



UNIVERSITI PUTRA MALAYSIA

**ECONOMIES OF SCALE AND ECONOMIES
OF SCOPE OF COMMERCIAL BANKS IN MALAYSIA**

MOHD PADZIL HASHIM

GSM 2001 8

**ECONOMIES OF SCALE AND ECONOMIES OF SCOPE
OF
COMMERCIAL BANKS IN MALAYSIA**

By

MOHD PADZIL HASHIM

**Thesis Submitted in Fulfilment of the Requirements for the Degree of Doctor
of Philosophy in the Malaysian Graduate School of Management
University Putra Malaysia**

February 2001



Dedication

Bismillahirrahmarnirrahiim
In the name of Allah s.w.t. the Beneficent and Merciful.
Praise be to Allah s.w.t. the Lord of the Worlds.
And Muhammad s.a.w. is his messenger
By Grace of Allah s.w.t. this thesis was accomplished
Alhamdullillahirrabiralam

This work is dedicated
To the memory of my late beloved parents
Whom I have cherished and admired them most.
They are hardworking, pious, honest, sincere, simple and humble farmers.
They are distinguished and respectable village folks.
Without their prayers, encouragement and love for education,
I would not have pursued my studies to this very level.
May Allah bless them the best in hereafter.
And most important of all
To my wife and children
May education and seek of knowledge be their most fondness things in life.
Wassalam



Abstract of thesis presented to the Senate of University Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy.

**ECONOMIES OF SCALE AND ECONOMIES OF SCOPE OF
COMMERCIAL BANKS IN MALAYSIA**

By

MOHD PADZIL HASHIM

February 2001

Chairman: Associate Professor Shamsheer Mohamed, Ph.D.

Faculty: Faculty of Economics and Management

Commercial banks in Malaysia represent the largest financial institutions in term of assets owned, loans rendered and total deposits. To-date, commercial banks account for about 70 percent of the assets, loans and deposit of all financial institutions in the country. They are considered important because they have contributed significantly in intermediating between the depositors in the financial sector and the borrowers in the real sectors that generate economic growth, besides offering a wide range of financial services. The role of the commercial banks in rendering and facilitating the payments system in the financial and capital markets is particularly important. Thus, without a cost effective and operationally efficient payments system, domestic and foreign economic transactions could not be carried out effectively. Commercial banks are considered efficient and effective if they are able to generate outputs or services at a minimum cost and continuously reap the benefits of economies of scale and scope in the long run.



In essence, economies of scale represent the relationship between the change in cost of input to the unit change in outputs (in monetary terms). If the change in output quantity is more than the change in cost of input then the bank is producing/operating in an economies of scale zone (at decreasing cost or at increasing return to scale or there is a possibility of an increase in profit) and vice-versa. Whilst, economies of scope arise when it is cheaper for a single bank to produce multi-outputs jointly than for a separate banks to produce similar products independently, while diseconomies of scope occurs if it is otherwise.

The evidence on the economies of scale in commercial banks suggests that it exists for small and medium sized banks. However, for economies of scope the findings are perplexing because at times the results are inconsistent with theory. Previous findings on banking efficiency suggests that banks long run average cost of production curve is approximately U-shaped which it varies with different size of bank. The size is measured by total assets or total deposits.

The long-run cost function, the economies of scale, and economies of scope in multi-output commercial banks in Malaysia were estimated using the transcendental logarithmic (translog) function. A pooled cross-sectional time series data of 40 commercial banks for the period from 1988 to 1998 were analysed. The banks were assumed to produce two main outputs, namely, investment and loans. The input prices comprises the cost of funds (or cost of financial capital or

price of funds), cost of labour (price of labour) and cost of physical capital/buildings & equipment (price of physical capital). The results show that the Malaysian commercial banking industry efficiency can be characterised with a constant return to scale, i.e., approximately a straight line long run average cost curve. which do not conforms to the classic U-shaped long-run cost curve. Overall the results indicate that the commercial banking industry in Malaysia is operating neither in economies of scale zone nor in diseconomies of scale zone but in a constant to return scale zone. The estimated constant return to scale coefficients is 0.99827 which is close to unity. This result contradict some common perceptions that the commercial banking industry in Malaysia is efficient in the past decades.

Comparison between the big four banks and the small four banks reveal that the big four are operating in the region of diseconomies of scale region with coefficient of 1.1818 and the small four are operating in the region of economies of scale of 0.90358. Although both value exist in different zone but they are almost close to unity, i.e., constant return to scale. There appears to be some significant economies of scale for foreign banks compared to domestic banks with the coefficient values of 0.92075 and 1.01976 respectively. This implies that foreign banks are more efficient than domestic banks in term of cost management. An analysis on annual basis showed that commercial banks are annually operating in economies of scale region, consistent with the overall findings for all banks from 1988 to 1998. However, a closer examination show that there is some

relationship between the economies of scale values and the events that occurred during the period of study.

Cost complementarities between the two outputs, i.e., investment and loans, were documented. The analysis revealed that the evidence on economies of scope is inconsistent with theory. The coefficient of the economies of scope is usually expected to increase with the size of the banks but the findings were otherwise. The results indicate significant economies of scope for domestic banks, and diseconomies of scope for foreign banks. This might be due to the foreign banks' focus on single or few outputs compared to domestic banks' multi-outputs focus. The expansion path subadditivity revealed that subadditivity exists in a multi-output commercial banking cost function. This suggests that the break-up of large banks into smaller ones might increase the cost of operations.

The possibility for mergers of small banks into a larger entity would generate economies of scale and increase cost efficiency. However, the creation of oligopolies or monopolies through the restructuring exercise can lead to barriers to entry problem in the industry in the long run. This could create diseconomies of scale.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
Sebagai memenuhi keperluan untuk ijazah Doktor Falsafah.

**SKEL EKONOMI DAN SKOP EKONOMI BAGI
BANK PERDAGANGAN DI MALAYSIA**

Oleh

MOHD PADZIL HASHIM

Februari 2001

Pengerusi: Professor Madya Shamsheer Mohamed, Ph.D.

Fakulti: Fakulti Ekonomi dan Pengurusan

Di Malaysia, bank perdagangan merupakan institusi kewangan yang terbesar dari segi aset yang dimiliki. pinjaman yang dikeluarkan. dan dalam aktiviti pengambilan deposit. Kini bank perdagangan merangkumi kira-kira 70 peratus dari aset, pinjaman dan deposit seluruh institusi kewangan dalam negara. Bank perdagangan dianggap penting kerana sumbangannya terhadap sektor kewangan dengan sektor ekonomi sebenar yang seterusnya menjana pertumbuhan ekonomi, disamping menyediakan pelbagai khidmat kewangan. Peranan bank perdagangan dalam menyediakan dan memudahkan system pembayaran kewangan di pasaran kewangan dan di pasaran modal khususnya adalah sangat penting. Justeru itu, tanpa kos yang rendah dan sistem operasi pembayaran yang cekap. maka semua urusan tempatan dan antarabangsa mungkin tidak dapat dilaksanakan dengan berkesan. Bank perdagangan adalah dianggap cekap dan



berkesan, jika mampu mengeluarkan output-output atau khidmat-khidmat pada kos yang minima serta berterusan menikmati faedah-faedah skel ekonomi dan skop ekonomi dalam jangka panjang.

Ringkasnya, skel ekonomi merupakan hubungan antara perubahan dalam kos pengeluaran dengan perubahan dalam kuantiti outputnya (diukur dalam nilai kewangan). Jika perubahan dalam output itu lebih dari perubahan dalam kos input maka bank berkenaan dikatakan beroperasi dalam lingkungan skel ekonomi (pada kos sedang menurun atau pada pulangan skel menaik atau kemungkinan sedang mengalami peningkatan dalam keuntungan) dan sebaliknya. Sementara itu, skop ekonomi akan wujud apabila sesebuah bank perdagangan mampu mengeluarkan pelbagai output serentak, dengan kos yang lebih rendah daripada keluaran output yang sama oleh beberapa bank-bank lain secara berasingan. Bukti yang didokumentasi mengenai kewujudan skel ekonomi di bank perdagangan menyatakan bahawa ia akan kekal setakat tahap saiz banks yang kecil atau sederhana dalam jangka panjang. Namun demikian, bagi skop ekonomi keputusan-keputusan yang diperolehi adalah sukar difahami kerana ada ketikanya penemuan tersebut tidak selaras dengan tiori. Penemuan kajian yang lepas mengenai kecekapan bank menunjukkan bahawa keluk kos purata pengeluaran jangka panjang adalah lebih kurang berbentuk “ U ” dimana ia berubah mengikut saiz bank. Saiz bank berkenaan biasanya diukur dari segi nilai aset atau jumlah deposit.

Pengiraan skel ekonomi dan skop ekonomi bagi bank perdagangan yang mengeluarkan pelbagai output di Malaysia telah dianggarkan dengan menggunakan fungsi transcendental logarithmic (translog). Data rentas siri masa disatukan bagi 40 buah bank perdagangan untuk jangka masa 1988 kepada 1998 telah dianalisa. Bank-bank tersebut diandaikan mengeluarkan dua jenis output utama iaitu, pelaburan dan pinjaman. Harga-harga atau kos-kos input meliputi kos dana (atau kos modal kewangan atau harga dana), kos buruh (harga buruh) dan kos modal tetap/ bangunan dan peralatan (harga modal tetap).

Keputusan kajian menunjukkan bahawa industry bank perdagangan Malaysia mempunyai ciri-ciri kos purata jangka panjang yang berbentuk garis lurus, iaitu pulangan malar mengikut skel. Penemuan tersebut adalah tidak sejajar dengan bentuk kos purata jangka panjang yang klasik iaitu yang berbentuk "U". Hasil kajian ini jelas menunjukkan industry bank perdagangan adalah beroperasi dalam ruang pulangan malar mengikut skel. Nilai koefisiennya adalah bererti secara statistic iaitu 0.99827, yang menghampiri nilai satu. Ringkasnya, kecekapan industri bank perdagangan Malaysia didapati adalah serdahana dalam tempoh kajian berkenaan.

Perbandingan antara empat bank terbesar dengan empat bank terkecil menunjukkan bahawa empat bank terbesar tidak beroperasi secara skel ekonomi



dengan koefisien 1.1818 dan empat bank terkecil didapati beroperasi dalam ruang skel ekonomi dengan koefisien 0.90358. Terdapat perbezaan dalam skel ekonomi bagi bank asing berbanding dengan bank tempatan dengan nilai koefisien masing-masing 0.92075 and 1.01976. Ini bererti bahawa bank asing adalah lebih cekap dari bank tempatan dalam pengurusan kos. Walaupun kedua-dua nilai tersebut berada didalam zon yang berbeza tetapi nilainya hampir satu, iaitu pulangan malar.

Analisa skel ekonomi secara tahunan menunjukkan bahawa bank perdagangan setiap tahun beroperasi di ruang skel ekonomi, dimana keputusan ini sejajar dengan penemuan bagi semua bank berkenaan dari 1988 hingga 1998. Walau bagaimanapun, hasil kajian menunjukkan bahawa wujud hubungan antara nilai skel ekonomi dengan peritiswa-peritiswa tertentu yang terjadi dalam tempoh kajian tersebut.

Kewujudan keadaan kos pelengkap antara dua output, iaitu pelaburan dan pinjaman, telah disahkan dalam penemuan kajian ini. Mengenai skop ekonomi keputusannya menunjukkan terdapat ketidak selarasan dengan tiori. Nilai koefisien bagi skop ekonomi biasanya dijangka akan meningkat mengikut saiz bank berkenaan tetapi keputusan-keputusan yang di perolehi adalah sebaliknya. Di samping itu, keputusan tersebut menunjukkan skop ekonomi yang sangat bererti bagi bank tempatan berbanding dengan bank asing yang tidak mempunyai skop

ekonomi. Keadaan ini mungkin kerana bank asing lebih menumpukan pengeluarannya kepada satu atau sedikit output berbanding dengan bank tempatan yang menumpukan pengeluarannya kepada pelbagai/banyak output.

Pengembangan laluan pertambahan (expansion path subadditivity) menunjukkan ia wujud didalam bank perdagangan yang mengeluarkan pelbagai output. Ini membawa erti bahawa jika bank-bank besar distruktur kepada bank-bank bersaiz kecil maka ini akan menyebabkan kos operasi meningkat.

Kemungkinan mencantumkan bank-bank kecil supaya menghampiri saiz bank yang optima iaitu antara RM5 billion hingga RM10 billion dijangka akan menjana skel ekonomi and meningkatkan kecekapan pengurusan kos. Walau bagaimana pun, kewujudan pengaruh ologopoly dan monopoly hasil dari pengstrukturkan semula bank boleh menyebabkan bertambah sukar serta meningkatnya halangan-halangan untuk menceburi dan keluar dari industry tersebut dalam jangka panjang.

ACKNOWLEDGEMENTS

This thesis would not have been possible without the assistance, guidance and constant supervision of Professor Dr. Mohamed Ariff of Monash University, Australia, and Associate Professor Dr. Shamsher Mohamad, the Chairman of the Thesis Committee member and Professor Dr. Annuar Nassir, a committee member for the thesis, and who is also the Head of Dept. of Finance and Accounting, Faculty of Economic, UPM. And also to Professor Dr. Aziz Abdul Rahman, a committee member at proposal defence stage. He has given his sincere support and encouragement towards accomplishing this thesis. My sincere gratitude and many thanks to all of them.

Professor Dr. Mohamed Ariff deserves special thanks and mention here. He has shaped and guided my research effort from the beginning to its final stage. In retrospective, he personally identified and suggested the topic for this thesis of which I am grateful. I must admit that this thesis have been very taxing, and has taken much of his time and energy in supervising while he was in Malaysia and in Australia.

My many thanks to Associate Professor Dr. Shamsher Mohamad, the Chairman, whose comments, assistance and patience were very much appreciated in reviewing/in editing the whole thesis. I managed to seize much of his busy hours



for meeting etc. in organising and in improving this thesis in particular the clarity of my writing and focus. Without his intellectual wisdom, insight and sense of urgency, this thesis might have taken many more weeks and months before it could be finalised. He has been very meticulous of every minute details that most of us tend to take for granted.

I am grateful to Professor Dr. Annuar Nassir, who has motivated me to work hard to accomplish this thesis. His valuable recommendations and challenging comments has enhanced very much the quality of this thesis in terms both its depth and analysis. My gratitude to him because whenever I am in need of assistance, support and comments he was always there to respond to assist me during the past four years of research work.

I am very much indebted to my good friend Associate Professor Dr. Abu Hassan Shaari Mohd Nor, a lecturer and a statistician of the Department of Statistics, Faculty of Economic, National University of Malaysia, Bangi, Selangor. He has assisted not only in processing and to run the data set but also to ascertain the model robustness and reliability. His contribution is much appreciated in appraising the model and in analysing the results. Dr. Abu Hassan Shaari Mohd Nor who obtained his Ph.D. in statistics from Oklahoma State University, is currently an expert on economies of scale as well as on productivity analysis in the country. At present, he is an adviser cum a consultant to a number of government

agencies and corporate organisations in the country on industrial output productivity etc. My special thanks once again to him.

I would like to express my appreciation to all those who have assisted me on this intellectual journey directly or indirectly including my two research assistants: Azhar Mohd Daud, an acturaries graduate of University Technology Mara (UiTM) Malaysia, and Natasya Haji Ramlan, an accounting graduate of University of Tenaga Malaysia. They have contributed tremendously in keying and in assembling the commercial banks' accounting data before they were processed accordingly. These tasks are really painstaking and time consuming. They have worked long hours and at time until late morning for month after month to prepare/ready the data base. Thanks for the co-operation and assistance rendered.

Not forgetting my many good friends at the faculty. Taufiq Chaudary, Law Siong Hook, Dr. Housen, and also an ex-UPM post-grad Tamat Samidi now of National University Malaysia, who have all contributed in many ways to realise this thesis. You are indeed my true friends who have assisted to resolve and overcome many unexpected hiccups/difficulties along the ways.

Most important of all my warmest thanks to my wife and children who have been very patient during those years of academic study and for her many personal sacrifices to make this thesis possible. She has not only burdened herself to manage the family but also assisted me in the process of writing the thesis.



I certify that an Examination Committee have met on 16th of February 2001 to conduct the final examination of Mohd. Padzil bin Hashim on his Doctor of Philosophy thesis entitled "Economies of Scale and Economies of Scope of Commercial Banks 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:

Raduan Che Rose Ph.D.
Malaysian Graduate School of Management
Universiti Putra Malaysia
(Chairman)

Shamsher Mohamad Ph.D.
Associate Professor/Chairman for the Ph.D. thesis Supervisory Committee
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)

Mohamed Ariff Syed Mohamed Ph.D.
Professor of Finance/Monash Mt. Eliza Business School
Monash University
Caulfield, Victoria Australia
(Member)

Annuar Md. Nassir Ph.D.
Professor/Head Department of Finance and Accounting
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)

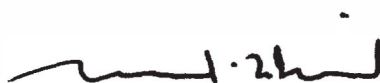
M. Kabir Hassan Ph.D.
Professor /Department of Economics and Finance
University of New Orleans
New Orleans, LA USA
(Independent Examiner)



Mohd. Zain Mohamed Ph.D.
Professor / Deputy Dean
Malaysian Graduate School of Management
Universiti Putra Malaysia

Date : 19 March 2001

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy.



Md. Zabid Abd. Rashid Ph.D.
Professor
Dean of Malaysian Graduate School of Management
Universiti Putra Malaysia

Date : 19/3/2001

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations 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.



Mohd Padzil Bin Hashim

Date : 16th February 2001

TABLE OF CONTENTS

	Page
DEDICATION	ii
ASBTRACT	iii
ABSTRAK	vii
AKNOWLEDGEMENTS	xii
APPROVAL 1	xv
APPROVAL 2	xvi
DECLARATION	xvii
LIST OF TABLES	xxii
LIST OF FIGURES	xxiv
LIST OF CHART	xxiv
 CHAPTER	
1	1
COMMERCIAL BANKS EFFICIENCY	
Statements of Problems	5
Objectives of Studies	7
Contributions of Study	8
Organisation of the Thesis	11
2	12
THEORY OF THE FIRM	
Introduction	12
The Concept of Production and Cost	12
Relationship Between Short-run and	
Long-run Average Cost Curves	18
Long-run Is Important To The Banks (and Firms)	20
The Optimum Firm Size	21
Microeconomics and Efficiency	22
Liebstein's X-inefficiency	22
Market Structure of Large Banks	23
Internal and External Economies of Scale	25
Internal Economies of Scale	25
Plant-level Economies of Scale	25
Firm-level of Economies of Scale	27
External Sources of Economies of Scale	28
Economies of Scale	28
Averch-Johnson Effect	33
Economies of Scope	35
Bank Outputs Measurement	38
Operating Versus Total Bank Cost	39
The Cobb-Douglas Cost Function	42



	The Constant Elasticity of Substitution	44
	The Translog Cost Function	46
	The Box-Cox Translog Cost Function	49
	Chapter Summary	50
3	EVIDENCE ON THE ECONOMIES OF SCALE AND SCOPE IN COMMERCIAL BANKS	51
	Introduction	51
	Simple Average and Linear Multiple Regression Cost Function	52
	Application of Cobb-Douglas Cost Function	58
	Translog Cost Function	62
	Generalised Box-Cox Translog Cost Function	68
	Scale Studies in Non-Commercial Banks	71
	Evidence of Scale Economies Efficiency	72
	Evidence on Scope Economies Efficiency	79
	Chapter Summary	82
4	RESEARCH DESIGN AND METHODOLOGY	83
	Introduction	83
	Research Design	84
	Hypothesis Generation	85
	The Strategic Hypothesis	85
	The Subsidiary Strategic Hypothesis	86
	Variables Specification	88
	Data	93
	Test Model	94
	Measures of the Economies of Scale	97
	Measures of the Scope Economies	98
	Test Statistics and Statistical Issues	101
	Chapter Summary	101
5	OVERVIEW OF COMMERCIAL BANKING IN MALAYSIA	103
	Introduction	103
	Liberalisation of the Banking System	104
	The Financial System in Malaysia	105
	Regulatory of the Banking System of Malaysia	111
	Licensing Power of Commercial Banks in Malaysia	111
	The Roles of Central Bank	112
	Legal Supervisory Framework of Banking System	114



The Two-Tier Regulatory System	
In Banking Sector	116
Interest Rate Policy	117
Early History of Commercial Banking	120
The Emergence of Domestic Commercial Banks	123
Main Characteristic of Early Domestic Commercial Banks	124
Commercial Bank Development in Malaysia	127
Commercial Bank Branches	135
Commercial Banks Ranking	140
Domestic and Foreign Banks Assets, Loans and Deposits Size	150
Loans Distribution	151
Commercial Bank's Profitability	154
Rationalising the Number of Banks in Malaysia	158
Sources and Uses of Funds of Malaysia's Commercial Banks	
Sources of Funds of Commercial Banks	161
Uses of Fund of Commercial Banks	164
Islamic Commercial Banking Scheme in Malaysia	168
Chapter Summary	171
6	
FINDINGS 1 – MODEL APPRAISAL AND ECONOMIES OF SCALE	172
Introduction	172
Model Appraisal	173
Statistical Criteria	173
Econometric Criteria	175
Economic Criteria	177
An Analysis of Elasticity of All Banks	180
Measures of Economies of Scale	185
Economies of Scale of Commercial Banks According to Assets Sizes	185
Approximate Optimum Assets Size with Respect To Minimum Scale Economies Values of Outputs	196
Economies of Scale of Four Largest and Four Smallest Banks	198
Economies of Scale of Investments Outputs of Big Four and Small Four Banks	201
Economies of Scale of Loans of Big Four and Small Four Banks	202
Branches Economies of Scale of Big Four and Small Four Banks	203
Economies of Scale of Domestic and Foreign Banks	206

	Foreign Banks-Investment and Loans Outputs	
	Economies of Scale	208
	Foreign Bank-Branches Economies of Scale	209
	Economies of Scale of Foreign Commercial Banks	
	According to Assets Sizes in Malaysia	211
	Economies of Scale on Annual Basis	
	From 1988 to 1998	217
	Economies of Scale and Different Significant	
	Events During Period of Study	218
	Summary of Findings on Scale Economies	220
7	FINDINGS 2 – ECONOMIES OF SCOPE	221
	Introduction	221
	Overall Economies of Scope of Commercial Banks	222
	Economies of Scope of Banks With	
	Different Assets Sizes	226
	Economies of Scope of Four Largest and	
	Four Smallest Banks	229
	Economies of Scope for Domestic and Foreign Banks	232
	Expansion Path Subadditivity	236
	Chapter Summary	245
8	CONCLUSION, POLICY IMPLICATIONS, LIMITATIONS OF STUDIES AND FURTHER RESEARCH	248
	Introduction	248
	Summary of Research Findings	249
	Results on Economies of Scale	249
	Results on Economies of Scope	252
	Policy Implications	255
	Limitation of Studies	261
	Suggestions for Further Research	261
	REFERENCES	264
	APPENDICES	278

CHAPTER 1

COMMERCIAL BANK EFFICIENCY

In the light of move to establish concentrated banking in Malaysia in 1998-1999, it has become necessary to investigate and evaluate performance of commercial bank in term of established theories of scale and scope economies. The 1997 Asian Financial Crisis has provided an added urgency in pursuing this research in the hope that the findings could truly reflect on the performance of the banking entities in Malaysia.

The structure of commercial banking industry is changing rapidly with globalisation especially with Malaysia's acceptance of entry of foreign banks with effect from 2003. Factors causing structural changes relate directly to competition, efficiency, and regulatory policy in banking as well as changes in market structure. In Asia and particularly ASEAN, banking and finance industries have been rapidly changing to cope with increasing competition in recent years. With barriers to entry lessened in the 1980s, new competitors have entered the industry.

In addition, the demarcation lines between the banking and non-financial institutions have become increasingly ambiguous. Technological innovations have helped banks transcend statutory and physical barriers between countries and across institutions.



The mergers and acquisitions have posed new challenges for both banks and regulatory authorities. Consequently, the concentration in the banking industry has increased. Many of these institutions' size and capital base have become considerably larger with substantial market power. To-date most banking and other financial institutions in Asia and the ASEAN countries appear to operate under much more deregulated banking environment compared to few years earlier.

The lure of greater earnings through cost reductions generated by greater economies of scale has long fascinated management in banking as it does in other industries. Economy of scale occurs, when large firms can produce the same goods or services at a lower cost than would a smaller firms. Precisely, it suggests that as firm's operating size becomes larger, the average cost of producing each unit service decreases. But the evidence show that it is the mid-sized banks that have the lowest cost, and achieve the fruits of greatest economies of scale Berger, Hanweck and Humphrey (1987).

In theory, economists believe that a firm's long-run cost curve is U-shaped. When a small bank (or a firm) increases in size, the cost per unit of output decreases. However, as the volume of output increases, inefficiencies develop and eventually, the average cost per unit of output rises.

Economies of scale is usually attributed to mid-sized banks/firms for several possible reasons. First, such banks/firms are able to subdivide tasks.

allowing employees to specialise. Second, they are able to use highly efficient, specialised capital equipment, often too expensive for small firms to afford, given their low volume of output. This is particularly true in commercial banking, where the processing of demand deposits by computers and other mechanised processing methods allows medium-sized banks (and some large banks) to process tremendous volume of checks at low unit cost presently.

There is no documented evidence on economies of scale of commercial banks in Asia or ASEAN countries in particular Malaysia. Undoubtedly, such an analysis requires a thorough understanding of the operations of commercial banking, national monetary policy, and the complexity of measuring the economies of scale of commercial banks. Lack of transparency and insufficient data, absence of accounting standards are among the reasons cited to explain the lack of documented evidence on this issue in Asia, Latin Americas and Africa though there are few documented evidence in the USA, Canada and Europe.

In the US, for example, Benston (1982) and McNuly (1982) estimated the overall cost curves of commercial banks and found economies of scale in the banking industry for banks with asset size of at least US\$75 million. After that point, the average cost of output levels off. The scale economies of size exists in some parts of banking industry, the unit cost of bank output decreases as bank size increases. Especially in the production of business and real estate