including the presence of children in the household, the



age of the consumer, and their income level. While, the empirical finding of the multivariate Granger-causality test suggests that national income can be a stimulus to the life insurance demand in the short-run. The results of Granger-causality test also indicate that there is bi-directional causality between the price of life insurance and life insurance demand in Malaysia. Furthermore, the empirical results also showed that the interest rate significantly influence the life insurance demand in Malaysia. However, the causality tests of this study did not detect a significant short-run direct causal relationship between inflation rates and life insurance demand in Malaysia. Last but not least, the finding of the Data Envelopment Analysis (DEA) approach indicated the demand for life insurance in Malaysia is closely linked to the efficiency scores of insurance companies. Over the empirical years, most of the local constituted insurance companies operate in inefficiency state compared to the foreign insurance companies.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Master Sains.

PERMINTAAN INSURAN HAYAT DI MALAYSIA

Oleh

WONG MEI FOONG

FEBRUARY 2002

Pengerusi: Profesor Madya Dr. Tan Hui Boon, Ph.D.

Fakulti: Ekonomi dan Pengurusan

Malaysia dikenali sebagai tabungan kedua tertinggi di dunia. Akan tetapi, kurang daripada 30 peratus penduduk Malaysia, iaitu 6.4 juta penduduk Malaysia yang dilindungi insuran pada tahun 1999. Hakikatnya, kebanyakan masyarakat yang tidak dilindungi dengan insuran akan mengalami penurunan taraf hidup dan kemiskinan apabila berlaku kehilangan harta benda atau malapetaka. Di samping itu, tabungan yang diterbitkan oleh syarikat insuran adalah sangat penting dalam memperuntukkan tabungan jangka panjang untuk pengekalan perkembangan dan pertumbuhan sesebuah negara. Namun begitu, industri insuran hayat di Malaysia masih belum dikaji dengan begitu mendalam. Oleh itu, objektif kajian ini ialah untuk mengesahkan faktor-faktor yang menyumbangkan individu gelagat pembelian insuran hayat di Malaysia, dan untuk menyelidik faktor-faktor makroekonomi yang mempengaruhi permintaan agregat insuran hayat di Malaysia. Ini kerana analisis permintaan merupakan komponen penting dalam memahami kuasa yang memandu ke arah pertumbuhan industri – masa lampau dan pandangan masa depan.

Empirikal kajian individu gelagat pembelian insuran hayat ini menunjukkan bahawa pembolehubah yang bererti termasuk kehadiran anak dalam keluarga, umur pengguna, dan tingkat pendapatan mereka. Dalam pada itu, empirikal kajian bagi ujian multivariate Granger-causality mencadangkan bahawa pendapatan negara merupakan pendorong kepada permintaan insuran hayat dalam jangka pendek. Hasil kajian ujian Granger-causality juga menunjukkan bahawa terdapat hubungan dua hala di antara harga insuran hayat dengan permintaan insuran hayat. Tambahan pula, hasil empirikal juga menunjukkan kadar faedah mempunyai pengaruh yang bererti terhadap permintaan insuran hayat di Malaysia. Namun demikian, ujian causality kajian ini tidak dapat mengesan sebarang hubungan sehala yang bererti di antara kadar inflasi dengan permintaan insuran hayat di Malaysia pada jangka pendek. Akhir sekali, hasil daripada pendekatan Data Envelopment Analysis (DEA) menunjukkan permintaan insuran hayat di Malaysia mempunyai hubungan rapat dengan mata kecekapan syarikat insuran. Antara tahun kajian, kebanyakan syarikat insuran tempatan beroperasi secara tidak cekap berbanding dengan syarikat insuran asing

ACKNOWLEDGEMENTS

First and foremost, I would like to express my most sincere gratitude to the Chairman of my supervisory committee, Associate Professor Dr. Tan Hui Boon who has been very supportive and dedicated. Her most professional supervision, constructive suggestions and critical appraisal have been sources of inspiration to make this thesis a success. I have gained valuable experience from her when I was a Research Assistant under her employment.

Sincere thanks to both of my supervisory committee members, Professor Dr. Ahmad Zubaidi Baharumshah and Professor Dr. Annuar Md Nasir for their precious suggestion and kindness assistance in improving this thesis. No work is a whole one by itself, I would like to say thank you to Dr. Thed Swee Tee and Dr. Huson Joher Aliahmed who directly or indirectly assisted me in the studies. While I accept full responsibility for any misstatements and/or errors included in this thesis, the results of this work can be credited to those who have given me both their time and concern.

Also, not forgetting the Head Officer of Library, Malaysian Insurance Institute (MII) for approving me the use of the library, and the staff there for their generous help in getting the insurance sources and information for this thesis.

Last but not least, my deepest gratitude goes to my beloved father, Mr. Wong Yin Kwee and my beloved mother, Mdm. Hee Sui Heong and the whole family, for their love, sacrifice and encouragement will remain in my mind forever.

TABLE OF CONTENTS

	Page
DEDICATION	
ABSTRACT	
ABSTRAK	
ACKNOWLEDGEMENTS	
APPROVAL SHEETS	
DECLARATION FORM	
LIST OF TABLES	
LIST OF FIGURES	
CHAPTER	
I	
INTRODUCTION	1
The Malaysian Life Insurance Market in an International Context	2
The Malaysian Life Insurance Market	4
The International Life Insurance Market	5
The Domestic Insurance Market	6
Product Market Share	7
The Suppliers of Life Insurance Products	9
Malaysian Life Insurers	10
The Consumers of Life Insurance Product	12
Consumer Savings Profile	12
Demand Factors: Income, Demography and Social Security Systems	14
Problem Statement	21
Objectives of Study	26
Significance of Study	27
Summary	28
II	
LITERATURE REVIEW	29
Sources of the Demand for Life Insurance	30
Life Insurance's Role in the Provision of a Strategic Bequest	32
Theoretical Life Insurance Demand Models	34
Life Insurance Purchasing Decision	40
International Demand Models	42
Empirical Life Insurance Demand Studies	45
Summary	53

III	METHODOLOGY	54
	Probit Model	54
	Assumptions of the Models	57
	VAR Model	59
	Stationary versus Nonstationary Data	68
	Conducting Unit Root Tests	69
	Multivariate Cointegration Test	72
	Vector Error Correction Model (VECM)	74
	Data Envelopment Analysis (DEA)	79
	Selection of Inputs and Outputs	80
	Data	83
	Summary	86
IV	RESULTS AND DISCUSSIONS	88
	Respondents' Background and Socioeconomic Factors	90
	Age of Respondents	90
	Education Level of Respondents	91
	Income Level of Respondents	91
	Gender	92
	Marital Status of Respondents	93
	Number of Children of Respondents	93
	Factors Contributing to Individual Purchasing Behavior of Life Insurance	95
	Influence of Macroeconomic Factors on the Aggregate Demand of Life Insurance in Malaysia	100
	Relative Efficiency Results	112
	Inefficient Insurance Companies Analysis	113
	Inefficient Insurance Companies-Advance Analysis	117
	Efficient Insurance Companies Analysis	120
	Life Insurance Demand & Efficiency of Individual Insurance Companies	121
	Summary	124
V	CONCLUSION AND RECOMMENDATIONS	125
	Findings	126
	Implications of the Findings	132
	Limitations of the Study and Recommendations for Future Research	136
	REFERENCES	
	APPENDICES	
	VITA	

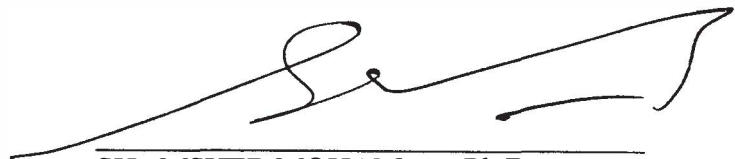
I certify that an Examination Committee met on 5th February 2002 to conduct the final examination of Wong Mei Foong on her Master of Science thesis entitled “Life Insurance Demand in Malaysia” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

SHAMSHER MOHAMAD, Ph.D.
Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Chairman)

TAN HUI BOON, Ph.D.
Associate Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)

AHMAD ZUBAIDI BAHARUMSHAH, Ph.D.
Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)

ANNUAR M. NASIR, Ph.D.
Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)



SHAMSHER MOHAMAD, Ph.D.
Professor/Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 25 MAR 2002



This thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as fulfilment of the requirement for the degree of Master Science.



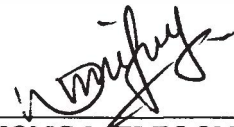
AINI IDERIS, Ph.D.
Professor/Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 9 MAY 2002



DECLARATION

I hereby declare that the thesis is based on my original work except for quotation and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



WONG MEI FOONG

Date: 21/3/2002

LIST OF TABLES

Table	Page
1.1 Comparison of the Malaysia and Singapore Markets	5
1.2 The 11 Largest Malaysian Life Insurers	11
1.3 Comparison of Malaysia's Saving Rate (Percent of GDP) with Selected Countries	13
1.4 Annual Premiums and Life Fund in Comparison to National Savings	22
1.5 Life Insurance Coverage in Relation to Population and Employed Population, 1970-1999	24
1.6 Malaysian Premium Volume in 1990 and 1999	25
2.1 Yaari's Life Insurance Demand Model Matrix	36
3.1 Definition of Variables	56
3.2 Data Descriptive Statistics	83
4.1 Age Distribution of Respondents	90
4.2 Education Level of Respondents	91
4.3 Yearly Household Income of Respondents	92
4.4 Sex of Respondents	92
4.5 Marital Status of Respondents	93
4.6 Number of Children of Respondents	94
4.7 Description of Variables, Means and Standard Deviations	95
4.8 Probit Model	97
4.9 Correlation Matrix of Coefficients	98
4.10 The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) Unit Root Tests for Level and First Differences Data from 1963 to 1999	103
4.11 Results of Multivariate Cointegration Test	105
4.12 Granger Causality Results based on Vector Error-Correction Model	107
4.13 The Results for Diagnostic Tests	110
4.14 Relative Efficiency Score by Insurance Company in Malaysia	113
4.15 Summary of Core Input Output for the Efficient Insurance Companies	121
4.16 The Efficiency Scores and Life Insurance Demand for Individual Insurance Companies in Malaysia	122

LIST OF FIGURES

Figure		Page
1.1	Market Share of World's Total Insurance Premiums, 1998	2
1.2	Market Share of Asian's Life Insurance Premiums, 1998	3
1.3	Malaysia's Life Insurance Portfolio	8
1.4	Large Variations in Life Insurance Penetration	14
1.5	Correlation Between per capita Income and Life Insurance Penetration	16
1.6	The Percentage of the Total Population over 60 years old in Eastern Europe, Asia and Latin America	19
2.1	The Life-Cycle Hypothesis Model	33
4.1	The CUSUM Test and CUSUM of Squares Test Results	111
4.2	Scoring of the Continuously Inefficient Insurance Companies	118
4.3	The Efficiency Scores and Life Insurance Demand for Individual Insurance Companies in Malaysia	123

CHAPTER I

INTRODUCTION

There is a dearth of empirical study published in the literature regarding the Malaysian life insurance marketplace. While the topic of the demand for life insurance has been studied extensively, the data utilised has not included the Asian markets. As there are few notable exceptions where international cross-sectional studies have incorporated Asian data, the unusual life insurance profile that Malaysia represents brings into question whether the results of such broad-based analyses can adequately describe the Malaysia market.

The need for understanding the dynamics of this marketplace never has been greater. Few markets, particularly financial markets, remain isolated in the face of an increasingly internationalised world economy. The bulk of what might be considered the traditional “industrialised economies” are found in the West, but this is gradually changing. Indeed, the economic growth of other regions of the world, notably Asia, in general has been higher than that of the West over the past two decades, with the possible exception of the past few years when an economic slump has slowed regional growth. Financial markets that were once isolated, either by choice or purely due to lack of outside interest are now finding themselves increasingly internationalised with the presence of foreign competitors and products. Because of this increased internationalisation, there is an increasing demand for a corresponding study, to which this study is seeks to contribute.

The Malaysian Life Insurance Market in an International Context

Given that the majority of the industrialised nations of the world come from the West, it may not appear unusual that the Western markets have received the mainstream of the attention in academic insurance literature. In actual fact, nearly 70 percent of the world's insurance premiums (both life and non-life combined) originate in North America and Europe as shown in Figure 1.1.

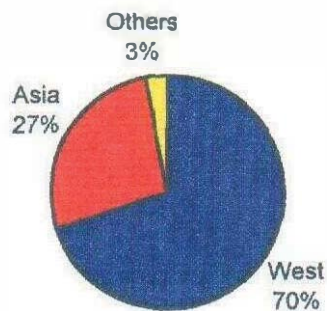


Figure 1.1: Market Share of World's Total Insurance Premium, 1998

Source: Swiss Reinsurance, Sigma, No. 7/1999

Asia generates approximately 27 percent of the world's insurance premiums and the remaining regions account for about three percent. As the market share dominance of the West in Figure 1.1 appears apparent when this information is separated into life and non-life figures, the characterisation of Western dominance dispel. After separated, one finds that the leadership position occupied by the West is fuelled by dominance in non-life insurance premiums. The West holds approximately 83 percent of this non-life market in 1998 while Asia holds another 15 percent. This finding is not necessarily unexpected since income and the level of industrial

development of a country have been found to be significantly related to the demand for non-life insurance products. Moreover, the West, in these respects, is generally more developed than other regions of the world.

However, when the market share for life insurance figures are reviewed, they show the West dominates about a 60 percent market share compared to Asia's 35 percent (Sigma 7/1999). The greater parity in life insurance premium market share is obvious. Malaysia's market share represents approximately two percent of the Asian market share. In a larger context, Figure 1.2 describes Malaysia's market share on an Asian basis. It has been slipping over the past few years (in 1995 Malaysia held 2.6 percent of the Asian's market share). Together, Malaysia and Singapore comprise 28 percent of the Asian's life insurance market. The Malaysia life insurance market took in over \$1,347 million USD in premiums in fiscal 1998 and had a total number of business-in-force of 6,972,647 policies at that time.

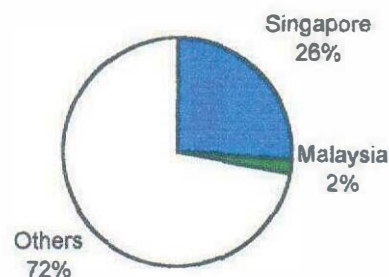


Figure 1.2: Market Share of Asian's Life Insurance Premium, 1998

Source: Swiss Reinsurance, Sigma, No. 7/1999

The following section will provide a more general description of the Malaysia life insurance marketplace. Background information will be provided on items such as the recent economic or market environment, competitors' market shares, types of products, and so on. It should be mentioned at this point that the expression "life insurance" has been employed loosely in this thesis. In fact, there is wide variety of products sold under the auspices of life insurance in the Malaysia marketplace. For the purposes of this thesis, the expression "life insurance" refers to three major product lines of life insurance sold in Malaysia marketplace namely whole life, endowment, and temporary.

The Malaysian Life Insurance Market

In a variety of dimensions outlined below, Malaysian life insurance market appears dissimilar from the Western marketplace. For this reason, extrapolation of empirical results based on Western data to the Malaysian market appears tenuous. For the purpose of placing this study in context, a detailed description of the Malaysian life insurance market and the economic environment in which it exists is presented.

This section begins with a description of the international life insurance marketplace with emphasis on Malaysia's position. The discussion then turns inward, exploring Malaysian life insurance marketplace, and its relationship to the types of products. The empirical portion of this study examines data taken from 1963 to 1999 on a yearly basis. Both the suppliers and buyers of life insurance in Malaysia contribute descriptive profiles.

The International Life Insurance Market

Malaysia is by far the second highest saving in the world when measured by the ratio of Gross Domestic Saving (GDS) to the Gross Domestic Product (GDP). Since Singapore and Malaysia have the two highest saving ratio, a brief table comparing pertinent figures may serve to emphasize some significant aspects of each country's market.

Table 1.1: A Comparison of the Malaysia and Singapore Markets

	Malaysia	Singapore
Population (in thousands)	22,200	3,000
GDP (in millions)	\$71,302 (39)	\$85,425 (37)
GDP Per Capita	\$3,241 (82)	\$28,475 (9)
Gross Savings Ratio (Percent of GDP)	47 (2)	51 (1)
Life Insurance Premiums (in millions)	\$1,347 (33)	\$2,981 (28)
Life Premium Per Capita	\$63 (42)	\$7,702 (21)
BIF/National Income	118.9 percent (35)	127.0 percent (33)
Licensed Life Insurers	18	14

Source: OECD, 2001

Notes: World rank given in parentheses

A few points bear comment with regard to Table 1.1. First, the life premium per capita in Singapore is over 120 times the amount of that of the Malaysia. As a point of reference, Japan, which is ranked second in the world, as measured by premium per capita (\$2,856.6), has a saving ratio of 32 percent. Second, the

comparably huge Singapore market had three millions population in this marketplace in 1998 compared to over 22 millions in Malaysia.

The Domestic Insurance Market

Malaysian domestic insurance marketplace is commonly divided into two sectors namely life and general insurance. Life insurance undertakes to provide protection to the insured's family, creditors, or others against the loss of earning capability of the insured in the event of his death or serious injury. General insurance, which can categorise into various types, undertakes to indemnify the insured against losses arising out of damage to, or destruction of, the property insured. It also undertakes to pay damages to third parties for acts for which an insured is legally liable. The types of general insurance in Malaysia comprised of marine, aviation and transit insurance (MAT), fire insurance, motor insurance and numerous miscellaneous insurance including health insurance and accident insurance.

As with all other industries, the performance of the insurance industry in Malaysia was affected by the economic slowdown in 1998. The combined premium income of both the life and general sectors declined by 2.1 percent (1997: 14.6 percent) to RM10,902.9 million due to the negative growth in the general sector. Hence, the ratio of premium income to nominal gross national product (GNP) decreased marginally from 4.2 percent in 1997 to 4.1 percent in 1998. Life insurance premium continued to form the bulk, which is 57 percent of the premium income for the insurance industry.

The economic recovery, however, which was evident in 1999, had boosted the performance of the insurance industry. Data for 1999 showed that the combined premium income of both life and general business grew by 7.1 percent to RM11,681.8 million, accounting for 4.2 percent of nominal GNP of 1999. Total benefits and claims paid out increased by 6 percent to RM4,778.5 million, while total combined assets of insurance fund continued to grow at a double-digit rate of 15.6 percent to reach RM45,454.5 million as at the end of 1999.

Product Market Share

Figure 1.3 presents the life insurance product-market-share for Malaysian markets. Of particular note is the dominating position of the whole life and temporary product line in the Malaysian marketplace. The temporary policy in Malaysia is boosted by an encouraging recovery in credit-related policies sold via financial institutions. New premiums for credit-related policies increased significantly by 20.9 percent of RM194.8 million, partly attributable to the success of the Government's initiative to promote property sales through the Home Ownership Campaign. In terms of composition of life insurance in Malaysia, whole life policies is the most dominant class with a share of 28.4 percent of new premiums, followed by temporary and endowment policies with a share of 26 percent and 25.1 percent respectively.

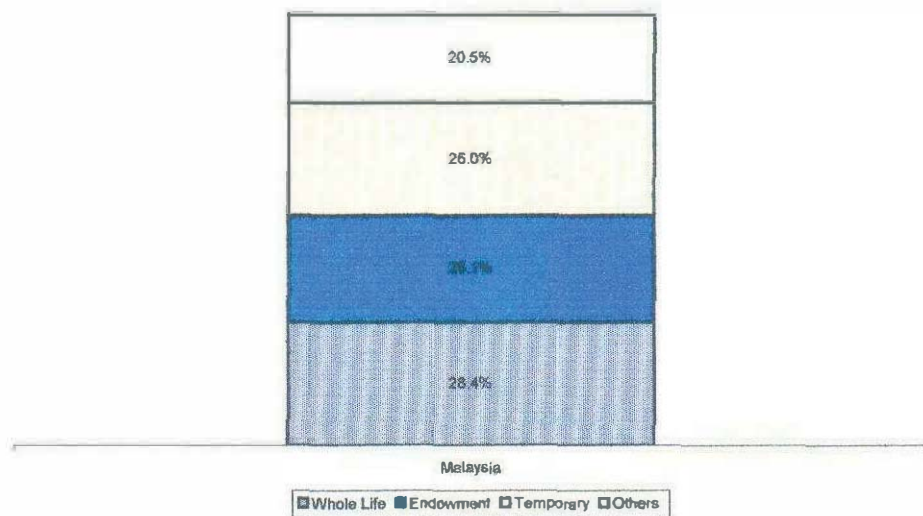


Figure 1.3: Malaysia's Life Insurance Portfolio

Sources: Ministry of Finance Malaysia, 1999

Note: Life Insurance figures for Malaysia are from 1998

These life insurance markets in Malaysia are dominated by the four foreign-incorporated insurers that increase their market share in terms of new business premiums and new sums insured from 41.6 percent and 31.8 percent in 1997 to 42.1 percent and 33 percent in 1998. These insurers dominance the whole life business, even though their total market share decreased to 70.3 percent and 75.4 percent (1997: 72.2 percent and 78.4 percent) in terms of new business premiums and new sums insured respectively. On the other hand, Malaysian-incorporated insurers commanded a larger market share of endowment and temporary policies, underwriting 62.5 percent and 79.1 percent of the new premiums respectively for these classes of business.

The Suppliers of Life Insurance Products

Competition in the Malaysian life insurance market can be said to come primarily from two sectors: licensed domestic competitors and foreign competitors. Foreign-incorporated insurers maintain the major share of life insurance business by controlling 46.7 percent and 57.5 percent of sums insured and annual premiums in force respectively. These foreign insurers successfully continued dominating the position in whole life policies with a market share of 77.5 percent and 73.1 percent of the sum insured and annual premiums respectively. On the other hand, Malaysian-incorporated insurers controlled a larger share of endowment and temporary policies, underwriting 58 percent and 81.5 percent respectively of the sums insured in force for these classes of business. Malaysian-incorporated insurers also commanded 63 percent and 48.2 percent of the education plans and medical riders respectively.

The five largest insurers, in which four of these were foreign-controlled in the industry, underwrote 64.7 percent and 73.1 percent of sums insured and annual premiums respectively. On the other hand, the five smallest insurers which are Malaysian-controlled only commanded 5.9 percent of sums insured in force and 2.6 percent of annual premiums in force in 1999. These small Malaysian-controlled insurers have a long way to go to acquire economies of scale through organic growth. Thus, Central Bank of Malaysia infers that it is imperative for the smaller insurers to reorganise their strategy through mergers and business amalgamation in order to leapfrog in a more liberalised and competitive market environment.