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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
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**THE EFFECTS OF BANKING SECTOR
AND STOCK MARKET DEVELOPMENT ON
THE MALAYSIAN ECONOMIC GROWTH:
AN EMPIRICAL INVESTIGATION**

**BY
HAFSAH AHMAD**

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ABSTRACT

This study investigates the long-run relationship between financial development (banking sector and stock market development) and economic growth in Malaysia. Six variables based on Malaysian quarterly data from 1978:1 to 2002:4 are employed, namely real GDP per capita, investment rate and ratios of credit, deposit, market capitalization, and value of shares traded to GDP. Two dynamic frameworks are adopted - Vector Auto regression (VAR) with error correction formulation for causality analyses and dynamic OLS (DOLS) procedure for estimation of growth-finance long-run relation.

Causality analyses show that there is bi-directional causality between financial development (banking sector and stock market development) and economic growth. Analyses on growth-finance long-run relations indicate that banking sector development and stock market development individually have an independent positive effect on long-run economic growth. They enhance economic growth through both channels – the volume and efficiency of investment, with the latter being the main source of their independent effect. The study also shows that banking sector development and stock market development complement each other in the growth process.

The study indicates that both bank-based and market-based aspects of financial development are important for long-run economic growth. The results may raise awareness and understanding of the finance-growth nexus to policymakers and practitioners.

APPROVAL PAGE

The thesis of Hafsa Ahmad has been examined and is approved by the following:

Hassanuddeen A.Aziz (Supervisor)

Mansor Hj Ibrahim

Mohd. Azmi Hj Omar

Bala Shanmugam (External Examiner)

Muzaffar Shah Habibullah (External Examiner)

Mohammed Yusoff (Internal Examiner)

Zaleha Kamaruddin (Chairman)

DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references and a bibliography is appended.

Hafsah Ahmad

Signature.....

Date.....

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LIST OF ABBREVIATIONS

APT	Arbitrage Pricing Theory.
ARDL	Autoregressive Distributed Lag.
B	Banking Sector Development.
BNM	Bank Negara Malaysia.
C	Ratio of Total Credits to GDP
CAPM	Capital Asset Pricing Model
CDRC	Corporate Debt Restructuring Committee
CMP	Capital Market Master Plan
D	Ratio of Total Deposits to GDP
Danaharta	Pengurusan Danaharta Nasional Berhad
Danamodal	Danamodal Nasional Berhad
DOLS	Dynamic Ordinary Least Square
ECM	Error Correction Model.
EqCM	Equilibrium Correction Model.
ed./eds	Edition/editions; editor, edited by.
e.g	(<i>exempligratia</i>): for example
et al.	(<i>et alia</i>): and others.
etc.	(<i>et cetera</i>): and so forth
FD	Financial Development.
FIML	Full Information Maximum Likelihood.
FSMP	Financial Sector Master Plan
GATS	General Agreement on Trade and Services.
GDP	Gross Domestic Product
I	Ratio of Total Investment to GDP
ICOR	Incremental Capital Output Ratio.
KLSE	Kuala Lumpur Stock Exchange
L	Ratio of Total Value of Share Traded to GDP
M	Ratio of Total Market Capitalization to GDP
MESDAQ	The Malaysian Exchange of Securities Dealing and Automated Quotation Berhad.
MLE	Maximum Likelihood Estimation
NCD	Negotiable Certificate of Deposits.
NPL	Non-Performing Loans
OECD	Organization for Economic Cooperation and Development.
OLS	Ordinary Least Square
S	Stock Market Development.
SC	Securities Commission.
SOLS	Static Ordinary Least Square
VAR	Vector Auto regression
VECM	Vector Error Correction Model
vs.	(<i>versus</i>): against – legal terms.
Y	Real GDP Per Capita (at 1978 price)

CHAPTER 1

INTRODUCTION

1.1 Background

The idea that financial development is important for economic growth is well acknowledged. Financial markets and intermediaries are believed to have a positive effect on economic growth via capital accumulation and allocation. However, the extent of the positive contribution of financial development in the growth process depends, among other things, on how a financial system is designed. This includes the regulation and the permissible scope of activities of banks and financial markets as well as the information disclosure requirements in the financial markets (Thakor, 1996). In the midst of increased globalization, policymakers have become increasingly concerned about the designing of a financial system, which is sound, competitive and conducive for economic growth. This is because the dynamic changes in financial environment have affected upon corporate strategies so that the interrelations between capital accumulation and allocation and financial development variables might have changed significantly. The co-evolution of financial and economic environment poses a continuous challenge to policymakers in designing and managing the financial system, especially in developing countries.

There are now growing literature discussing the issue of financial system designs such as Allen and Gale (1995, 2001), Thakor (1996, 1998), Schmidt et al. (1999) and Aglietta and Breton (2001). Often, the issue of financial system design in developing countries revolves around the traditional binary classification of financial system, that is the choice between bank-based and market-based system. The characteristics are described by Allen (1999):

“At one extreme, countries like the United States have ‘market-based’ financial systems where financial markets play an important role and banks are less significant. At the other extreme, countries like Germany have ‘bank-based’ financial systems where banks dominate credit allocation and financial markets are not very important”¹.

The type of a financial system is rooted in the past – mainly the cultural and legal tradition (Beck et al. 2003; Ergungor, 2004). Common law countries inherently tend to have a market-based system while civil law countries tend to have a bank-based financial system (Ergungor, 2004). This legal tradition influences the nature of investor protection and corporate governance, accounting systems and financial disclosures², institutional structure and the scope of business or services provided by banks and financial markets.

Many studies attempt to investigate the relative importance of the banking sector and stock markets in influencing economic growth to address the long-standing issue on the superiority of the two financial systems. In general, the findings indicate that for countries having underdeveloped financial sectors, the bank-based systems outperform market-based system, while for countries having developed financial sectors the market-based systems outperform bank-based systems (Tadesse, 2002; Allen and Gale, 2001). It follows that the current trend for developed country is toward market-based financial system (Allen, 1999). The common prescription for developing countries is to opt for the bank-based financial system rather than the market-based financial system (Da Rin and Hellman, 2002; Tadesse, 2002). This prescription seems ambiguous for some developing countries, which are described as market-based financial system, such as Malaysia.

¹ Allen (1999, p.4)

² Firms from common law countries are associated with higher financial disclosures than firms from code law countries (Jaggi and Low, 2000).

The dilemma is whether they should switch from the market-based system to bank-based financial system or improve toward greater market-based system. Recent studies such as Levine (2002), Beck and Levine (2002), Demirguc-Kunt and Maksimovic (2002) provide an alternative prescription. They recommend the developing countries to improve the legal structure and to opt for the intermediate ways of designing the financial system, claiming that both the banking sector and stock markets independently contribute to long-run economic growth.

Few concerns are worth highlighted with regard to the above studies. First, these studies are based on cross-country and panel data studies. The results are less useful for policy prescriptions due to some inherent limitations. Besides the common causality issue, the cross-country study does not take into account the heterogeneity of a country and the results therefore are valid 'on average'. Even in panel-data studies that address the issue of causality, the problem of interpretation in a certain degree persists, which may lead to conflicting prescriptions. Second, despite the appealing results showing the relevance of both banks and stock markets in financial system design, these studies do not address whether and to what extent banks or stock markets have a more pronounced effect on the productivity-driven growth. Specifically, the studies do not clearly investigate the following issues: the underlying channels and the relative significance of banks and capital markets for capital accumulation and productivity growth, the existence and direction of causality relationship between the two aspects of financial development and economic growth in the short and long run, and the degree of complementarity between bank-based and market-based financial system in influencing long-run economic growth. This motivates this study to address the above empirical issues, which are useful in

formulating and designing a ‘hybrid’ financial system, that is a combination of both bank-based and market-based aspects of financial system.

This empirical study adopts a time-series approach to address a number of issues concerning the differential effects between the bank-based and market-based aspect of financial development in influencing long-run economic growth. The research focuses on the four empirical issues: the presence and direction of their causality, the independent long-run effect on economic growth, the channels underlying the perceived positive relationships with economic growth, and the extent to which they complement each other in influencing long-run economic growth.

1.2 Research Objectives

This study investigates the long-run relationship between two main components of financial development and economic growth in the case of Malaysia. The main objective is to examine the differential effects of banking sector and stock market development³ on the long-run economic growth, particularly the productivity driven growth.

Specifically, this study seeks to establish evidence on:-

1. The existence, sources and direction of the causality relationship between :-
 - a. Banking sector development and economic growth.
 - b. Stock market development and economic growth.

³ The study covers banking sector development and stock market development as they represent the main components of bank-based and market-based aspects of financial system in Malaysia, respectively. Bond market development, which emerges in the middle of eighties is another potentially market-based aspect of financial system but is inevitably excluded from the scope of this study due to its 25-year data unavailability.

This evidence provides an indication whether both the bank-based and market-based aspects of financial development individually matter and can predict economic growth, particularly in the long-run.

2. Whether banking sector development and stock market development individually have a positive or negative impact on long-run economic growth. This evidence is particularly useful to ascertain whether and to what extent the bank-based and market-based aspects of financial development have their own comparative advantage in providing financial services to achieve higher long-run economic growth.
3. Whether the association in (2) is mainly attributed to the efficiency of investment effect or the volume of investment effect. The evidence is important for the understanding of the relevance of both the bank-based and market-based aspect of financial development in the process of capital accumulation and allocation. In particular, the evidence of the dominance of the efficiency of investment effect indicates that their corresponding financial development policies may increase the probability of achieving higher productivity-driven growth in the economy.
4. Whether stock market development complements banking sector development in influencing long-run economic growth. In addition to evidence in (2), the evidence of the complementary roles of stock markets to banking sector development reinforces the importance of the market-based aspect of the financial system for higher economic growth.

1.3 Significance of the Study

This study departs from the previous research by integrating the issue of relative importance of banking sector and stock market development in the growth process, the channel and the complementarity issue in the analyses. The significance is twofold. First, we believe the results may enrich the understanding of the dynamic growth-finance nexus in Malaysia and are thus useful for policymakers and practitioners. In general, the long-run estimates from the results may provide a simple barometer reflecting the degree of real development occurring in the financial sector. For instance, there is a strong indication that financial development in Malaysia is moving in a favorable direction in achieving productivity-driven growth in the economy. Specifically, the results had also identified (i) stock markets as the weaker component of the financial system (relative to banking sector) which merit further emphasis for development, (ii) credit activities and stock market liquidity as potential policy tools toward achieving higher productivity-driven growth, and (iii) the extent of the symbiotic relationship between banking sector and stock markets in influencing long-run economic growth.

For policymakers, such statistical evidence may provide some reliable intuitions, options and direction for financial system designs especially concerning the establishment of institutional structures, rules and the scope of activities of banking sector and capital markets (especially stock markets). For practitioners e.g. bankers, analysts, dealers, investors, depositors, borrowers and corporate managers or leaders, the results may raise awareness of the impact of their financial decisions and transactions on long-run economic growth, and subsequently drive them to play their roles in a manner that could contribute to achieving higher long-run economic growth.

Second, the study adds a new element to the empirical growth-finance literature by applying an alternative approach to analyzing the differential and complementary effect of different components of financial development on long run economic growth. In addition, the results complement existing causality evidence, especially in the case of Malaysia, by using more recent sample periods with higher data frequency and applying a more robust estimation technique.

1.4 Organization of the Study

This study is presented in six chapters, including the current introductory chapter. Chapter 2 provides an overview of economic growth, investment and financial development for the period from 1978 to 2002 and the challenges of the financial sector in influencing economic growth. There is an indicative link between financial development and economic growth based on the extent of financial activities in the banking sector and stock markets. Observation indicates that the financial sector accelerates faster than the real sector. However, it is uncertain on how strong is the financial sector associated to long-run economic growth, in particular productivity-driven growth, which stimulates this study to investigate this issue.

Prior to the investigation, Chapter 3 discusses the existing literature on the empirical links between financial development and economic growth to provide a platform and direction for the study. The discussion is structured along the four research objectives. There is consensus evidence of the existence of a causal relationship between financial development and economic growth. The evidence on the direction of causality differs across countries and financial development indicators. However, there is either accumulating bi-directional or at least supply-leading causality

evidence, explained in the short-run or long-run. The literature review also shows that financial development promotes growth, mainly by enhancing productivity. Such evidence is mostly based on the cross-country growth regression and a single composite indicator of financial development, which is less useful for policy prescriptions. Finally, there is growing evidence of the existence of complementarity between banking sector development and stock market development. Again, the evidence is based on cross-country regressions. This study adopts a time series framework and is designed to complement the existing literature.

Building upon the existing research, Chapter 4 describes the research hypotheses and empirical models to address the four research objectives of this study. Besides research hypotheses, this chapter discusses the model specification, data and research methods of this study. The corresponding empirical framework adopts the principle of omission-of-variable bias (Gujaratti, 1995), earlier adopted by De Gregorio and Guidotti (1995) and Levine and Renelt (1992) to decompose the effect of financial development on long-run economic growth into several components for investment channel and complementarity analyses. Four basic growth regressions with a total of six variables are employed for the investigations. This study adopts the Dynamic OLS (Stock and Watson, 1993) estimation procedure. Prior to the estimation methodology, this chapter provides detailed methodology for VECM-based causality analyses and data analyses - namely the Johansen cointegration test, the ADF and KPSS tests and deterministic trend tests.

The results of the empirical models are subsequently presented and analysed in Chapter 5. The analyses are focused on (i) whether financial development matters or

causes economic growth and (ii) whether it enhances long-run economic growth, in particular, productivity driven growth and, finally, (iii) whether stock market development complements banking sector development in the growth process. Some caution as to the interpretation of causality results and estimated long-run coefficients is also highlighted. Chapter 6 is the concluding chapter in which conclusions, implications and areas of future research are presented.

CHAPTER 2

AN OVERVIEW OF ECONOMIC GROWTH, INVESTMENT AND FINANCIAL DEVELOPMENT IN MALAYSIA

2.1 Introduction

This chapter highlights the past and recent development of economic growth, investment and financial development. Having reviewed the extent of financial services in supporting real activity, some challenges are highlighted in the concluding remarks.

2.2 Overview of Economic Growth

Economic growth is one of the objectives of development policy. It is in fact a key policy concern to achieve high sustainable and equitable growth and thereby improve the standard of living, which is commonly proxied as level of real GDP per capita. As at the end of 2002, the levels of real GDP and real GDP per capita of Malaysia were RM157.39 billion and RM6,411 respectively.

Table 2.1
Annual Rate of Growth of GDP, Population and Per Capita Income

Periods	Annual Rate of Growth* (%)				
	GDP		Population	GDP Per Capita	
	Nominal	Real		Nominal	Real
5-year Period					
1978 – 1982	13.34	7.42	2.64	10.48	4.70
1983 – 1987	5.32	3.83	2.74	2.50	1.05
1988 – 1992	13.18	8.86	2.57	10.35	6.14
1993 – 1997	13.34	8.62	2.61	10.42	5.82
1998 – 2002	4.76	2.27	2.80	2.00	-0.43
25-year Period					
1978 – 2002	9.77	6.11	2.67	6.93	3.37
12-year Period					
1991 – 2002	9.53	5.86	2.68	6.70	3.13

Sources: Department of Statistics, Malaysia and Bank Negara Malaysia (BNM) Quarterly Bulletin (Various Issues).

Note: * based on geometric growth.

Table 2.1 shows the annual rate of growth of GDP, population and GDP per capita over five-year intervals from the 25-year period to 2002. The average annual growth rates of real GDP and real GDP per capita during the 25-year period from 1978-2002 were 6.1 percent and 3.4 percent, respectively. A high average real GDP growth rate of above 8 percent was recorded during the 10-year period from 1988 to 1997. Following the 1997 financial crisis, the rate dropped significantly to an average of 2.3 percent per annum for the subsequent five-year period from 1998 to 2002.

Malaysia's standard of living or GDP per capita as at the end of 2002 was RM14,480 that is equivalent to US\$3,915. As shown in Appendix 1, it was lower than the world's average of US\$5,201 and its income group (upper middle income) of US\$5,143. Malaysia, in her Vision 2020, aims to achieve a comparable standard of living of developed countries, which is currently US\$26,942 – 6.9 times higher than Malaysia's level. Indeed, it is a challenging task as the gap in the standard of living was about 4 times during the formulation of Vision 2020 in 1990. Obviously, a much higher annual growth rate than the initial Vision 2020's target of about 7.5 percent on average is required to achieve Vision 2020. As shown in Table 2.1, over the last 12 years from 1991 to 2002, Malaysia's real GDP grew at an average of only 5.86 percent per annum.

An important point to be made is that Malaysia really has to work hard to achieve Vision 2020 and become a developed nation, by efficiently and effectively implementing a series of growth strategies. In Malaysia, the recent growth strategies are directed towards enhancing private investment, strengthening the nation's

competitiveness, finding new sources of growth and enhancing the effectiveness of delivery and payment systems (Ministry of Finance, Economic Report, 2003/2004).

2.3 Overview of Investment

It is well-acknowledged that economic growth is driven in part by firms' real investment in physical plants or equipment, training and the research and development of new technologies. In aggregate, investment plays a significant role in the transitional process of industrial and economic development in Malaysia, which is initially characterized as import substitution industries, export-oriented operations, resource-based and heavy industries, high-tech and capital-intensive industries and finally in the present phase - high-tech and knowledge-based industries. In this transitional process, the emphasis shifts from investment in physical and human capital to intellectual and knowledge-based capital.

A brief overview of investment in Malaysia could be made based on the figures of capital formation, provided in Table 2.2.

Table 2.2
Average Investment Rate and Annual Rate of Growth of Investment and Investment Per Capita

Periods	Average Investment to GDP Ratio.	Annual Rate of Growth * (%)			
		Investment		Investment Per Capita	
		Nominal	Real	Nominal	Real
5-year Period					
1978 – 1982	30.92	24.78	18.26	21.63	15.27
1983 – 1987	29.20	-4.67	-6.02	-7.22	-8.53
1988 – 1992	31.92	25.25	20.46	22.11	17.43
1993 – 1997	41.66	17.09	12.26	14.08	9.38
1998 – 2002	24.69	-6.67	-8.93	-9.14	-11.33
25-year Period					
1978 – 2002	31.68	9.67	6.01	6.84	3.27
12-year Period					
1991 – 2002	33.73	6.73	3.16	3.98	0.50

Sources: Department of Statistics, Malaysia and BNM Quarterly Bulletins (Various Issues).

Note: * based on geometric growth.