STOCK MARKET REACTION TO DIVIDEND ANNOUNCEMENT IN INDONESIAN LISTED COMPANIES

By

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ABSTRAK

Tujuan kajian ini dijalankan adalah untuk mengkaji reaksi harga saham terhadap pengumuman dividen. Selain itu, kajian ini juga menguji sama ada pembolehubah terikat (kumulatif abnormal return) dipengaruhi atau tidak dipengaruhi oleh pemboleh ubah bebas (saiz, dividen yield, perubahan pendapatan, perubahan dividen, pra-kumulatif abnormal return, volum perdagangan). Penyelidikan ini menggunakan dua kaedah untuk menganggarkan hipotesis. Teknik analisa data yang pertama adalah *event study* dan kaedah kedua adalah analisa regresi *Ordinary Least Squares* (OLS). Sampel untuk *event study* dan OLS adalah sebanyak 415 dan 243 jenis syarikat - syarikat yang tersenarai di Bursa Efek Indonesia (BEI) iaitu dari tahun 2006 - 2010. Keputusan yang diperolehi daripada kajian *event study* menunjukkan bahawa reaksi harga saham terhadap pengumuman dividen ialah positif apabila dividen meningkat dan negatif jikalau dividen menurun. Keputusan kajian regrasi OLS menunjukkan pembolehubah PRECAR adalah positif dan signifikan, manakala pembolehubah yang lain adalah tidak signifikan.

Kata kunci: kumulatif abnormal return, pengumuman dividen, *event study*

ABSTRACT

This study aims to investigate the share price reaction to dividend announcement. It also examines whether or not the cumulative abnormal return (CAR) is affect to by control variables which is dividend change, earning change, dividend yield, normal trading volume, pre-cumulative abnormal return (PRECAR) and firm size). This study uses two methods to estimate the model. The first method is event study and the second method is Ordinary Least Square (OLS) regression. The sample firm utilized the event study and OLS regression are 415 and 243 companies respectively which are listed on the Indonesia Stock Exchange (IDX) during 2006 – 2010. The findings from the event study analysis indicate the share price reaction to dividend announcement is positive for dividend increase and negative for dividend decrease. The OLS regression result shows that the PRECAR variable is positive and significant while the other independent variables are insignificant.

Keyword: cumulative abnormal return, dividend announcement, event study

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TABLE OF CONTENTS

PERMISSION TO USE i
ABSTRAK ii
ABSTRACT iii
ACKNOWLEDGMENTS iv
TABLE OF CONTENTS v
LIST OF TABLES vii
LIST OF FIGURES vii
LIST OF ABBREVIATIONS viii

CHAPTER ONE: INTRODUCTION
1.1 Background of the Study 1
1.2 Overview of the Indonesian Economy 5
1.2.1 The Indonesian Capital Market 6
1.3 Problem Statement 10
1.4 Research Objectives 12
1.5 Research Questions 13
1.6 Scope and Limitations of the Study 13
1.7 Significance of the Study 14
1.8 Organizations of the Study 15

CHAPTER TWO: LITERATURE REVIEW
2.1 Introduction 16
2.2 Theoretical Studies 16
2.2.1 The Information Content of Dividend Theory 17
2.2.2 Dividend Signaling Theory 18
2.2.3 Dividend Clientele Effect 19
2.3 Empirical Evidences 20
2.3.1 Empirical Evidences Using Event Study 20
2.3.2 Empirical Evidences Using OLS Regression 25
2.4 Conclusion 32

CHAPTER THREE: METHODOLOGY
3.1 Introduction 33
3.2 Data Collection 33
3.3 Population and Sample Selection 34
3.4 Data Analysis and Measurements 35
3.4.1 Event Study 35
3.4.2 Regression Analysis (Ordinary Least Squares) 38
3.5 Research Framework for Regression Analysis 41
3.5.1 The Dependent Variable 43
3.5.2 The Independent Variables 43
3.6 Conclusion 49

CHAPTER FOUR: ANALYSIS AND FINDIGS
4.1 Introduction 50
4.2 Results of Event Study 50

4.3 Descriptive Analysis of Regression Model 55
4.4 Assumption Tests for OLS 58
4.4.1 R-square Test 59
4.4.2 Normality Test 60
4.4.3 Autocorrelation Test 61
4.4.4 Heteroscedasticity Test 61
4.4.5 Multicollinearity Test 62
4.5 Regression Results 62
4.6 Conclusion 66

CHAPTER FIVE: CONCLUSION
5.1 Introduction 67
5.2 Overview of the Research Process 67
5.3 Summary of Findings 68
5.4 Recommendations 69

REFERENCES 70
APPENDICES 74
Sample Listed-Companies in Indonesia 75
Descriptive Analysis 86
Correlation Analysis 87
Assumption Tests for OLS 88
Regression Results 90

LIST OF TABLES

Table 1.1	The Indonesian Economic Overview	6
Table 1.2	History of The Indonesian Stock Exchange (IDX)	7
Table 1.3	The Number of Companies Provided Cash Dividend	10
Table 2.1	Empirical Evidences Using Event Study	24
Table 2.2	Empirical Evidences Using OLS Regression	29
Table 2.3	Independent Variables Used in Past Studies	31
Table 3.1	Selected Observation Process	35
Table 3.2	The Relationship between Variables and Dividend Theories	47
Table 3.3	Expected Relationship	48
Table 4.1	Event Study Result Based on Year	51
Table 4.2	Descriptive Statistics for Abnormal Return	52
Table 4.3	Event Study Result based on Dividend Categories	54
Table 4.4	Descriptive Analysis of Regression Model	56
Table 4.5	Correlation Analysis between Variables	57
Table 4.6	Assumption Tests for OLS	59
Table 4.7	Regression Results	63

LIST OF FIGURES

Figure 1.1	The IDX Composite Index and Trading Volume	9
Figure 3.1	Theoretical Framework	42

LIST OF ABBREVIATIONS

AMEX	American Stock Exchange
ASSET	Total Assets
BETA	Systematic Risk
BLUE	Best Linear Unbiased Estimator
BOARD	Board Ownership
CAR	Cumulative Abnormal Return
CLT	Central Limit Theorem
DEBT	Total Debt
DIV	Dividend Change
DW	Durbin-Watson
DY	Dividend Yield
EARNCHG	Earnings Changes
EARNVOL	Earnings Volatility
IDR	Indonesian Rupiah
IDX	Indonesian Stock Exchange
INST	Institutional Holdings
JSX	Jakarta Stock Exchange
KLSE	Kuala Lumpur Stock Exchange
KSE	Karachi Stock Exchange
LEV	Leverage
NASDAQ	NASDAQ Stock Market
NV	Normal Trading Volume
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
PRECAR	Pre-Cumulative Abnormal Return
PTB	Price to Book Ratio
Q	Tobin' Q Rate
ROA	Return on Assets
ROE	Return on Equity
RUPS	*Rapat Umum Pemegang Saham*
SIZE	Size of Company
SSX	Surabaya Stock Exchange
VIF	Variance Inflation Factor
YEAR	Year of Company

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In the last decade, a company's dividend policy and its effects on the value of the company has generated interest among researchers in the field of finance. Accounting and financial analysts were more interested in corporate performance, cash flow analysis and solvency issue. The research on dividend policy today focuses more on the relationship between dividend policy and its effect on the price of the stock. This includes trying to come up with a model which would explain the relationship between the two variables. The researchers have formulated three assumptions about the issue. Firstly, dividend has a positive impact on stock price. Secondly, stock price is negatively related to dividend policy and finally, firms' dividend policy is irrelevant to stock price valuation.

Miller and Modigliani (1961) create an assumption based on perfect capital market situations which express an idea about how dividend affects the firm value. They postulate that dividends do not impact the firm value in a perfect capital market scenario. In other words, the value of a firm is independent of its dividend policy. Meanwhile, Gordon (1959) makes a statement on the dividend discount model which explains that the dividend payment augmentation should be accompanied by the increase in value of a company. The income generated by a company could be used to settle debt or allocate cash dividend to shareholders. The issues that have been discussed include whether a company should allocate its income to shareholders by

distributing the cash as dividend or the dividend could be passed to shareholders by buying back the shares, and also on how stable the distribution should be.

There are many reasons why companies should or should not pay dividends. Dividend payout is important for investors because firstly, dividends provide certainty about the company's financial well-being; secondly, dividends are attractive for investors who are looking for a secure current income; and finally, dividends could help to maintain market price of the share. Companies that have a long-standing history of stable dividend payouts would be negatively affected by lowering or omitting dividend distributions. These companies would be positively affected by increasing dividend payouts or making additional payouts of the same dividends. Furthermore, companies without a dividend history are generally viewed favourably when they declare new dividends.

Dividend is paid by a corporation to its shareholders. For investors who look for capital gains, they also have to know about the dividend information because dividend is one of the most important factors that would bring effect on stock price. Mulyati (2003) suggest that public companies have to give information to investors about their corporate performance and about dividend payment (the information should be reported in a financial report or an annual report). Change in dividend payout would create new information and it could be used to estimate the future profitability. Nissim and Ziv (2001), find that the dividend increases are positively related to profit in each of the four subsequent years but dividend decreases are not related to future profits. It means that any dividend changes (dividend increases) would create new information about a company's future performance.

For shareholders, the dividend distribution would result in reducing of a company's cash. This would also result in higher leverage, which is the ratio between debt to equity ratio, and would give the negative impact on the company in the market. Campbell and Beranek (1995) argue that the distribution of cash dividend to shareholders would lower the share price at the time of ex-dividend date. In financial theory, dividend policy brings the effects for shareholders. Gurgul *et al.* (2003) show that the corporate' announcement of dividend payouts has a significant price effect. Dividend policy would determine the amount of profits for shareholders (dividend) and how much for companies to reinvest.

Dividend payment is the return of investment for the shareholders and news of it would be welcome by them. Distribution of dividend could be quarterly or yearly and it depends on the dividend policy of each respective company. According to Westron and Brigham (1993), the actual dividends distributions are divided into four dates. The first announcement date is the date the company's board announces a plan to distribute the dividends. The second date is the shareholder record date which is the last day to register as a shareholder to receive dividends that would be distributed by the company. The third date is the ex-dividend date which is the date when the right of dividend period is released from shares where the period is normally four working days before the record date of share. The last is the dividend payment date which is the date when the company sends the dividend cheque.

A company's announcement about the increase or decrease in the distribution of the cash dividend is important for investors. This is because the information is related with a profit prospect of the company in the future. The relevant information could affect the share price in the market. Mustakini (2000) finds that the main source

to measure the efficiency of a market is the relationship between price and the information of dividend announcement by a company.

Dividend changes would influence the stock price of a company. Dasilas and Leventis (2010) in their study of Greek companies conclude that the information about increases in dividend, decreases in dividend and no changes in dividend payout are information that will have a clear impact on the market value of Greek listed companies. Gurgul *et al.* (2003) indicate that the announcement of upcoming dividend payouts have a significant impact on investors' behaviour. The results of their study find that the dividend policy has a positive relation with Austrian stock price, whereby when dividend increases, the information to the market about the company's future prospect is positive and it is a way to increase the stock price. Dividend change's announcements are valuable information to the market as a reflection about current and future cash flows in companies. If a company decides to pay a higher dividend than the previous year, it means that it is sending a positive signal to the market because this dividend payout would bring positive effect on the companies' future earnings. Otherwise, if the company decides to pay a lower dividend than the previous year, it means that it is sending a negative signal to the market because investor's opinion about this company future would be negative. Market reaction to public information is indicated by changes in stock price.

The information about dividend distribution supports the market imperfections due to information asymmetries. Daniels *et al.* (1997) document that the managers are supposed to have superior information about current and future financial position of the firm to the investors and use the dividend to signal asymmetric information about the companies' future earnings. Therefore, dividend changes' announcements convey valuable information to the market as a reflection of managerial expectation regarding

current and future cash flow. Consequently, dividend increases express positive information to the market about future prospect of firms that distribute dividends and vice versa. Generally, a company's announcement on the dividend increase is accompanied by a rise in stock prices and vice versa. This explanation is based on the information content of dividend hypothesis or the dividend signaling hypothesis.

1.2 Overview of the Indonesian Economy

With a population of more than 200 million people, Indonesian is the largest economy in Southeast Asia. Being an open economy like its neighbours Malaysia and Singapore, it is dependent on the economy of the region and also the world. When the 1997 Asian financial crisis happened, it badly affected the economy of Indonesia as well. The effect of this financial crisis includes the drop in the value of the Indonesian currency. At the end of 2005, Indonesia faced a second financial crisis when the price of oil rose and the import was greater than export. The value of Indonesian currency had depreciated and the price of consumer fuels was more than doubled and so was the inflation.

In 2006, the Indonesian economy appeared more stable and the outlook of the economy was stronger and positive. This happened because the Indonesian domestic product had increased which helped significantly growth in the Indonesia economy. In 2007, Indonesia faced another problem. The unemployment rate in Indonesia was 9.75% due to the financial crisis which began in the U.S. In 2009, Indonesia began to enjoy economic with the authorities putting into action both economic and financial reforms which were wide-ranging, including a reduction of the public and external debt, growth in capital and strengthening the corporate performances. Indonesia also

has improved the business and investment climate; in 2010, the Indonesian Stock Exchange (IDX) had 425 listed companies with a larger market capitalization. Similarly, the Indonesian rupiah (IDR) appreciated in value against the major world currencies. Indonesia today is the only ASEAN country which is a member of the G-20 group of countries. Table 1.1 shows the summary of the Indonesian economic overview.

Table 1.1
The Indonesian Economic Overview

Year	Investment (Gross Fixed) %	GDP (Real Growth Rate) %	Unemployment Rate %	Inflation Rate %	Exchange Rates IDR per USD
2006	22.0	5.5	11.8	10.5	9,159.3
2007	20.3	6.3	9.8	13.2	9,143.0
2008	24.9	6.0	8.5	6.3	9,698.9
2009	23.6	4.5	7.9	9.9	10,389.9
2010	31.1	6.0	7.1	4.8	9,169.5

Source: www.indexmundi.com

1.2.1 The Indonesian Capital Market

The stock market in Indonesia is known as the Indonesian Stock Exchange (IDX). Before 2007, it was known as the Jakarta Stock Exchange (JSX). In 2007, JSX was merged with the Surabaya Stock Exchange (SSX) and came to be known as the IDX. The stock market in Indonesia was established in 1912 by the Dutch Colonial Government. Despite its long history, the stock market has not been well developed. That happened due to the World War I and the World War II and the power transition from Dutch government to the Indonesian government. Since 1977, the stock market has grown significantly. Table 1.2 shows the history of the Indonesian Stock Exchange.

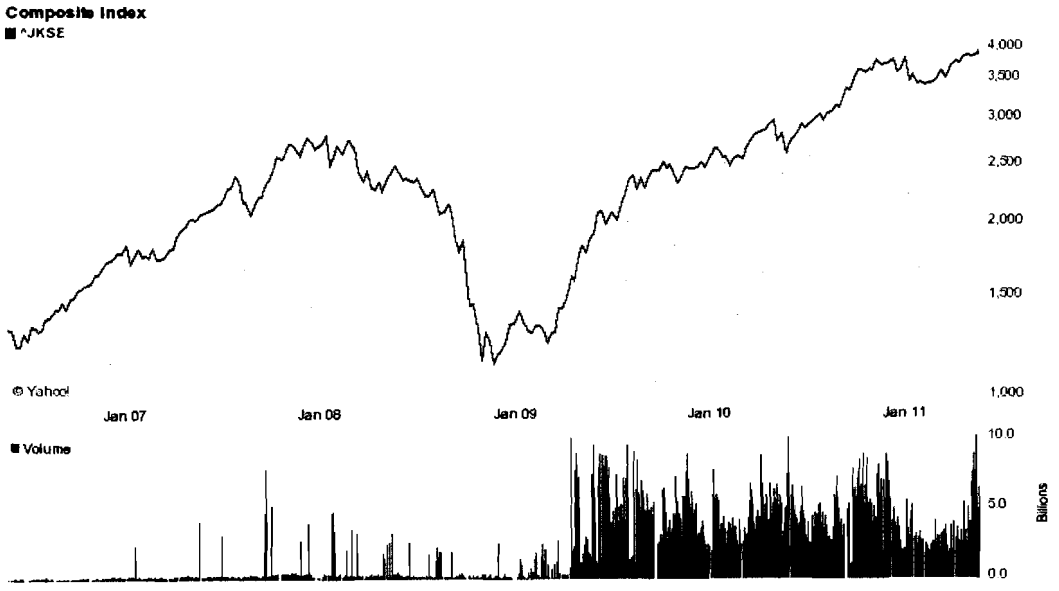
Table 1.2
History of the Indonesian Stock Exchange (IDX)

Period	Activity
December, 1912	The first Stock Exchange in Indonesia was built in Batavia (currently known as Jakarta) by the Dutch East Indies.
1914 – 1918	The Batavia Stock Exchange was closed during the World War I.
1925 – 1942	The Batavia Stock Exchange was re-opened, and new stock exchanges were established in Semarang and Surabaya.
Beginning 1939	Due to political issues (World War II) the Stock Exchange in Semarang and Surabaya closed.
1942 – 1952	Jakarta Stock Exchange (JSX) was re-closed during the World War II.
1956	SX was re-activated by the issue of the Capital Market Emergency Regulations 1952 by the Minister of Justice of Indonesia (Prof. Dr. Sumitro Djojohadikusumo). The only product traded in the Exchange at that time was the Indonesian Government bond (1950).
1956 – 1977	Due to the nationalism programs on Dutch's companies by the Indonesian Government, JSX became stagnant. During this period, JSX became inactive.
10th of August, 1977	The Exchange was re-activated by the President Soeharto. It was supervised under the management of the Capital Market Supervisory Agency (Badan Pengawas Pasar Modal, or BAPEPAM). The re-activation of the capital market was also marked by the go public of PT Semen Cibinong as the first issuer listed in the JSX. July 10th is celebrated as the anniversary of the Capital Market in Indonesia.
1977 – 1987	The activity of stock trading in JSX was dull. There were only 24 listed companies in JSX. Most people preferred to invest their money in Banks rather than the Capital Market.
1987	PAKDES 87 (December Package 1987) was issued to give ways for companies to go public and foreign investors to invest their money in Indonesia.
1988 – 1990	Deregulations packages in Banking and Capital Market were made. JSX welcomed foreign investors. The activities of JSX were improving.

Period	Activity
2nd of June, 1988	Indonesia Pararel Bourse started to operate and managed by the Securities and Money Trading Organization. It consisted of brokers and dealers.
December, 1988	The government issued PAKDES 88 to give ways for companies to go public, and some other regulations that brought positive impacts on the capital market growth were made.
16th of June, 1989	Surabaya Stock Exchange started to operate and was managed by the Surabaya Stock Exchange Inc.
13th of July, 1992	JSX was privatized, and as a result, the functions of BAPEPAM changed to become the Capital Market Supervisory Agency (BAPEPAM-LK). This date is celebrated as the anniversary of Jakarta Stock Exchange.
22nd of May, 1995	JSX introduced its computerized Jakarta Automatic Trading System (JATS).
10th of November, 1995	The Government of Indonesia issued Regulations No. 8 year 1995 on capital market. This regulation was effective on January 1996.
1995	Indonesia Pararel Bourse was merged into Surabaya Stock Exchange.
2000	Scripless trading system was introduced for the first time in Indonesia's Capital Market.
2002	JSX started to implement the remote trading system.
2007	Surabaya Stock Exchange was merged into Jakarta Stock Exchange. As a result, JSX changed its name into the Indonesian Stock Exchange (IDX)
2nd of March 2009	The Launching of JATS Next-G, IDX New Trading System.

Source: www.idx.co.id

Currently, the Indonesia Stock Exchange (IDX) has over 425 companies listed and they are divided into sectors such as consumer goods; agriculture; basic industry and chemicals; infrastructure; utilities and transportation; mining; property; real estate and building construction; trade, services and investment; miscellaneous; and financial. The IDX mission is to create a competitive edge to attract investors and companies through the empowerment of stock exchange members, established value-added, cost efficiency and good governance. Figure 1.1 shows the performance of the IDX Composite Index and trading volume during January 2007 until May 2011.



Source: http://finance.yahoo.com

Figure 1.1
The IDX Composite Index and Trading Volume

During the world-wide financial crisis beginning from 2008, the composite index fell to its lowest point at IDR 1221.34 in January 2009. It recorded its highest points at IDR 3821.02 in January 2011.

The composite stock price index plays an important role in instilling confidence among market players. F or the individual investors, they expect the return that they might get in the form of dividend or capital gain. Dividend announcement is a base for investor to budget the company's income and the return that investors would get. Table 1.3 shows the companies that gave cash dividend in the 2006-2010 period.

Table 1.3
The Number of Companies Provided Dividend

Year	2006	2007	2008	2009	2010
Companies	158	153	157	168	194

Source: IDX handbook

1.3 Problem Statement

There is a considerable debate on how dividend policy affects the firm value. Aharony and Swary (1980) suggest that dividends are means to increase the firm value. However, Miller and Modigliani (1961) postulate that dividends do not impact the firm value in a perfect capital market situation. Benartzi *et al.* (1997) find that when dividend increase, earnings do not subsequently increase.

The reaction of stock price to newly announced dividend changes reflects average changes in investors' believe and perceptions while the information asymmetries are between the firm and its investors. The fluctuating dividend payment is one of the important information for investor because this information is related with profit and future prospect of the companies. Different signals from companies have different implications on investors. For example, positive announcements would get the attention of investors because they predict that the companies would have a

better future and stock price would rise. A positive correlation between dividend change announcement and stock price is supported by the behaviour models that explain a company's dividend policy by taking into account behaviour and social economic influences on managerial and shareholder activities.

Several past researchers examined abnormal returns from a stock market reaction to dividend announcement. They investigated the abnormal return because it has valuable information to market; from the abnormal return they could decide whether the announcement to increase or decrease the dividend is affected by a rise or a fall in stock prices.

There are different opinions about the information effect of dividend announcements in stock price. Some researchers found that the changing of dividend announcement would give positive or negative effect to stock market reaction, others suggested that the changing of dividend announcement would not bring any effect to stock market reaction.

Several past studies have examined the stock market reaction to dividend announcement in Indonesia using the Event Study method. Prasetiono (2000) finds that dividend announcements do not affect abnormal returns except when dividend decreases. Kartini (2001) indicates that dividend announcements contain information to the market and the abnormal return is negative affect to company' size. Utami (2001) dividend announcements do not affect changes in stock prices, so that the dividend as information could not affect the market. Mulyati (2003) observes that the share price reactions are positive in the case of dividend increases; the share price reactions are negative in the case of dividend decreases; and the share price is not affected to dividend yield.

It is evident that the studies in Indonesia on the stock price reaction to cash dividend announcement use the Event Study method. However, many studies in the stock price reaction to dividend announcement in other countries use Ordinary Least Square (OLS) method. To address the research gap on conflicting results in past studies in Indonesia, this study will employ both of Event Study and OLS methods. This study uses cumulative abnormal return as a dependent variable whereas the independent variable consist of size, dividend yield, earnings change, dividend change, pre-cumulative abnormal return and trading volume. This study covers 415 observations for Event Study and 243 observations for OLS regression during the period from 2006 to 2010 in an attempt to shed light on the stock market reaction to dividend announcement in Indonesia.

1.4 Research Objectives

The research objectives of this paper are:

1. To investigate the share price reaction to dividend announcement (using the Event Study method),
2. To examine whether the independent variables (size, dividend yield, earning change, dividend change, pre-cumulative abnormal return and trading volume) affect the dependent variable (cumulative abnormal return) through the OLS method.

1.5 Research Questions

Based on the stipulated research objectives, the research questions are on follows:

1. Does the share price react to dividend announcement?
2. Do the independent variables (size, dividend yield, earnings change, dividend change, pre-cumulative abnormal return and trading volume) affect the dependent variable (cumulative abnormal return)?

1.6 Scope And Limitations of the Study

The estimation of information content could be done by examining the stock market reaction to dividend change announcement. If the announcement has information content, it is expected that the market would give a reaction at the announcement date. Market reaction is shown by changes in stock prices. This study would estimate the price changes reaction using abnormal return.

This study covers listed company on the Indonesian Stock Exchange (IDX) which had been distributing cash dividend during the period from 2006 to 2010. This study excludes listed companies that do not have a complete data for the period of study. This study focuses on six (6) independent variables, namely dividend changes, dividend yield, earnings changes, normal trading volume, pre-cumulative abnormal return and company's size. The methods used in this study are event study and OLS method.

The main limitation of this study is the time duration. The shorter period might be indifferent result from the longer period. In other word, it assumed that the longer the study period, the more accurate the result will be. Another limited of this study is

in terms of sample data. This study uses the secondary data that provided by *Datastream* and Indonesia Stock Exchange' handbook and website (www.idx.co.id).

1.7 Significance of the Study

This study is expected to provide some contributions. This study could provide a valuable guidance to highlight potential companies for corporate managers or fund managers. It could help them in making decisions specifically to dividend whether the firm increase or decrease the dividend taken by investor as a positive or negative signal.

This study provides an understanding of the information about the stock market reaction to dividend announcement which could be used as guideline for investors and the prospective investors to make business decision. In addition this study also could help the policy makers to create policies related to stock market such as create adequate regulatory framework that secures transparency and efficiency.

For academic purpose, students or researchers could use this study as reference to examine the stock price reaction to dividend announcement for their studies. They could develop the next study which did not mention here or they could develop by correcting and making new assumption.

1.8 Organizations of the Study

This study consists of five chapters. This chapter is the first chapter which explains about why this study investigates the stock market reaction to cash dividend announcement. Chapter Two highlights the related theories and the previous empirical studies which have been conducted in various countries. Chapter Three describes the data, the method and the theoretical model used in this study; it also discusses the research framework. Chapter Four reveals the empirical results while the summary and conclusion of this study are presented in Chapter Five.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A literature review is undertaken to further understand the relationship between dividend and stock price by examining different theories of corporate finance. This study will explain the theories related to the issue of whether dividend payment has any implication on stock returns, specifically by looking at the stock market reaction to dividend announcement according to company-specific characteristics. These characteristics could be converted into some determinants to be regressed against stock return reaction to dividend announcement. The related theories are information content of dividend, dividend clientele and effect signaling theory. This chapter will highlight the theoretical background and past empirical evidence regarding the dividend announcement effect on changes in stock prices.

2.2 Theoretical Studies

The issue on stock market reaction to dividend announcement is one of the important issues in corporate finance and investment and thus it has been long debated. The following section describes the relevant dividend theories.

2.2.1 The Information Content of Dividend Theory

Testing the information content is meant to see the reaction of an event. If the event contains information, it is expected that the market will react to the news of the event. Market reaction is indicated by a change in the price of the securities in question. This reaction can be measured by abnormal returns. An event contains the information that they provide abnormal returns to investors, vice-versa (Mustakini, 2000).

The relationship between dividend and profit has failed to show that there exists a casual relationship between dividend and future earnings. Daniels *et al.* (1997) show that the additional information that is contained in the dividends is obscured by the additional volatility of earnings. The information content of dividend hypothesis, hereafter referred to as the information content hypothesis, is a firm-specific hypothesis which contends that managers of a firm use the dividend to signal asymmetric information about the firm's future earnings.

The information content hypothesis investigates the relationship between unexpected dividend changes and stock prices. It is assumed that any forecast of future earnings with dividends should be reflected in stock prices at or prior to the announcement of the dividends if the stock market is efficient. Miller and Scholes (1978) find that dividend announcements have information content where the shareholders react to the announcement and thus will affect the share price of a company.

2.2.2 Dividend Signaling Theory

Dividend signaling theory states that changes of dividend policy convey information about changes in future cash flows (Bhattacharya, 1979; Miller and Rock, 1985). Dividend signaling suggests positive relation between information and dividend policy. In other words, the higher the information asymmetries level, the higher is the sensitivity of the dividend to future prospect of the firm.

The main assumption of the signaling theory is that managers have accurate information about the value of company that is not known by outside investors. Managers are the ones who always try to maximize the incentives that are expected which mean that managers generally have more complete information and accurate information than the parties outside the companies (investors) about the factors which will affect the value of the company. The fact above is happen because of asymmetric information between managers and investors. Daniels *et al.* (1997) find the information about current and future financial position of companies and the investors use the dividend to signal asymmetric information about the firm's future earnings.

Ambarish *et al.* (1987) make the assumption that an efficient signaling equilibrium with dividends, investment, and net new issues of stock. Managers (corporate insiders) have valuable information to make the firm's future return on either assets in place or opportunities to invest.

Zainafree (2005) indicates decreasing dividend announcement (if distribution of dividend at current year is less than at previous year) is negative signal for market, because the investors expect that the firm will be decreasing earnings in the future, vice versa. The market reaction to information is showed by changes of stock price (stock price is estimated by abnormal return).

2.2.3 Dividend Clientele Effect

Dividend clientele effects are documented to have explanatory powers for abnormal return. Bajaj *et al.* (1990) state that if the company distribute increasing dividend (if distribution of dividend at current year is higher than at previous year), it would be positive signal for investors. High yield firms attract investors who place a higher value on dividends and low yield firms attract investors who do not view dividend as that valuable. The abnormal return should have a positive relationship with the dividend clientele effect.

The argument probably began with the Modigliani and Miller (1961) theory, which classified investors into dividend clientele. Since the formulation of M&M proportion, many cases seem to confirm the validity of the M&M logic. Azzopardi (2004) suggest that growth companies are still holding on to stacks of cash and prefer stock repurchases to dividend payouts. At the same time they still seem to perform well in increasing shareholder wealth. The same report forecasts possible changes to this policy-trend because of reductions in the top U.S. tax rate on dividends.

Allen and Michaely (2003) find that there is a relationship between the clientele effect and the marginal tax rates on dividend. The effect for individual investor is higher marginal tax rates and the effect for corporate investor is lower marginal tax rates. It means that it is better for the individual investor to hold the low dividend paying shares and for the corporate investor to hold the high dividend paying shares.

2.3 Empirical Evidences

Past studies regarding dividend effect on changes in stock prices will be discussed in this section. There are two methods to examine stock reaction to dividend announcement. The first method is Event Study and the second one is OLS regression. This study will present the empirical evidences using both event study and OLS regression.

2.3.1 Empirical Evidences Using Event Study

Gurgul *et al.* (2003) examine the dividend announcement effect for the Austrian stock market which strongly supports the hypothesis that the announcements of upcoming dividend payouts have a significant impact on investor's behaviour. The sample contains 22 companies listed on the Austrian Trade Index between January 1992 and April 2000 using the event study method. In line with the tenor of the existing empirical literature, they find that dividend increases induce a significant positive reaction in stock prices, whereas the announced dividend decreases lead to a significant fall in stock

prices. Constant dividends leave stock prices unaltered. In addition, this study notices that news on dividends is incorporated rather quickly into stock prices.

Mulyati (2003) investigates the share price reaction to dividend announcement in the Indonesian Stock Market. The sample of 52 listed-companies taken from 1995 to 1996 is divided into two categories- dividend increase and dividend decrease. The findings show that share price reaction is positive in the case of dividend increase while for the dividend decrease, the share price reaction is negative. Another finding is that share price is not affected by the dividend yield.

Zainefree (2005) test the stock price reaction at announcements date for cash dividend increase and cash dividend decrease. The samples are companies listed on the Jakarta Stock Exchange (JSX) from 2001 to 2004. The findings indicate that the cash dividend has no significant relationship with abnormal return, which means the result between dividend increase and dividend decrease to cumulative abnormal return respectively was not different.

Chen *et al.* (2007) focus on stock price reaction to dividend changes announcement in China. They investigate the factors that may affect the market reaction at announcement of dividend changes and the impact of cash dividend changes on share prices as well as determined whether the China's stock market has relation with the dividend signaling hypothesis. The sample consists of 422 announcement of cash dividend decrease and 460 announcement of cash dividend increase listed A-share companies in China from 2000 to 2004. The finding only half support the dividend signaling

hypothesis which is there is only the positive announcement effects on the dividend increase. The decrease in dividend has resulted in the positive announcement effect as well, and thus it is not related to the dividend signaling hypothesis.

Adelegan (2009) examines the efficiency of the Nigerian stock market at the semi strong level; they focus on the speed of share price reaction to 742 announcement dates of dividend payment and dividend omission. The study sample is 990 companies quoted on the first and the second tier market covering the bi-annual and annual announcement during the period from 1991 to 1999. The findings are that the cumulative excess return are positively significant for dividend paying companies; the cumulative excess return are also significant for increasing dividend, decreasing dividend, no change dividend, initiation dividend and omission dividend to before and after announcement day. These results support semi-strong inefficiencies.

Bhatia (2010) studies the change in the abnormal stock return before and after dividend announcement by 28 companies listed on National Stock Exchange of India. The study period is from 2008 to 2009. The findings state that the dividend per share has a significantly positive impact on share prices.

Ali and Chowdhury (2010) investigate the effect of dividend announcement on stock prices in Bangladesh. The sample is 137 dividend paying companies listed on the Dhaka Stock Exchange started from January 2008 to September 2008. The findings indicate that dividend announcements are significant to stock market reaction. The information which is to be adjusted with stock price before announcement day does not bring new

information to the insider of trade market. It means the insider has private information and these results in the asymmetric information. On the other hand, the outsider is just following the insider to buy and sell share.

Akbar and Baig (2010) investigate the semi-strong form of market efficiency on the Karachi Stock Exchange (KSE) to test whether the stock price reacts to dividend announcements. The sample is 179 listed companies from July 2004 to June 2007. Using the event study method, they find that the returns are mostly negative for the 41-day window. The finding on the reaction of stock prices to cash dividend announcement is statistically insignificant but it is statistically significant for stock dividend announcement. They suggest that the Pakistan investors favor to choose capital gain in the stock dividend than in the cash dividend.

Table 2.1 summarizes the empirical evidences using the event study method as follow:

Table 2.1
Empirical Evidences Using Event Study

Gurgul *et al.* (2003)	Austrian 1992 – 2000	Abnormal Return	Share price reaction is positive in the case of dividend increase, vice-versa.
Mulyati (2003)	Indonesia 1995 – 1996	Abnormal Return Dividend Yield	Share price reaction is positive in the case of dividend increase, vice-versa. Share price is not effected by dividend yield.
Zainefree (2005)	Indonesia 2001 – 2004	Abnormal Return	The cash dividend has no significant relationship with abnormal return.
Chen, *et al.* (2007)	China 2000 – 2004	Abnormal Return	The Positive announcement effect on dividend increase and it is related with the signaling theory.
Adelagan (2009)	Nigeria 1991 – 1999	Abnormal Return	The cumulative excess return are positively significant for dividend paying companies, increasing dividend, decreasing dividend, no change dividend, initiation dividend and omission dividend to before and after announcement day.
Bhatia (2010)	India 2008 – 2009	Abnormal Return	Dividend per share has a significantly positive impact on share prices.
Ali and Chowdhury (2010)	Bangladesh Jan - Sept 2008	Abnormal Return	Dividend announcements are significant to stock market reaction.
Akbar and Baig (2010)	Pakistan (2004 – 2007)	Abnormal Return	Reaction of stock prices to cash dividend announcement is statistically insignificant. The reaction to stock dividend announcement, however, is statistically significant.

2.3.2 Empirical Evidences Using OLS Regression

Grullon *et al.* (2000) examine the relationship between dividend changes and changes in future risk characteristics of a firm. The sample of dividend announcements by 2576 companies listed on NYSE and AMEX are obtained from 1982 to 1993. The obsevations consist of by 2033 dividend increase and 543 dividend decrease. The finding is that dividend increasing firms not only experience a reduction a profitability but also a reduction in risk.

Jin (2000) focuses on the differential market reaction to dividend initiations. The sample cash dividend from 157 companies listed on NYSE and AMEX is obtained from 1973 to 1993. The result show that the firms which experienced negative market reaction either acquire from others firms or become a take over target shortly after dividend initiation.

Fuller (2003) examines how the trading behavior of various investors impacts the market reaction to a dividend signal. The sample is dividend increase announcement by the NYSE-listed firm between 1994 to 1998. The study employs three models, namely by using spread, price impact measure and opportunity of informed trading. The three models predict abnormal return to dividend increase. The finding resulted that the more informed trading in a firm's stock, the smaller the price reaction to a dividend increase.

Lee and Yan (2003) investigates the market's differential reaction to dividend change in the current and past earnings. The sample is all dividend announcements by firms listed on NYSE, AMEX and NASDAQ from 1973 to 1996. The findings show that forward looking firms have much stronger reaction than non-forward looking firms, for dividend decreasing firms, the

forward looking group whose changes in profitability next year are negative, whereas the non-forward looking whose change in profitability next year are positive.

Abdullah *et al.*(2004) examine the stock market reaction to dividend announcement in Malaysia focusing on the information content of dividend changes the sample size is 120 listed-firms and the period of study is from 1996 to 1999. The uniqueness of their study is the addition of the indigenous population ownership. They use the equation regression with cumulative abnormal return (CAR) as a dependent variable. The independent variables are related to the information content of dividend theory, agency cost, free cash flow, cash flow hypothesis and signaling theory. The result shows that the pre-cumulative abnormal return (PRECAR) is negatively significant and the indigenous population ownership is positively significant. The findings provide support for information content of dividend theory and signaling theory. Using their equation regression, this study will follow CAR as dependent and the related theory for independent variables, there are the information content of dividend as environment of company proxy (Firm size and PRECAR), dividend clientele effect as investment opportunities proxy (dividend yield) and dividend signaling theory as profitability proxy (earning changes).

Balachandran *et al.* (2004) analyze the industry wide impact of special dividend announcements for Australian companies. The sample includes special dividend announcements in by 167 listed-companies on the Australian Stock Exchange from July 1989 to June 2002. The findings show that with regard to the own impact of announcer, the industrial firm reacts higher than

Andres *et al.* (2008) investigate the impact of dividend announcement in Germany, a country whose institutional setting and capital market environment is substantially different from United Stated and United Kingdom. The sample is based on the 150 largest exchange companies listed on Germany started from 1996 to 2006. The findings shows that abnormal return are significantly related to the information content of dividend announcement, with higher announcement returns in cases in which prior market expectations were less optimistic.

Dasilas and Leventis (2010) examine the stock market and trading volume reaction to dividend change announcements for a sample of firms listed on the Athens Stock market. They regress regression analysis with CAR as dependent variable and the independent variables consist of systematic risk, dividend yield, size, average volume, percentage change of dividend, pre-announcement abnormal trading volume and dividend dummy variable. They found that the dividend yield and the percentage of dividend change are the main determinants of the abnormal share price behavior around dividend changes announcement.

Table 2.2 summarizes the empirical evidences using the OLS regression method as follows:

Table 2.2
Empirical Evidence Using OLS Regression

Grullon *et al.* (1998)	US (NYSE and AMEX) 1982 – 1993	CAR	• Change in return on assets • Unexpected change in profitability • Change in systematic risk
Jin (2000)	US (NYSE and AMEX) 1973 – 1993	CAR	• Company size • Earnings volatility • Institutional shareholdings • Board ownership • Tobin's q ratio • Pre-cumulative abnormal return • Dividend yield • Earnings change • Return on equity
Fuller (2003)	NYSE (1994 – 1998)	CAR	• Company size • Dividend yield • Informed trading • Standardized deviation • Variance's firm
Lee and Yan (2003)	US (NYSE, AMEX and NASDAQ) 1975 – 1996	CAR	• Dividend yield • Dividend change • Systematic risk • Return on equity
Abdullah *et al.* (2004)	Malaysia 1996 – 1999	CAR	• Company size • Earnings volatility • Institutional shareholdings • Board ownership • Leverage • Pre-cumulative abnormal return • Dividend yield • Earnings change • Price to book ratio • Indigenous population

Balachandran *et al.* (2004)	Australia (1989 – 2002)	CAR	• Special Dividend per Share • Market value • Pre-cumulative abnormal return • Competition • Stock return correlation
Amihud and Li (2006)	US (NYSE, AMEX and NASDAQ) 1970 – 1978	CAR	• Company size • Institutional shareholdings • Dividend yield • Trading volume • Sp500 • Illiquidity • Long term volatility • Stock repurchase • Return on Assets
Chen *et al.* (2007)	China 2000 – 2004	CAR	• Change of cash dividend payment • Dividend payout ratio • Total assets • Price to book ratio • Total debt • Total assets turnover rate • Return on assets • Non floating share
Andres *et al* (2008)	Germany 1996 – 2006	CAR	• Company size • Tobin's Q ratio • Dividend yield • Earnings estimation error • Dividend estimation error
Dasilas and Leventis (2010)	Greek 2006 – 2010	CAR	• Company size • Dividend change • Systematic risk • Year of company • Trading volume • Pre-abnormal volume • Dividend yield

Table 2.3 below provides a summary of independent variables used in post empirical studies.

Table 2.3
Independent Variables Used in Past Studies

Independent Variables	Jin (2000)	Fuller (2003)	Lee and Yau (2003)	Abdullah et *al.* (2004)	Amihud and Li (2006)	Chen *et al.* (2007)	Andres *et al.* (2008)	Dasillas and Leventis (2010)	This study (2011)
INFO		√							
LEV				√					
DIV			√			√	√	√	√
ASSET						√			
DEBT						√			
EARNCHG	√			√					√
PRECAR	√			√					√
EARNVOL	√			√					
INST	√			√	√				
BOARD	√			√					
DY	√	√	√	√	√	√	√	√	√
Q	√						√		
BETA			√					√	
ROE			√						
SIZE	√	√		√	√		√	√	√
PTB				√		√			
AGE					√			√	
NV		√			√			√	√
SP 500					√				
ROA					√	√			

Where:

ASSET	Total assets	**NV**	Trading volume
BETA	Systematic risk	**PRECAR**	Pre-cumulative abnormal return
BOARD	Board ownership	**PTB**	Price to book ratio
DEBT	Total debt	**Q**	Tobin's Q rate
DIV	Dividend change	**ROA**	Return on assets
DY	Dividend yield	**ROE**	Return on equity
EARNCHG	Earning change	**SIZE**	Companies size
EARNVOL	Earning volatility	**SP 500**	SP 500
INST	Institutional holdings	**YEAR**	Year of company
LEV	Leverage		

2.4 Conclusion

This chapter discusses the theories and literatures related to this study. The theoretical background and past empirical evidences provide guidance on the variables to be included and the measurement method to be employed in this study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter explains about data collection, population and sample selection approach, data analysis technique, measurement of variables and research framework. The event study and multiple regression models are used to test the hypothesis.

3.2 Data Collection

This study uses secondary data obtained from *Datastream*. The data collected from 2006 to 2010 are as follows:

1. Data of companies which announced and paid cash dividend;
2. The announcement of cash dividend dates;
3. Data for a dependent variable (abnormal returns); and
4. Data for independent variables (market value, earnings per share, dividend per share, trading volume, dividend yield, return index, stock price and cash dividend paid).

In addition, the documentation method for the announcement of cash dividend date is collected from the IDX handbook, the IDX website (www.idx.co.id) and the company's annual report.

3.3 Population and Sample Selection

The population of this study consists of a total numbers of 828 companies listed on the IDX which have cash dividend announcement during the 2006-2010 period. Based on Impson (1997), the sample of this study is divided into three categories namely increasing dividend, decreasing dividend and no change dividend. The formula to identify each category is based on the difference between cash dividend paid at current year (D_t) and cash dividend paid at last year (D_{t-1}) divided by the cash dividend paid last year.

$$\frac{[D_t - D_{t-1}]}{D_{t-1}}$$

If the result is negative, it means that the company is in the decreasing dividend category; otherwise, if the result is positive, it means that the company is in the increasing dividend category refers to the dividend that stay the same for the current year and previous year.

The sample of this study is identified by a purposive sampling method. All companies that paid cash dividend are selected based on the following criteria:

1. Must be companies listed on IDX which announced and paid the cash dividend for at least two years continuously;
2. Companies that do not have incomplete data for the period of the study; and
3. Companies that do not have any right issue, stock split, merger and acquisition at the time of observation.

Table 3.1
Selected Observation Process

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2006	158	99	82	16	98	57
2007	153	103	89	8	97	60
2008	157	102	74	18	92	52
2009	168	93	76	11	87	56
2010	192	105	36	5	41	18
TOTAL	**828**		**357**	**58**	**415**	**243**

3.4 Data Analysis and Measurements

This study aims to explain the statistical test carried out for the purpose of hypothesis testing and uses two methods to estimate the hypothesis. The first data analysis technique is event study and the second method is regression analysis.

3.4.1 Event Study

Event studies examine how fast stock prices adjust to specific significant economic events. It studies the reaction to an event which information was published as an announcement. If the announcement contains information on the market, it is expected that the market will react at the time of the announcement. The consequence approach would test whether it is possible to invest in a security after the public announcement of a significant event and after experiencing significant abnormal rates of return.

Market reaction is indicated by a change in the price of the securities in question. This reaction can be measured by using the return as value or price changes using the abnormal return. A study which looks at the impact of the announcement information to price securities is called event study. Event study research is generally related to how fast the information coming into the market can be reflected in stock prices (Tandelilin, 2001).

The event study method is designed to investigate the effect of an event on a specific dependent variable. A commonly used dependent variable in event studies is the stock price of the company. The definition of such an event study would be 'a study of the changes in stock price beyond expectation (abnormal returns) over a period of time (event window). They attribute the abnormal returns to the effects of the event.'[1] In other words, the event study methodology seeks to determine whether or not there is an abnormal stock price effect associated with an event. Subsequently, the researcher could be able to infer the significance of the event.

Date of dividend announcement is considered as the event date of this study. Dividend announcement date happens when a company announces the distribution of dividend, usually the dividend announcement date is the same as RUPS (Rapat Umum Pemegang Saham, or in English it is called investors meeting). The chosen event date should give a surprise to investors at the first time on announcement date (Kartini, 2001). In a case of Indonesia, the event window typically takes 11 days for event window. Prasetiono (2000), Kartini (2001) and Mulyati (2003) use event period of 11 days whereas 5 days before

[1] Refer to Verna *et al.* (2010). The Indian Tyre Industry. *Security Analysis Project Report,* 1-40

event date (the day t-5), event date (the day t) and 5 days after event date (the day t+5).

This study uses several steps to compute the abnormal returns. In the first step, this study calculates the actual returns for 11-day event period as:

$$R_{i,t} = ln(P_{i,t}) - ln(P_{i,t-1})$$

where $R_{i,t}$ is the actual return on share i on day t $P_{i,t}$ is the price of share i on day t and $P_{i,t-1}$ is the price of share i on day t-1. For each day of the event window, this study also calculates the market return that uses the composite index return for 11- day event period as:

$$RM_{i,t} = ln(RI_{i.,t}) - ln(RI_{i,t-1})$$

where $RM_{i,t}$ is the return market on share i on day t $RI_{i,t}$ is the return index of share i on day t and $RI_{i,t-1}$ is the return index of share i on day t-1. For each day of the event window, this study estimates the abnormal returns as the difference between the actual return and the return market based on the market adjusted return (MAR) model which has been used by Balachandran, *et al.* (1999) and Abdullah, *et al.* (2004). The abnormal return is calculated by the following equation:

$$AR_{i,t} = R_{i,t} - RM_{i,t}$$

where $AR_{i,t}$ is the abnormal return on share i on day t, and $RM_{i,t}$ is the return market on share i on day t. Then, the summation for each abnormal return for every company to find the cumulative abnormal return is done as follows:

$$CAR_{i,t} = \sum AR_{i,t}$$

where $CAR_{i,t}$ is the cumulative abnormal return on share i on day t and $AR_{i,t}$ is the abnormal return on share i on day t. Next, the calculation of the average CAR, the standard deviation and t-test for every company on day t is performed.

Based on previous literatures, the hypothesis for this event study are:

H_1: There is a relationship between share price reactions to dividend announcement for all dividend.

H_2: Share price reaction is positively related to cash dividend announcement for dividend increase.

H_3: Share price reaction is negatively related to cash dividend announcement for dividend decrease.

3.4.2 Regression Analysis (Ordinary Least Squares)

Another method used to analyze the data is the regression analysis. Ordinary Least Squares (OLS) Regression is one of major techniques that most past researchers used to measure firm's dividend behaviour. OLS regression combines all the independent variables and detects the effect of those variables on dependent variable. This study uses the OLS regression technique to examine the relationship between the dependent variable and independent variables.

The final number of observation for all dividend announcements in this study is 243 comprising of 235 have dividend increases and 8 dividend decreasse. The dividend decrease category is excluded because the number of observation is too small for and effective examination. Therefore, this study uses the category of the sample for all dividend announcement.

To examine the effect on dividend announcement on cumulative abnormal return, a cross-sectional regression analysis is performed between the announcement reaction and the explanatory variables. This model is used to investigate the determinants of decreasing and increasing abnormal return. This study regresses the cumulative abnormal return (CAR_i) against a number of independent variables such as changes of dividend (DIV), changes of earnings (EARNCHG), dividend yield (DY), normal trading volume (NV), pre- cumulative abnormal return (PRECAR) and size of company (SIZE).

The choice of explanatory variables is based on studies by Lee and Yan (2003), Abdullah *et al.* (2004), Chen *et al.* (2007), and Dasilas and Leventis (2010). The regression model is as follows:

$$CAR_i = \alpha + \beta_1 DIV_i + \beta_2 EARNCHG_i + \beta_3 DY_i + \beta_4 NV_i + \beta_5 PRECAR + \beta_6 SIZE_i + \varepsilon_i$$

Where

CAR_i : Represent 2-day cumulative abnormal return of the observation i, measured by the mean of abnormal return that is calculated using an event study.

DIV_i : Represent dividend changes for observation i, measured by the percentage change in dividend (percentage of different between dividend at the time t (the announcement's year) and dividend at t-1 (a year before the announcement's year).

$EARNCHG_i$: Represent earnings changes which are the difference between earnings per share at the time t (the announcement's year) and earnings per share at t-1 (a year before the announcement's year). This is the dummy variable where value of 1 if the earning represent an increase and 0 otherwise.

DY_i : Represent dividend yield of the observation i, measured by the final dividend payment divided by the share price two days before announcement day.

NV_i : Represent normal trading volume of the observation i, measured by the log of annual trading volume.

$PRECAR_i$: Represent pre-cumulative abnormal return for observation i, measured by sum of abnormal return from day t=-20 to t=-2.

$SIZE_i$: Represent company's size of the observation i, measured by the log of annual market value.

3.5 Research Framework for Regression Analysis

The main objective of this study is to find the relationship between stock price and dividend changes. The stock price as a dependent variable is replaced with the cumulative abnormal return (CAR) where past studies use the cumulative abnormal return to represent the value of stock market. The abnormal return provide valuable information to market, on whether increasing or decreases dividend announcement is effected by a rise or a fall in stock prices.

The independent variables are derived from dividend policy theories, which are dividend signaling, information content of dividend and dividend clientele effect. This study will examine the stock market reaction to dividend announcement based on cumulative abnormal return (CAR) as a dependent variable and the independent variables namely company size, dividend yield, dividend changes, earnings changes, trading volume and PRECAR. The theoretical studies support the independent variables whether has relationship with dependent variable or has not. The theoretical model used in this study that includes all respective variables is therefore shown in Figure 3.1.

THEORETICAL MODELS

INDEPENDENT VARIABLES **DEPENDENT VARIABLE**

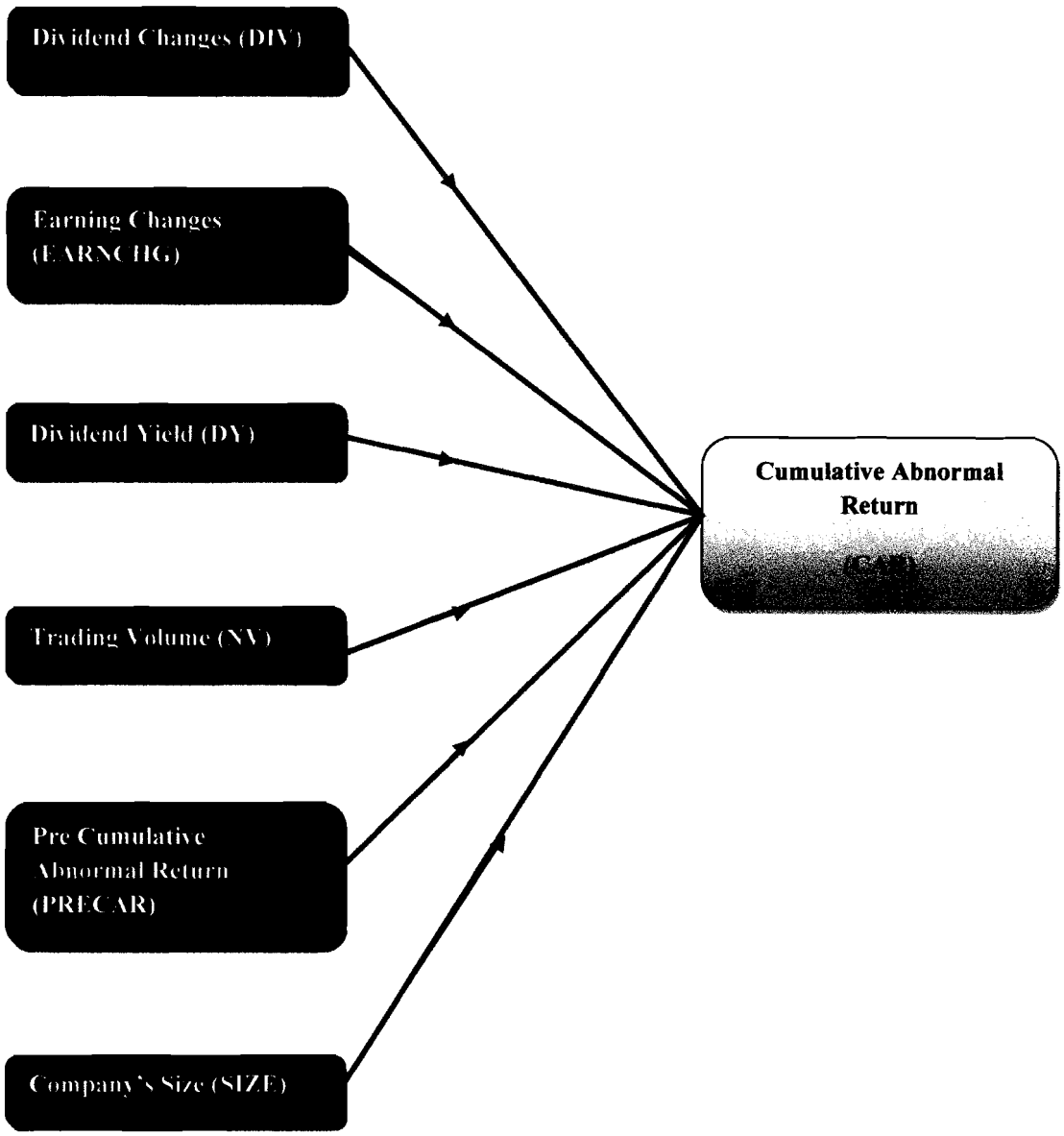


Figure 3.1
Theoretical Framework

3.5.1 The Dependent Variable

Cumulative Abnormal Return (CAR)

This study derives stock market reaction as abnormal share price behaviour, whereby the abnormal return is profit or excess from normal return. Normal return is return expectation (return that is expected by investors).The calculation of abnormal return is:

$$AR_{i,t} = R_{i,t} - R_{m,t}$$

where $AR_{i,t}$ is the abnormal return on share i on day t and $R_{m,t}$ is the return index which present the market return on day t.

Following Abdullah *et al.* (2004), the market reaction to company's dividend announcement is taken as the 2 days' cumulative abnormal return (CAR); the dividend increase is calculated with summation of abnormal return from day t-1 to day t; and the dividend decrease is calculated with summation of abnormal return from day t to day t+1.

3.5.2 The Independent Variables

The independent variables for this study follow those used in past empirical studies about stock market reaction to dividend changes. Each variable is based on different theories as mentioned before.

DIV and EARNCHG are based on dividend signaling theory. DY related to dividend clientele effect. PRECAR, NV and SIZE based on the information content of dividend.

This study involves on inductive technique where hypotheses are developed. Testing of the hypothesis is under taken at 1%, 5% and 10% significant level. The respective independent variables and related hypotheses for the OLS regression are as follows:

Dividend Changes (DIV)

Dividend changes refer to percentage change in dividend. According to Lee and Yan (2003) and Andres, *et al.* (2008), a dividend change is a signal of the company performance but it reflects only the past and present but not future performance. The variable is expected to have a positive relationship with CAR; the higher current dividend when compared to last year means that the change is positive and the share price will accordingly be higher.

H_1: The relationship between CAR and DIV is positively significant.

Earning Changes (EARNCHG)

Earning changes refer to the difference between earnings per share at time t (the announcement's year) and earnings per share at time t-1 (a year before the announcement's year). This is a dummy variable, according Jin (2000) and Abdullah *et al.* (2004), since an increase earnings can lead to market anticipation, however, the earnings change support the corroboration between earnings and dividend announcement. The variable is expected to have a negative relationship with CAR. By this interpretation, the abnormal return at announcement is larger for firms with prior earnings increase.

H_2: The relationship between CAR and EARNCHG is positively significant.

Dividend Yield (DY)

Dividend yield refer to the annual returns from dividends. According to Fuller (2003), Ryan, *et al.* (2000), Lee and Yan (2003), Amihud and Li (2006), Chen *et al.* (2007), Andres *et al.* (2008) and Dasilas and Leventis (2010), a higher dividend yield company attracts investors who placed a higher value on dividends. Thus, the abnormal return should be positive when the expected dividend yield for company with dividend increases. So dividend yield is expected to have a positive relationship with CAR.

H_3: The relationship between CAR and DY is positively significant.

Normal Trading Volume (NV)

Normal volume refers to the log of trading volume. According Amihud and Li (2006), and Dasilas and Leventis (2010), the trading volume is also affected by valuable information. The higher the trading volume on dividend announcement, the more valuable information the market would get. This study refers to Amihud and Li (2006) who found that the relation between CAR and trading volume is expected to have a positive relationship.

H_4: The relationship between CAR and VOL is positively significant.

Pre-Cumulative Abnormal Return (PRECAR)

PRECAR refers to pre cumulative abnormal return from day t=-20 to t=-2 for each observation. If the market anticipates a credible new signal is imminent, such as a special dividend, and it is believed to have industry-wide implications, the market would adjust prices prior to the announcement. In the case of the contagion (competitive shifts) hypothesis, the coefficient on this variable is expected to be negative (positive). That is, for example, with contagion the greater the bidding up prior to the announcement, the lower the magnitudes of the positive price reaction on the announcement date Balachandran *et al.* (2004).

H_5: The relationship between CAR and PRECAR is positively or negatively significant.

Company Size (SIZE)

Company size refers to the log of market value. According to Jin (2000), Amihud and Li (2006), Andres *et al.* (2008) and Dasilas and Leventis (2010), the company size is the most powerful variable to measure the publicly available information, where the larger the size of a company, the more information available provided. Regarding the effect of company size, it is observed that abnormal returns from the announcements of large dividend increases are greater for small rather for large companies. However, Fuller (2003) has a different result, where measuring the profitability of informed trading; the finding is that the larger the size of a company the more the

profitability of informed trading. In this study, the predicted sign of company's size effect is negative, which that means the abnormal return is expected to increase more for the small company than the large size of company.

H_6: The relationship between CAR and SIZE is negative significant

The relationship between dependent and independent variables are explained by the respective theories. Table 3.2 provides the relationship between explanatory variables and dividend theories.

Table 3.2
The Relationship between Variables and Dividend Theories

Signaling Theory	Dividend Changes (DIV) Earning changes (E)	• The higher current dividend when compared to last year, the higher the share price. • There is a positive relationship between earning changes and abnormal return
Dividend Clientele	Dividend Yield (DY)	• The abnormal return should be positive when the expected dividend yields for company with dividend increases.
The Information Content of Dividend	Normal Trading Volume (NV) Pre-cumulative abnormal return(PRECAR) Firm Size (SIZE)	• The higher trading volume around dividend announcement, the more valuable information to the market. • If the market anticipates a credible new signal is imminent and it is believed to have industry-wide implications, the market would adjust prices prior to the announcement. • The small size of company would earn a higher abnormal return compared to large size of company.

Table 3.3 summarizes the expected relationship based on the underlying hypotheses in this study and the measurement of variables description.

Table 3.3
Expected Relationship

Symbol	Variable Description	Proxy	Expected Relationship
DEPENDENT VARIABLE			
CAR	$\sum AR_{i,t}$	Cumulative Abnormal Return	
INDEPENDENT VARIABLES			
DIV	$\frac{Dividend_{(t)} - Dividend_{(t-1)}}{Dividend_{(t-1)}}$	Changes of Dividend	+
EARNCHG	$EPS_{(t)} - EPS_{(t-1)}$	Changes of Earnings	+
DY	$\frac{Dividend\ payment}{\sum_{t-2}^{t} share\ price}$	Dividend Yield	+
NV	$Log\ (Trading\ Volume)$	Normal Volume	+
PRECAR	$\sum_{t-20}^{t-2} AR_{i,t}$	Pre Cumulative Abnormal Return	+/-
SIZE	$Log\ (Market\ Volume)$	Size of Company	-

3.6 Conclusion

This study applies the dependent variables and independent variables based on theoretical models and past empirical evidences. The dependent variable is abnormal return and the independent variables consist of dividend changes, earnings changes, dividend yield, normal trading volume, pre-cumulative abnormal return and firm size. This study uses 415 observations of cash dividend announcements by the Indonesian listed companies during the 2006 – 2010 period. This study uses two methods to test the hypothesis, which are event study and the OLS regression analysis.

CHAPTER FOUR

ANALYSIS AND FINDINGS

4.1 Introduction

This chapter analyzes the result of relationship between stock price and dividend announcement measured by several proxy variables. This chapter is divided into four sections. The result of event study is presented in Section 4.2; the descriptive statistics and the correlation analysis in Section 4.3, the assumption test in Section 4.4 and the explanation for the results of multiple regression analysis in Section 4.5.

4.2 Results of Event Study

This study analyzed and computes the data as mean of abnormal return (AAR), standard deviation of abnormal return (STDEV) and cumulative abnormal return (CAR). Table 4.1 shows the result of event study from 2006 to 2010.

The mean shows the average abnormal return for all sample company on each day. As shown in Table 4.1, the highest mean of abnormal return from 2006 to 2010 for 11 days (event window) are as follows; in 2006 happened on day t (0.004625); in 2007 it occurred on day t-5 (0.007794), in 2008 it happened on day t (0.005114); in 2009 it occurred on day t+4 (0.002326); and in 2010 it is recorded on day t-2 (0.003485). The standard deviation shows the difference between the real abnormal return and expected abnormal return. The lowest standard deviations are found on day t-1 (0.023481) for 2006; on day t-2 (0.026034) for 2007; on day t+4 (0.042319) for 2008; on day t (0.028602) for 2009 and on day t+1 (0.03081) for 2010.

Table 4.1
Event Study Result Based on Year

		t-5	t-4	t-3	t-2	t-1	t	t+1	t+2	t+3	t+4	t+5
2006	AAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	STDEV	0.03	0.03	0.04	0.03	0.02	0.04	0.03	0.03	0.02	0.03	0.03
	CAR	-0.02	-0.01	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
	t-test	-0.74	1.08	0.94	0.02	-0.20	1.23	1.12	0.80	-0.81	0.05	-0.48
	p-value	0.46	0.28	0.35	0.98	0.84	0.22	0.26	0.42	0.42	0.96	0.63
2007	AAR	0.01*	0.00	0.00	0.00*	0.00	0.01**	0.00	0.00	0.00	0.00	0.00
	STDEV	0.04	0.04	0.03	0.03	0.03	0.03	0.05	0.05	0.03	0.03	0.03
	CAR	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
	t-test	1.89	1.16	0.66	1.67	-0.07	2.10	0.22	0.53	-1.04	-0.50	-1.04
	p-value	0.06	0.24	0.51	0.09	0.95	0.04	0.83	0.60	0.30	0.61	0.30
2008	AAR	-0.01*	-0.01	-0.01**	0.00	-0.01	0.01	-0.01	-0.01**	-0.01	0.00	-0.02***
	STDEV	0.06	0.06	0.06	0.05	0.06	0.05	0.06	0.06	0.07	0.04	0.05
	CAR	-0.14	-0.16	-0.17	-0.17	-0.18	-0.18	-0.18	-0.20	-0.20	-0.21	-0.22
	t-test	-1.93	-1.62	-2.02	-0.81	-1.27	1.09	-0.89	-2.25	-1.01	-1.09	-3.10
	p-value	0.05	0.11	0.04	0.42	0.20	0.28	0.38	0.02	0.31	0.27	0.00
2009	AAR	-0.01	0.00	-0.01	-0.01	0.00	0.00	0.00	-0.02	0.00	0.00	-0.01
	STDEV	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.03	0.03	0.03
	CAR	-0.12	-0.12	-0.13	-0.14	-0.14	-0.14	-0.14	-0.15	-0.16	-0.15	-0.17
	t-test	-2.50	-0.68	-1.50	-2.21	-0.24	-1.46	0.40	-3.56	-0.65	0.69	-3.31
	p-value	-0.99	-0.50	-0.87	-0.97	-0.19	-0.86	-0.31	-1.00	-0.49	-0.51	-1.00
2010	AAR	0.00	0.00	-0.01*	0.00	-0.01**	0.00	0.00	0.00	0.00	0.00	0.00
	STDEV	0.04	0.03	0.04	0.04	0.04	0.04	0.03	0.03	0.04	0.03	0.04
	CAR	-0.01	0.00	-0.01	-0.01	-0.02	-0.01	-0.02	-0.02	-0.02	-0.02	-0.01
	t-test	-0.05	0.45	-1.84	0.92	-2.81	0.71	-0.82	-0.01	0.36	-0.47	0.89
	p-value	0.96	0.66	0.07	0.36	0.01	0.48	0.41	0.99	0.72	0.64	0.38

Notes: The sample consist of 415 companies in Indonesia with time frame 2006-2010. There are 98 companies in 2006, 97 companies in 2007, 92 companies in 2008, 87 companies in 2009 and 41 companies in 2010. *, **,*** significant at 10%, 5% and 1% respectively.

This study applies a normally one sample t- test with significance level at 1%, 5% and 10% (compared with p-value). Table 4.1 shows that not for all abnormal returns are significant. There are three (3) significant points in 2007, which are on day t-5 and day t-2 (at 10% significant level) and day t (at 5% significant level). In 2008, the significant abnormal returns are recorded on day t-5 (at 10% significant level); on day t-3 and day t+2 (at 5% significant level) and on day t+5 (at 1% significant level). In 2010, the significant abnormal returns and are shown on day t-3 (at 10%

significance level) and on day t-1 (at 5% significant level). However, an abnormal return generated in 2006 and 2009 are not significant.

The cumulative abnormal return in event study represents the sum of previous average abnormal return and the current average abnormal return. In 2006 the cumulative abnormal return turned out to be positive on day t. In 2007, the cumulative abnormal return showed a positive sign from the beginning of an event window (t-5), and this it caused all cumulative abnormal returns to have a positive sign as well. In contrast, all cumulative abnormal returns except on day t-4 show negative signs as well.

Table 4.2 shows the descriptive statistics for abnormal returns of sample companies. There are three (3) categories for the samples, which are all dividend, dividend increase and dividend decrease. The total observations for all dividend, dividend decrease and dividend increase are 415, 58 and 257 respectively. The mean value explains the average value of variable, the maximum value describes the highest value, the minimum value describes the lowest value and the standard deviation explains the difference between the real value of variable and the expected value of variable.

Table 4.2
Descriptive Statistics for Abnormal Return

	N	Minimum	Maximum	Mean	Std.deviation
All Dividend	415	-0.330591	0.341239	-0.002255	0.041136
Dividend Decrease	58	-0.292194	0.341239	-0.002389	0.041537
Dividend Increase	257	-0.330591	0.169765	-0.001427	0.038601

Notes: The sample consist of 415 companies in Indonesia with time frame 2006-2010. There are 58 companies for Dividend Decrease and 257 companies for Dividend Increase. The categories were classified by measuring the difference between cash dividend paid at current year (D_t) and cash dividend paid at last year (D_{t-1}), divided by the cash dividend paid last year (D_{t-1}).

The average abnormal returns for all dividend, dividend decrease and dividend increase are as much as -0.002255, -0.002389 and -0.001427 respectively. The standard deviation for all dividend, dividend decrease and dividend increase are as much as 0.041136, 0.041537 and 0.038601 respectively.

Table 4.3 shows the results of event study based on all three categories; All Dividend, Dividend Decrease and Dividend Increase. This study tests the share price reaction to cash dividend announcement based on the average of abnormal returns from day t-5 to day t+5. Two tailed t-test is used for all dividend. The result for all dividend indicates that the effects on day t+2 and day t+5 are significant at 5% level. These significant results should reject the null hypothesis, which means that there is a relationship between share prices with cash dividend announcement. One tailed t-test is used for both dividend increase and dividend decrease. The result for dividend increase indicated on day t+4 is significant at 5% level. The significant result should reject the null hypothesis, which means that share price is positively related to cash dividend announcement. The result for dividend increase indicated that on day t+2 is significant at 5% level. The significant result should reject the null hypothesis, which means that the share price is negatively related to cash dividend announcements.

The results from previous studies such as Prasetiono (2000), Kartini (2001) and Mulyati (2003) found that there is a relationship between share price and dividend announcement. This study rejects the null hypothesis or it means that there is a relationship between share price to cash dividend announcement. In the case of the dividend increase, the result shows that share price is positively related to cash dividend announcement, and this is similar to the study by Gurgul *et al.* (2003), Mulyati (2003), Chen *et al.* (2007) and Bhatia (2010). As for the dividend decrease, this study discovers that share price is negatively related to cash dividend announcement and this result is similar to study by Gurgul *et al.* (2003), Mulyati (2003) and Prasetiono (2000).

4.3 Descriptive Analysis of Regression Model

The descriptive analysis shows the mean, median, and standard deviation of the dependent variable (cumulative abnormal return (CAR)) and the independent variables, which consist of dividend change (DIV), dividend yield (DY), earnings change (E), normal trading volume (NV), pre-cumulative abnormal return (PRECAR) and company size (SIZE).

As shown in Table 4.4, the mean of CAR is -0.0018, which means that the average of CAR is reduced by 0.18% for the sample of Indonesian companies which announced cash dividend. The mean of DIV is -0.0031, which shows that the dividend change for companies that announced cash dividend have diminished 0.31%. The mean of DY is 0.0288, which demonstrates the average dividend yield was at 2.88%. The mean of EARNCHG is 0.7119, which demonstrates that average of an increase in earnings is 71.19% that can lead to market anticipation. The mean of NV is 11.962,

which shows that the trading volume is relatively acceptable. Meanwhile, the mean of PRECAR is 0.0354, which illustrates the average of cumulative abnormal return from day twentieth before announcement date (day t = -20) to day second before announcement date 9 (day t = -2), has a positive signal which is 3.54%. The mean of SIZE is 14.407, it explains the log of market volume were standard on average.

Table 4.4
Descriptive Analysis of Regression Model

	CAR	DIV	DY	EARNCHG	NV	PRECAR	SIZE
Mean	-0.0018	-0.0031	0.0288	0.7119	11.961	0.0354	14.408
Median	-0.0021	-0.0100	0.0108	1.0000	13.300	0.0218	14.230
Maximum	0.3180	2.6000	0.2806	1.0000	17.710	0.7673	19.210
Minimum	-0.2648	-3.9900	0.0000	0.0000	-0.6900	-0.5983	9.6100
Std. Dev.	0.0585	0.8445	0.0404	0.4538	3.8260	0.1764	2.2236
Sum	-0.4343	-0.7600	6.9890	173.00	2906.6	8.5998	3501.1

Notes: The sample consist of 243 listed Indonesia companies with time frame 2006-2010. DIV is a percentage of difference between dividend at the time t (the announcement's year) and dividend at t-1 (a year before the announcement's year). DY is measured by the final dividend payment divided by the share price two days before announcement day. EARNCHG is dummy variable (1 is for earnings increase and 0 otherwise). NV is the log of annual trading volume. PRECAR is pre-cumulative abnormal return from day t=-20 to t=-2. SIZE is the log of annual market value.

Another description analysis is Pearson correlation. Pearson correlation analysis is the executed to gauge the strength of relationship between variables used in this study. The range of the correlation coefficients is -1 to +1 and the value that is close to 0 indicates there is a little correlation between the two variables.

Table 4.5 shows the correlation between variables. For dependent variable and independent variables, CAR is positive related to PRECAR and significant at 1% level. The correlation between them is 0.4801, which means that the strength of association between these two variables is moderate.

Table 4.5
Correlation Analysis between Variables

	CAR	DIV	DY	EARNCHG	NV	PRECAR	SIZE
CAR							
Correlation	1						
Probability	-----						
DIV							
Correlation	-0.0011	1					
Probability	(0.9867)	-----					
DY							
Correlation	0.0854	0.0951	1				
Probability	(0.1845)	(0.1393)	-----				
EARNCHG							
Correlation	-0.0260	-0.4445***	-0.0781	1			
Probability	(0.6871)	(0.000)	(0.2251)	-----			
NV							
Correlation	0.0388	-0.0346	0.0422	-0.0328	1		
Probability	(0.5474)	(0.5917)	(0.513)	(0.6109)	-----		
PRECAR							
Correlation	0.4801***	-0.0546	0.1106*	0.0734	0.0429	1	
Probability	(0.000)	(0.3967)	(0.0854)	(0.2542)	(0.5052)	-----	
SIZE							
Correlation	-0.0721	0.0288	-0.3178***	0.0053	0.6347***	-0.0537	1
Probability	(0.2626)	(0.6546)	(0.0000)	(0.9339)	(0.0000)	(0.4042)	-----

Notes: The sample consist of 243 listed Indonesia companies with time frame 2006-2010. DIV is a percentage of difference between dividend at the time t (the announcement's year) and dividend at t-1 (a year before the announcement's year). DY is measured by the final dividend payment divided by the share price two days before announcement day. EARNCHG is dummy variable (1 is for earnings increase and 0 otherwise). NV is the log of annual trading volume. PRECAR is pre-cumulative abnormal return from day t=-20 to t=-2. SIZE is the log of annual market value.
*, **,*** significant at 10%, 5% and 1% level respectively.

The correlation between DIV and EARNCHG is -0.4445, which means that the strength of association between these two variables is moderate. The correlation between SIZE and DY is -0.31779 which means that the strength of association between these two variables is considered delicate. These two correlations are negatively correlated. The correlation between SIZE and NV shows 0.6347 which means that association between these two variables is strong and there is positively relationship. The three correlations above are all significant at 1% level. The correlation between PRECAR and DY is 0.110574, which means that the strength of association between these two variables is almost negligible and there is positively significant at 10% level.

4.4 Assumption Tests for OLS

A series of regression analyses were executed to detect any problem. The Ordinary Least Square (OLS) estimator has some desirable property which is Best Linear Unbiased Estimator (BLUE). OLS estimator can be classified to BLUE if:

1. It is Unbiased, which means the expected value is equal to the real value,
2. It is a Linear Function, such as the dependent variable *Y*,
3. It has the smallest variance among the class of linear unbiased estimators, and also known as efficient estimator.

Assumption test includes the R-squared test, normality test, autocorrelation test, heteroscedasticity test and multicollinearity test. The objectives of assumption test are to indicate how well all variables predict the result and to find out whether the regression can be said as BLUE (Best Linear Unbiased Estimatord) or not.

Table 4.6
Assumption Tests for OLS

TEST	INDICATOR		ALL DIVIDEND
R-squared	R-squared		0.2399
	Adjusted R^2		0.2206
NO.OBSERVATIONS			243
NORMALITY	Skewness		-0.2985
	Kurtosis		12.2065
	Jarque-Bera		861.800*** (0.0000)
AUTOCORRELATION	Durbin Watson		1.9009
HETEROSCEDASTICITY	Prob. F		0.0007
	Prob. Chi Square		0.0009
MULTICOLLINEARITY	VIF	DIV	1.2805
		EARNCHG	1.2616
		DY	1.2842
		NV	1.9286
		PRE-CAR	1.0257
		SIZE	2.1382

Notes: *, **,*** Significant at 10%, 5% and 1% level respectively

4.4.1 R-Squared Test

In statistic, the R-squared test aims to predict the results based on the basis of other related information. The higher the value of R-square, the better the regression line approximates the real data points. R-squared range is between 0 - 1 (0%-100%), zero R-squared means the independent variables are not explained by the dependent variable, however one R-squared means the independent variables perfectly explains the dependent variable. Based on the previous studies, R-squared for regression model is not more than 35%. Jin (2000) creates R-squared as much as 34%. Ryan *et al.* (2000) find R-squared as much as 25% and Abdullah *et al.* (2004) have R-squared for dividend

decrease as much as 33%. Table 4.6 shows the R-squared for this study is 23.99% which means that independent variables influenced the dependent variable as much as 23.99%. The rest 76.01% is an external factor of this study that influenced dependent variable.

4.4.2 Normality Test

The normality test is used to determine whether the data set is well modeled by a normal distribution or not. Skewness computes the data set symmetrical. The positive or negative skew shows that the distribution is asymmetrical. However, kurtosis measures how tall or flat the normal distribution is. Jarque-Bera tests whether the series is normally distributed. The statistic Jarque-Bera has two degrees of freedom and can be used to test the null hypothesis that the data are from a normal distribution. Table 4.6 above resulted Skewness -0.2985 if compared to normal distribution at 5% significant level, all dividend would be negatively skewed. Kurtosis obtained 12.2065, means the normality of all dividend is taller than normal distribution. Jarque-Bera found 861.8002, if compared to normal distribution at 1% significant level, the result would not be normal distribution. Based on Central Limit Theorem (CLT)[2] of statistic it can be shown that if there are more than 30 samples (large number of independent) and identically distributed random variable can be expected whether the distribution is a normal distribution.

[2] Gujarati, D. N., and Porter, D.C. (2009). *Basic Econometrics.* Fifth Edition. Singapore: Mcgraw-Hill.

4.4.3 Autocorrelation Test

The autocorrelation test makes sure that the error terms are not correlated to each other. Autocorrelation could be caused by misspecification of the functional form or errors of calculation in the dependent variable. The problem of autocorrelation caused OLS estimators is not efficient. Usually the autocorrelation test uses the Durbin-Watson statistic and can be used to test the null hypothesis that the data are no autocorrelation. Table 4.6 shows the Durbin-Watson test obtained 1.9009 if compared to Durbin-Watson (DW) table at 1% significant level, which is d_L is 1.613 and d_U is 1.735. The result of DW test would be greater than d_U and smaller than 4-d_U or between d_U and 4-d_U ($d_U \leq d \leq 4\text{-}d_U$) means that the hypothesis null do not rejected. So this study has no autocorrelation.

4.4.4 Heteroscedasticity Test

The heteroscedasticity means that the random variables have different variances. In this study white test is used to test the null hypothesis that the data are no heteroscedasticity. If compared at 1% significant level, there is heteroscedasticity because table 4.6 shows that the result is 0.0007. Heteroscedasticity does not reason ordinary least squares coefficient estimates become biased; in contrast it could cause ordinary least squares estimates of the variance of the coefficients become biased, possibly above or below the true or population variance. Thus, regression analysis that uses heteroscedasticity data will still provide an unbiased estimate for the

relationship between the predictor variable and the outcome, but it can cause the misleading data analysis inference since the errors are biased.

4.4.5 Multicollinearity Test

The multicollinearity is a statistical test to show that the two or more predictor variables in multiple regression models are highly correlated. The variance inflating factor (VIF) is always used to do the multicollinearity test. All independent variables will be tested by VIF. The result for VIF test must be less than 10.0 to ensure that there is no multicollinearity. Table 4.6 indicate the result of independent variables are 1.280450 for DIV, 1.284170 for DY, 1.261598 for EARNCHG, 1.928603 for NV, 1.025733 for PRECAR, 2.138174 for SIZE. The multicollinearity test indicates how well all variables predicts the results. From VIF test, this study has no multicollinearity.

4.5 Regression Results

The regression results show the significance of coefficients and the relationship between the independent variables and dependent variables.

In Table 4.7, the OLS regression results only show one significant variable, which is pre-cumulative abnormal return (PRECAR) and it is significant at 1% level. The coefficient for PRECAR is 0.0191, it means that if PRECAR increase by 1 unit and other independent variables are considered constant, CAR will increase by 0.0191 or 1.91%.

Table 4.7
Regression Results

Method Explanatory Variables	Predicted Sign	OLS Method	OLS Method with White Test
DIV	+	0.0005	0.0005
		(0.9172)	(0.9020)
DY	+	-0.0106	-0.0106
		(0.9095)	(0.8949)
EARNCHG	+	-0.0071	-0.0071
		(0.3858)	(0.3400)
NV	+	0.0012	0.0012
		(0.3090)	(0.3085)
PRECAR	+/-	0.0191***	0.0191***
		(0.0000)	(0.0000)
SIZE	-	0.0022	0.0022
		(0.2306)	(0.3246)
C		0.0211	0.0211
		(0.4133)	(0.4800)
Number of Observation		243	243
R^2		0.2399	0.2399
Adjuster R-square		0.2206	0.2206
Prob(F-statistic)		(0.0000)	(0.0000)
Durbin Watson		1.9009	1.9009

Notes: The results in the OLS method with White Test are based on heteroscedasticity consistent standard error and are adjusted for serial correlation among observation from the same firm.
DIV is a percentage of difference between dividend at the time t (the announcement's year) and dividend at t-1 (a year before the announcement's year). DY is measured by the final dividend payment divided by the share price two days before announcement day. EARNCHG is dummy variable (1 is for earnings increase and 0 otherwise). NV is the log of annual trading volume. PRECAR is pre-cumulative abnormal return from day t=-20 to t=-2. SIZE is the log of annual market value.
*, **,*** significant at 10%, 5% and 1% level respectively.

Dividend changes (DIV) is positively but insignificant. The significantly positive relationships between DIV and CAR are obtained by Lee and Yan (2003), Chen *et al.* (2007) and Andres (2008). Positive relationship means the larger the current dividend when compared to last year the higher the share price.

Dividend yield (DY) is negative but insignificant. The negative relationship is in contrast with Jin (2000), Ryan *et al.* (2000), Lee and Yan (2003), Chen *et al.* (2007), Andres *et al.* (2008) and Dasilas and Leventis (2010). These studies find a

higher dividend yield company attracts investors who put a higher value on dividends. Therefore, the abnormal return should be positive when the expected dividend yield for company with dividend increases.

Earnings changes (EARNCHG) shows a negative related to CAR but it is insignificant. This insignificant result is consistent with Abdullah *et al.* (2004) which implies that the abnormal return at announcement is larger for firms with prior earnings decrease.

Normal trading volume (NV) shows a positive relationship with CAR but insignificant. This result is in contrast with Fuller (2003) but the insignificant relationship is reported by Dasilas and Leventis (2010). The positive relationship means the higher trading volume of dividend announcement, the more valuable information the market would get.

Pre-cumulative abnormal return (PRECAR) is significantly positively at 1% level. The relationship between PRECAR and CAR is to control market anticipation for dividend announcement. If the market anticipation of a credible new signal is imminent, it is believed to have industry wide implication and the market would adjust its prices prior to the announcement. The positive and significant result is also recorded by Balachandran *et al.* (2004). The findings support the information content of dividend theory that assumed that any forecast of future earnings with dividends should be reflected in stock prices at or prior to the announcement of the dividends if the stock market is efficient.

Company size (SIZE) is negative but insignificant. The negative relationship between SIZE and CAR means that the larger the size of company, the more information available provided, and thus the less valuable the dividend program as an information releasing mechanism. Jin (2000) find a significantly negative relationship between SIZE and CAR.

The OLS with White test method is used to solve the heteroscedasticity problem. The result also shows one significant variable which is PRECAR that is significantly positive at 1% level. Other independent variables have the same coefficients as in the usual OLS method. The White test adjusts the standard error but the coefficients remain the same. As the standard error changes, the p-value of each variable will also change.

Table 4.7 also shows the F-test results is significant at 1% level. This means the model fits the population from which the data are sampled. Based on the OLS regression results, the equation for the model in this study is therefore as follows:

$$CAR_i = 0.0211 + 0.0005DIV_i - 0.0106DY_i - 0.0071E_i + 0.0012NV_i + 0.0191PRECAR - 0.0022\,SIZE_i$$

4.6 Conclusion

This study examines stock price reaction to dividend announcement, using two methods. The first method is the event study which suggest that: (1) there is a relationship between share price and cash dividend announcement for all dividend; (2) share price reaction is positively related to cash dividend announcement for dividend increase; and (3) the share price reaction is negatively related to cash dividend announcement for dividend decrease. The second method is the OLS regression which suggests that only one significant variable, which is PRECAR.

CHAPTER FIVE

CONCLUSION

5.1 Introduction

This chapter provides the overall summary of this study and the discussion of the results. It is divided into three sections. The overview of the research process is presented in Section 5.2, the discussion of the summary is in Section 5.3, and lastly, Section 5.4 presents the recommendations for future research.

5.2 Overview of the Research Process

The objective of this study is to investigate the share price reaction to dividend announcement. This study extends the empirical evidence from prior studies pertaining to how the dividend announcements affect the share price. In underlying theories in this study include the information content of dividend theory, the dividend signaling theory and the dividend clientele effect.

The population is taken from 828 listed companies on the Indonesian Stock Exchange (IDX). In the event study model, the total observations for all dividend, dividend decrease and dividend increase are 415, 58 and 257 respectively. Meanwhile, the sample data for the OLS regression is 243companies. The time frame of this study is five years from 2006 to 2010.

5.3 Summary of Findings

The findings of this study is expected to provide the current investors and the prospective investors a better understanding of the effect of dividend announcement on stock prices in the Indonesian Stock Exchange (IDX). In addition, the findings would give some guidance to Indonesian listed-companies on whether the dividend increase or dividend decrease is taken by investors as a positive or negative signal.

The results support the findings of past literatures. In the event study, the result for the sample of all dividends indicates that abnormal returns on day t+2 and day t+5 are significant at 1% level, which means that there is a relationship between share prices changes and cash dividend announcement. The result for the sample of dividend increases is significant at 5% level on the day t+4, implying that the share price reaction is positively related to cash dividend announcement. Furthermore, the result for the sample of dividend increases reveals that the day t+2 is significant at 5% level, which shows that the share price reaction is negatively related to cash dividend announcement.

The OLS regression result finds the PRECAR variable is positive and significant at 1% level. If the market anticipates a credible new signal is imminent, it is believed to have industry-wide implication, and thus the market would adjust prices prior to the announcement. This result supports the hypotheses on the information content of dividend theory.

5.4 Recommendations

Based on the results and limitations of this study, future research could extend the years of observation for the purpose of generating more accurate result. Another recommendation is to include one or more groups of sample such as no change dividend. This study uses three (3) categories for samples, which are all dividend, dividend increase and dividend decrease. Future research should also consider other related theories and could include other variables that would potentially affect abnormal returns or share price in Indonesia.

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APPENDICES

Sample Listed-Companies in Indonesia

2006

Company Name	Dividend Announcement Date
ADHI KARYA PERSERO	30-Jun
ADIRA DINAMIKA MLT.FIN.	21-Jun
AKR CORPORINDO	9-Jun
ALUMINDO LT.MTL.IND.	14-Jun
ANEKA TAMBANG	29-May
ARPENI PRATAMA OCEAN LINE	18-Apr
ARWANA CITRAMULIA	3-May
ASAHIMAS FLAT GLASS	13-Jun
ASTRA AGRO LESTARI	23-May
ASTRA GRAPHIA	9-May
ASTRA INTERNATIONAL	26-May
ASTRA OTOPARTS	17-Oct
ASURANSI BINTANG	10-Aug
ASURANSI DAYIN MITRA	3-Jul
ASURANSI JASA TANIA	12-Jun
ASURANSI RAMAYANA	30-May
BAKRIE SUMATERA PLTNS.	19-Jun
BANK ARTHA GRAHA INTSL.	16-May
BANK CENTRAL ASIA	19-Sep
BANK DANAMON INDONESIA	22-May
BANK INTL.INDONESIA	12-Apr
BANK MANDIRI	9-Jun
BANK MEGA	24-Mar
BANK NEGARA INDONESIA	24-May
BANK OCBC NISP	2-Jun
BANK PAN INDONESIA	29-Jun
BANK RAKYAT INDONESIA	30-May
BENTOEL INTL.INVESTAMA	28-May
BERLIAN LAJU TANKER	31-May
CENTEX	15-Sep
CENTRIN ONLINE	27-Jun
CIPUTRA SURYA	29-Jun
CITRA MARGA NUSAPHALA PERSADA	19-Jun
COLORPAK INDONESIA	26-Jun
DANASUPRA ERAPACIFIC	8-Jun
DELTA DJAKARTA	4-May
ENSEVAL PUTERA MTRD.	19-Jun
FAST FOOD INDONESIA	22-Jun
GAJAH TUNGGAL	20-Jun
GOWA MAKASSAR TSM.DEV.	7-Apr
GUDANG GARAM	20-Jun

HEXINDO ADIPERKASA	21-Jun
HUMPUSS INTERMODA TRANI.	27-Apr
INDOEXCHANGE	28-Jun
INDOMOBIL SUKSES INTSL.	2-Jun
INDOSAT	29-Jun
INDOSPRING	27-Jun
INTRACO PENTA	29-Jun
JAYA PARI STEEL	27-Jun
JAYA REAL PROPERTY	11-May
KAWASAN INDRI.JABABEKA	23-Jun
KIMIA FARMA	19-May
LAUTAN LUAS	31-May
LIMAS CENTRIC INDONESIA	30-Jun
LION METAL WORKS	20-Jun
LIONMESH PRIMA	20-Jun
LIPPO GENERAL INSURANCE	28-Apr
LIPPO KARAWACI	18-Apr
MANDALA MULTIFINANCE	19-May
MASKAPAI REASI.INDO.	29-Jun
MATAHARI PUTRA PRIMA	31-Mar
MEDCO ENERGI INTL.	5-May
METRODATA ELECTRONICS	14-Jun
MITRA ADIPERKASA	28-Jun
MULTI INDOCITRA	7-Jun
MULTISTRADA ARAH SARANA	29-Aug
NUSANTARA INTI CORPORA	9-May
PAN BROTHERS	5-May
PANIN INSURANCE	29-Jun
PANIN SEKURITAS	30-Jun
PELAYARAN TEMPURAN EMAS	19-May
PEMBANGUNAN JAYA ANCOL	13-Apr
PERUSAHAAN GAS NEGARA	8-Jun
PLAZA INDONESIA REALTY	23-May
POOL ADVISTA INDONESIA	28-Jun
PUDJIADI & SONS EST.	23-Jun
PUDJIADI PRESTIGE	23-Jun
RAMAYANA LESTARI SENTOSA	23-Jun
RELIANCE SECURITIES	23-Aug
RIG TENDERS INDONESIA	15-Jun
SAMUDERA INDONESIA	19-May
SELAMAT SEMPURNA	28-Jun
SEPATU BATA	16-Nov
SORINI AGRO ASIA CRPR.	27-Jun
SUMMARECON AGUNG	23-Jun

SURYA CITRA MEDIA	31-May
SURYA TOTO INDONESIA	2-Jun
TELEKOMUNIKASI INDONESIA	30-Jun
TIGARAKSA SATRIA	31-May
TIMAH	4-May
TRIAS SENTOSA	8-Jun
TRIMEGAH SECURITIES	29-May
TUNAS BARU LAMPUNG	8-Aug
TUNAS RIDEAN	9-May
ULTRAJAYA MILK IND.& TRCO.	27-Jun
UNILEVER INDONESIA	10-Nov
UNITED TRACTORS	9-May
WAHANA OTTOMITRA MUH.	3-Apr

2007

Company Name	Dividend Announcement Date
ADHI KARYA PERSERO	27-Jun
ADIRA DINAMIKA MLT.FIN.	16-Apr
AKR CORPORINDO	4-Jun
ALUMINDO LT.MTL.IND.	21-Jun
ANEKA TAMBANG	29-May
ARPENI PRATAMA OCEAN LINE	2-May
ARWANA CITRAMULIA	30-May
ASTRA AGRO LESTARI	22-May
ASTRA GRAPHIA	27-Apr
ASTRA INTERNATIONAL	25-May
ASTRA OTOPARTS	9-Oct
ASURANSI BINTANG	4-Jun
ASURANSI DAYIN MITRA	25-Jun
ASURANSI HARTA AMAN PRA.	27-Jun
ASURANSI JASA TANIA	13-Jun
ASURANSI RAMAYANA	29-May
BAKRIE SUMATERA PLTNS.	11-Jun
BANK BUKOPIN	20-Apr
BANK BUMI ARTA	23-May
BANK CENTRAL ASIA	15-May
BANK DANAMON INDONESIA	27-Mar
BANK INTL.INDONESIA	16-Apr
BANK MANDIRI	18-Jun
BANK MEGA	28-Mar

BANK NEGARA INDONESIA	23-May
BANK OCBC NISP	24-Apr
BANK PAN INDONESIA	28-Jun
BANK RAKYAT INDONESIA	28-May
BERLIAN LAJU TANKER	24-May
BHAKTI INVESTAMA	18-Jun
CENTRIN ONLINE	27-Jun
CIPUTRA SURYA	30-May
CITRA MARGA NUSAPHALA PERSADA	27-Jun
COLORPAK INDONESIA	26-Jun
DELTA DJAKARTA	30-Apr
ENSEVAL PUTERA MTRD.	16-May
FAST FOOD INDONESIA	12-Jun
GAJAH TUNGGAL	21-Jun
GLOBAL MEDIACOM	7-May
GOWA MAKASSAR TSM.DEV.	25-May
GUDANG GARAM	22-Jun
HEXINDO ADIPERKASA	27-Jun
HUMPUSS INTERMODA TRANI.	13-Jun
INDOEXCHANGE	6-Jun
INDOMOBIL SUKSES INTSL.	8-Jun
INDONESIA PRIMA PROPERTY	23-Mar
INDOSAT	13-Jul
INDOSPRING	29-Jun
JAYA PARI STEEL	21-Jun
JAYA REAL PROPERTY	21-Jun
KIMIA FARMA	22-May
LAUTAN LUAS	30-May
LION METAL WORKS	11-Jun
LIONMESH PRIMA	11-Jun
LIPPO KARAWACI	24-May
MANDALA MULTIFINANCE	20-May
MASKAPAI REASI.INDO.	30-May
MEDCO ENERGI INTL.	25-May
METRODATA ELECTRONICS	26-Jun
MITRA ADIPERKASA	22-Jun
MULTI INDOCITRA	8-Jun
MULTISTRADA ARAH SARANA	23-May
NUSANTARA INTI CORPORA	29-Jul
PAN BROTHERS	20-Apr
PANCA GLOBAL SECURITIES	10-May
PANIN INSURANCE	28-Jun
PANIN SEKURITAS	29-Jun
PELAYARAN TEMPURAN EMAS	18-Jun

PEMBANGUNAN JAYA ANCOL	16-May
PERUSAHAAN GAS NEGARA	31-May
PETROSEA	30-May
PLAZA INDONESIA REALTY	16-May
POOL ADVISTA INDONESIA	26-Jun
PUDJIADI & SONS EST.	11-May
PUDJIADI PRESTIGE	11-May
RADIANT UTAMA INTERINSCO	29-May
RAMAYANA LESTARI SENTOSA	30-May
RELIANCE SECURITIES	27-Jun
RIG TENDERS INDONESIA	12-Jun
SAMUDERA INDONESIA	16-May
SELAMAT SEMPURNA	21-Jun
SEPATU BATA	8-Nov
SORINI AGRO ASIA CRPR.	6-Jun
SUMMARECON AGUNG	16-May
SURYA TOTO INDONESIA	5-Jun
TELEKOMUNIKASI INDONESIA	29-Jun
TEMBAGA MULIA SEMANAN	26-Jun
TIGARAKSA SATRIA	30-Apr
TIMAH	20-Apr
TOKO GUNUNG AGUNG	16-Aug
TOTAL BANGUN PERSADA	1-May
TRIAS SENTOSA	4-Jun
TRIMEGAH SECURITIES	28-Jun
TUNAS RIDEAN	11-May
UNITED TRACTORS	21-Sep
WAHANA OTTOMITRA MUH.	21-Mar
YULIE SEKURINDO	29-Jun

2008

Company Name	Dividend Announcement Date
ACE HARDWARE INDONESIA	15-Apr
ADHI KARYA PERSERO	19-Jun
ADIRA DINAMIKA MLT.FIN.	10-Apr
AKR CORPORINDO	14-May
ALUMINDO LT.MTL.IND.	2-Jul
ANEKA TAMBANG	28-May
ARPENI PRATAMA OCEAN LINE	18-Jun
ARWANA CITRAMULIA	30-May
ASAHIMAS FLAT GLASS	13-Jun
ASTRA AGRO LESTARI	26-May
ASTRA GRAPHIA	9-May
ASTRA INTERNATIONAL	27-May
ASURANSI BINA DANA ARTA	23-May
ASURANSI BINTANG	2-Jun
ASURANSI HARTA AMAN PRA.	16-Jun
ASURANSI JASA TANIA	29-May
ASURANSI RAMAYANA	29-May
BAKRIE SUMATERA PLTNS.	19-Jun
BANK BUKOPIN	14-May
BANK BUMI ARTA	5-May
BANK CENTRAL ASIA	23-May
BANK DANAMON INDONESIA	3-Apr
BANK HIMPUNAN SAUD.1906	17-Mar
BANK INTL.INDONESIA	31-Mar
BANK MANDIRI	16-Jun
BANK MEGA	27-May
BANK NEGARA INDONESIA	26-May
BANK OCBC NISP	30-Apr
BANK PAN INDONESIA	1-Jul
BANK RAKYAT INDONESIA	26-May
BENTOEL INTL.INVESTAMA	30-May
BERLIAN LAJU TANKER	29-Apr
BHAKTI INVESTAMA	9-May
CENTRIN ONLINE	25-Jun
CENTRIS MLT.PERSADA PRA.	23-May
CITRA MARGA NUSAPHALA PERSADA	30-Jun
COLORPAK INDONESIA	27-Jun
DANASUPRA ERAPACIFIC	19-Mar
DELTA DJAKARTA	5-May
DUTA GRAHA INDAH	27-Jun
ELNUSA	15-May
ENSEVAL PUTERA MTRD.	23-May
FAST FOOD INDONESIA	12-Jun

GAJAH TUNGGAL	18-Jun
GOWA MAKASSAR TSM.DEV.	19-Mar
GUDANG GARAM	18-Jun
HEXINDO ADIPERKASA	25-Jun
INDOSAT	5-Jun
INDOSPRING	23-May
JASA MARGA	31-Mar
JAYA PARI STEEL	16-May
KIMIA FARMA	26-May
KRESNA GRAHA SEKURINDO	25-Jun
LAMICITRA NUSANTARA	23-Jun
LION METAL WORKS	10-Jun
LIONMESH PRIMA	10-Jun
LIPPO GENERAL INSURANCE	19-Mar
LIPPO KARAWACI	19-Mar
MANDALA MULTIFINANCE	23-May
MASKAPAI REASI.INDO.	28-May
MEDIA NUSNT.CITRA	22-Apr
METRODATA ELECTRONICS	5-Jun
MITRA ADIPERKASA	27-Jun
MULTI INDOCITRA	16-Jun
MULTISTRADA ARAH SARANA	19-Mar
PANCA GLOBAL SECURITIES	5-May
PANIN SEKURITAS	30-Jun
PANORAMA SENTRAWISATA	9-Jun
PANORAMA TRANSPORTASI	9-Jun
PEMBANGUNAN JAYA ANCOL	10-Jun
PERUSAHAAN GAS NEGARA	13-Jun
PLAZA INDONESIA REALTY	27-May
POOL ADVISTA INDONESIA	24-Jun
PUDJIADI & SONS EST.	23-May
PUDJIADI PRESTIGE	26-May
RADIANT UTAMA INTERINSCO	3-Jun
RAMAYANA LESTARI SENTOSA	2-Jun
RIG TENDERS INDONESIA	12-Jun
SAMUDERA INDONESIA	16-May
SELAMAT SEMPURNA	26-May
SUMMARECON AGUNG	25-Apr
SURYA CITRA MEDIA	18-Jun
TELEKOMUNIKASI INDONESIA	20-Jun
TIGARAKSA SATRIA	30-Apr
TIMAH	8-May
TRADA MARITIME	29-May
TRIAS SENTOSA	2-Jun

TRIMEGAH SECURITIES	24-Jun
TUNAS RIDEAN	15-May
UNITED TRACTORS	16-May
WIJAYA KARYA	15-May
YULIE SEKURINDO	27-Jun

2009

Company Name	Dividend Announcement Date
ACE HARDWARE INDONESIA	3-May
ADARO ENERGY	3-Jun
ADHI KARYA PERSERO	11-Jun
ADIRA DINAMIKA MLT.FIN.	1-Apr
AKR CORPORINDO	18-May
ALAM SUTERA REALTY	8-May
ANCORA INDONESIA RES.	16-Jul
ANEKA TAMBANG	28-May
ASTRA AGRO LESTARI	18-May
ASTRA GRAPHIA	18-May
ASTRA INTERNATIONAL	27-May
ASTRA OTOPARTS	20-May
ASURANSI BINA DANA ARTA	20-May
ASURANSI DAYIN MITRA	3-Jun
ASURANSI HARTA AMAN PRA.	23-Jun
ASURANSI JASA TANIA	28-May
ASURANSI RAMAYANA	28-May
BAKRIE SUMATERA PLTNS.	10-Jun
BANK BUKOPIN	27-May
BANK BUMI ARTA	3-Jun
BANK CENTRAL ASIA	15-May
BANK DANAMON INDONESIA	25-May
BANK HIMPUNAN SAUD.1906	1-Apr
BANK INTL.INDONESIA	20-Mar
BANK MANDIRI	11-Jun
BANK MEGA	29-May
BANK NEGARA INDONESIA	20-May
BANK RAKYAT INDONESIA	24-May
BERLIAN LAJU TANKER	22-Apr
BUMI SERPONG DAMAI	9-Jun
CENTRIN ONLINE	20-Jun

CENTRIS MLT.PERSADA PRA.	12-Jun
COLORPAK INDONESIA	3-Jul
DELTA DJAKARTA	4-May
DUTA GRAHA INDAH	24-Jun
ELNUSA	6-May
ENSEVAL PUTERA MTRD.	12-Jun
FAST FOOD INDONESIA	14-Jun
GLOBAL MEDIACOM	18-Jun
GOWA MAKASSAR TSM.DEV.	24-Apr
GUDANG GARAM	17-Jun
INDOSAT	17-Jun
INTRACO PENTA	29-May
JASA MARGA	7-Apr
JAYA PARI STEEL	16-May
JEMBO CABLE	4-Jun
KIMIA FARMA	25-May
KRESNA GRAHA SEKURINDO	16-Jun
LAUTAN LUAS	30-May
LION METAL WORKS	19-May
LIONMESH PRIMA	19-May
LIPPO GENERAL INSURANCE	24-Apr
MANDALA MULTIFINANCE	28-May
MASKAPAI REASI.INDO.	24-Jun
MEDCO ENERGI INTL.	15-Jun
MEDIA NUSNT.CITRA	17-Jun
METRODATA ELECTRONICS	1-Jun
MULTI INDOCITRA	19-Jun
PANCA GLOBAL SECURITIES	14-May
PANORAMA SENTRAWISATA	29-Jun
PANORAMA TRANSPORTASI	29-Jun
PELAYARAN TEMPURAN EMAS	18-Jun
PEMBANGUNAN JAYA ANCOL	10-May
PERUSAHAAN GAS NEGARA	23-Jun
POOL ADVISTA INDONESIA	22-Apr
PUDJIADI & SONS EST.	27-May
PUDJIADI PRESTIGE	27-May
RADIANT UTAMA INTERINSCO	3-Jun
RAMAYANA LESTARI SENTOSA	2-Jun
SAMUDERA INDONESIA	14-May
SELAMAT SEMPURNA	20-May
SEPATU BATA	28-May
SORINI AGRO ASIA CRPR.	28-May
SUMBER ALFARIA TRIJAYA	29-Jun
SUMMARECON AGUNG	5-Jun

SURYA CITRA MEDIA	27-May
TELEKOMUNIKASI INDONESIA	12-Jun
TIGARAKSA SATRIA	30-Apr
TIMAH	8-May
TRADA MARITIME	24-Apr
TRIAS SENTOSA	4-Jun
TRIKOMSEL OKE	26-Jun
TRIMEGAH SECURITIES	25-Jun
TUNAS RIDEAN	8-May
UNITED TRACTORS	26-Jun
WIJAYA KARYA	5-May
YULIE SEKURINDO	29-May

2010

Company Name	**Dividend Announcement Date**
ADARO ENERGY	25-Apr
ASAHIMAS FLAT GLASS	11-Jun
ASTRA GRAPHIA	18-May
ASTRA INTERNATIONAL	19-May
ASTRA OTOPARTS	26-May
ASURANSI BINA DANA ARTA	20-May
ASURANSI BINTANG	11-Jun
BANK BUKOPIN	15-May
BANK CAPITAL INDO.	17-May
BANK CIMB NIAGA	21-Apr
BANK HIMPUNAN SAUD.1906	17-May
BANK KESAWAN	12-May
BANK NEGARA INDONESIA	20-May
BENTOEL INTL.INVESTAMA	3-Jun
BW PLANTATION	18-Jun
CIPUTRA DEVELOPMENT	30-Jun
DYNAPLAST	14-Jun
HERO SUPERMARKET	26-May
INDO ACIDATAMA	11-May
INDOCEMENT TUNGGAL PRAKARSA	21-May
JASA ANGKASA SEMESTA	12-May
KERAMIKA INDO.ASSOSIASI	27-May
LAGUNA CIPTA GRIYA	3-Jun

LIONMESH PRIMA	14-May
MAHAKA MEDIA	9-Jun
MANDOM INDONESIA	26-May
MATAHARI PUTRA PRIMA	27-May
MERCK	26-May
MULTIFILING MITRA INDO.	10-Jun
PELAYARAN TEMPURAN EMAS	7-May
PETROSEA	3-Jun
RAMAYANA LESTARI SENTOSA	15-Jun
SEKAR LAUT	25-May
SEMEN GRESIK	27-May
SMART	14-May
STAR PACIFIC	1-Jun
SUMBER ALFARIA TRIJAYA	7-Jun
TITAN KIMIA NUSANTARA	3-Jun
TRADA MARITIME	18-May
UNITED TRACTORS	2-Jun
WAHANA OTTOMITRA MUH.	21-May

Descriptive Analysis

	CAR	DIV	DY	EARNCHG	NV	PRECAR	SIZE
Mean	-0.001787	-0.003128	0.028761	0.711934	11.96140	0.035390	14.40794
Median	-0.002100	-0.010000	0.010808	1.000000	13.30000	0.021800	14.23000
Maximum	0.318000	2.600000	0.280581	1.000000	17.71000	0.767300	19.21000
Minimum	-0.264800	-3.990000	0.000000	0.000000	-0.690000	-0.598300	9.610000
Std. Dev.	0.058534	0.844451	0.040378	0.453797	3.826009	0.176345	2.223661
Skewness	0.971465	-0.718153	2.466074	-0.935977	-0.946065	0.577670	0.229503
Kurtosis	10.72976	7.105770	10.89750	1.876053	3.024071	5.326065	2.288375
Jarque-Bera	643.1824	191.5683	877.8031	48.27062	36.25495	68.29706	7.260610
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.026508
Sum	-0.434300	-0.760000	6.988961	173.0000	2906.620	8.599800	3501.130
Sum Sq. Dev.	0.829137	172.5696	0.394546	49.83539	3542.480	7.525581	1196.610
Observations	243	243	243	243	243	243	243

Correlation Analysis

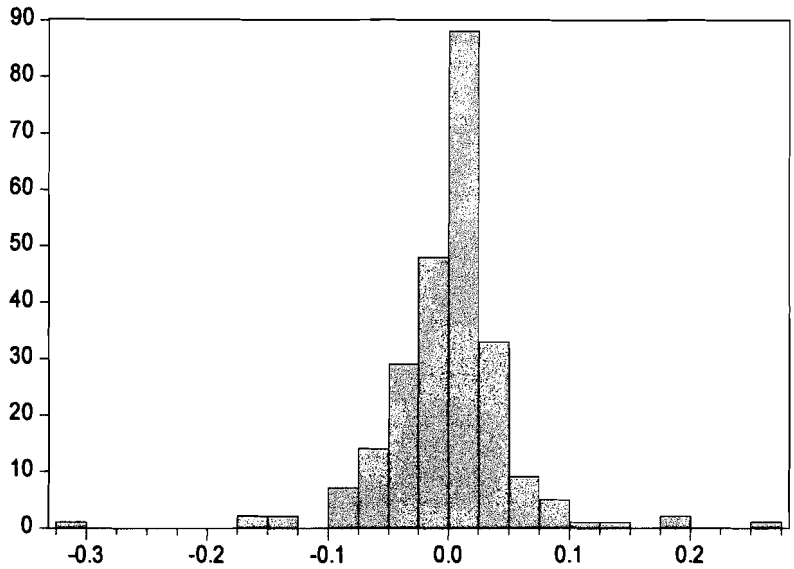
Covariance Analysis: Ordinary
Date: 06/18/11 Time: 16:14
Sample: 1 243
Included observations: 243

Correlation Probability	CAR	DIV	DY	EARNCHG	NV	PRECAR	SIZE
CAR	1.000000						

DIV	-0.001074	1.000000					
	0.9867	-----					
DY	0.085421	0.095118	1.000000				
	0.1845	0.1393	-----				
EARNCHG	-0.025965	-0.444473	-0.078098	1.000000			
	0.6871	0.0000	0.2251	-----			
NV	0.038779	-0.034573	0.042167	-0.032801	1.000000		
	0.5474	0.5917	0.5130	0.6109	-----		
PRECAR	0.480108	-0.054611	0.110574	0.073428	0.042942	1.000000	
	0.0000	0.3967	0.0854	0.2542	0.5052	-----	
SIZE	-0.072140	0.028846	-0.317786	0.005348	0.634697	-0.053752	1.000000
	0.2626	0.6546	0.0000	0.9339	0.0000	0.4042	-----

Assumption Tests for OLS

Normality Test



Series: Residuals	
Sample 1 243	
Observations 243	
Mean	-2.52e-17
Median	0.005069
Maximum	0.266452
Minimum	-0.308475
Std. Dev.	0.051032
Skewness	-0.298455
Kurtosis	12.20651
Jarque-Bera	861.8002
Probability	0.000000

Multicollinearity Test

Variance Inflation Factors

Date: 06/18/11 Time: 16:13

Sample: 1 243

Included observations: 243

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
DIV	1.98E-05	1.280468	1.280450
DY	0.008692	1.938420	1.284170
EARNCHG	6.76E-05	4.379549	1.261598
NV	1.45E-06	20.85665	1.928603
PRECAR	0.000364	1.067216	1.025733
SIZE	4.77E-06	92.27463	2.138174
C	0.000665	60.51807	NA

Heteroscedasticity Test

Heteroskedasticity Test: White

F-statistic	4.062653	Prob. F(6,236)	0.0007
Obs*R-squared	22.74922	Prob. Chi-Square(6)	0.0009
Scaled explained SS	120.2315	Prob. Chi-Square(6)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/18/11 Time: 16:12
Sample: 1 243
Included observations: 243

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001794	0.002115	-0.848228	0.3972
DIV^2	-5.65E-05	0.000313	-0.180134	0.8572
DY^2	0.004217	0.078387	0.053794	0.9571
EARNCHG^2	0.000250	0.001192	0.209318	0.8344
NV^2	-9.91E-06	9.23E-06	-1.074345	0.2838
PRECAR^2	0.036536	0.007971	4.583345	0.0000
SIZE^2	2.18E-05	1.11E-05	1.965011	0.0506

R-squared	0.093618	Mean dependent var	0.002594
Adjusted R-squared	0.070575	S.D. dependent var	0.008700
S.E. of regression	0.008387	Akaike info criterion	-6.695800
Sum squared resid	0.016602	Schwarz criterion	-6.595177
Log likelihood	820.5397	Hannan-Quinn criter.	-6.655270
F-statistic	4.062653	Durbin-Watson stat	2.069894
Prob(F-statistic)	0.000675		

Regression Results

Ordinary Least Squares

Dependent Variable: CAR
Method: Least Squares
Date: 06/18/11 Time: 16:11
Sample: 1 243
Included observations: 243

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIV	0.000463	0.004451	0.104051	0.9172
DY	-0.010609	0.093229	-0.113792	0.9095
EARNCHG	-0.007144	0.008222	-0.868936	0.3858
NV	0.001229	0.001206	1.019431	0.3090
PRECAR	0.158176	0.019078	8.290910	0.0000
SIZE	-0.002626	0.002184	-1.201928	0.2306
C	0.021133	0.025789	0.819480	0.4133

R-squared	0.239906	Mean dependent var	-0.001787
Adjusted R-squared	0.220582	S.D. dependent var	0.058534
S.E. of regression	0.051676	Akaike info criterion	-3.059255
Sum squared resid	0.630222	Schwarz criterion	-2.958632
Log likelihood	378.6995	Hannan-Quinn criter.	-3.018725
F-statistic	12.41467	Durbin-Watson stat	1.900947
Prob(F-statistic)	0.000000		

Ordinary Least Squares with White Test

Dependent Variable: CAR
Method: Least Squares
Date: 06/18/11 Time: 16:13
Sample: 1 243
Included observations: 243
White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIV	0.000463	0.003757	0.123296	0.9020
DY	-0.010609	0.080248	-0.132199	0.8949
EARNCHG	-0.007144	0.007472	-0.956106	0.3400
NV	0.001229	0.001204	1.020585	0.3085
PRECAR	0.158176	0.031893	4.959561	0.0000
SIZE	-0.002626	0.002660	-0.987077	0.3246
C	0.021133	0.029876	0.707361	0.4800

R-squared	0.239906	Mean dependent var	-0.001787
Adjusted R-squared	0.220582	S.D. dependent var	0.058534
S.E. of regression	0.051676	Akaike info criterion	-3.059255
Sum squared resid	0.630222	Schwarz criterion	-2.958632
Log likelihood	378.6995	Hannan-Quinn criter.	-3.018725
F-statistic	12.41467	Durbin-Watson stat	1.900947
Prob(F-statistic)	0.000000		