UNIVERSITI PUTRA MALAYSIA

IMPACT OF BANK-SPECIFIC CHARACTERISTICS, MACROECONOMIC FACTORS AND GOVERNANCE ON ISLAMIC AND CONVENTIONAL BANK REVENUE EFFICIENCIES

FAKARUDIN BIN KAMARUDIN

GSM 2015 1

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By

FAKARUDIN BIN KAMARUDIN

Thesis Submitted to the Graduate School of Management,
Universiti Putra Malaysia, in Fulfilment of the
Requirements for the Degree of Doctor of Philosophy

January 2015

DEDICATION

TO MY BELOVED FAMILY

Ramini Laiman

Kamarudin Abd. Hamid

Qamariatull Arifah

Latifah

Faizah

TO MY PRECIOUS PARENT-IN-LAW

Mohd Redzuan Hj. Shariff

Maisarah Hj. Mat Dom

TO MY TREASURED WIFE AND SON

Nazratul Aina Mohamad Anwar

Muhammad Fateh Arish

...With you, hopes are always there...

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

IMPACT OF BANK-SPECIFIC CHARACTERISTICS, MACROECONOMIC FACTORS AND GOVERNANCE ON ISLAMIC AND CONVENTIONAL BANK REVENUE EFFICIENCIES

BY

FAKARUDIN BIN KAMARUDIN

January 2015

Chairman : Professor Annuar Md Nassir, PhD
Faculty : Graduate School of Management, UPM

The main objective of Islamic and conventional banks is to maximize shareholders' value or wealth via profit maximization even though they are operate under two different principles. The profitability of banks is generally related to the level of bank's profit efficiency. To attain a higher level of profit efficiency, banks should maximize their revenue efficiency rather than just focus on the cost efficiency level. Generally, bank governance plays a main role in ensuring that a bank's efficiency is at the optimal level. Nevertheless, prior results are inconclusive. One of the mechanisms that could significantly improve the efficiency level of banks is through country governance. Few studies have examined the effect of country governance on banks revenue efficiency. In general, country governance is defined as the set of traditions and institutions by which the authority in a country is exercised.

The levels of the revenue efficiency in the Islamic and conventional banks are measured using the Data Envelopment Analysis (DEA) method via the intermediation approach. Then, the potential determinants and the effect of country governance on the revenue efficiency of both banks are investigated by adopting the Multivariate Panel Regression Analysis (MPRA) via the pooled Ordinary Least Square (OLS), Fixed Effect Model (FEM), Random Effect Model (REM) and the Generalized Method of Moments (GMM) as estimation methods. The data for this study consists of 454 banks (112 Islamic and 342 conventional banks) selected from the three regions of the main hubs of Islamic banking (Middle East, Southeast Asia, and South Asia) that cover 19 countries from the year 2003 to 2011.

Overall, the empirical findings suggest that the Islamic banks' revenue efficiency level is higher than that of conventional banks'. Furthermore, this study finds that, bank size has a positive impact on both types of banks' revenue efficiency. However,

others factors, such as, capitalization and market power reveal the opposite relationship. The credit risk, liquidity and economic growth have a positive impact on the Islamic banks' revenue efficiency. Meanwhile, inflation and market concentration have a positive impact on the conventional banks' revenue efficiency, whilst global financial crisis and overhead expenses report the contrary findings.

Finally, this study also finds that, in general, country governance dimensions, such as, voice and accountability have a positive influence on both Islamic and conventional banks' revenue efficiency. However, the opposite effects are observed for other country governance dimensions, such as, political stability and absence of violence and control of corruption. In addition, the government effectiveness, regulatory quality and rule of law dimensions negatively influence banks' revenue efficiency but is only significant for conventional banks.

This study concludes that the levels of revenue efficiency in the Islamic and conventional banks are not just influenced by bank-specific characteristics and macroeconomic conditions, but they are also influenced by the effect of country governance.

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

KESAN KARAKTERISTIK PENGKHUSUSAN BANK, FAKTOR MAKROEKONOMI DAN URUS TADBIR TERHADAP KECEKAPAN HASIL BANK ISLAM DAN BANK KONVENSIONAL

OLEH

FAKARUDIN BIN KAMARUDIN

Januari 2015

Pengerusi : Professor Annuar Md Nassir, PhD
Fakulti : Sekolah Pengajian Siswazah Pengurusan, UPM

Objektif utama bank Islam dan bank konvensional adalah untuk memaksimumkan nilai atau kemewahan pemegang saham melalui keuntungan maksimum walaupun mereka beroperasi di bawah prinsipal yang berbeza. Keuntungan bank secara umumnya adalah berkaitan dengan tahap kecekapan untung sesebuah bank. Untuk memastikan tahap kecekapan untung yang lebih tinggi, bank harus memaksimumkan kecekapan hasil mereka dan bukan sekadar hanya memberikan tumpuan kepada tahap kecekapan kos. Secara umumnya, tadbir urus bank memainkan peranan utama untuk memastikan kecekapan bank adalah pada tahap yang optimum. Walaubagaimanapun, keputusan sebelum ini menunjukkan penemuan yang tiada konklusif. Salah satu mekanisme yang mampu meningkatkan tahap kecekapan bank adalah melalui tadbir urus negara. Namun, terlalu sedikit kajian yang telah dijalankan mengenai kesan tadbir urus negara terhadap kecekapan hasil bank. Umumnya, tadbir urus negara didefinisikan sebagai suatu set tradisi dan institusi pihak berkuasa yang dilaksanakan di sesebuah negara.

Tahap kecekapan hasil bagi bank Islam dan bank konvensional diukur menggunakan kaedah Analisis Pengumpulan Data *(DEA)* melalui pendekatan pengantaraan. Kemudian, faktor penentu yang berpotensi dan kesan tadbir urus negara ke atas kecekapan hasil terhadap kedua-dua sektor perbankan tersebut dikaji dengan menggunakan analisis regresi Panel multivariat *(MPRA)* melalui Kaedah pengumpulan Kuasadua Terkecil *(OLS)*, Model Kesan Tetap *(FEM)*, Model Kesan Rawak *(REM)* dan *'Generalized Method of Moments' (GMM)* sebagai satu kaedah anggaran. Data kajian ini terdiri daripada 454 buah bank (112 buah bank Islam dan 342 buah bank konvensional) yang dipilih dari tiga kawasan hab utama perbankan Islam (Timur Tengah, Asia Tenggara dan Asia Selatan) merangkumi 19 buah negara dari tahun 2003 hingga 2011.

Secara keseluruhannya penemuan kajian mencadangkan bahawa tahap kecekapan hasil bank Islam adalah lebih tinggi dari bank konvensional. Disamping itu, kajian

mendapati, faktor saiz bank mempunyai kesan yang positif terhadap kecekapan hasil kepada kedua-dua jenis bank. Walau bagaimanapun, faktor permodalan and kuasa pasaran menyumbang kepada kesan yang bertentangan. Seterusnya, faktor risiko kredit, kecairan and pertumbuhan ekonomi memberikan kesan positif terhadap kecekapan hasil bank Islam. Sementara itu, faktor inflasi dan penumpuan pasaran mempunyai kesan positif terhadap kecekapan hasil bank konvensional, manakala krisis kewangan global dan perbelanjaan overhed menunjukkan penemuan yang berlawanan.

Akhir sekali, kajian ini juga mendapati, secara umumnya, dimensi tadbir urus negara seperti dimensi suara dan akauntabiliti mempunyai pengaruh positif terhadap kecekapan hasil bagi kedua-dua bank Islam dan bank konvensional. Walau bagaimanapun, kesan bertentangan telah dikenal pasti bagi dimensi tadbir urus negara yang lain seperti, dimensi kestabilan politik dan keamanan dan kawalan rasuah. Sementara itu, dimensi keberkesanan kerajaan, kualiti kawal selia dan kedaulatan undang-undang memberikan pengaruh negatif kepada kecekapan hasil bank tetapi hanya signifikan bagi bank konvensional.

Kajian ini menyimpulkan bahawa tahap kecekapan hasil bagi bank Islam dan bank konvensional tidak hanya dipengaruhi oleh ciri-ciri pengkhususan bank dan keadaan makroekonomi, tetapi juga kesan daripada tadbir urus negara.

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Last but not least, special thank to my friends and lecturers of Faculty of Economics and Management in Universiti Putra Malaysia and those who have encouraged and supported me directly or indirectly during the process of completing this study.

I certify that a Thesis Examination Commitee has met on **2 January 2015** to conduct the final examination of Fakarudin Bin Kamarudin on his thesis entitled **"Impact of Bank-Specific Characteristics, Macroeconomic Factors and Governance on Islamic and Conventional Bank Revenue Efficiencies"** in accordance with the Universities and University Colleges 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 degree

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On behalf of,
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This thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as partial fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee are as follows:

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DECLARATION

I hereby confirm that:

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- supervision reponsibilities as stated in Rule 41 in Rules 2003 (Revision 2012 – 2013) were adhered to.

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ATM	Automated Teller Machine
BCC	Banker, Charnes and Cooper
BIS	Bank for International Settlements
BP and LM	Breusch Pagan and Lagrangian Multiplier
CCR	Charnes, Cooper and Rhodes
CRS	Constant Return to Scale
DEA	Data Envelopment Analysis
DFA	Distribution Free Approach
DMU	Decision Making Unit
DRS	Decreasing Returns to Scale
DUMCB	Dummy Conventional Bank
DUMCRIS	Dummy Global Financial Crisis
DUMHI	Dummy High Income Countries
DUMIB	Dummy Islamic Bank
DUMLI	Dummy Low Income Countries
DUMME	Dummy Middle East
DUMMI	Dummy Middle Income Countries
DUMSA	Dummy South Asia
DUMSEA	Dummy Southeast Asia
FDH	Free Disposal Hull
FEM	Fixed Effect Model
GCC	Gulf Cooperation Council
GMM	Generalized Method of Moments
HMI	Hicks-Moorsteen index
IA	Information-Advantage
IBS	Islamic Banking System
IMF	International Monetary Fund
IRS	Increasing Returns to Scale
ln	Natural Logarithm
lnBDTD	Natural Logarithm of Bank's Deposit over Total Deposit
lnCC	Natural Logarithm of Control of Corruption
lnCR3	Natural Logarithm of Three Largest Banks' Asset to Total Banking Sector Assets
lnETA	Natural Logarithm of Earning over Total Assets
lnGDP	Natural Logarithm of Gross Domestic Product
lnGE	Natural Logarithm of Government Effectiveness
lnINFL	Natural Logarithm of Customer Prices Index Growth Rate
lnLLRGL	Natural Logarithm of Loan Loss Reserve Over Gross Loan
lnLNTA	Natural Logarithm of Total Asset
lnLOANSTA	Natural Logarithm of Total Loan Over Total Assets
lnNIETA	Natural Logarithm of Non-Interest Expense Over Total Assets
lnPV	Natural Logarithm of Political Stability and Absence of Violence

LIST OF ABBREVIATIONS (continued)

lnRE	Natural Logarithm of Revenue Efficiency
lnRL	Natural Logarithm of Rule of Law
lnRQ	Natural Logarithm of Regulatory Quality
lnVA	Natural Logarithm of Voice and Accountability
MENA	Middle East and North Africa
MPI	Malmquist Productivity Index
MPRA	Multivariate Panel Regression Analysis
NIRS	Non-Increasing Returns to Scale
OECD	Organisation for Economic Co-operation and Development
OIC	Organization of Islamic Conference
OLS	Ordinary Least Square
OTE	Overall Technical Efficiency
PLS	Profit and Loss Sharing
PTE	Pure Technical Efficiency
REM	Random Effect Model
RMP	Relative Market Power
SCP	Structure Conduct Performance
SE	Scale Efficiency
SFA	Stochastic Frontier Approach
SFHs	Special Finance Houses
TE	Technical Efficiency
TFA	Thick Frontier Approach
TFP	Total Factor Productivity
UAE	United Arab Emirates
USD	United State Dollar
VAR	Vector Auto-Regression
VRS	Variable Returns to Scale
WDI	World Development Indicators
WGI	Worldwide Governance Indicator

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter provides the background of the study, problem statement, research questions, research objectives, and significance of this study. It provides a general description of Islamic and conventional banks and their efficiency levels in the Middle East, Southeast Asia and South Asia. These three regions are, increasingly important, major hubs of Islamic banking and finance. This chapter also discusses bank-specific characteristics and macroeconomic determinants that are responsible in producing revenue efficient results in both Islamic and conventional banks. The impacts of country governance on both Islamic and conventional banks' revenue efficiency are also discussed. These will then lead to the problem statement, research questions, research objectives and significance of the study.

1.2 Background of the Study

Financial institutions play an important role as institutions that provide financial services to its clients or members. The banking sector represents the part of the financial institutions that are most important to economic growth. Iqbal and Molyneux (2005) describe the bank as a financial intermediary that offers the widest range of financial services such as savings, credit and payment services. In addition,

banks also perform the widest range of financial functions of any business firm in the economy. Another approach of performing the financial intermediary function is through the Islamic banking practice.

The definition of the Islamic banking system (IBS) is a banking system that operates in accordance with Islamic or Syariah rules (Beck *et al.*, 2013). Basically, the three main prohibitions in finance according to the Syariah law are 1) *riba* (interest), 2) *gharar* (risk or uncertainty defined as speculation) and 3) financing of illicit activities such as alcohol, drugs, pork and weapons. Syariah law advocates the profit and loss sharing (PLS) principle and that all transaction need to be backed by a real economic transaction where tangible assets are involved. All Islamic banking operations or transactions that involve either deposits or financing, must be done in accordance with Syariah principles. These principles also cover other banking transactions such as money order transaction, letter of guarantee, letter of credit and foreign exchange.

The main factor that distinguishes Islamic banks from conventional banks is that transactions are administered without involving the elements of *riba* (better known as interest). Islam prohibits *riba* and all Muslims are aware of this matter. It is clearly mentioned on the prohibition of *riba* in the Quran, the Muslim's holy book and the traditions of Prophet Muhammad (*sunnah*). It is commonly agreed that the meaning of *riba* is 'an increase' or 'growth'. Some maintain that it is the increase imposed on the debtor when the debt matures should the debtor fail to settle it and wishes to roll it over. The prime form of *riba* transactions is sale on credit in which case the

(deferred) price is already higher than the spot price due to the deferment and the need for an explicit increase applied only if payment is further postponed.

Nevertheless, most of the scholars are of the opinion that *riba* covers the interest indicated when the contract was made in the case of loans and also the subsequent increase should the loan or the debt arising from sale on credit be rolled over because the debtor fails to pay it on time (Badawi, 1964). Technically, any increase or premium advantage obtained by the lender as a condition of the loan is considered as *'riba'*. This type of income is *"haram"* or forbidden in Islam and Muslims are forbidden from giving or receiving *riba*. More importantly, the principal objective of the establishment of Islamic banks is to cater to the needs of Muslims in banking transactions in accordance with the rulings set in the Al Quran and Hadith (Haron and Azmi, 2009). The business management of the banks is governed by the concepts of justice and fairness.

Santos (2000) suggests that the principle of the conventional bank is to obtain profits simply by purchasing transaction deposits at a low interest rate and then reselling those funds at a higher interest rate. Therefore, in the simple view, the conventional banks make profits through the interest received from the borrowers with a higher rate and paying the interest to their depositors at a lower rate.

Nevertheless, Islamic banks also play the role of the intermediary and charge fees for the services provided to earn profit comparable to the conventional bank. However, the difference is that the Islamic banks do not receive a predetermined interest from borrowers and pay a predetermined interest to depositors. The profit generated by

Islamic banks is based on interest free principle and the principle of PLS. Therefore, in performing their businesses as intermediaries, Islamic banks deal with profit sharing instead of interest, where, profit sharing depends on the extent of the risk participation of the parties (Arif, 1988; Dar and Presley, 2000; Arif, 2006).

Islamic banking dates back almost 40 years. Islamic banking was conceptualised and recognized in the late 1940s. Many distinguished Islamic banks were established in the 1970s including Dar Al-Maal Al-Islami in 1980, Kuwait Finance House and Faisal Islamic Bank of Sudan in 1977, Dubai Islamic Bank in 1975, Islamic Development Bank in 1975 and Nasser Social Bank Cairo in 1972. In the early 1980s, three Muslim countries namely, Pakistan, Sudan and Iran surprised the world by deciding to base their economics and financial systems along Islamic lines (Khan and Bhatti, 2008).

In recent years, Islamic Banking has been one of the steadiest growing institutions and become most competitive to conventional banking even though the size of a typical Islamic bank is much smaller than that of a conventional bank's. Global Islamic Finance Forum (2012) reports that the number of Islamic financial institutions increased from 75 in 1975 to over 600 in 2012, covering more than 75 countries. The total assets of the Islamic financial institutions hit USD 1 trillion in 2011, rising annually at about 150% and growing 50% faster than the overall banking sector. According to a World Islamic Banking Competitiveness report for the period from 2012 to 2013, the Islamic banking assets are projected to grow beyond the milestone of USD 2 trillion by 2014.

In 2011, Syariah compliant assets reached about USD 409.02 billion throughout the world. There are five countries that have been identified as having the largest Syariah compliant assets in the world in 2011, namely, Saudi Arabia, Iran, Kuwait, United Arab Emirates (UAE) and Malaysia. Table 1.1 shows a list of the top 10 largest Islamic banks in the world based on their total assets. Iranian banks accounted for about 62.42% of the total assets of the world's top 10 Islamic banks. Al Rajhi Banking and Investment Corporation, with assets of USD 58.88 billion (14.4%) is top of the list, followed by Iran's Bank Melli, Bank Mellat with USD 57 billion (13.945%) and USD 55.79 billion (13.64%) respectively. In fact, Iran holds the world's largest level of Islamic finance assets valued at USD 255.33 billion (based on top 10 Islamic banks). Maybank Islamic Berhad represents the last of the top 10 with total assets USD 21.83 billion (5.34%).

Table 1.1: List of the Top 10 largest Islamic Banks in the World Year 2011

		Total Assets	
Rank	**Bank**	**Billion (USD)**	**%**
1	Al Rajhi Banking and Investment Corporation (Saudi Arabia)	58.88	14.40
2	Bank Melli Iran (Iran)	57.00	13.94
3	Bank Mellat (Iran)	55.79	13.64
4	Bank Saderat (Iran)	54.14	13.24
5	Kuwait Finance House (Kuwait)	48.31	11.81
6	Bank Tejarat (Iran)	38.11	9.32
7	Parsian Bank (Iran)	25.47	6.23
8	Bank Sepah (Iran)	24.81	6.07
9	Dubai Islamic Bank (UAE)	24.67	6.03
10	Maybank Islamic Berhad (Malaysia)	21.83	5.34
	TOTAL	**409.02**	**100.00**

Source: BankScope database 2011 produced by the Bureau van Dijk

Table 1.2 shows a list of top 10 largest conventional banks in the world in 2011 based on total assets. The top 10 conventional banks have about USD 25.12 trillion in combined assets. Among the top five biggest banks, two are Japanese banks

namely, Mitsubishi UFJ Financial Group with USD 2,741.52 billion (10.92%) and Japan Post Bank with USD 2,542.77 billion. Currently, the largest bank in the world is Deutsche Bank based on total assets of USD 2,802.71 billion (11.16%), with a market share of 15.6%. They employ over 100,000 people and serve over 20 million customers through a large number of branches (about 3,100 branches) all over the world. Deutsche Bank is followed by the second largest bank, Mitsubishi UFJ Financial Group (MUFG). It consists of four main subsidiaries namely, Mitsubishi UFJ Trust and Banking, Bank of Tokyo-Mitsubishi UFJ, Mitsubishi UFJ Securities and UnionBanCal Corporation. HSBC Holdings is the third largest bank with about 90 million customers worldwide.

Table 1.2: List of the Top 10 Largest Conventional Banks in the World Year 2011

		Total Assets	
Rank	**Bank**	**Billion (USD)**	**%**
1	Deutsche Bank (Germany)	2,802.71	11.16
2	Mitsubishi UFJ Financial Group (Japan)	2,741.52	10.92
3	HSBC Holdings (UK)	2,555.58	10.17
4	BNP Paribas (France)	2,545.34	10.13
5	Japan Post Bank (Japan)	2,542.77	10.12
6	Industrial and Commercial Bank of China (China)	2,455.59	9.78
7	Crédit Agricole Group (France)	2,434.24	9.69
8	Barclays PLC (UK)	2,430.74	9.68
9	Royal Bank of Scotland Group (UK)	2,342.66	9.33
10	JPMorgan Chase and Co. (US)	2,265.79	9.02
	TOTAL	**25,116.94**	**100.00**

Source: http://www.relbanks.com/worlds-top-banks/assets-2011

Nowadays, the globalization era has improved the financial institutions worldwide through greater deregulation and liberalization. However, the increasing advances in technology, the liberalization of financial markets on a global scale and the information revolution have put competitive pressure on the banking sector (Carvallo

and Kasman, 2005). This competitive pressure is particularly significant for banks in the emerging markets as they are the major financial intermediaries to channel savings and investment. In this context, operational efficiency is being viewed as critical in gaining competitive advantage. In comparison with Islamic banks, conventional banks;

- have superior experience and protracted history,
- practice and accept interest from loans that represent a major source of the banks' revenue,
- enjoy huge capital, and do not share loss with clients,
- have much more developed technologies,
- ask for guaranteed collaterals in most transactions, and
- spread very widely through the large number of branches

Furthermore, the conventional banks could also enter the Islamic banking market that gives them an advantage to be competitive rivals with Islamic banking. For example, the Western financial market players such as Citibank, ABN AMRO (Algemene Bank Nederland [ABN] Amsterdam Rotterdam [AMRO]), HSBC (Hong Kong and Shanghai Banking Corporation Bank) and others have established their own Islamic windows or subsidiaries for the purpose of attracting petrodollar deposits from the Middle East and Muslim clientele in local markets.

Although the Islamic and conventional banks operate based on different principles, both are competitive since their main motives are still to maximize profit and shareholder's wealth (Khan and Bhatti, 2008 and Olson and Zoubi, 2008). Thus, they

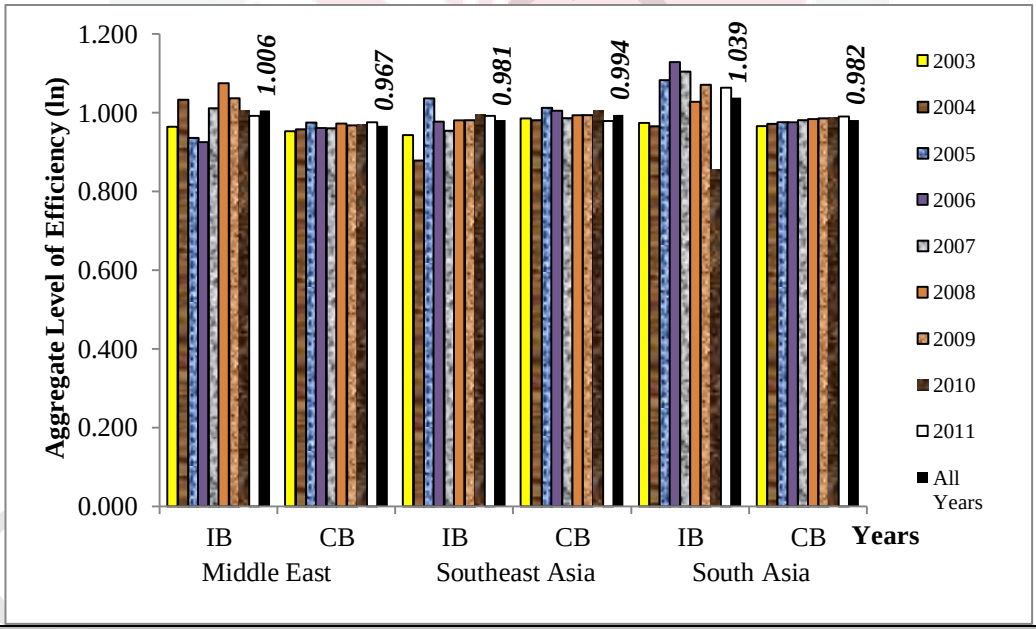
need to be efficient to utilize the minimum inputs and produce maximum outputs. Berger and Humphrey (1997) suggest that studies on the efficiency of financial institutions have become an important part of banking literature since the early 1990s. Indeed, according to Levine (1997) and Rajan and Zingales (1998), the efficiency of the financial sector is crucial to overall economic growth. A study by Berger *et al*. (1993b) suggests that if banks are efficient, they could expect higher profitability, better prices and enhanced service quality for consumers and higher volume of funds would be intermediated.

Previous studies have investigated the efficiency levels of both Islamic and conventional banks but the results are mixed and inconclusive. A number of researchers suggest that conventional banks are more efficient than Islamic banks (Beck *et al.*, 2013; Ahmad and Rahman, 2012; Srairi, 2010; Samad, 1999), while others documented contrary findings (Yudistira, 2004; El-Gamal and Inanoglu, 2005; Olson and Zoubi, 2008; Kassim *et al.*, 2009; Ahmad and Luo, 2010; Khan, 2010; Ariss, 2010). Furthermore, several studies have found that there is no significant difference between efficiency of Islamic and conventional banks (Yahya *et al.*, 2012; Hassan *et al*., 2009; Mohamad *et al.*, 2008).

Khan and Bhatti (2008) report three regions namely Middle East, Southeast Asia and South Asia are the central hubs of Islamic banking and finance. Figure 1.1 exhibits the efficiency of outputs/inputs for Islamic and conventional banks years 2003 to 2011 from these regions. The measurement of outputs/inputs is the basic and easiest method to measure the banks' efficiency proposed by Farrell (1957). In general, Figure 1.1 summarizes the Islamic banks' efficiency in Middle East and South Asia

for all years are higher than conventional banks (1.006 > 0.967 and 1.039 > 0.982), while only Southeast Asia present the contrary banks' efficiency level.

Furthermore, the trend of Islamic and conventional banks' efficiency can be observed from Figure 1.1 that the trend of efficiency in conventional banks are more consistence and stable rather than Islamic banks. On average, over the years 2003 to 2011, the highest efficiency level in Islamic banks occurred in region of South Asia (1.039), while the lowest in Southeast Asia (0.981). On the other hands, the conventional banks experienced the highest (lowest) efficiency level in Southeast Asia (Middle East).



Region	Bank/ Year	Aggregate Level of Efficiency (ln)									
		2003	2004	2005	2006	2007	2008	2009	2010	2011	All Years
Middle East	IB	0.965	1.034	0.937	0.925	1.012	1.076	1.037	1.005	0.992	1.006
	CB	0.953	0.959	0.976	0.962	0.961	0.972	0.969	0.970	0.976	0.967
Southeast Asia	IB	0.944	0.879	1.037	0.978	0.955	0.981	0.982	0.996	0.993	0.981
	CB	0.986	0.982	1.013	1.005	0.987	0.993	0.995	1.006	0.979	0.994
South Asia	IB	0.974	0.966	1.083	1.129	1.105	1.028	1.072	0.856	1.063	1.039
	CB	0.967	0.972	0.977	0.977	0.982	0.984	0.986	0.989	0.991	0.982

Note: IB indicates Islamic bank, CB indicates conventional bank

Figure 1.1: Efficiency of Outputs/Inputs for Islamic and Conventional Banks in Middle East, Southeast Asia and South Asia Years 2003 to 2011

In overall, Figure 1.1 summarizes that both Islamic and conventional banks are behave differently in each regions since their efficiency of outputs/inputs levels are not homogenous. Nevertheless, the observation are only based on the basic efficiency concept of banks' outputs/inputs. Therefore, it is noteworthy and beneficial to examine efficiency the levels of both these banking sectors with a new approach that primarily focuses on revenue efficiency. In general, there are three main refinements that are proposed in this study.

Firstly, this study focuses on the revenue efficiency level of both Islamic and conventional banks. The analysis on the revenue efficiency concept is crucial since revenue efficiency may significantly lead to higher or lower profitability of the banking sector. Secondly, the potential determinants that may impact revenue efficiency, specifically, on Islamic and conventional banks are identified. The identification of the factors that may influence the level of the revenue efficiency is very essential because both types of banks could concentrate on the factors that could contribute to higher revenue efficiency. Finally, this study analyses the impacts of country governance on the revenue efficiency, specifically, on the Islamic and conventional banks. Country governance may also influence the efficiency level of the banks. Due to this reason, the investigation on the effect of country governance on revenue efficiency is vital since, to the knowledge of the researcher, no research on this point of view has been conducted. Therefore, these findings may significantly improve the understanding, information and strategies of all related parties such as investors, policy makers, researchers and both the Islamic and conventional banks as well.

1.3 Efficiency in the Banking Sector

The performance of the banks basically depends on efficiency (Ramanathan, 2007; Isik, 2008; Filippaki *et al.,* 2009; Liu, 2010; Assaf, 2011). There is a profusion of studies on banking efficiency which points to the importance of efficiency to the banking sector (English *et al.,* 1993; Berger and Mester, 1997; Chu and Lim, 1998; Drake, 2001; Hassan and Hussein, 2003; Yudistira, 2004; Sufian, 2004; Ramanthan, 2007; Sufian, 2007; Sufian *et al.*, 2008; Bader *et al.*, 2008; Ariff and Can, 2008; Al-Sharkas *et al.*, 2008; Tahir and Haron, 2008; Hassan *et al*., 2009; Sufian and Habibullah, 2011; Das and Kumbhakar, 2012; Feng and Zhang, 2012).

Akhtar (2002) suggests that the banking industry plays the role of intermediary in modern trade and commerce acting as a bridge to provide a major source of financial intermediation. The relationship between financial intermediation and economic growth focuses on the key functions of financial systems in the saving-investment-growth nexus. Nissanke and Stein (2003) assert that these include effective deploying of funds from surplus to deficit units and ensuring an efficient transformation of funds into real productive capital.

According to Levine (1998), the efficiency of financial intermediation affects a country's economic growth and at the same time, the bank's (financial intermediation) insolvencies could cause systemic crises, which will negatively impact the economy and lead to losses. The financial intermediation also modifies the maturity of the portfolios of savers and investors; at the same time it provides the

required liquidity to the system as and when it is needed. In addition, diversifying and adopting risk sharing and pooling techniques will help to minimize risks.

Carvallo and Kasman (2005) point out that, liberalisation of financial markets on a global scale, increased applications of advanced technology, and information and communication technology (ICT) revolution have led to a more competitive market scenario and put pressure on banking firms in the national and global contexts. This pressure is of great significance especially in emerging markets, where banks are major financial intermediaries for the channelling of savings and investment. How banks are affected by the increasing competitive pressure depends, in part, on how efficiently they are run. Karim (2001) argues that banks that fail to run efficiently will be driven off the market by the more efficient banks. Thus, the most efficient banks will have competitive advantages, attesting to the importance of studies on bank efficiency.

In other parts of the world, studies of bank efficiency have focused primarily on cost, profit, or cost-profit efficiency. The studies of bank efficiency that focus primarily on cost efficiency analysis looked at a firm's minimization of costs in producing the same amount of output (Berger and Mester, 1997 and Ariff and Can, 2008). Cost efficiency arises from technical and allocative efficiency (cost X-efficiency). Technical efficiency measures the proportional reduction in input usage that can be attained if the bank operates on the efficient frontier, or if the bank produces maximum outputs based on a limited set of inputs. The allocative efficiency measures the proportional reduction in costs if the bank chooses the right mix of inputs to be used (Isik and Hassan, 2002a).

A study by Adongo *et al.* (2005) and another by Akhavein *et al.* (1997) find that whether the cost changes are greater or less than revenue changes could not be determined from cost analysis alone. Thus, the improvement or drop in cost efficiency does not imply that the bank has become more or less profitable and efficient. In this regard, this problem could be solved by examining the profit efficiency concept. According to a survey done by Berger and Humphrey (1997), there has been a dearth of research on revenue and profit efficiency, as most of the research focused primarily on cost efficiency. This can be seen in most of the studies in the 1990s which concentrated mainly on the estimation of cost efficiency (Srinivasin, 1992; Linder and Crane, 1992; Shaffer, 1993; Rhoades, 1993; Pilloff, 1996 and Resti, 1997).

Akhavein *et al.* (1997) was the first to argue that profit efficiency analysis is more appropriate than cost efficiency. Profit efficiency is a widely accepted concept of cost efficiency because it considers the effect of the choice of the vector of production on costs and revenues. It refers to the firm's maximization of profit by giving an amount of inputs and outputs and a level of their prices (Ariff and Can, 2008). The result of their study is supported by Berger and Mester (2003) and Maudos and Pastor (2003), where they find that profit efficiency offers more useful information of management efficiency. As stated earlier, profit efficiency provides a final or overall result on bank efficiency. However, it can only determine the efficiency of the bank, but it is unable to identify, in detail, which side (cost and revenue) of the efficiency concept that can contribute to higher profit efficiency (Berger and Mester, 1997).

Several studies investigate the efficiency of bank efficiency by taking into account the combination of both cost and profit efficiency (Berger and Mester, 1997; Rogers, 1998; Vander-Vennet, 2001; Huizinga *et al.,* 2001; Al-Sharkas *et al.,* 2008 and Ariff and Can 2008). The researchers find that the levels of cost efficiency are higher than the levels of profit efficiency. Furthermore, this finding (cost efficiency levels are more than profit efficiency levels) is consistent with the studies that examine the bank's cost and profit efficiency (Chu and Lim, 1998; Maudos *et al.*, 2002; Maudos and Pastor, 2003 and Yildirim and Philippatos, 2007). The different levels between cost and profit efficiency on banks are due to the efficiency of the revenue side (Maudos *et al.,* 2002; Ariff and Can, 2008; Bader *et al.,* 2008; Hassan *et al.,* 2009).

There have been limited studies that focus on revenue efficiency of the banking sectors (Akhavein *et al.,* 1997; Maudos *et al.,* 2002; Sufian *et al.,* 2012a; 2012b and Kamarudin *et al.,* 2013). English *et al.* (1993) and Al-Sharkas *et al.* (2008) suggest that, in order to maximize banks' revenue efficiencies, the banks should be both technically and allocatively efficient (revenue X-efficiency). With technical efficiency, a bank can produce the maximum output using a minimum number of inputs. Through allocative efficiency, banks can enhance their revenue if they choose the right mix of outputs to produce.

Studies on bank efficiency, which ignore the revenue side, have been criticised (Bader *et al.,* 2008 and Hassan *et al.,* 2009). It is mainly because most of the studies have only revealed the levels of cost efficiency, which are higher than the profit efficiency, but they have not identified the causes. Ariff and Can (2008) find that inefficient revenue affects the difference between cost and profit efficiency, but they

do not investigate further (*i.e.* the revenue efficiency and the reasons for such an occurrence). Studies, which investigate the causes of inefficiency, have been conducted by Maudos *et al.* (2002), Rogers (1998) and Berger *et al.* (1993a) who find that revenue inefficiency is caused either by mispricing of outputs or giving wrong choice of output.

Generally, the concept of efficiency involves three components: cost, revenue, and profit efficiency (Adongo *et al.*, 2005, Bader *et al.*, 2008 and Hassan *et al.*, 2009). Figure 1.2 summarises the organisational chart of these efficiencies. Evidence on bank efficiency can be produced by looking at these three types of efficiency concepts. However, most previous studies have mainly focused on the efficiency of cost, profit or both (cost and profit efficiency combined) (Pilloff, 1996; Resti 1997; Huizinga *et al.*, 2001; Al-Sharkas *et al.*, 2008 and Ariff and Can 2008)

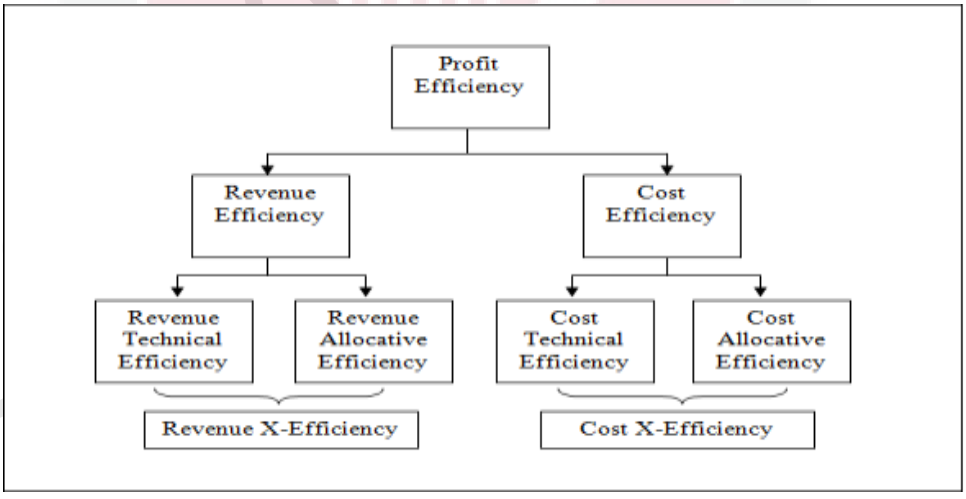


Figure 1.2: Organizational Chart of Profit, Revenue and Cost Efficiency

When banks are efficient, they help to improve the economy. This has an effect on general social welfare. Nevertheless, the efficiency of the banking sectors may be

influenced by several factors. Bank efficiency could be influenced by the internal and external determinants (Sufian and Chong, 2008; Athanasoglou *et al.*, 2008; Delis *et al*., 2008; Ben Naceur and Omran, 2011; Sufian and Majid, 2011; Abedifar *et al*., 2011; Agoraki *et al*., 2011; Sun and Chang, 2011; Sufian *et al*., 2012a; 2012b; Masood and Ashraf, 2012; Willimas, 2012; Sufian and Noor, 2012; Sufian and Kamarudin, 2012; Beck *et al*., 2013; Bourkhis and Nabi, 2013). The internal determinants focus on bank-specific features and are mainly influenced by a bank's management decisions and policy objectives. While the external determinants, the macroeconomic characteristics, are not related to bank management but reflect the economic and legal environment that affect the operation and performance of financial institutions. In addition, the governance practice also may influence the efficiency of the banks.

Even though Islamic and conventional banks have their own capabilities and strengths to be a great competitor in the financial sector, they are still affected by governance issue since they are also deemed as firms. Good governance practised by the banks seems to be more than in other industries since the banking sector plays a crucial financial role in any economy (Adnan *et al*., 2011). Poor governance in the banking sectors may lead to a loss of confidence in the capability of a bank to properly manage its assets and liabilities, including deposits. This could cause a crisis in liquidity and it may lead to economic crisis and produce a systematic risk to society at large (Alexander, 2006 and Garcia and Robles, 2008). Due to the rapid development of the Islamic banks and the advantages that are enjoyed by the conventional banks, it is reasonable to expect that the efficiency levels of Islamic and conventional banks are at the optimal level.

1.4 Governance in Banking Sector

One of the mechanisms to ensure the efficiency of the banks is at the optimum level is through the quality of corporate governance (Williams and Nguyen, 2005; Berger *et al*., 2005; Burki and Ahmad, 2010; Wang *et al*., 2012). In general, Ard and Berg (2010) define corporate governance as the set of rules and incentives through which the management of a company is controlled and directed. The scope of corporate governance includes the 1) distribution the management rights and responsibilities, and 2) control of shareholders and minority shareholders by the board of directors, and other stakeholders providing the structure for setting, implementing and monitoring the objectives of the company. Implementing good corporate governance enables the firm to have an empowered board, good internal control of the environment, high disclosure and transparency levels and shareholder rights and interests that are well defined and protected (Ard and Berg, 2010).

Levine (2004) asserts that corporate governance issues in the banking sector are more complicated because of its specialty, such as the strength of bank regulation and supervision, the lack of transparency of assets, the extent of market development and the overall institutional environment. Even though the bank is considered as a firm, since they have a similarity of firms such as shareholders, competitors, debtors and board of directors, they are not quite the same as a firm. Therefore, the corporate governance of bank is not similar to the corporate governance of private firms.

Banks face particular issues of corporate governance. Their stakeholder profiles are more varied than other private companies', as banks have depositors and the general

public besides their shareholders. More specifically, banks have two related characteristics that inspire a separate analysis of their corporate governance that is also known as bank governance. First, banks are generally more opaque than non-financial firms due to several reasons such as the informational asymmetries. For example, information asymmetry is larger and less transparent where the loan quality is not readily observable and could be hidden for long periods. In addition, banks may alter the risk composition of their assets more swiftly than most non-financial firms (Furfine, 2001).

Second, banks are frequently very heavily regulated. The government imposes an elaborate array of regulations on banks because of the importance of the banks in the economy; they represent a ready source of fiscal revenue and the opacity of bank assets and activities. The explosion of international standards through the Bank for International Settlements (BIS), the International Monetary Fund (IMF) and World Bank virtually assures heavy government involvement in the banking sector. Consequently, sound bank governance is necessary, requiring boards to be even more focused on evaluating, managing and mitigating risk. Good governance also enhances financial supervision and is an inseparable part of effective risk-based oversight (Ard and Berg, 2010). Nonetheless, bank governance in the Islamic bank is different from conventional the bank since they are governed in accordance with Syariah principles.

In general, the majority of studies that examine the effect of governance on the bank's efficiency are more focused on the micro dimension which is governance that mainly focuses on the governance within the institution (Darmadi, 2013; Bukhari *et*

al., 2013; Jiang *et al*., 2009; Berger *et al*., 2005). In fact, according to Lensink (2008) and Chortareas *et al*. (2012) country governance (macro governance) may also significantly influence the efficiency of the banking sector that primarily covers the governance within the country. In general, country governance covers the three governance clusters (Kaufmann *et al*., 2010 and 2009). First, how the governments are selected, monitored and replaced measured by voice and accountability (VA) and political stability and absence of violence (PV). Second, how the government is capable to effectively formulate and implement sound policies assessed by government effectiveness (GE) and regulatory quality (RQ). Third, the respect of citizens and the state for the institutions that govern economic and social interactions among them measured in accordance with the rule of law (RL) and control of corruption (CC). Nevertheless, there is still a paucity of study that investigates the impact of country governance on banking efficiency, particularly on revenue efficiency (Huang *et al*., 2011; Hwang and Akdede, 2011; Cooray, 2011; Ellis *et al*., 2012; Eisazadeh and Shaeri, 2013).

In conclusion, since most studies have overlooked the improvement of revenue efficiency in the banking sector that is due to the effect of country governance, this study extends the work by Maudos *et al*. (2002), Hassan *et al*. (2009), and Chortareas *et al* (2012) which have examined the nexus between efficiency of the banking sector and country governance. The extension will cover the examination of the effect of country governance on the revenue efficiency of the Islamic and conventional banking sectors in the Middle East, Southeast Asia and South Asia, the three main emerging hubs of Islamic banking and finance over the period from 2003 to 2011.

1.5 Problem Statement

The main objective of banks is to maximize the shareholders' value or wealth through maximizing the profit. In general, bank's profit is used to give shareholders a good return on their investment. Meanwhile, Islamic banking also has the same objective as the conventional banks' *i.e.* to maximize profit. However, the Islamic banking is considered a different banking stream as it prohibits interest and substitutes it with the principle of Profit-and-Loss sharing (PLS) and based on Syariah rules.

In order to achieve an optimum profit, banks should be profit efficient. The profit efficiency considers the minimization of cost and maximization of revenue and represents the most vital parts that influence the profitability of the bank. Therefore, a higher level of profit efficiency can enhance the banks' profitability. However, in most cases the bank's profit efficiency is not at the optimum levels since the findings show that the bank's cost efficiency is found to be at a higher level rather than at a profit efficiency level. Most of the previous studies claim that banks are able to minimize the cost through higher cost efficiency, but they are not able to maximize the profit via higher profit efficiency as a result of revenue inefficiency (Kamarudin *et al*., 2013 and Maudos *et al*., 2002). In fact, the results of the profit efficiency levels are contaminated by the revenue inefficiency side.

The main predicament that contributes to the lower profit efficiency originates from revenue inefficiency. A bank may experience revenue inefficiency when it produces too few outputs for the given inputs. It could also be if it responds poorly to relative

prices and produces too little of a high-priced output and too much of a low-priced output. Findings on previous studies on developed and developing countries show that the level of the profit is lower than the level of cost efficiency due to revenue inefficiency. Thus, instead of focusing on the profit efficiency alone, it is better to compare it with cost efficiency as well in order to identify the existence of revenue efficiency. Furthermore, Islamic and conventional banks are behave differently in the regions of the main hubs of Islamic banking and finance (refer Figure 1.1). Therefore, does revenue efficiency significantly influence the profitability of the Islamic and conventional banking sectors in Middle East, Southeast Asia, and South Asia?. This is as issue that is investigated in the present study.

Furthermore, internal and external determinants may influence the bank efficiency. Among the bank's internal determinants (bank-specific characteristics) are bank size, credit risk, capitalization, market power, liquidity and overhead expenses. Macroeconomic conditions or external determinants such as economic growth, inflation, market concentration ratio and global financial crisis could also influence the bank efficiency (Sufian and Habibullah, 2011). These factors are said to increase the level of efficiency when the inefficiency level is reduced but the results are inconclusive. Nevertheless, do both internal and external determinants significantly influence the Islamic and conventional banking revenue efficiency?. The present study further incorporates internal and external factors that may influence the level of bank efficiency specifically in the revenue efficiency concept.

Finally, a number of studies have focused on how bank governance impacts bank's efficiency level since it can influence the efficiency of the banking sector. However,

although bank governance has been practised in the banking system, the efficiency level of banks is still inconclusive since these studies only look at the micro governance. In fact the quality of the governance may drive efficiency (Meon and Weill, 2005). Nevertheless, it is hard to evaluate the indicators of quality in governance due to subjective evaluation. Usually, such evaluation is based on experts ratings indices produced by private risk-rating agencies (for example Internal Country Risk Guide or Business Environmental Risk Intelligence). Besides, international or non-governmental organizations also provide the indicator from residents' surveys and the indices provided in the World Economic Forum's Global Competitiveness Report. However, those indicators are not always inclusive, with limited availability, and biased.

The country governance (macro governance) is capable of avoiding these deficiencies by allowing the elimination of the individual indices and providing the overall countries' aggregate indices. Therefore, ignorance of the country governance factors, may lead to discrepancies in the results on bank efficiency due to the effect of governance because it may influence the efficiency of the banking sector (Chortareas *et al*., 2012). Since country governance may improve efficiency of the banking sectors, how significantly will country governance affect revenue efficiency on both Islamic and conventional banking sectors is being looked into in this study.

Therefore, the issues in this study are interesting and significantly important to be examined in order to improve, enhance and maintain the revenue efficiency with the effect of the country governance of the Islamic and conventional banking sectors.

1.6 Objectives of the Study

There are three main objectives of this study. They are:

i. To examine the different levels of revenue efficiency between the Islamic and conventional banking sectors in the Middle East, Southeast Asia and South Asia.

ii. To ascertain the potential bank-specific characteristics and macroeconomic determinants for revenue efficiency, specifically, on the Islamic and conventional banking sectors in the Middle East, Southeast Asia and South Asia.

iii. To analyse the effect of country governance on revenue efficiency, specifically, on the Islamic and conventional banking sectors in the Middle East, Southeast Asia and South Asia.

1.7 Research Questions

i. Are the levels of the revenue efficiency significantly different in the Islamic and conventional banks in Middle East, Southeast Asia and South Asia?

ii. What are the potential 1) bank-specific and 2) macroeconomic determinants that influence the revenue efficiency of the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

iii. Does voice and accountability (VA) have a significant influence on revenue efficiency in the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

iv. Does political stability and the absence of violence (PV) have a significant influence on revenue efficiency of the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

v. Does government effectiveness (GE) have a significant influence on revenue efficiency of the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

vi. Does the regulatory quality (RQ) have a significant influence on revenue efficiency of the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

vii. Does the rule of law (RL) have a significant influence on revenue efficiency of the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

viii. Does the control of corruption (CC) have a significant influence on revenue efficiency of the Islamic and conventional banks in the Middle East, Southeast Asia and South Asia?

1.8 Significance of the Study

The findings of this study will add to the current knowledge on the effect of country governance on the revenue efficiency of the Islamic and conventional banks. Even though there has been widespread literature investigating the efficiency of the Islamic and conventional banking sectors, the study on the specific revenue efficiency concept of Islamic and conventional banking is still in its formative stage. This study attempts to fill this gap by extending the previous works on the efficiency of the Islamic and conventional banking sectors, specifically, on revenue efficiency

in the countries of the Middle East, Southeast Asia, and South Asia. The results will elucidate which banking sector is more revenue efficient, in general.

This study also attempts to identify the internal (or bank-specific characteristics) determinants of revenue efficiency, specifically, for the Islamic and conventional banks. The external (macroeconomic) determinants will also be taken into account to identify the factors that may influence the revenue efficiency at the macro level. By recognizing all the potential determinants, the factors that have the most influence on revenue efficiency could be further examined. Since revenue efficiency may significantly contribute towards a higher or lower profitability for the banks, it is important to identify their determinants. In essence, the determinants of revenue efficiency could be used as a guide in future Islamic and conventional banking .

In addition, most of the previous studies are interested in examining the effect of bank governance rather than country governance on the efficiency of banks. The majority of the studies that examine the effect of governance on bank efficiency have focused more on the micro dimension, which is, corporate or bank governance that affects the governance within the institution. Thus, to the best of the researcher's knowledge, no study has been done to address the effect of macro governance (*i.e.* country governance) on the revenue efficiency of the Islamic and conventional banking sectors. To fill this gap, this study provides empirical evidence on the effect of country governance on the revenue efficiency of the Islamic and conventional banking sectors. The findings of this study will be useful to several parties such as policy makers, investors, researchers and also to the management of Islamic and conventional banks.

1.9 Scope of the Study

This study examines the revenue efficiency in the context of the country governance on the Islamic and conventional banking sectors in the Middle East, Southeast Asia, and South Asia. The data gathered are from 2003 to 2011. Despite the global financial crisis during 2007 to 2008 (which is included in the observation), the crisis period has been controlled in this study in order to avoid any possible biases.

The sample data covers 454 banks (112 Islamic and 342 conventional banks) which are selected from the three regions of the main hubs of Islamic banking and finance (Middle East, Southeast Asia, and South Asia), which consists of 19 countries. Excluded from the sample of this study are all the finance companies, insurance companies and investment banks. Currently, all the true Islamic banks in the world come from these regions. The selection of conventional banks from the same regions will reduce bias since all the banks operate under the same economic conditions and environment. If conventional banks outside of these regions are included in the sample, the result might lead to argument on comparability between the sample of Islamic and conventional banks.

All the financial data of the Islamic banking sectors are obtained from the BankScope database produced by the Bureau van Dijk which provides the banks' balance sheets and income statements. In addition, the information on the macroeconomics variables namely economic growth and inflation are retrieved from World Development Indicators (WDI) database. Meanwhile, the data on country governance are obtained from the updated worldwide governance indicator (WGI).

To allow efficiency and inefficiency to differ over time, the efficiency frontiers are constructed on an annual basis by solving the linear programming problems rather than by constructing a single multi-year frontier (Sufian, 2009a). The levels of revenue efficiency of the Islamic and conventional banks are measured using the Data Envelopment Analysis (DEA) method by applying the intermediation approach in the first stage of the analysis. The data are tested by parametric (t-test) and non-parametric Mann-Whitney (Wilcoxon) and Kruskal-Wallis tests.

On top of addressing the revenue efficiency of the Islamic and conventional banking sectors, this study also seeks to discover the internal (bank-specific characteristics) and external (macroeconomics condition) determinants that influence the revenue efficiency of the Islamic and conventional banks in the second stage of the analysis. Six main bank-specific characteristics determinants are examined in this study; namely, size of bank, credit risk, capitalization, market share, liquidity and overhead expenses. In addition, macroeconomics determinants are included to serve as additional control variables. They are economic growth, inflation, market concentration, and global financial crisis.

Furthermore, this study proceeds to examine the effect of country governance on the Islamic and conventional banks. All six aggregate indicators of country governance from the WGI dataset are examined in this study namely, 1) voice and accountability (VA), 2) political stability and absence of violence (PV), 3) government effectiveness (GE), 4) regulatory quality (RQ), 5) rule of law (RL) and 6) control of corruption (CC). In order to identify the relationship between revenue efficiency of the banks (Islamic and conventional banks) and the bank-specific characteristics,

macroeconomic condition and country governance, this study uses the Multivariate Panel Regression Analysis (MPRA) by adopting the pooled Ordinary Least Square (OLS), Fixed Effect Model (FEM) and Random Effect Model (REM) estimations method. The Breusch Pagan and Lagrangian Multiplier (BP and LM) test used to identify either the data suitable to be pooled or panel and proceed with Hausman test to classify between FEM and REM. Furthermore, for main and robust results, the study also employs the Generalized Method of Moments (GMM) estimation method tested by the Hansen and Arrelano-Bond (AR2) tests in order to control the endogeneity problems and serial correlation.

1.10 Chapter Summary

The main highlights of chapter one are summarized in Table 1.3.

Table 1.3: Summary of Chapter One

Objective of this study		Current literature	Contribution of this study
i.	To examine the different levels of the revenue efficiency between the Islamic and conventional banking sectors in the Middle East, Southeast Asia, and South Asia.	Sufian and Habibullah, 2011; Das and Kumbhakar, 2012; Feng and Zhang, 2012; Yahya *et al*., 2012; Ahmad and Rahman, 2012; Sufian *et al*., 2012a; 2012b; Beck *et al*., 2013; Kamarudin *et al*., 2013	The findings of this study hopefully could identify the levels of the revenue efficiency of the Islamic and conventional banks. The analysis of the revenue efficiency concept is crucial since revenue efficiency may significantly lead to a higher or lower profitability of the banking sector.
ii.	To ascertain the potential bank-specific characteristics and macroeconomic condition determinants of revenue efficiency specifically of the Islamic and conventional banking sectors in Middle East, Southeast Asia, and South Asia	Ben Naceur and Omran, 2011; Abedifar *et al*., 2011; Agoraki *et al*., 2011; Sun and Chang, 2011; Sufian *et al*., 2012a; 2012b; Masood and Ashraf, 2012; Willimas, 2012; Sufian and Kamarudin, 2012; Beck *et al*., 2013; Bourkhis and Nabi, 2013	This study will contribute new findings on the determinants that influence higher revenue efficiency of the Islamic and conventional banks. The identification of the factors that may influence the level of the revenue efficiency is very important because both types of banks can focus on the factors that could contribute to higher revenue efficiency.
iii.	To analyse the effect of country governance on revenue efficiency specifically of the Islamic and conventional banking sectors in Middle East, Southeast Asia, and South Asia.	Huang *et al*., 2011; Hwang and Akdede, 2011; Chortareas *et al*., 2012; Cooray, 2011; Ellis *et al*., 2012; Eisazadeh and Shaeri, 2013	Country governance may also influence the efficiency level of the banks. Due to this reason, the investigation on the effect of country governance on the revenue efficiency is vital since none of the research have studied this point of view. Thus, this study could fill the gap in the literature and improve understanding of this issue.

In addition, Figure 1.3 describes the research framework on the effects of country governance on the efficiency together with the other determinants of the Islamic and conventional banking sectors.

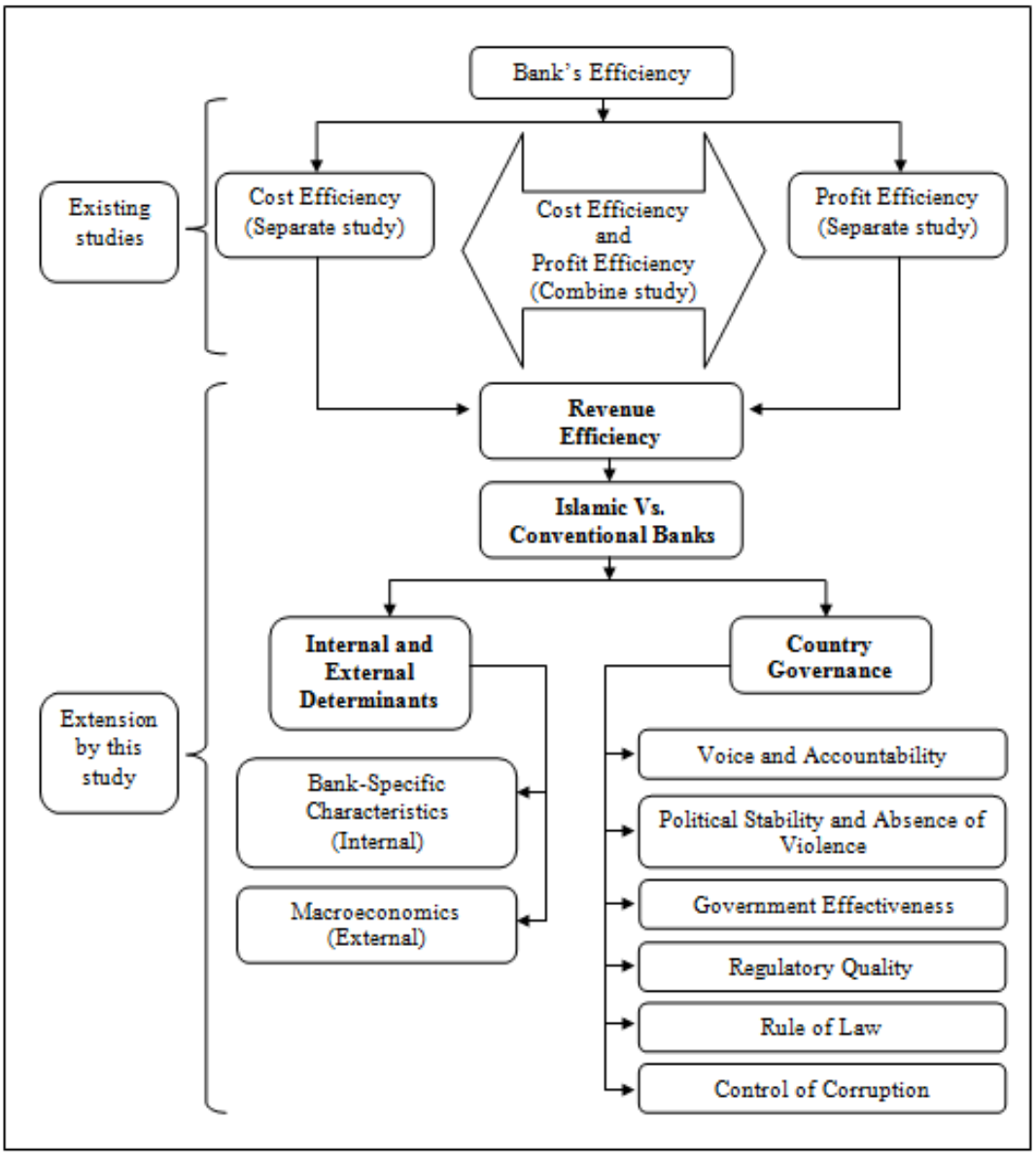


Figure 1.3: Research framework on revenue efficiency of the Islamic and conventional banks with internal and external determinants and the effect of the country governance

BIBLIOGRAPHY

Abdul-Majid, M., Saal, D. and Battisti, G. (2010). Efficiency in Islamic and conventional banking: an international comparison. *Journal of Productivity Analysis 34:25-43.*

Abreu, M. and Mendes, V. (2001). Commercial bank interest margins and profitability: evidence from some EU countries. In: paper presented at the Proceedings of the Pan-European Conference Jointly Organised by the IEFS-UK and University of Macedonia Economic and Social Sciences, Thessaloniki, Greece, May 17-20.

Abedifar, P., Molyneux, P. and Tarazi, A. (2011). Risk and stability in Islamic Banking, Bangor Business School, University of Wales, Bangor.

Adnan, M.A., Rashid, H.M., Meera, A.K.M. and Htay, S.N.N. (2011). A panel data analysis on the relationship between corporate governance and bank efficiency. *Journal of Accounting, Finance and Economics 1:1-15.*

Adongo, J., Strok, C. and Hasheela, E. (2005). Measuring the alternative profit X-efficiency of Namibia's Banking Sector. Nepru Research Report 36:1-58.

Afonso, A., Schuknecht, L. and Tanzi, V. (2006). Public sector efficiency evidence for new EU member states and emerging markets.European Central BankWorking Paper No. 581. Frankfurt:European Central Bank.

Agoraki, M.E.K., Delis, M.D. and Pasiouras, F. (2011). Regulations, competition and bank risk-taking in transition countries. *Journal of Financial Stability 7:38-48.*

Ahmad, S. and Rahman, A.R.A. (2012). The efficiency of Islamic and conventional commercial banks in Malaysia. *International Journal of Islamic and Middle Eastern Finance and Management 5:241-263.*

Ahmad, W. and Luo, R.H. (2010). Comparison of banking efficiency in Europe: Islamic versus conventional banks. *International Finance Review 11:361-389.*

Ahmed, A. (2010). Global financial crisis: An Islamic finance perspective. *International Journal of Islamic and Middle Eastern Finance and Management 3:306-320.*

Aigner, D. J. and Chu, S. F. (1968). On estimating the industry production function. *American Economic Review 58:226-239.*

Aigner, D.J, Lovell, C.A. and Schmidt, P. (1977). Formulation and estimation of stochastic frontier production function models. *Jounal of Econometrics 6:21-37.*

Ake, C. (1975). A definition of political stability. *Comparative Politics 7:271-283.*

Akhavein, J.D., Berger, A.N. and Humphrey D.B. (1997). The effects of megamergers on efficiency and prices: evidence from a bank profit function. *Review of industrial Organization 12:95-139.*

Akhigbe, A. and McNulty, J.E. (2003). The profit efficiency of small US commercial banks. *Journal of Banking and Finance 27:307-325.*

Akhigbe, A. and McNulty, J.E. (2005). Profit efficiency sources and differences among small and large U.S. commercial banks. *Journal of Economics and Finance 29:289-299.*

Akhtar, M. H. (2002). X-efficiency analysis of commercial banks in Pakistan: A preliminary investigation. *The Pakistan Development Review 41:567-580*.

Alexander, K. (2006). Corporate governance and banks: the role of regulation in reducing the principal-agent problem. *Journal of Banking Regulation 2:17-40.*

Al-Muharrami, S., Matthews, K. and Khabari, Y. (2006). Market structure and competitive conditions in the Arab GCC banking system. *Journal of Banking and Finance 30: 3487-501.*

Al-Sharkas, A.A., Hassan, M.K. and Lawrence, S. (2008). The impact of mergers and acquisitions on the efficiency of the US banking industry: further evidence. *Journal of Business Finance and Accounting 35:50-70.*

Albertazzi, U. and Gambacorta, L. (2010). Bank profitability and taxation. *Journal of Banking and Finance 34: 2801-2810.*

Altunbas, Y., Evans, L., and Molyneux, P. (2001). Bank ownership and efficiency. *Journal of Money, Credit and Banking 33:926-954.*

Amihud, Y. and Kamin, J. (1979). Revenue vs. profit maximization: Differences in behaviour by the type of control and by market power. *Southern Economic Journal 45:838-846.*

Anderson, T.W. and Hsiao, C. (1981). Estimation of dynamic models with error components. *Journal of American Statistical Association 76:598-606.*

Angbazo, L. (1997). Commercial bank interest margins, default risk, interest-rate risk, and off-balance sheet banking. *Journal of Banking and Finance 21:55-87.*

Annet, A. (2000). Social fractionalization, political instability and the size of government. IMF Working Paper No. WP/82.

Ard, L. and Berg, A. (2010). Bank governance. The World Bank Group, financial and private sector development vice presidency, 13:1-8.

Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application for employment equations. *Review of Economic Studies 58:277-297.*

Arellano, M. and Bover, O. (1995). Another look at the instrumental variables estimation of error components models. *Journal of Econometrics 68:29-51.*

Ariff, M. (1988). Islamic banking. *Asian-Pacific Economic Literature 2:48-64.*

Ariff. M. (2006). Islamic banking, a variation of conventional banking. *Monash Business Review 3:1-8.*

Ariff, M. and Can, L. (2008). Cost and profit efficiency of Chinese banks: A non-parametric analysis. *China Economic Review 19:260-273.*

Ariss, R.T. (2010). Competitive conditions in Islamic and conventional banking: A global perspective. *Review of Financial Economics 19:101-108.*

Asimakopoulos, I., Samitas, A. and Papadogonas, T. (2009). Firm-specific and economy wide determinants of firm profitability: Greek evidence using panel data. *Managerial Finance 35:930-939.*

Assaf, A.G., Barros, C.P. and Matousek, R. (2011). Productivity and efficiency analysis of Shinkin banks: evidence from bootstrap and Bayesian approaches. *Journal of Banking and Finance 35:331-342.*

Athanasoglou, P.P., Brissimis, S.N. and Delis, M.D. (2008). Bank-specific industry-specific and macroeconomics determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money 18:121-136.*

Avkiran, N.K. (1999). The evidence on efficiency gains: the role of mergers and the benefits to the public. *Journal of Banking and Finance 23:991-1013.*

Badawi, I.Z. (1964). Nazariyat al-riba'l muharram, cairo: al-majils al-a'la li ri 'ayet al-funun wa'l-aadab wa'l 'ulum al-ijtima 'iyah. visiting scholars'' *Research Series* 2: 1-162.

Bader, M.K.I., Mohammed, S., Ariff, M. and Hassan, T. (2008). Cost, revenue and profit efficiency of Islamic versus conventional banks: international evidence using data envelopment analysis. *Islamic Economic Studies 15:24:76*

Bain, D. (1982). The productivity prescription: the manager's guide to improving productivity and profits, McGraw-Hill, New York, NY

Banker, R.D., Chang, H. and Lee, S.Y. (2010). Differential impact of Korean banking system reforms on bank productivity. *Journal of Banking and Finance 34:1450-1460.*

Banker, R.D., Charnes, A. and Cooper, W.W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science 30:78-92.*

Banker, R.D. and Natarajan, R. (2005). Productivity change, technical progress, and relative efficiency change in the public accounting industry. *Management Science 51:291-304.*

Banker, R.D. and Natarajan, R. (2008). Evaluating contextual variables affecting productivity using Data Envelopment Analysis. *Operations Research 56:48-58.*

Bardhan, P. (1997). Corruption and development: A review of issues. *Journal of Economic Literature 35:1320-1346.*

Barro, R.J. (1999). Rule of law, democracy, and economic performance, in O'Driscoll Jr.,G.P., Holmes, K.R. and Kirkpatrick, M. 2000 Index of Economic Freedom, Heritage Foundation Wall Street Journal 31-49.

Barth, J.R., Brumbaugh, R.D. and Wilcox, J.A. (2000). The repeal of Glass-Steagall and the advent of broad banking. *Journal of Economic Perspectives 14:191-204.*

Barth, J.R., Caprio, G. and Levine, R. (2004). Bank regulation and supervision: what works best? *Journal of Financial Intermediation 13:205-248.*

Barth, J.R., Caprio, G. and Levine, R. (2006). Rethinking bank regulation: till angels govern. Cambridge University Press, Cambridge, UK.

Barth, J.R., Lin, C., Ma, Y., Seade, J. and Song, F.M. (2013). Do bank regulation, supervision and monitoring enhace or impede bank efficiency? *Journal of Banking and Finance 37:2879-2892.*

Bashir, A.M. (2003). Determinants of the profitability in Islamic banks: some evidence from the Middle East. *Islamic Economic Studies 11:31-57.*

Basu, K, Bhattacharya, S. and Mishra, A. (1992). Notes on bribery and the control of corruption. *Journal of Public Economics 48:349-359.*

Bauer, P.W., Berger, A.N., Ferrier, G.D. and Humphrey, D.B. (1998). Consistency conditions for regulatory analysis of financial institutions: a comparison of frontier efficiency methods. *Journal of Economics and Business 50:85-114.*

Baumol, W.J. (1958). On the theory of Oligopoly. *Economica 25:187-198.*

Beccalli, E., Casu, B. and Girardone, C. (2006). Efficiency and stock performance in European banking. *Journal of Business Finance and Accounting 33:245-262.*

Beck, T., Demirguc-Kunt, A. and Levine, R. (2006). Bank supervision and corruption in lending. *Journal of Monetary Economics 53:2131-2163.*

Beck, T., Demirguc-Kunt, A. and Merrouche, O. (2013). Islamic vs. conventional banking: business model, efficiency and stability. *Journal of Banking and Finance 37:433-447.*

Becker, G. (1983). A theory of competition among pressure groups for political influence. *Quarterly Journal of Economics 98:371-400.*

Becker, G. and Stigler, G. (1974). Law enforcement, malfeasance, and the compensation of enforcers. *The Journal of Legal Studies 3:1-18.*

Beltratti, A. and Stulz R. M. (2009). Why did some banks perform better during the credit crisis? a cross-country study of the impact of governance and regulation. NBER Working Paper Ho. 15180.

Ben Naceur, S. and Omran, M. (2011). The effects of bank regulations, competition and financial reforms on banks' performance. *Emerging Markets Review 12:1-20.*

Berger, A.N. (1995). The profit - structure relationship in banking: tests of market-power and efficient-structure hypotheses. *Journal of Money, Credit and Banking 27:404-431.*

Berger, A.N. and Bouwman, C.H.S. (2007). Bank liquidity creation. *Review of Financial Studies 22:3779-3837.*

Berger, A. N. and Humphrey, D. B. (1991) The dominance of inefficiencies over scale and product mix economies in banking. *Journal of Monetary Economics 28: 117-148.*

Berger, A.N. and Humphrey, D.B. (1997). Efficiency of financial institutions: international survey and directions for future research. *European Journal of Operational Research 98:175-212.*

Berger, A. N., Clarke, G. R. G., Cull, R., Klapper, L., and Udell, G. F. (2005). Corporate governance and bank performance: a joint analysis of the static, selection, and dynamic effects of domestic, foreign, and state ownership. *Journal of Banking and Finance 29:2179-2221.*

Berger, A.N. and DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking and Finance 21:849-870.*

Berger, A.N., Bonime, S.D., Covitz, D.M. and Hancock, D. (2000). Why are bank profits so persistent? the roles of product market competition, information opacity, and regional macroeconomic shocks. *Journal of Banking and Finance 24:1203-1235.*

Berger, A.N., Hancock, D. and Humphrey, D.B. (1993a). Bank efficiency derived from the profit function. *Journal of Banking and Finance 17:317-347.*

Berger, A.N., Hanweck, G. and Humphrey, D. (1987). Competitive viability in banking: scale, scope, and product mix economic. *Journal of Monetary Economics 20:501-520.*

Berger, A.N., Hunter, W.C. and Timme, S.G. (1993b). The efficiency of financial institutions: a review and preview of research past, present and future. *Journal of Banking and Finance 17:221-249.*

Berger, A.N. and Mester, L.J. (1997). Inside the black box: what explains differences in the efficiencies of financial institutions?. *Journal of Banking and Finance 21:895-947.*

Berger, A. N. and Mester, L. (2003). Explaining the dramatic changes in performance of U.S. banks: technological change, deregulation, and dynamic changes in competition. *Journal of Financial Intermediation 12:57-95.*

Besley, T. and McLaren, J. (1993). Taxes and bribery: the role of wage incentives. *Economic Journal 103:119-141.*

Bhattacharyya, A., Lovell, C. A. K. and Sahay, P. (1997). The impact of liberalization on the productive efficiency of Indian commercial banks. *European Journal of Operational Research 98:332-345.*

Billger, S. and Goel, R. (2009). Do existing corruption levels matter in controlling corruption? cross-country quantile regression estimates. *Journal of Development Economics 90:299-305.*

Bjurek, H. (1996). The Malmquist total factor productivity index. *Scandinavian Journal of Economics 98:303-313.*

Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics 87:115-143.*

Booker, I. (1983). Tracking banks from a far: A risk monitoring system. Federal Reserve Bank of Atlanta Economic Review. November, 36-41.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking and Finance 13:65-79.*

Bourkhis, K. and Nabi, M.S. (2013). Islamic and conventional banks' soundness during the 2007-2008 financial crisis. *Review of Financial Economics 22:68-77.*

Boyd, J.H. and Gertler, M. (1994). The role of large banks in the recent U.S. banking crisis. *Federal Reserve Bank of Minneapolis Quarterly Review 18:2-21.*

Boyd, J. H. and Prescott, E. C. (1986). Financial intermediary-coalitions. *Journal of Economic Theory 38:211-232.*

Brempong, K.G. and Traynor, T.L. (1996). Political instability and savings in less developed countries: evidence from sub-Saharan Africa. *The Journal of Development Studies 32:695-714.*

Briec, W. and Kerstens, K. (2004). A Luenberger-Hick-Moorsteen productivity indicator: its relation to the Hicks-Moorsteen productivity index and the Luenberger productivity indicator. *Economic Theory 23:925-939.*

Bryant, J. (1980). A model of reserves, bank runs, and deposit insurance. *Journal of Banking and Finance 4:335-344.*

Buchanan, J.M. and Tullock, G. (1962). The calculus of consent. University of Michigan Press.

Buckley, P.J. (2004). Asian network firms: an analytical framework. *Asia Pacific Business Review 10:254-271.*

Bukhari, K.S., Awan, H.M. and Ahmed, F. (2013). An evaluation of corporate governance practices of Islamic banks versus Islamic banks windows of conventional banks: a case of Pakistan. *Management Research Review 36:400-416.*

Burgess, T.F. (1990). A review of productivity. *Work Study 39:6-10.*

Burki, A.A. and Ahmad, S. (2010). Bank governance changes in Pakistan: is there a performance effect? *Journal of Economics and Business 62:129-146.*

Calderon, C., Chong, A. and Galindo, A. (2002). Development and efficiency of the financial sector and links with trust: cross country Evidence. *Economic Development and Cultural Change 51:189-204.*

Campos, N.F. and Nugent, J.B. (2003). Aggregate investment and political instability: an econometric investigation. *Economica 70:533-549.*

Carlsson, B. (1972). The measurement of efficiency in production: an application to Swedish manufacturing industries 1968. *Swedish Journal of Economics 74:468-485.*

Carmignani, F. (2003). Political instability, uncertainty and economics. *Journal of Economic Surveys 17:1-54*

Carvallo, O. and Kasman, A. (2005). Cost efficiency in the Latin American and Caribbean banking system. *Journal of International Financial Markets, Institutions and Money 15:55-72.*

Casu, B. and Molyneux, P. (2003). A comparative study of efficiency in European banking. *Applied Economics 35:1865-1876.*

Casu, B. and Girardone, C. (2004). Financial conglomeration: efficiency, productivity and strategic drive. *Applied Financial Economics 14:687-696.*

Casu, B. and Girardone, C. (2006). Bank competition, concentration and efficiency in the single European market. *The Manchester School 74:441-468.*

Chan, S.G. and Karim, M.Z.A. (2012). Public spending efficiency and political and economic factors: evidence from selected East Asian countries. *Economic Annals 57:7-23.*

Chari, A., Ouimet, P.P. and Tesar, L.L. (2010). The value of control in emerging markets. *Review of Financial Studies 23:1741-1770.*

Charnes, A., Cooper, W. W. and Rhodes, E. (1978). Measuring efficiency of decision making units. European *Journal of Operations Research. 6:429-444.*

Charnes, A., Cooper, W.W., Huang, Z.M. and Sun, D.B. (1990). Polyhedral cone-ratio DEA models with an illustrative applications to large commercial banks. *Journal of Econometric 46:73-91.*

Chen, C. (2009). Bank efficiency in sub-saharan African middle-income countries. IMF Working Paper No. WP/09/14.

Chirwa, E.W. (1997). Market structure and performance of commercial banks in the Malawian banking industry. *African Journal of Economic Policy 4:29-46.*

Chirwa, E.W. (2003). Determinants of commercial banks' profitability in Malawi: a cointegration approach. *Applied Financial Economics 13:565-571.*

Chu, S.F. and Lim, G.H. (1998). Share performance and profit efficiency of banks in an oligopolistic market: evidence from Singapore. *Journal of Multinational Financial Management 8:155-168.*

Chong, B.S., Liu, M.H. and Tan, K.H. (2006). The wealth effect of forced bank mergers and cronyism. *Journal of Banking and Finance 30:3215-3233.*

Choo, K., Lee, K., Ryu, K. and Yoon, J. (2009). Changing performance of business groups over two decades: technological capabilities and investment inefficiency in Korean Chaebols. *Economic Development and Cultural Change 57: 359-386.*

Chortareas, G.E., Girardone, C. and Ventouri, A. (2012). Bank supervision, regulation, and efficiency: evidence from the European Union. *Journal of Financial Stability 8:292-302.*

Civelek, M.M. and Al-Alami, M.W. (1991). An empirical investigation ofthe concentration-profitability relationship in the Jordanian banking system. *Savings and Development 15:247-259.*

Claessens, S., Demirguc-Kunt, A. and Huizinga, H. (2001). How does foreign banking entry affect domestic banking markets? *Journal of Banking and Finance 25:891-911.*

Clark, J.A. (1986). Single-equation, multiple regression methodology: is it an appropriate methodology for the structureperformance relationship in banking. *Journal of Monetary Economics 18:259-312.*

Clarke, G., Cull, R., and Shirley, M. (2005). Bank privatization in developing countries: a summary of lessons and findings. *Journal of Banking and Finance 29:1905-1930.*

Coakes, S.J and Steed, L.G. (2003). SPSS: Analysis without anguish. Version 11 for Window, Sydney: John Wiley and Sons.

Cobb, C., and Douglas, P.H. (1928). A theory of production. *American Economic Review 18:139-165.*

Cornett, M.M. and Tehranian, H. (1992). Changes in corporate performance associated with bank acquisitions. *Journal of Financial Economics 31:211-234.*

Coelli, T., Prasada, R. and Battese, G. (1998). An introduction to efficiency and productivity analysis, Kluwer Academic Publishers, Boston, MA.

Coelli, T. (1996). A guide to DEAP: Version 2.1: a data envelopment analysis (computer program). Working Paper 96/08, CEPA, University of New England, Armidale 1-49.

Cooper, W.W., Seiford, L.M. and Tone, K. (2002). Data Envelopment Analysis, a comprehensive text with models, applications, references and DEA-solver software. Boston: Kluwer Academic Publishers.

Cooray, A. (2011). The role of the government in financial sector development. *Economic Modelling 28:928-938.*

Copeland, T. E., Weston, J. F. and Shastri, K. (2005). Financial theory and corporate policy, Addison-Wesley.

Craig, C.E. and Harris, C.R.. (1973). Total productivity measurement at the firm level. *Sloan Management Review 14:13-29.*

Damania, R., Fredriksson, P.G. and Mani, M. (2004). The persistence of corruption and regulatory compliance failures: Theory and evidence. *Public Choice 121:363-390.*

Dar, H. and Presley, J.R. (2000). Lack of profit loss sharing in Islamic banking: management and control imbalances. *International Journal of Islamic Financial Services 2:67-76.*

Darmadi, S. (2013). Corporate governance disclosure in the annual report: An exploratory study on Indonesian Islamic banks. *Human*omics *29:4-23.*

Darrat, A.F., Topuz, C. and Yousef, T. (2003). Assessing bank efficiency of banks in an emerging market: the Kuwaiti Experience in the 1990s. *Studies in Economics and Finance 21:1-21.*

Das, A. and Ghosh, S. (2006). Financial deregulation and efficiency: an empirical analysis of Indian banks during the post reform period. *Review of Financial Economics 15:193-221.*

Das, A. and Kumbhakar, S.C. (2012). Productivity and efficiency dynamics in Indian Banking: an input distance function approach incorporating quality of inputs and outputs. *Journal of Applied Econometrics 27:205-234.*

Delis, M.D. and Papanikolaou, N.I. (2008). Determinants of bank efficiency: evidence from a semi-parametric methodology. Munich Personal RePEc Archive Paper No. 13893:1-26.

Delis, M.D. and Tsionas, E.G. (2009). The joint estimation of bank-level market power and efficiency. *Journal of Banking and Finance 33:1842-1850.*

Delis, M.D., Staikouras, K.C. and Varlagas, P.T. (2008). On the measurement of market power in the banking industry. *Journal of Business Finance and Accounting 35:1023-1047.*

Demirguc-Kunt, A. and Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *World Bank Economic Review 13:379-408.*

Demirguc-Kunt, A., Laeven, L. and Levine, R. (2004). Regulations, market structure, institutions, and the cost of financial intermediation. *Journal of Money, Credit and Banking 36:593-622.*

Devaney, M. and Weber, W. (2002). Small-business lending and profit efficiency in commercial banking. *Journal of Financial Services Research 22:225-246.*

DeYoung, R. (1998). Management quality and X-inefficiency in National banks. *Journal of Financial Services Research 13:5-22.*

DeYoung, R. (1997). Bank mergers, X-efficiency and the market for corporate control. *Managerial Finance 23:32-47.*

DeYoung, R. and Rice, T. (2004). Non-interest income and financial performance at U S commercial banks. *The Financial Review 39:101-127.*

Diamond, D. and Dybvig, P.H. (1983). Bank runs, deposit insurance and liquidity. *Journal of Political Economy 91:401-419.*

Diamond, D.W. and Rajan, R.G. (2000). A theory of bank capital. *Journal of Finance 55:2431-2465.*

Diamond, D.W. and Rajan, R.G. (2001). Liquidity risk, liquidity creation, and financial fragility: a theory of banking. *Journal of Political Economy 109:287-327.*

Djankov, S., La Porta, R., Lopez-De-Silanes, F. and Shleifer, A. (2002). The regulation of entry. *Quarterly Journal of Economics 117:1-37.*

Drake, L. (2001). Efficiency and productivity change in UK banking. *Applied Financial Economics 11:557-71.*

Drake,L., Hall, M., and Simper, R. (2006). The impact of macroeconomic and regulatory factors on bank efficiency: a non-parametric analysis of Hong Kong's banking system. *Journal of Finance and Banking 3:1443-1466.*

Dubai Islamic Bank. (2006). Welcome. Available at: <URL: http://www.alislami.co.ae/en/index.htm>, access date: 13th June 2006.

Durbin, J., and Watson, G. S. (1951). Testing for serial correlation in least squares regression, II. *Biometrika 38:159-179.*

Eichengreen, B. and Gibson, H.D. (2001). Greek Banking at the dawn of the new millennium. CEPR Discussion Paper.

Eisazadeh, S. and Shaeri, Z. (2013). An analysis of bank efficiency in the Middle East and North Africa. *International Journal of Banking and Finance 9:27-46.*

Elyasiani, E. and Mehdian, S. (1990). Efficiency in the commercial banking industry, a production frontier approach. *Applied Economics 22:539-551.*

Ellaboudy, S. (2010). The global financial crisis: economic impact on GCC Countries and policy implications. *International Research Journal of Finance and Economic 41:177-190.*

Ellis, J., Moeller, S.B., Schlingemann, F.P. and Stulz, R.M. (2012). Globalization, country governance and corporate investment decisions: an analysis of cross-border acquisitions. Fisher College of Business WP 2012-03-003

El-Gamal, I. and Inanoglu, H. (2005). Inefficiency and heterogeneity in Turkish banking: 1990-2000. *Journal of Applied Econometrics 20:641-664.*

English, M., Grosskopf, S., Hayes, K. and Yaisawarng, S. (1993). Output allocative and technical efficiency of the financial services sector. *Journal of Banking and Finance 17:349-366.*

Evanoff, D.D. and Fortier, D.L. (1988). Re-evaluation of the structure-conduct-performance paradigm in banking. *Journal of Financial Services Research 1:249-260.*

Evanoff, D.D. and Israelvich, P.R. (1991). Productive efficiency in banking. *Economic Perspectives, Federal Reserve Bank of Chicago 15:11-32.*

Fare, R., Grosskopf, S., Norris, M. and Zhang, Z. (1994). Productivity growth, technical progress and efficiency change in industrialized countries. *The American Economic Review 84:66-83.*

Fare, R., Grosskopf, S. and Weber, W.L. (2004). The effect of risk-based capital requirements on profit efficiency in banking. *Applied Economics 36:1731-1743.*

Farrell, M. J. (1957). The measurement of productive efficiency. *Journal of Royal Statistical Society Association 120:253-281.*

Feld, L.P. and Voigt, S. (2003). Economic growth and judicial independence: cross-country evidence using a new set of indicators. *European Journal of Political Economy 19:497-527.*

Feld, L.P. and Voigt, S. (2005). How does judicial independence affect the investment climate?, in Kochendorfer-Lucius, G. and Pleskovic, B. (eds) investment climate, growth, and poverty: Berlin workshop series 2005, Washington D.C.: World Bank, 53-61.

Feld, L.P. and Voigt, S. (2006). Judicial independence and economic growth: some proposals regarding the judiciary, in Congleton, R.D. and Swedenborg, B. (eds) democratic constitutional design and public policy: analysis and evidence, Cambridge and London: MIT Press, 251-288.

Feng, G. and Zhang, X. (2012). Productivity and efficiency at large and community banks in the US: a Bayesian true random effects stochastic distance frontier analysis. *Journal of Banking and Finance 36:1883-1895.*

Feng, Y. (2002). Political freedom, political instability and policy uncertainty: a study of political institutions and private investment in developing countries. *International Studies Quarterly 45:271-294.*

Fernandez, A.I. and Gonzalez, F. (2005). How accounting and auditing systems can counteract risk-shifting of safety-nets in banking: some international evidence. *Journal of Financial Stability 1:466-500.*

Ferrier, G.D. and Lovell, C.A.K. (1990). Measuring cost efficiency in banking: econometric and linear programming evidence. *Journal of Econometrics 46:229-245.*

Filippaki, A.K., Margaritis, D. and Staikouras, C. (2009). Efficiency and productivity growth in the banking industry of Central and Eastern Europe. *Journal of Banking and Finance 33:557-567.*

Flamini, V., McDonald, C.A. and Schumacher, L.B. (2009). The determinants of commercial bank profitability in Sub-Saharan African. International Monetary Fund Working Paper No.09/15.

Forsund, F.R. and Lennart Hjalmarsson, L. (1974). On the measurement of productive efficiency. *The Scandinavian Journal of Economics 76:141-154.*

Furfine, C.H. (2001). Banks as monitors of other banks: evidence from the Overnight Federal Funds Market. *Journal of Business 74:33-57.*

Fried, H.O., Lovell, C.A.K. and Eeckaut, P.V. (1993). Evaluating the performance of U.S. Credit Unions. *Journal of Banking and Finance 17:251-265.*

Fries, S. and Taci, A. (2005). Cost efficiency of banks in transition: evidence from 289 banks in 15 post-communist countries. *Journal of Banking and Finance 29:55-81.*

Garcia-Herrero, A., Gavila, S. and Santabarbara, D. (2009). What explains the low profitability of Chinese banks?. *Journal of Banking and Finance 33:2080-2092.*

Garcia, M.T. and Robles, F.M.D. (2008). Risk-taking behaviour and ownership in the banking industry: the Spanish evidence. *Journal of Economics and Business 60:332-354.*

Garson, G.D. (2004). An online textbook: sampling, normal curve tests of means and proportions.

Gilbert, R.A. (1984). Bank market structure and competition: a survey. *Journal of Money, Credit and Banking 16:617-645.*

Girardone, C., Molyneux, P. and Gardener, E.P.M. (2004). Analyzing the determinants of bank efficiency: the case of Italian banks. *Applied Economics 36:215-227.*

Global Islamic Finance Forum. (2012). Zeti Akhtar Aziz: Internationalisation of Islamic finance-bridging economies. Welcoming address by Dr Zeti Akhtar Aziz, Governor of the Central Bank of Malaysia, at the Global Islamic Finance Forum 2012, Kuala Lumpur, 19 September 2012.

Goddard, J., Molyneux, P., Wilson, J.O.S. and Tavakoli, M. (2004). The profitability of European Banks: a cross-sectional and dynamic panel analysis. *The Manchester School 72:363-382.*

Gonzalez, F. (2005). Bank regulation and risk-taking incentives: an international comparison of bank risk. *Journal of Banking and Finance 29:1153-1184.*

Graeve, F.D., Jonghe, O.D. and Vennet. V. (2007). Competition, transmission and bank pricing policies: evidence from Belgian loan and deposit markets. *Journal of Banking and Finance 31:259-278.*

Grifell-Tatje, E. and Lovell, C.A.K. (1997). The sources of productivity change in Spanish banking. *European Journal of Operational Research 98:364-380.*

Grigorian, D. and Manole, V. (2006). Determinants of commercial bank performance in transition: an application of data envelopment analysis. *Comparative Economic Studies 48:497-522.*

Grosse, A.P. (1953). The technological structure of the cotton textile industry. In studies in the structure of the American economy (ed. W. Leontief)

Guasch, J.L. and Hahn, R.W. (1999). The costs and benefits of regulation: implications for developing countries. *World Bank Research Observer 14:137-58.*

Guest, S. (2008). Ronald Dworkin and the question of political stability and legitimacy. in: Gough, S and Stables, A, (eds.) sustainability and security within liberal societies: learning to live with the future. 49-69. Routledge: London.

Gujarati, D. (2002). Basic Econometric, 6th Ed., New York. Macgraw Hill.

Gupta, K.L. (1987). Aggregate savings, financial intermediation, and interest rate. *The Review of Economics and Statistics 69:303-311.*

Guru, B.K., Staunton, J., and Balashanmugam, B. (2002). Determinants of commercial bank profitability in Malaysia. Working Paper, Multimedia University, 2002.

Guasch, J.L. and Hahn, R.W. (1999). The costs and benefits of regulation: implications for developing countries. *World Bank Research Observer 14:137-58.*

Halkos, G. E. and Salamouris, D. S. (2004). Efficiency measurement of the Greek commercial banks with the use of financial ratios: a Data Envelopment Analysis approach. *Management Accounting Research 15:201-224.*

Hansen, L.P. (1982). Large sample properties of Generalized Method of Moments Estimators. *Econometrica 50:1029-1054.*

Haron, S. (2004). Determinants of Islamic bank profitability. *Global Journal of Finance and Economics 1:1-22.*

Haron, S. and Azmi, W.N.W. (2009). Islamic finance and banking system philosophies, principles and practices. Mc Graw Hill Education 400pp.

Hasan, Z. (2004). Measuring the efficiency of Islamic banks: criteria, methods and social priorities. *Review of Islamic Economics 8:5-30.*

Hasan, M. and Dridi, J. (2010). The effects of the global crisis on Islamic and conventional banks: a comparative study, IMF Working Paper No. WP/10/201.

Hassan, M. K. (2005). The cost, profit and X-efficiency of Islamic banks. Paper presented at the 12th Annual Conference Economic Research Forum, Cairo, Egypt.

Hassan, M.K. and Bashir, A.H.M. (2003). Determinants of islamic banking profitability. In: paper presented at the Proceedings of the Economic Research Forum (ERF) 10th Annual Conference, Marrakesh-Morocco, December 16-18.

Hassan, M.K and Hussein, K.A. (2003). Static and dynamic efficiency in the Sudanese banking system. *Review of Islamic Economics 14:5-48.*

Hassan, T., Mohamad, S., and Bader, M.K.I (2009). Efficiency of conventional versus Islamic banks: evidence from the Middle East. *International Journal of Islamic and Middle Eastern Finance and Management 2:46-65.*

Hauswald, R. and Marquez, R. (2006). Competition and strategic information acquisition in credit markets. *Review of Financial Studies 19:967-1000.*

Hay, J.R. and Shleifer, A. (1998). Private enforcement of public laws: a theory of legal reform. American Economic *Review Papers and Proceedings 88:398-403.*

Hayes, R.J., Wheelwright, S.C. and Clark, K.B. (1988). Dynamic manufacturing: creating the learning organisation, Free Press, New York, NY, 1988.

Henisz, W. (2000). The institutional environment for economic growth. *Economics and Politics 12:1-31.*

Hicks, J. R. (1961). Measurement of capital in relation to the measurement of other economic aggregates, in Lutz, F.A. and Hague, D.C. (eds.), theory of capital, Macmillan, London.

Hicks, J.R. (1935). Annual survey of economic theory: the theory of monopoly. *Econometrica 3:1-20.*

Hirtle, B.J., and Stiroh, K.J. (2007). The return to retail and the performance of US banks. *Journal of Banking and Finance 31:1101-1133.*

Houston, J.F., James, C.M. and Ryngaert, M.D. (2001). Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. *Journal of Financial Economics 60:285-331.*

Huang, C.L., Chen, C.R. and Huarng, F.H. (2011). The impacts of political instability on banking development and operational efficiency. Conference Paper International Initiative for Promoting Political Economy.

Huizinga, H.P., Nelissen, J.H.M. and Vennet, R.V. (2001). Efficiency effects of bank mergers and acquisitions in Europe. Working Paper Series 2001/106: 1-33.

Hwang, J. and Akdede, S.H. (2011). The influence of governance on public sector efficiency: a cross-country analysis. *The Social Science Journal 48:735-738.*

Innes, J. and Mitchell, F. (1990). Activity-based costing research. *Management Accounting 68:28-9.*

Isik, I. and Hassan, M. K. (2002a). Technical, scale and allocative efficiencies of Turkish banking industry. *Journal of Banking and Finance 26:719-766.*

Isik, I. and Hassan, M. K. (2002b). Cost and profit efficiency of the Turkish banking industry: an empirical investigation. *The Financial Review 37:257-280.*

Isik, I (2008). Productivity, technology and efficiency of de novo banks: a counter evidence from Turkey. *Journal of Multinational Financial Management 18:427-442.*

Islam, M. M. (2003). Development and performance of domestic and foreign banks in GCC countries. *Managerial Finance 29:17-42.*

Iqbal, M. (2001). Islamic and conventional banking in the nineties: a comparative study. *Islamic Economic Studies 8:1-27.*

Iqbal, M. and Molyneux, P. (2005). Thirty years of Islamic banking: History, performance, and prospects. New York: Palgrave Macmillan.

Izhar, H. and Asutay, M. (2007). Estimating the profitability of Islamic banking: evidence from bank Muamalat Indonesia. *Review of Islamic Economics 11:17-29.*

Jacobs, S. (2004). Governance of Asia utilities; new regulators struggle in difficult environments. The governance brief, issue 10, ADB governance and regional cooperation division: Bangkok.

Jain, A. K. (2001). Corruption: A review. *Journal of Economic Surveys 15:71-121.*

Jalilian, H., Kirkpatrick, C. and Parker, D. (2007). The impact of regulation on economic growth in developing countries: a cross-country analysis. *World Development 35:87-103.*

Jemric, I. and Vujcic, B. (2002). Efficiency of banks in Croatia: a DEA approach. *Comparative Economic Studies 44:169-193.*

Jiang, C., Yao, S. and Zhang, Z. (2009). The effects of governance changes on bank efficiency in China: a stochastic distance function approach. *China Economic Review 20:717-731.*

John, Kose, Litov, L. and Yeung, B. (2008). Corporate governance and risk-taking, *Journal of Finance 63:1679-1728.*

Kablan, S. (2010). Banking efficiency and financial development in Sub-Saharan Africa. IMF Working Paper No. WP/10/136.

Kamarudin, F., Nordin, B.A.A. and Nasir, A.M. (2013). Price efficiency and returns to scale of banking sector in gulf cooperative council countries: empirical evidence from Islamic and conventional banks. *Economic Computation and Economic Cybernetics Studies and Research 47:215-236.*

Karim, M.Z.A. (2001). Comparative bank efficiency across select ASEAN countries. *ASEAN Economic Bulletin 18:289-304*

Kashyap, A. K., Raghuram G. R., and Jeremy C. S. (2002). Banks as liquidity providers: an explanation for the coexistence of lending and deposit-taking. *Journal of Finance 57:33-73.*

Kassim, S. and Majid, M.S.A. (2010). Impact of financial shocks on Islamic banks: Malaysian evidence during 1997 and 2007 financial crises. *International Journal of Islamic and Middle Eastern Finance and Management 3:291-305.*

Kassim, S., Majid, M. A. and Yusof, R. M. (2009). Impact of monetary policy shocks on conventional and Islamic banks in a dual banking system: evidence from Malaysia. *Journal of Economic Cooperation and Development 30:41-58.*

Kaufmann, D., and Kraay, A. (2002). Growth without governance. Mimeo, Washington, DC: World Bank.

Kaufman, D., Kraay, A. and Mastruzzi, M. (2005). Governance matters IV: governance indicators for 1996-2004. World Bank.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2006). Governance Matters V: governance indicators for 1996-2005. Available from: <http://www.govidicators.org>.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2009). Governance matters VIII: aggregate and individual governance indicators, 1996-2008. Policy Research Working Paper, No. 4978, The World Bank.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2010). The worldwide governance indicator: methodology and analytical issues. Policy Research Working Paper, No. 5430, The World Bank.

Keefer, P. and Knack, S. (1997). Why don't poor countries catch up? a cross-national test of an institutional explanation. *Economic Inquiry 35:590-602.*

Kennedy, P. (2008). A guide to econometrics. Malden: Blackwell publishing.

Khan, A. K., (2010). God, government and outsiders: the influence of religious beliefs on depositor behavior in an emerging market. Working Paper. Harvard Business School.

Khan, M.M. and Bhatti, M.I. (2008). Islamic banking and finance: on its way to globalization. *Managerial Finance 34:708-725.*

Khan, S. and Lewbel, A. (2007). Weighted and two stage least squares estimation of semiparametric truncated regression models. *Econometric Theory 23:309-347.*

Kiesler, C. (1971). The psychology of commitment: experiments linking behavior to belief. New York: Academic.

Klein, H., Molloy, J., and Brinsfield, C. (2006). Understanding workplace commitments independent of antecedents, targets, rationales, and consequences. Paper presented at Academy of Management Annual Meeting, Atlanta, GA.

Kohers, T., Huang, M. and Kohers, N. (2000). Market perception of efficiency in bank holding company mergers: the roles of the DEA and SFA models in capturing merger potential. *Review of Financial Economics 9:101-120.*

Kopleman, and Richard E. (1986). Managing productivity organizations. McGraw Hill Book Company, New Delhi, p-3.

Kosmidou, K. (2008). The determinants of banks' profits in Greece during the period of EU financial integration. *Managerial Finance 34:146-159.*

Kosmidou, K., and Zopounidis, C. (2008). Measurement of bank performance in Greece. *South Eastern Europe Journal of Economics 6:79-95.*

Kotler, P. (1984). Marketing management analysis, planning and control, Prentice-Hall, Englewood Cliffs, NJ, 1984.

Kumbhakar, S. C., Lozano-Vivas, A., Lovell, C. A. K. and Hasan, I. (2001). The effects of deregulation on the performance of financial institutions: the case of Spanish savings banks. *Journal of Money, Credit and Banking 33:101-120.*

Kuipers, D.R., Miller, D.P. and Patel, A. (2009). The legal environment and corporate valuation: evidence from cross-border takeovers. *International Review of Economics and Finance 18:552-567.*

Kuran, T. (2004). Islam and Mammon, Princeton University Press.

Kwan, S. and Eisenbeis, R. (1997). Bank risk, capitalization, and operating efficiency. *Journal of Financial Services Research 12:117-131.*

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (2002). Investor protection and corporate governance. *Journal of Financial Economics 58:3-27.*

Laeven, L. and Levine, R. (2007). Is there a diversification discount in financial conglomerates? *Journal of Financial Economics 85:331-367.*

Langbein, L. and Knack, S. (2010). The worldwide governance indicators: six, one or none?. *Journal of Development Studies 46:350-370.*

Lensink, R., Meesters, A. and Naaborg, I. (2008). Bank efficiency and foreign ownership: do good institutions matter?. *Journal of Banking and Finance 32:834-844.*

Levine, R. (1997). Financial development and economic growth: view and agenda. *Journal of Economic Literature 35:688-726.*

Levine, R.. (1998). The legal environment, banks, and long-run economic growth, *Journal of Money, Credit and Banking 30:596-613.*

Levine, R. (2004). The corporate governance of banks: a concise discussion of concepts and evidence. World Bank Policy Research Working Paper 3404, September.

Lin, C., Ma, Y. and Song, F.M. (2010). Bank competition, credit information sharing and banking efficiency. Sixth Annual Asia-Pacific Economic Association Conference, Hong Kong.

Linder, J.C. and Crane D.B. (1992). Bank mergers: integration and profitability. *Journal of Financial Services Research 7:35-55.*

Lins, K. (2003). Equity ownership and firm value in emerging markets. *Journal of Financial and Quantitative Analysis 38:159-184.*

Liu, S.T. (2010). Measuring and categorizing technical efficiency and productivity change of commercial banks in Taiwan. *Expert Systems with Applications 37:2783-2789.*

Love, I. (2003). Financial development and financing constraints: international evidence from the structural investment model. *The Review of Financial Studies 16:765-791.*

Mahoney, P.G. (2001). The common law and economic growth: Hayek might be right. *Journal of Legal Studies 30:503-525.*

Majid, M. and Sufian, F. (2006). Consolidation and competition in emerging market: an empirical test for Malaysian Banking industry. *Economic Change and Restructuring 39:105-124.*

Malmquist, S. (1953). Index numbers and indifference surfaces. *Trabajos de Estatistica 4:209-242.*

Maudos, J. (1998). Market structure and performance in Spanish banking using a direct measure ofefficiency. *Applied Financial Economics 8:191-200.*

Maudos, J. and Pastor, J. M. (2003). Cost and profit efficiency in the Spanish banking sector (1985-1996): A non-parametric approach. *Applied Financial Economics 13:1-12.*

Maudos, J., Pastor, J., Perez, F. and Quesada, J. (2002). Cost and profit efficiency in European banks. *Journal of International Financial Markets Institutions and Money 12:33-58.*

McAllister, P.H. and McManus, D. (1993). Resolving the scale efficiency puzzle in banking. *Journal of Banking and Finance 17:389-405.*

McDonald, J. (2009). Using least squares and Tobit in second-stage DEA efficiency analyses. European *Journal of Operational Research 197:792-798.*

McNulty, J.E., Akhigbe, A. and Verbrugge, J.A. (2001). Small bank loan quality in a deregulated environment: the information advantage hypothesis. *Journal of Economics and Business 53:325-339.*

Meon, P.G. and Weill, L. (2005). Does better governance foster efficiency? an aggregate frontier analysis. *Economics of Governance 6:75-90.*

Mester, L.J., Nakamura, L.I. and Renault, M. (2001). Checking accounts and bank monitoring, Working paper No. 01-3, Federal Reserve Bank of Philadelphia.

Mileva, E. (2007). Using Arellano-Bond dynamic panel GMM estimators in STATA (Working Paper). New York: Fordham University.

Miller, SM. and Noulas, A.G. (1996). The technical efficiency of large bank production. *Journal of Banking and Finance 20:495-509.*

Miller, S.M. and Noulas, A.G. (1997). portfolio mix and large-bank profitability in the USA. *Applied Economics 29:505-512.*

Mohamad, S., Hassan, T. and Bader, M.K. (2008). Efficiency of conventional versus Islamic banks: stochastic frontier approach. *Journal of Islamic Economics, Banking and Finance 4:107-130.*

Mokhtar, H.S.A., Abdullah, N. and Al-Habshi, S.M. (2006). Efficiency of Islamic banking in Malaysia: A Stochastic Frontier approach. *Journal of Economic Cooperation 27:37-70.*

Molyneux, P., Altunbas, Y., and Gardener, E.P.M. (1996). Efficiency in European banking. Chichester: John Wiley and Sons.

Molyneux, P. and Thornton, J. (1992). Determinants of European bank profitability: a note. *Journal of Banking and Finance 16:1173-1178.*

Montinola, G. and Moreno, R. (2001). The political economy of foreign bank entry and its impact: theory and a case study. Pacific Basin Working Paper Series Center for Pacific Basin Monetary and Economic Studies, Economic Research Department, Federal Reserve Bank of San Francisco, PB01-11.

Mookherjee, D. and Png, I.P.L. (1995). Corruptible law enforcers: how should they be compensated. *Economic Journal 105:145-159.*

Moore, R.R. (1996). Bank acquisition determinants: implications for small business credit.Working Paper, Federal Reserve Bank of Dallas.

Mostafa, M. (2007). Modelling the efficiency of GCC banks: a data envelopment analysis approach. *International Journal of Productivity and Performance Management 56:623-643.*

Murillo-Zamorano, L.R. (2004). Economic efficiency and frontier techniques. *Journal of Economic Surveys 18:33-77.*

Naceur, S.B. (2003). The determinants of Tunisian banking industry profitability: panel evidence. Economic Research Forum 10th Conference.

Neely, A., Gregory, M. and Platts, K. (1995). Performance measurement system design: a literature review and research agenda. *International Journal of Operations and Production Management 15:80-116.*

Nickell, S.J. (1981). Biases in dynamic models with fixed effects. *Econometrica 49:1417-1426.*

Nissanke, M. and Stein, H. (2003). Financial globalization and economic development: toward an institutional foundation. *Eastern Economic Journal 29:287-308.*

O'Donnell, C.J. (2008). An aggregate quantity-price framework for measuring and decomposing productivity and profitability change. Working paper, Centre for Efficiency and Productivity Analysis, School of Economics, University of Queensland, 13 November.

O'Donnell, C.J. (2009). Measuring and decomposing agricultural productivity and profitability change. Working paper, Centre for Efficiency and Productivity Analysis, University of Queensland, 11 February.

Olson, D. and Zoubi, T. A. (2008). Using accounting ratios to distinguish between Islamic and conventional banks in the GCC region. *International Journal of Accounting 43:45-65.*

Olson, M., Sarna, N. and Swamy, A.V. (2000). Governance and growth: a simple hypothesis explaining cross-country differences in productivity growth. *Public Choice 102:341-364.*

Pagano, P. and Schivardi, F. (2003). Firm size distribution and growth. *Scandinavian Journal of Economics 105:255-274.*

Pasiouras, F., and Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance 21:222-237.*

Pasiouras, F., Liadaki, A. and Zopounidis, C. (2008). Bank efficiency and share performance: evidence from Greece. *Applied Financial Economics 18:1121-1130.*

Pasiouras, F., Tanna, S. and Zopounidis, C. (2009). The impact of banking regulations on banks' cost and profit efficiency: cross-country evidence. *International Review of Financial Analysis 18:294-302.*

Perera, S., Skully, M. and Wicckramanayake, J. (2007). Cost efficiency in South Asian banking: the impact of bank size, state ownership and stock exchange listings. *International Review of Finance 7:35-60.*

Peria, M.S.M. and Mody, A. (2004). How foreign participation and market concentration impact bank spreads: evidence from Latin America. *Journal of Money, Credit and Banking 36:511-537.*

Perry, P. (1992). Do banks gain or lose from inflation. *Journal of Retail Banking 14:25-40.*

Persson, T., Tabellini, G. and Trebbi, F. (2003). Electoral rules and corruption. *Journal of the European Economic Association 1:958-989.*

Pilloff, S.J. (1996). Performance changes and shareholder wealth creation associated with mergers of publicly traded banking institutions. *Journal of Money, Credit, and Banking 28:294-310.*

Rajan, R. and Zingales, L. (1998). Financial dependence and growth. *The American Economic Review 88:559-586.*

Ramanthan, R. (2007). Performance of banks in counties of the Gulf Cooperation Council. *International Journal of Productivity and Performance Management 56:137-154.*

Ramlall, I. (2009). Bank-Specific, industry-specific and macroeconomic determinants of profitability in Taiwanese banking system: under panel data estimation. *International Research Journal of Finance and Economics 34:160-167.*

Rasmusen, E. and Ramseyer, J.M. (1994). Cheap bribes and the corruption ban: a coordination game among rational legislators. *Public Choice 78:305-327.*

Rayp, G. and Sijpe, N.V.D. (2007). Measuring and explaining government efficiency in developing countries. *Journal of Development Studies 43:360-381.*

Redding, G. (2002). The capitalist business system of China and its rationale. *Asia Pacific Journal of Management 19:221-249.*

Reinhart, C.M. and Rogoff, K.S. (2004). Serial default and the "paradox" of rich-to-poor capital flows. *American Economic Review 94:53-58.*

Resti, A. (1997). Evaluating the cost efficiency of the Italian banking system: what can be learned from the joint application of parametric and non-parametric techniques. *Journal of Banking and Finance 21:221-250.*

Rettab, B., Kashani, H., Obay, L. and Rao, A. (2010). Impact of market power and efficiency on performance of banks in the Gulf Cooperation Council Countries. *International Research Journal of Finance and Economics 50:190-203.*

Revell, J.S. (1980). Costs and margins in banking: an international survey, Paris, Organization for Economic Co-operation and Development.

Rezitis, A. (2006). Efficiency and productivity effects of bank mergers: evidence from the Greek banking industry. *Economic Modelling 25:236-254.*

Rhoades, S.A. (1993). Efficiency effects of horizontal (in-market) bank mergers. *Journal of Banking and Finance 17:411-422.*

Rocha, M. A. and Sharma, B. (2008). Joint evaluation of citizen's voice and accountability: synthesis report. Overseas Development Institute.

Roe, M.J. and Siegel. J.I. (2011). Political instability: effects on financial development, roots in the severity of economic inequality. *Journal of Comparative Economics 39:279-309.*

Rogers, K.E. (1998). Nontraditional activities and the efficiency of US commercial banks. *Journal of banking Finance 22:467-482.*

Ruch, W.A. (1982). The measurement of white-collar productivity. National Productivity Review, Autumn 1982, pp. 22-8.

Saaid, A.R.E. (2003). The X-efficiency of the Sudanese Islamic banks. *IIUM Journal of Economics and Management 11:123-141.*

Salancik, G. (1977). Commitment and the control of organizational behavior and belief. In B. M. Staw and G. R. Salancik (Eds.). New directions in organizational behavior. Chicago: St. Clair.

Salinas-Jiménez, M.M and Salinas-Jiménez, J. (2007). Corruption, efficiency and productivity in OECD countries. *Journal of Policy Modeling 29:903-915.*

Salter, W.E.G. (1960). Productivity and technical change. University Press, Cambridge.

Samad, A. (1999). Relative performance of conventional banking vis-à-vis Islamic bank in Malaysia. *IIUM Journal of Economics and Management 7:1-25.*

Samad, A. (2004). Performance of interest-free Islamic banks vis-a-vis interest-based conventional banks of Bahrain. *IIUM Journal of Economics and Management 12:1-15.*

Sanidas, E. (2007). The impact of large firms in promoting economic growth, exports, and regional integration: a chandlerian perspective. *Middle East Business and Economic Review 19:61-75.*

Santos, J. A. C. (2000). Bank capital regulation in contemporary banking theory: a review of the literature. BIS working papers, No. 90. Bank for international settlements: Monetary and Economic Department, Basel, Switzerland.

Sathye, M. (2001). X-efficiency in Australian banking: an empirical investigation. *Journal of Banking and Finance 25:613-630.*

Schumacher, I. (2013). Political stability, corruption and trust in politicians. *Economic Modelling 31:359-369.*

Schwella, E. (2002). Regulation and competition in South Africa. Working Paper no. 18. Manchester: Centre on Regulation and Competition, University of Manchester.

Sealey, C. and Lindley, J.T. (1977). Inputs, outputs and a theory of production and cost at depository financial institutions. *The Journal of Finance 32:1251-1266.*

Seitz, W. D. (1970). The measurement of efficiency relative to a frontier production function. American *Journal of Agricultural Economics 52:505-511.*

Seitz, W. D. (1971). Productive efficiency in the steam-electric generating industry. *Journal of Political Economy 79:878-886.*

Shaffer, S. (1993). Can megamergers improve bank efficiency? *Journal of Banking and Finance 17:423-436.*

Shepsle, K. (1991). Discretion, institutions, and the problem of government commitment. In P. Bourdieu and J. Coleman (Eds.). Social theory for a changing society: 245-263.

Sherman, D. and Gold, F. (1985). Branch operating efficiency: evaluation with data envelopment analysis. *Journal of Banking and Finance 9:297-315.*

Sherwood, R.M., Shepherd, G. and Souza C.M.D. (1994). Judicial Systems and Economic Performance, *The Quarterly Review of Economics and Finance 34:101-116.*

Shleifer, A. and Vishny, R.W. (1998). The grabbing hand: government pathologies and their cures. Harvard University Press, Cambridge, MA.

Smolo, E. and Mirakhor, A. (2010). The global financial crisis and its implications for the Islamic financial industry. *International Journal of Islamic and Middle Easterb Finance 3:372-385.*

Srairi, S.A. (2010). Cost and profit efficiency of conventional and Islamic banks in GCC countries. *Journal of Productivity Analysis 34:45-62.*

Srinivasan, A. (1992). Are there cost savings from bank mergers? *Federal Reserve Bank of Atlanta Economic Review 77:17-28.*

Staikouras, C. and Wood, G. (2003). The determinants of bank profitability in Europe. Paper presented at the European Applied Business Research Conference, Venice: 9-13.

Staikouras, C., Mamatzakis, E. and Koutsomanoli-Filippaki, A. (2008). An empirical investigation of operating performance in the new European banking landscape. *Global Finance Journal 19:32-45*

Staub, R.B., Souza, G.S. and Tabak, B.M. (2010). Evolution of bank efficiency in Brazil: a DEA approach. *European Journal of Operational Research 202:204-213.*

Stevens, C.E. and Cooper, J.T. (2010). A behavioral theory of governments' ability to make credible commitments to firms: the case of the East Asian paradox. *Asia Pacific Journal of Management 27:587-610.*

Stigler, G. (1971). The theory of economic regulation. *The Bell Journal of Economics and Management Science 2:3-21.*

Stiroh, K.J., and Rumble, A. (2006). The dark side of diversification: the case of US financial holding companies. *Journal of Banking and Finance 30:2131-2161.*

Straub, S. (2005). Informal sector: the credit market channel. *Journal of Development Economics 78:299-321.*

Sufian, F. (2004). The efficiency effects of bank mergers and acquisitions in a developing economy: evidence from Malaysia. *International Journal of Applied Econometrics and Qualitative Studies 1-4:53-74.*

Sufian, F. (2007). The efficiency of Islamic banking industry in Malaysia: foreign vs domestic banks. *Humanomics 23:174-192.*

Sufian, F. (2009a). Assessing the impact of mergers and acquisitions on bank profit efficiency: empirical evidence from Malaysia. *International Journal Decision Sciences, Risk and Management 1:258-285.*

Sufian, F. (2009b). Determinants of bank efficiency during unstable macroeconomic environment: empirical evidence from Malaysia. *Research in International Business and Finance 23:54-77.*

Sufian, F. (2010). The impact of the Asian financial crisis on bank efficiency: the 1997 experience of Malaysia and Thailand. *Journal of International Development 22:866-889.*

Sufian, F. and Chong, R.R. (2008). Determinants of bank profitability in a developing economy: empirical evidence from the Philippines. *Asian Academy of Management Journal of Acoounting and Finance 4:91-112.*

Sufian, F. and Habibullah, M.S. (2009). Assessing the impact of mergers and acquisitions on bank cost efficiency. *Capital Market Review 17:21-41.*

Sufian, F. and Habibullah, M., S. (2009a). Bank specific and macroeconomic determinants of bank profitability: empirical evidence from the China banking sector. *Frontiers of Economics in China 4:274-291.*

Sufian, F. and Habibullah, M., S. (2009b). Determinants of bank profitability in a developing economy: empirical evidence from Bangladesh. *Journal of Business Economics and Management 10:207-217.*

Sufian, F. and Habibullah, M., S. (2009c). Asian financial crisis and the evolution of Korean banks efficiency: a DEA approach. *Global Economic Review 38:335-369.*

Sufian, F and Habibullah, M.S. (2010). Does economic freedom fosters banks' performance? Panel evidence from Malaysia. *Journal of Contemporary Accounting and Economics 6:77-91.*

Sufian, F and Habibullah, M.S. (2010a). Assessing the impact of financial crisis on bank performance empirical evidence from Indonesia. *ASEAN Economic Bulletin 27:245-262.*

Sufian, F and Habibullah, M.S. (2011). Opening the black box on bank efficiency in China: does economic freedom matter?. *Global Economic Review 40:269-298.*

Sufian, F. and Kamarudin, F. (2012). Bank-specific and macroeconomic determinants of profitability of Bangladesh's commercial banks. *Bangladesh Development Studies 35:1-27.*

Sufian, F. and Majid, M.Z.A. (2011). The nexus between economic freedom and Islamic bank performance: empirical evidence from the MENA banking sectors. Eighth international conference on Islamic economics and finance. Center for Islamic Economic and Finance, Qatar Faculty of Islamic Studies, Qatar Foundation.

Sufian, F., Kamarudin, F. and Noor, N.H.H.M. (2012a). Determinants of revenue efficiency in the Malaysian Islamic banking sector. *Journal of King Abdulaziz: Islamic Economics 25:195-224.*

Sufian. F., Muhamad, J., Ariffin, A.N.B., Yahya, M.H. and Kamarudin, F. (2012b). Assessing the effect of mergers and acquisitions on revenue efficiency: evidence from Malaysian Banking Sector. *Vision-The Journal of Business Perspective 16:1-11.*

Sufian, F. and Noor, M.A.N. (2012). Determinants of bank performance in a developing economy: does bank origins matters? *Global Business Review 13:1-23.*

Sufian, F and Noor, M.A.N. (2009). The determinants of Islamic banks' efficiency changes empirical evidence from the MENA and Asian banking sectors. *International Journal of Islamic and Middle Eastern Finance and Management 2: 120-138.*

Sufian, F. and Parman, S. (2009). Specialization and other determinants of non-commercial bank financial institutions' profitability: empirical evidence from Malaysia. *Studies in Economics and Finance 26:113-128.*

Sufian, F., Noor, M.A.M. and Majid, M.Z.A. (2008). The efficiency of Islamic banks: empirical evidence from the MENA and Asian countries Islamic banking sectors. *The Middle East Business and Economic Review 20:1-19.*

Sun, L. and Chang, T.P. (2011). A comprehensive analysis of the effects of risk measures on bank efficiency: evidence from emerging Asian countries. *Journal of Banking and Finance 35:1727-1735.*

Tahir, I.M. and Haron, S. (2008). Technical efficiency of the Malaysian commercial banks: a stochastic frontier approach. *Banks and Bank Systems 3:65-72.*

Tembo, F (2012). Citizen voice and state accountability. Towards theories of change that embrace contextual dynamics. Overseas Development Institute Working Paper 343.

Timmer, C.P. (1971). Using a probabilistic frontier production function to measure technical efficiency. *Journal of Political Economy 79:776-94.*

Ugaz, C. (2003). Consumer participation and pro-poor regulation in Latin America. In C. Ugaz, and C. Waddams Price (Eds.), Utility privatization and regulation: a fair deal for consumers. Cheltenham: Edward Elgar.

Vander-Vennet, R.V. (2001). Cost and profit efficiency of financial conglomerates and universal banks in Europe. *Journal of Money, Credit and Banking 34:254-282.*

Wang, W.K., Lu, W.M. and Lin, Y.L. (2012). Does corporate governance play an important role in BHC performance? *Evidence from the U.S. Economic Modelling 29:751-760.*

Weill, L. (2010). Do Islamic banks have greater market power? Bank of Finland,BOFIT, Discussion Paper, No. 2.

Weill, L., Pruteanu-Podpiera, A. and Shobert, F. (2006). Banking competition and efficiency: a micro-data analysis on the Czech banking industry. paper prepared for the conference: risk, regulation and competition: banking in transition economies, ghent, September.

Wendt, A. (2004). The state as person in international theory. *Review of International Studies 30:298-316.*

White, H.J. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity. *Econometrica 48:817-838.*

Williams, B. (2003). Domestic and international determinants of bank profits: foreign banks in Australia. *Journal of Banking and Finance 27:1185-1210.*

Williams, J. (2012). Efficiency and market power in Latin American banking. *Journal of Financial Stability 8:263-276.*

Williams, J. and Nguyen, N. (2005). Financial liberalisation, crisis, and restructuring: a comparative study of bank performance and bank governance in South East Asia. *Journal of Banking and Finance 29:2119-2154.*

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics 126: 25-51.*

World Bank. (1992). Governance and development. Washington, D.C.

World Bank (1997). World development report. The state in a changing world. Washington, DC: World Bank.

World Bank (2001). Private sector development strategy directions for the World Bank Group. Mimeo, World Bank, Washington, DC.

World Bank. (2002). Building institutions for markets. New York: Oxford University.

World Bank (2003). Global economic prospects and the developing countries. Washington, DC: World Bank.

Yahya, M.H., Muhammad, J. and Hadi, A.R.A. (2012). A comparative study on the level of efficiency between Islamic and conventional banking systems in Malaysia. *International Journal of Islamic and Middle Eastern Finance and Management 5:48-62.*

Yildirim, C. (2002). Evolution of banking efficiency within an unstable macroeconomic environment: the case of Turkish commercial banks. *Applied Economics 34:2289-2301.*

Yildirim, H.S. and Philippatos G.C. (2007). Efficiency of banks: recent evidence from the transition economies of Europe (1993-2000). *European Journal of Finance 13:123-143.*

Yudistira, D. (2004). Efficiency in Islamic Banking: an empirical analysis of 18 banks. *Islamic Economic Studies 12:1-19.*

Zhu, J. (2009). Quantitative models for performance evaluation and benchmarking: Data Envelopment Analysis with Spreadsheets and DEA Excel Solver. International Series in Operations Research and Management Science.