



UNIVERSITI PUTRA MALAYSIA

**BANK EFFICIENCY AND PRODUCTIVITY IN SELECTED
ASEAN BANKING SECTORS**

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**BANK EFFICIENCY AND PRODUCTIVITY IN SELECTED ASEAN
BANKING SECTORS**

By

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**Thesis Submitted to the School of Graduate Studies, Universiti
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May 2011

Chair: Professor Muzafar Shah Habibullah, PhD

Faculty: Faculty of Economics and Management

The analysis of the performance of the banking sectors continued to receive considerable attention from researchers and policymakers alike. The rapid pace of liberalization of the financial sectors worldwide has resulted in an increasingly competitive environment. At the banks level, underperformance has consequences not only on the banks' profitability, but also for its probability to survive in a competitive environment. An inefficient bank may be forced out of the market by its relatively efficient peers. Furthermore, if the banking sector is inefficient, the interest rate spreads could potentially be higher, reflecting the high operating costs arising from the management's ability to optimally combine its inputs and outputs. For the reasons mentioned above, the issue of reducing the underperformance of the banking sector has become one of the main priorities of bank managers and policymakers.

The present study concerns with the analysis of bank efficiency and productivity in the ASEAN-5 countries. The analysis is confined to the period from 1996 to 2008. The two-stage approach is employed for this study. In the first stage, the non-parametric Data Envelopment Analysis (DEA) and Malmquist Productivity Index (MPI) methods are used to examine the efficiency and total factor productivity change of the banks in the sample respectively. In the second stage, the Ordinary Least Square (OLS) and Generalized Methods of Moments (GMM) are employed to regress the efficiency and total factor productivity scores derived from the DEA and MPI on internal (bank specific) and external (macroeconomic and financial markets) factors, which could influence the efficiency and productivity levels of the banks in the sample.

In essence, the empirical findings from this study highlight the existence of sizable scale inefficiency among banks operating in the ASEAN-5 banking sectors. The results imply that banks operating in the ASEAN-5 banking sectors are either too small to benefit from the economies of scale, or too large to be scale efficient. Thus, with respect to their scale of operations, banks in the ASEAN-5 banking sectors are likely to lose sizeable output. The present study also demonstrates that the banking sector of the high income country has consistently exhibit a higher level of technical efficiency compared to the low and middle income countries banking sectors.

The empirical findings from this study also bring forth the importance of size in determining banks' total factor productivity growth rate. The empirical findings suggest that the small banks with its limited capabilities are at disadvantage compared to their large bank peers. Within the context of the ASEAN-5 banking sectors, most of the banks were relatively small by global standards. Going forward, constant technological upgrades and investments in the state of the art technologies should be an essential policy in order to improve the rate of total factor productivity growth of the ASEAN-5 banking sectors.

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

**KECEKAPAN DAN PRODUKTIVITI BANK DI SEKTOR PERBANKAN
ASEAN TERPILIH**

Oleh

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Analisis tentang prestasi industri perbankan terus mendapat perhatian daripada penyelidik dan penggubal dasar. Kadar liberalisasi yang pesat telah menyebabkan persaingan yang sengit dalam sektor kewangan dunia. Ketidak cekapan bukan sahaja boleh menyebabkan impak negatif kepada kadar keuntungan, tetapi juga tahap kelangsungan bank tersebut didalam industri yang semakin kompetitif. Bank yang tidak cekap berkemungkinan akan terkeluar daripada persaingan dengan bank pesaing yang lebih cekap. Tambahan pula, sekiranya industri perbankan tidak cekap, kadar faedah akan menjadi lebih tinggi disebabkan oleh tingginya kos operasi bank. Oleh kerana itu, isu untuk mengurangkan ketidak cekapan industri perbankan menjadi keutamaan kepada pengurus-pengurus bank dan juga penggubal dasar.

Berikutan daripada itu, kajian ini berusaha untuk mengukur tahap kecekapan dan produktiviti industri perbankan di negara ASEAN-5 dan tertumpu pada tahun 1996 – 2008. Kajian ini menggunakan kaedah dua-tahap. Pada tahap pertama, kajian ini menggunakan kaedah Analysis Pengumpulan Data and Indeks Produktiviti Malmquist untuk mengukur tahap kecekapan dan produktiviti bank didalam sampel. Pada tahap kedua, kajian ini menggunakan kaedah Kuasadua Terkecil and *Generalized Methods of Moments (GMM)* untuk menganalisa hubungan antara faktor-faktor dalaman dan luaran dengan tahap kecekapan dan produktiviti bank.

Penemuan kajian mendapati terdapat kadar ketidak cekapan yang agak tinggi dari segi skala antara bank yang beroperasi dalam industri perbankan di negara ASEAN-5. Penemuan kajian menunjukkan bahawa bank yang beroperasi dalam industri perbankan negara ASEAN-5 adalah terlalu kecil untuk mendapat faedah dari ekonomi berskala ataupun terlalu besar untuk cekap dari segi skala. Oleh itu, bank yang beroperasi di negara ASEAN-5 akan kehilangan pengeluaran yang agak besar. Kajian juga mendapati bahawa industri perbankan negara berpendapatan tinggi adalah lebih cekap berbanding industri-industri perbankan di negara berpendapatan sederhana dan rendah.

Hasil kajian juga mendapati bahawa saiz bank memainkan peranan penting didalam menentukan kadar pertumbuhan produktiviti bank. Penemuan mendapati bank bersaiz kecil dengan kapasiti yang terhad menghadapi kekurangan berbanding bank yang bersaiz besar. Dalam konteks industri perbankan di negara ASEAN-5, kebanyakan bank adalah kecil jika dibandingkan dengan taraf global. Melihat ke hadapan, peningkatan tahap teknologi yang berterusan dijangka akan dapat membantu meningkatkan tahap produktiviti industri perbankan di negara ASEAN-5.

DEDICATIONS

TO MY CHILDREN

Nur Rabiatal Rahah

Muhammad Haiman Zubayr

Muhammad Hadif Muhaimin

...for the time I had to spend away from you...

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I certify that a Thesis Examination Committee has met on 27 May 2011 to conduct the final examination of Fadzlan bin Sufian@Sofian on his thesis entitled "Bank Efficiency and Productivity in Selected ASEAN Banking Sectors" in accordance with the Universities and University College Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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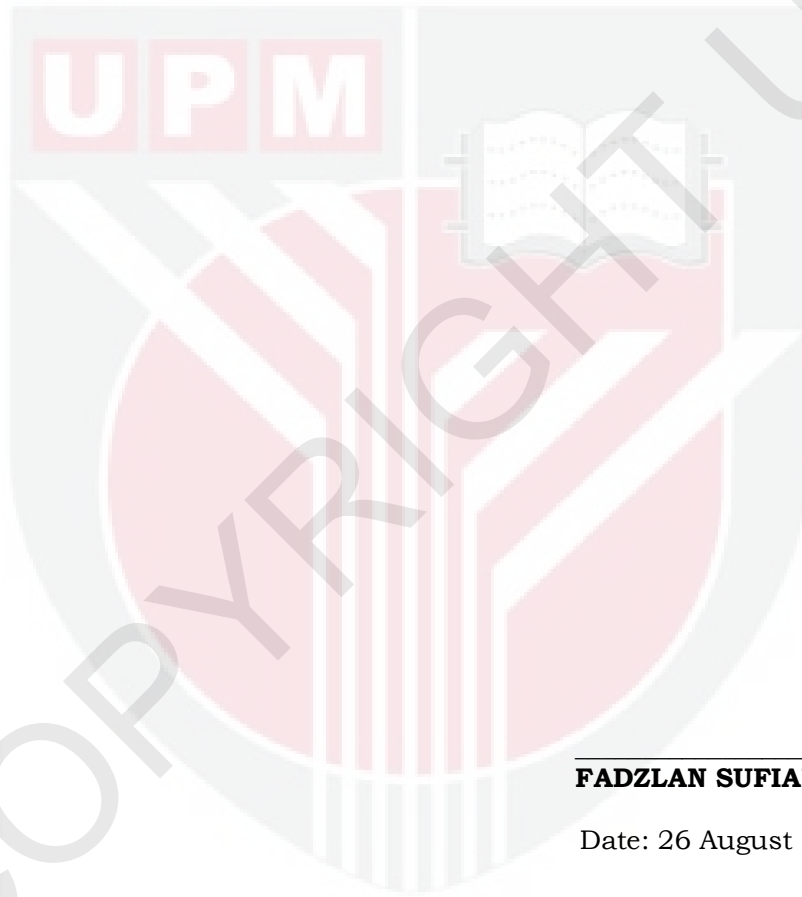
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DECLARATION

I hereby declare that this 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.



FADZLAN SUFIAN

Date: 26 August 2011

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ACRONYMS AND ABBREVIATIONS

AE	Allocative Efficiency
ASEAN	Association of South East Asian Nations
BCC	Banker, Charnes, and Cooper
CCR	Charnes, Cooper, and Rhodes
CE	Cost Efficiency
COLS	Corrected Ordinary Least Square
CR3	Three Bank Concentration Ratio
CRS	Constant Returns to Scale
DEA	Data Envelopment Analysis
DFA	Distribution Free Approach
DMU	Decision Making Units
EFFCH	Efficiency Change
EMH	Efficient Market Hypothesis
EQASS	Equity over Total Assets
FDH	Free Disposal Hull
FHC	Financial Holdings Company
FORB	Foreign Bank
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GMM	Generalized Methods of Moments
INFL	Inflation
LLP/TL	Loan Loss Provisions over Total Loans
LNGDP	Natural Log of Gross Domestic Products
LNTA	Natural Log of Total Assets
LP	Linear Programming
MPI	Malmquist Productivity Index
NIE/TA	Non-Interest Expense over Total Assets
NII/TA	Non-Interest Income over Total Assets
OBS	Off-Balance Sheet
OLS	Ordinary Least Square
PEFFCH	Pure Technical Efficiency Change
PTE	Pure Technical Efficiency
PUBL	Publicly Listed
ROA	Return on Assets

ROE	Return on Equity
SCP	Structure Conduct Performance
SE	Scale Efficiency
SECH	Scale Efficiency Change
SFA	Stochastic Frontier Approach
TE	Technical Efficiency
TECHCH	Technological Change
TFA	Thick Frontier Approach
TFP	Total Factor Productivity
VRS	Variable Returns to Scale



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