ARBITRAGE PRICING THEORY MODEL TESTING ON SHARES IN BANKING SECTOR

ILMU ALAT PENGABDIAN

Script by:

FIDA MUTHIA

01081001077

Subject:
Financial Management

**As a Requirement in Achieving
Bachelor Degree of Economics**

**MINISTRY OF EDUCATION AND CULTURE
SRIWIJAYA UNIVERSITY
ECONOMIC FACULTY
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2012

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN

UNIVERSITAS SRIWIJAYA

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Tanggal Diuji	: 26 April 2012

Isi skripsi saya tidak ada hasil karya orang lain yang saya salin secara keseluruhan atau sebagian tanpa menyebutkan sumber keasliannya.

Demikianlah surat pernyataan ini saya buat dengan sebenar-benarnya dan apabila dikemudian hari ternyata pernyataan saya ini tidak benar, maka saya bersedia menerima sanksi sesuai dengan peraturan, termasuk pembatalan gelar kesarjanaan saya.

Inderalaya, 27 April 2012

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"Verily, with hardship there's a relief." **(Quran, 94:6)**

"..Be mindful of Allah, you will find Him before you. Get to know Allah in prosperity and He will know you in adversity. And know that victory comes with patience, relief with affliction, and ease with hardship." **(Tirmidhi)**

"Everything seems impossible until it's done." - **Nelson Mandela**

This I dedicate to:

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PREFACE

Praise to Allah SWT for his mercy and blessings so this script can be finished in appropriate time.

The title of the script prepared by the writer is **Arbitrage Pricing Theory Model Testing on Stocks in Banking Sector**. This script is divided in to six parts, namely, Chapter I Introduction, Chapter II Literature Review, Chapter III Research Methodology, Chapter IV Data, Chapter V Data Analysis, and Chapter VI Conclusion and Suggestions. The data used in this study can be seen in the reference page and attachments presented by the writer.

The completion of this script also involves many parties, so I, as the writer would like to say a massive thank you to those who had helped in providing motivation, advice and direction so that it can be completed. I realize that this script is far from perfection so I am open to any suggestions and criticism regarding to the script. Last but not least, I hope this script can be very useful to those who read it.

Writer

Fida Muthia

THANK TO

Praise to Allah SWT for his abundance of grace and guidance in helping the writer to finish this script entitle ***"Arbitrage Pricing Theory Model Testing on Stocks in Banking Sector"*** as a requirement in achieving bachelor degree of Economics in the Economics Faculty, University of Sriwijaya. On this occasion, the writer would like to say thank to various parties, such as:

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Fida Muthia

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ABSTRACT

This study is trying to see which macroeconomics factors that can affect the stock return in banking sector period of 2005-2010. Sample used in this study are shares on banking sector in Indonesia Stock Exchange. The macroeconomics variables used in this study are Consumer Price Index, Industrial Production Index, Gold price and Money Supply.

This research used multiple linear regression analysis and BLUE test. The research finding shows that none of the macroeconomics variables used in the study has positive effect on the stock return. The R squared for this model is only 0,104 which means that only 10,4% stock return variable can be explained by the independent variables whereas the rest 89,6% is explained by other factors, such as, the internal condition of firm. And out of 8 companies tested, the APT model only significant in explaining Bank Central Asia, simultaneously but partially only CPI and Money Supply are significant.

Keywords: APT, Consumer Price Index, Industrial Production Index, Gold price, Money Supply.

CHAPTER I
INTRODUCTION

1.1 Background or Research Problem

Capital market is one of the important pillars and also has an important role in national economy. It is believed that the greater the investment the higher the growth of national economy will be. In fact, capital market has become financial nerve-centre in modern economic. According to Bruce Llyd (1976), ongoing capital markets function is improving and linking the long-term flow of funds to "market criteria" that will efficiently support the overall real economic growth (cited in Jannah, 2009).

Many industries and firms use this institution as a media to absorb investment and to strengthen its financial position. Firms use capital market as the alternative options when its internal fund can not cover the business plan or expense. Capital market provides varieties of financial securities, either debt or equity such as stocks, bonds and derivatives. Capital Markets acted as a liaison between investors by companies or government institutions through trade financial instruments (Jogiyanto, 2007).

The capital market has two functions: economic and financial. As an economic function, capital markets provide the facility to transfer funds from lenders to the borrower. In investing its funds, lenders expect any rewards or returns from the transfer of funds. As for the borrower, the existence of outside funds can be used for business development without using operational funds. In the finance, by providing the necessary funds by the borrower and the lender without having to be directly involved in the ownership of real assets (Husnan, 2004).

Investors who choose to be involved in capital market activities have a goal to receive returns in form of capital gain or dividends. But, investors are faced with risks once they invest their funds in capital market securities. In general, investors will definitely choose an investment with high return and minimal risk. Even though risks cannot be eliminated but it can be reduced by assets diversification or with in-depth analysis on firm-specific risk and systematic risk which is a factor that affects every firms or industries.

Before taking decision in which financial instruments investors will invest their funds to, they should know what factors that affect the price or stock return, investors can do an analysis to predict risk and return of the financial instrument, so that investors can receive maximum return with minimal risk. But it is said that the capital market is efficient when the stock prices are unpredictable or random. Stock prices move randomly is a consequence of the reaction of rational investors that are competing to obtain new information before other investors find this information for decision-making buy or sell shares in the capital market (Malkiel, 2003).

Many studies empirically shown that both short-term and long term stock return can be predicted by using market variables and interest rate, but no satisfactory theory would argue that the relation between financial markets and the macro economy is entirely in one direction. However, stock prices are usually considered as responding to external forces.

In 1976, Ross designed APT as a response to the weakness of CAPM (Capital Asset Pricing Model), in where CAPM predicts only one systematic risk that will affect return which is market risk. While APT assumed there are more systematic risks that affect return of stocks. Making a decision in an investment needs an overall analysis to factors affecting expected return which are the conditions of macro economy in the country. Chen, Roll and Ross (1980) found out that indicators of macro economy affecting return of the stocks are inflation, GNP, investor confidence (estimated with corporate bond premium) and the change of yield curve.

Empirical studies reveal that once financial deregulation takes place, the stock markets of a country become more sensitive to both domestic and external factors. Many studies have documented the relationship between macroeconomic variables and stock returns, and they provide different results.

In 2002 Flannery and Protopapadakis wrote "Macroeconomic Factors do Influence Aggregate Stock Returns" and they reevaluate the effect of some macro announcement series on US stock returns, and they found out that the real GNP and industrial production do not appear to be related with stock returns. While in 2003, in "Macroeconomic Variables and the Malaysian Equity Market A View Through Rolling Subsamples", Ibrahim and Aziz investigate the relationship between stock prices and industrial production, money supply, consumer price index, exchange rate in Malaysia and the result shows that industrial production has positive effect to the stock price.

IPI is one of the main indicators that reflect the status of the national economy. This index indicates the volume of industrial production that measures industrial output. This has an impact on all indicators of economic growth, therefore, if the index rises, it is the growth of the economy. The growth in economy affecting the financial market by spurring its development (Vazakidis and Adamopoulos, 2009).

In 2010, Mishra and Das examined the gold price volatility and the causality between domestic gold prices and stock market returns in India for the period 1991 to 2009 and the results shows that there's a relation between the vitality of gold and stock returns. The fluctuation of gold price caused investors to choose gold as one of the alternatives investment. If the gold price rises, investors tend to sell their shares at the time before the decline of the market index, and then they will transfer its investment in gold whose price has a tendency to rise.

Bilson, Brailsford and Hooper (2001) use value weighted world market index and some macroeconomic variables for explaining stock returns in selected emerging markets, the result shows that money supply has positive effect on stock returns. While in 2003, the study taken place in Malaysian stock exchange shows that stock returns stock prices have a negative association with money supply and Ringgit exchange rate.

Increased nominal money supply leads to a portfolio rebalancing toward other real assets. This upward reallocation results in upward pressure on stock prices. Therefore, stock returns respond to unanticipated changes in nominal money supply. Furthermore, increase in money supply leads to a falling in real interest rates. Moreover, firms are faced with lower discount rates against future cash flows, and also respond to increasing income by adjusting their investments so as to generate greater sales and profits resulting in higher future cash flows and higher stock prices. The above economic rationale supporting the linkage between stock returns and money supply, is sufficient to include money supply as a relevant economic force that can impact stock returns (Investopedia, 2011).

Other macroeconomics variable that's believed has the influence on stock returns is consumer price index. Consumer price index (CPI) measures changes in the price level of consumer goods and services purchased by households.

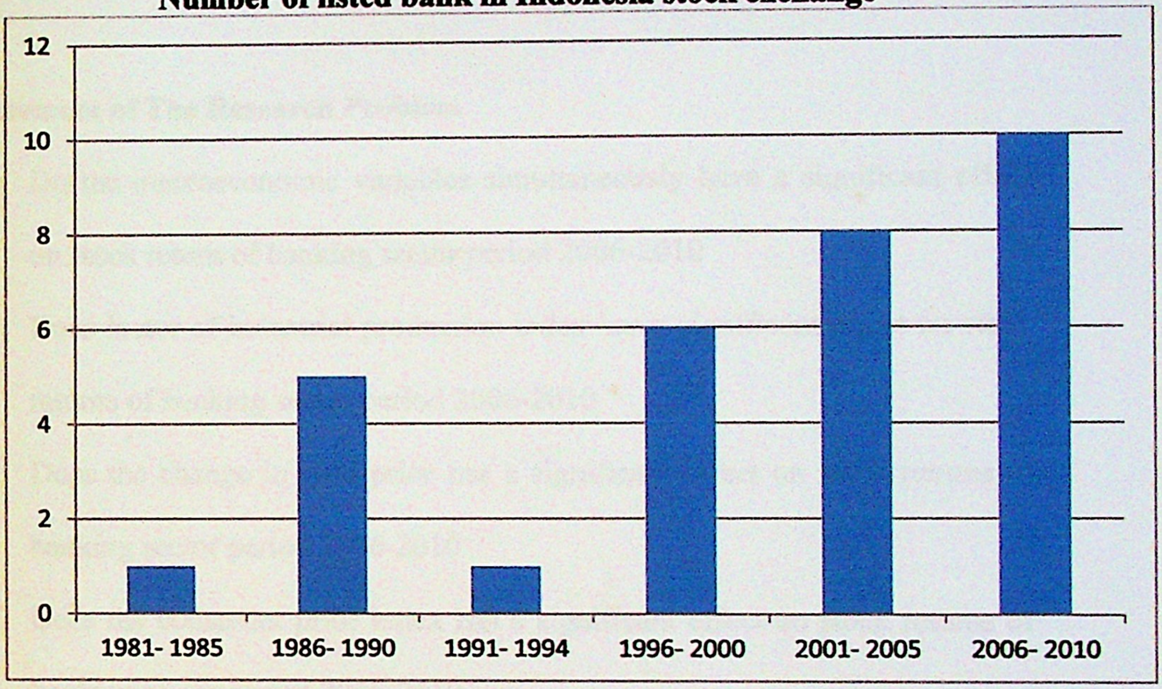
The annual percentage change in a CPI is used as a measure of inflation. From an investor's perspective, the CPI, as a proxy for inflation, is a critical input that can be used to estimate the total return, on a nominal basis, required for an investor to meet his or her financial goals. As the change in consumer price index increases, the rate of inflation also increases. As the inflation rate increases, higher nominal returns must be earned in order to obtain a desired real rate of return. The nominal, annual required total return can be approximated as the real required return plus the rate of inflation (Investopedia, 2009).

The different results of these studies have changed according to the macroeconomic factors used, the research methodology employed and the countries examined. This research investigates the role of macroeconomic factors in explaining Indonesian banking sector stock returns. Researcher chose the banking sector since it has a bright future prospects.

For couple of years, beside mining and property sector, banking sector has become the center of attention of investors. It is believed that those stocks in banking sector have prospects and great potential for long-term benefits. The step of banking regulator in lowering BI rate has a positive impact on the movement of stocks related to interest rate, especially stocks in banking sector. Bank stocks are hunted because investors are optimistic that the outlook for the banking performance will be improved (Infobanknews, 2010).

Then the growth of banking assets in Indonesia is also much higher compared to other ASEAN countries. From 2004 to 2008, for example, Indonesia's banking assets grew about 82%. Special in 2008, the growth of Indonesia's banking assets by 17%, higher than Malaysia 11%, Singapore 9% and Thailand 4.1%. (Vibiznews, 2010).

Graph 1.1
Number of listed bank in Indonesia stock exchange



Source: Yahoo Finance (processed)

Based on the graph above, the number of bank that go public has been fluctuating but has the tendency of increasing. And there are 10 banks that go public during 2006-2010 which is the highest point of the graph. These bank just listing have the same pattern of drastically increasing price stock. For example, BJBP which is listing on 8 July 2010, its price increase up to 50% from Rp 80 to Rp 220 while BSIM, which is listing on 13 Decemeber 2010, had increased up to 46, 67% (Okezone, 2010).

According to explanation above, macroeconomic variables will definitely affect many companies- regardless of the size of the company- in a nation especially in their risks and return. Therefore, this research use APT model to see and to identify the effect of macroeconomic variables to the risks and return of banking sector stocks. Based on the description and interest of the writer, so this script is prepard with title: **"Arbitrage Pricing Theory model testing on shares in banking sector"**

1.2 Statement of The Research Problem

a) Do the macroeconomic variables simultaneously have a significant effect on stock return of banking sector period 2006-2010

b) Does factor of industrial production index has a significant effect on stock returns of banking sector period 2006-2010

c) Does the change in gold price has a significant effect on stock returns of banking sector period 2006-2010

d) Does the consumer price index has a significant effect on stock returns of banking sector period 2006-2010

e) Does the money supply has a significant effect on stock returns of banking sector period 2006-2010

1.3 Research Objective

This basic research has 2 objectives:

a) To see how much influence macroeconomic variables tested (industrial production index, money supply, gold price and the consumer price index) against the return of shares.

b) To see the most influential macroeconomic variables on stock returns in banking sector

1.4 Research Benefits

This research is expected to give benefits, namely:

1. For the writer, improving knowledge and experience and applying theoretical knowledge gained during the lectures so that the writer can broaden his horizon. In addition, this study also makes the writer more aware about the which variables of macroeconomic that has significant effects to stocks in banking sector.
2. To obtain a comprehensive description of understanding about which macroeconomic variables that has great influence to the performance and return of stocks in banking sector.
3. For Education Field, Increasing the repertoire of knowledge for the reader, especially which macroeconomic variables that has great influence to the performance and return of stocks in banking sector when it's tested with APT model. The results of this research can also be used as a reference for further research in the future.

1.5 Scope of the Study

As for the scope of this study are as follows:

- This study aimed to test the APT model by using the four macroeconomic variables of the stocks in the banking sector. This study only focused on the analysis of macroeconomic fundamentals on the performance of the company stock so that the fundamental factors related to the company's performance will not be described here.
- Research is done on stocks included in the banking sector period of the 2006-2010.

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