ANALYSIS OF STOCK SPLIT EFFECT ON STOCK PRICE, TRADING VOLUME, AND BID- ASK SPREAD IN SOME COMPANY LISTED IN JAKARTA STOCK EXCHANGE

A THESIS

Presented as Partial Fulfillment of the Requirements
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A BACHELOR DEGREE THESIS

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Examiner 1

Arief Bachtiar, Drs., MSA, Ak .....

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Yunan Najamudin, Drs., MBA .....

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CHAPTER 1

INTRODUCTION

1. 1. Study Background

Company and government usually do their fund investment by issuing shares. The capital market is a good mean for companies and government to raise funds for financing activities by selling securities. Jakarta Stock Exchange as one of stock market in Indonesia has become the mediator to bring together buyers and sellers of securities, in providing a place for listed companies to seek for other external sources of fund with lower cost. It gives more economical benefit rather than they will get from other financial institutions. The economical benefit can be in form of a chance to determine optimal capital structures for the company, which means choosing the lowest combination of the cost of capital among company's weighted average of capital.

The outstanding shares were intended to give additional funds or capital for the company. In addition, through capital market, the capital owners (investors) are able to invest their funds by buying securities with an expectation to obtain returns that would increase their well being (Jones, 1998). The obtained returns can be in the form of dividend or capital gain that paid in certain period of time (annually). The companies generally can distribute their large amount dividend if the company achieves the increasement of profit. The dividend sharing is the policy of the management itself and the company can also distribute its additional

stocks in form of stock dividends and stock split (split- up) to the investor without any transaction for stocks achievement. These stock distributions are just cosmetic changes, which means to divide the corporate pie into smaller pieces (Baker and Powell, 1993). This is because the stock split does not have any effect in future cash flow of the company and investor ownership portions. Therefore, the company cannot influence the market value and the wealth of investors.

From the investor point of view, stock market has become another alternative to seek faster and higher investment return, comparing to invest their funds in other financial assets, instead of calculating for risks that are involved in the investment. All stockholders or investors always consider the price of the share before investing their fund. As consideration, investors always perceive the existing information in capital market. There are various kinds of information in the capital market both from the emittent and non-emittent. The information will have positive or negative effects. The effect will influence to the emittent's securities and/ or the price of other emittent's securities. An investor hopes that the information he gets is accurate, relevant and up to date. Due to that need, BAPEPAM, as the regulator of stock market in Indonesia tries to make sure that there is a transparency in the disclosure of every related information's that comes from the market it self. Hence investors must further analyze this information.

If the stock's price is getting higher, the company's value will be higher, on the other side, the lower the price, lower the value of the company. The price of the stock reflects the value or the performance of the company. But, if the

stocks' price is too high, it will tend to decrease the investor's ability to buy and this will influence the stock trading volume. Therefore, in order to anticipate this circumstance, company usually conducts the stock split.

A stock split is an activity to increase the number of stocks (Brigham and Gapenski, 1994). Asquith et.al (1989) reportss that the stock split usually occurred when there is an increasing price of stock and positive market reaction will result from the stock split announcements. According to the signaling hypothesis, managers declare stock splits to convey favorable information about the current value of the firm. Managers obtain pertinent information about the future because of their expertise in operation and investment decisions. In the managerial point of view, a study by Baker and Gallagher (1980) showed that managers viewed a split action as a mean to keep their firm's stock price within an optimal trading range. This optimal trading range may arise to reduce trading cost and to attract a wide and heterogeneous base of stockholders. Brennan and Copeland (1988) argued that splits are costly because the fixed costs element of brokerage commissions increase per share trading costs of low priced stocks. The existence of positive excess returned around splits announcements was consistent with the signaling hypothesis (Grinblatt et. al, 1984; Asquith et. al, 1989; Mc. Nichols and Dravid, 1990).

The trading range hypothesis suggests that splits realign per share price in a preferred price range (Mc. Nichols and Dravid, 1990). Since the need to realign share prices usually stems from pre split price run up (Lakonishok and Lev,

1987). The trading range hypothesis links splits more to past performance than to the future performance. Baker and Philips (1994) reported that managers frequently justify splits on the basis that they improve liquidity and marketability. The increasing liquidity after stock splits appeare as a result of the increasing stock ownership and the number of transactions. Baker (1956), Lamoureux and Poon (1987) concluded that there are an increasing number of stockholders after stock split. They analyze that the increasing number of stockholders was caused by the decreasing price of stock, so stock volatility will be higher and attracts more buyers because the stocks are easily traded.

Pursuant to the above description, the writer will examine the possibility relate to the influences from stock split to stock price and trading volume that measured by the amount of bid ask spread for January 1999 until December 2001 period in Jakarta Stock Exchange. This research is based on the previous result by Conroy, Harris and Benet (1990) that the liquidity measured with the spread percentage will be worse after the split. This condition shows with the average increase of bid ask spread for 29% after the split in NYSE for the period 1981-1983. Hence the writer will purpose a thesis, entitled "Analysis of Stock Split Influence on Stock Price and Trading Volume For Some Company Listed in Jakarta Stock Exchange".

1. 2. Problem Identification

Rationally, stock split can affect the price of stock placed in the optimal and more popular trading range. Following a split, the number of shareholders may increase. This is because of individuals, who hold one round lot and who is likely to sell it to one buyer before a two for one split, may sell two round lots to two people after splitting. If the number of shareholders increases after the split then the trading volume increases. It can also be identified that there is a change in stock price after the stock split and the actual price with the assumption if stock split never happen.

Based on the description above, the writer is interested to analyze the stock split influence on stock price and trading volume using the true or real price condition using bid ask spread measurement.

1. 3. Problem Formulation

In this thesis, the problems are formulated as follows:

1. How does stock split influence true price or absolute price?
2. How does stock split influence the stock price and trading volume in delta condition?
3. How does stock split influence the bid ask spread level?

1. 4. Problem Limitation

In order to provide a clear description and to be able to derive useful information, the limitations of the study are indicated below:

1. The class of stock that is used in this study is common stock, because common stock is mainly traded on Jakarta Stock Exchange.
2. The stock that is used in this study is the stock that announced stock split from January 1999 to December 2001.
3. These stock splitting firms do not accompany the stock split event with any other event, such as earning announcement, dividend or bonus share, etc. it is considered as "clean split".

1. 5. Research Objectives

The overall objective of the research is to investigate the information content in stock split announcements, the specific objectives are:

1. To provide empirical evidence on the effect of the stock split on the stock price and trading volume.
2. To identify the correlation between stock price and trading volume
3. To identify the correlation between stock price and trading volume on the bid ask spread.

1. 6. Research Contribution

This study is conducted in order to give empirical evidence that stock split can influence the change of stock price and trading volume on some stocks listed in Jakarta Stock Exchange. It also shows the comparison between stock price after split announcement and the actual stock price with the assumption as if the split never happen. The stock price and trading volume is an important indicator to predict the investors' behavior in investing their funds. By announcing the stock split, the stock price is expected in accordance with optimum price range, so the trading volume will also increase.

The benefits from this study are:

1. To analyze the relation between stock split and the change of stock price and trading volume
2. To analyze the impact of stock split in the bid ask spread measurement
3. To analyze what is market reaction on split announcements
4. To analyze investors' reaction and consideration in their investment decision on split announcements
5. To analyze that capital market is one alternative to invest funds for investors and decision-making process.

1. 7. DEFINITION OF TERMS

Stock split : an increase in the number of shares outstanding by reducing the par value of the stock (Wachowicz, 1995).

Bid price : the price at which the stock is offered to be bought (Widoatmojo, 1996)

Ask price : the price at which stock is offered for sale (Widoatmojo, 1996)

Bid- ask spread : the difference between the highest asking price and lowest bid price (Jogiyanto, 1998)

CHAPTER II

REVIEW OF RELATED LITERATURE

2. 1. Stocks

In a company, stock is a representative of equity or ownership position, it can be said that if someone owns the stocks in a company, he can attend or vote directly in annual company meeting. The stockholder also has the rights for dividend, which paid annually by the company.

According to Koetin (1993) definition of stock is: "stock is well printed paper to prove that the owner is participating in the capital of the company, usually for corporation".

Stock is an ownership of a company. By purchasing the stock of certain company, the investors own a part of or all of the activa or passiva of the company. As an owner, the stockholder has the right of the part of company profit according to the amount of stocks that he owned. Beside, the stockholders have the right to attend the stockholders general meeting, which is held by emittent to vote for the company policy (Fabozzi, Modigliani, Ferri, 1996).

According to Westland and Copeland (1990), stocks in general mean common stock, which become the ownership of a company. As an investment, stock has some risks, those are:

1. Value and stock price uncertainty that depends on the market behavior, condition and the success of the company, and the national economic growth.
2. The uncertainty of expected dividend, which depends on the company profitable condition, dividend paid policy and the level of company tax.
3. The uncertainty of the future growth of the company which depends on the types of industry, competition level, economic growth and monetary policy, the level of society's demand, and political factors which relates with the company's needs.

By issuing stocks, the company expects to get additional funds from each stocks sold. The higher the amount of stock owns by the investor or stockholder shows the higher the performance of the company, and vice versa.

2. 2. Types of Stocks

In practice, there are several types of stocks, which can be differentiated by the substitution way and the benefit that the stockholders will get.

1. Based on the substitution right

- Bearer Stock

Bearer stock is unwritten stock, which can be traded easily from one investor to others. The parties that hold bearer stock will be considered as the voters in the general meeting of stockholders. The bearer stockholders must be

careful, because if there is a possibility of lost or theft, the owner could not get any substitution of it.

- Registered Stock

Registered stock is a written stock that places its owner to the most junior group in dividend payment, and the right of the company's wealth if the company was liquidated. If the stock is moved to another person, it must through certain procedures first, which must be replacing with the substitution document. Then the owner's name is written in the special company's journal that records all stockholders names. If the stocks certificate is lost, the owner can get its substitute because it is already written in the company's journal.

2. Based on the billing right

- Common stock

Common stock is the stock that places the owner in the most junior group of dividend payment, and rights for the company's wealth if the company is being liquidated. These stocks usually have nominal value, which has already determined by the emittent (the company that issued stocks). The nominal value that has been determined by the emittent is not the primary price of the stock. It is because the primary price is the price before a stock was being registered in stock exchange. If a stock sold with primary price higher than its nominal price, then the delta was bought by "angio saham".

Common stocks are divided in to several types, which are:

a. Blue chip stock

Common stock from high reputation company, as the leader from the same type of industry, has stabilized profit and consistent in dividend payment.

b. Income stock

Income stock is a stock from an emittent, in which related emittent can be paid the dividend higher than the average dividend payment in last year period.

c. Growth stock (well known)

It is stock from emittent that have high profit growth, as the leader in high reputation of typical industries.

d. Speculative stock

It is stock which the emittent can not be consistent in getting profit from the year to year, but having high profit ability in the future, although it can not be sure yet.

e. Counter cyclical stock

it is the stock, which cannot be influenced by the macro and micro economic condition or business situation in general. By the time of economic recession, this stock price was still high, where the emittent in getting high profit in recession time.

- Preferred Stock

Preferred stocks are union stock between obligation and common stock. It is because it produces fixed profit (like the obligation interest), which is expected by the investor. The similarity between preferred stock and common stock is determine by two factors, both of them represent the equity ownership and also publish without maturity date, which written on the stock. They also pay the dividend.

The similarity between preferred stock and obligation consists of three factors, such as:

1. Claim on revenue and current activa
2. Fixed dividend for the stock period
3. Having the guaranteed right and convertible with common stock

The preferred stockholder is passive partner, means that they do not have the right to vote in determining the company management. In Indonesia practice, all stockholders have the right to vote, not only for common stockholder but also for preferred stockholder.

Regarding to the matter above, in the implementation for Indonesia condition, when every general meeting of stockholder is held, the vote of preferred stockholder is also considered. The system and rights for stockholders are stated in company's budget.

In capital market practice on all over the world, preferred stocks are divided into several types:

- Cumulative Preferred Stock

These kinds of preferred stock give the owner rights of cumulative dividend payment in a percentage or specific amount. If in the certain year, the dividend paid cannot fulfill or not paid at all, then this will be considered in the future year. The dividend payment to preferred stockholders always comes first before the stockholders.

- Non- cumulative Preferred Stock

The owners of this stock get the priority in dividend payment until specific amount or percentage, but not cumulative. It means if in the certain year, the company cannot pay the dividend, this will not be considered in future year payment. As long as the preferred stockholder does not accept full dividend payment, the common stockholder is not right for the dividend payment. If the preferred stockholder has accepted the full dividend, they do not have longer right for extra or additional dividend that distribute to common stockholder.

- Participating Preferred Stock

Having fixed dividend that has been determined by the owner of these stocks, this stock also has additional dividend if the company is able to achieve targeted goal. The target can be in form of sales. The company's profit in certain period, for example one year of regular dividend from this type of stock is smaller

than the average regular dividend to all preferred stockholders, they also get extra dividend with the common stockholder if the goal is achieved.

2. 3. Stockholders Right

The ownership of the stock gives four basic rights to the stockholders, except specific rights that has eliminated in agreement with stockholders. Stockholders rights according to Horngren, Harrison, and Secokusumo (1998) are as follows:

1. The voting rights

   It is the right to participate in management through voting for the problems faced by the company.

2. Rights to accept decent proportion from dividend share. Every stock in specific categories will receive the same amount of dividend.

3. Liquidity

   Rights to have decent part that suits (based on the stocks owned) the left activa, after company paid all of its liability by the time of liquidation.

4. Priority

   Rights to have ownership amount on the company in the same portion. For example, investor owns 5% of the company stock. If company issued 100.000 sheets of new stocks, then the company has to offer the first chance to the investor to buy 5% (5.000 sheets) of the outstanding stock.

2. 4. Factors Influenced the Stock Price

Factors behind price changing according to Weston and Brigham (1993) are:

1. The amount of dividend payment

   As one of the factors affecting the level of price change, giving dividend in large amount can increasing the investor's trustiness to the company and will impact to the increasing price of the stock. Investors always eager to get high dividend.

2. The company's profit

   High profitable company and bright future performance, generally become the choice for investors to invest their funds, because high profit company tends to pay their dividend in high amount. The higher the investors invest their funds in a company, the higher the stocks price of the company.

3. Earning per share

   An investor who invests his funds in a company will get revenue from his stock, the higher the revenue per stock he owns, the higher his trust that the company will give good return. This will support the investor to make bigger investment, and in the end, it will result in the higher stock price.

4. Interest rate

   Interest rate can affects the stock price by:

   - Affecting the company profit, it is happened because the interest includes in cost, the higher the interest, the lower the company's profit.
   - Affecting the competition between stocks and obligations, if the interest rate increases, then the investors will get better result from obligation, so soon they will sell their stock to change the obligation. These kinds of change will decrease the stock price. The opposite impact will occur in the opposite situation. So, we can conclude that the interest rate is negatively affecting the stock price, means that if the interest rate is increasing then the stock price will decreasing, and vice versa.

5. The risk and return level

   Generally, the higher risk will result in higher return that expect by the investors, this situation has a big influence between investors behavior and expected stock price.

2. 5. Valuation of Stock Price

The increasing or decreasing stock price depends from one or some of the factors behind them. By the time the company's condition is decreasing, its stock price will tend to decrease and vice versa. The company always hopes that its

stocks price will not be too low because it will affect the value of the company, but the company also tries to keep the stock price not too high because it will decrease the ability of investor to invest their funds. The most expected condition is when the stock price is in optimum range, where it does not lower the investors' ability to invest. Valuation of stock price will easier the emittents or investors in knowing the right time to trade their stocks.

2.5.1. Fundamental Analysis

The fundamental analysis is analysis that based on the premium that every security (and market as a whole) has an intrinsic value, or the real value, which has been estimated by investors. This value is the variables' functions that become the basis of the company, which makes a combination to produce an expected return and risk. So, by using fundamental determinants from this security's value, then we can determine the intrinsic value estimation.

The intrinsic value of securities is determined by those fundamental factors, which come from internal company (emittent), industry or macro economic condition. The analyst will compare the intrinsic value of securities with the market value to see whether the market value has reflected the intrinsic value or not. Based on the comparison, the investment strategy can be applied.

The security's price will affect company's performance (for example, sales and revenue). The performance of the company itself will be affected by the industry condition and economic situation.

Fundamental analysis for the company level consists of financial variables analysis in order to estimate the intrinsic value. These variables include sales, profit margin, depreciation, taxes, financial sources, assets utilization, and others. Additional analysis can reach the competitive situation of the company in its industry, labor relations, technology changing, management, global competition and others. The final result from this fundamental analysis is the estimation of two factors, which determines the value of securities; they are cash flows and expected return. Some models in fundamental analysis are:

- Present value method

  Present value of a stock is the same with the present value of cash flows from future cash flows which investor expects to accept from investment of the stocks. The model from this method is:

  $$\mathbf{V}(value) = \frac{\Sigma cashflow}{(1+k)} \quad ,$$

  Where k = expected return (risk free of return + premium risk)

  To use the present value method, the investors should:

  1. Estimate discount rate or required rate of return
  2. Estimate the amount and period of future cash flow
  3. Use the combination of above components to fill the present value method to know the intrinsic value and compare with the present value

- Price earning ratio of stock valuation method

  This method based on the estimation of expected profit in the future, so it can be identified how long the investment will return. The formula for this method is:

$$\mathbf{PER} = \frac{Stock\ \Pr ice}{Net\ \Pr ofitPerStocks}$$

This calculation is similar with payback period method. Those ratios compare with similar company in the market. This model is the most common for the emittent's granted company to determine stock price in primary market. Because PER can be calculated using similar company's PER and multiply it with the net profit per stock projection so we can get the stock price. For example, PER of cable industry is 15 and PT. X that produces cable wants to go public with net profit per stocks projection for 275, so the stock price is

$P_0 = 15 \times 275 = \$\ 4,\ 125$

Therefore, the stock of the company in primary market is $ 4, 500 where the delta is premium for the company.

2.5.2. Technical Analysis

The technical analysis is design to predict the price condition, market fluctuation and estimation analysis using the pattern that is forms by graphs and

mathematics calculation about the flow of past price indexes that can be used to estimate the future indexes price.

This technical analysis argues that the previous study about price variables like price and trading volume of stocks will make an opportunity for investors to identify the right moment accurately or whether the stock is, overprice or under price. Most of the technical analyses depend on trading volume and price graphs.

Technical analysis assumed in some basis, they are:

1. The forces of supply and demands of securities determine the price of securities.
2. The supply and demand forces of securities affect by rational and irrational behavior.
3. The change of securities' price tend to move in one direction (trend)
4. The shift of supply and demand will affect the direction of price changing
5. Patterns of previous price movements will be happened in the future.

2. 5. 3. Modern Analysis

This modern analysis states that if investors or analysts want to use the analysis method carefully, then he needs a framework. These frameworks are the steps to analyze systematically:

a. Economic analysis

This analysis needs a healthy economic environment, because if the economic growth of a country is low, it will reflect low profit level of that country. The variable that use in this economic analysis consists of national income, monetary or fiscal policy, interest rate and other macro variables.

b. Company analysis

Investors need relevant information about the company to understand the performance that will be used as a basis in investment decision-making. Assuming that information needs are based on the consideration that the stock price is determines by previous company performance and future expectation, the investors have to collect all internal or external information from the company. That information consists of financial statement in certain period, solvability, and company liquidity.

c. Industry analysis

Analysts or investors need to majoring knowledge in industrial dimension of a company that will be very helpful in an industrial analysis.

2. 6. Stock Split

As a corporate action, stock split is nothing than a paper transaction, which multiplies the number of shares without changing any stockholders proportional claim on firms' assets, earnings, or dividend. When a split declared, each share is

split up into create additional shares. For example, in a 2 for 1 stock split, each old share is split up into 2 new shares. There is no cash transaction involves in the event, and each shareholder owns the same percentage as they held prior to the split event. Thus, a stock split has no real or economic consequences, because it has no effect either on the firms' future cash flows or on the shareholder proportional claim on these cash flows.

Most of the corporate managers and practitioners believe that stock split will bring firm's share price into some optimal trading range, thus it will be attract more small investors, expand the shareholder base, improve liquidity and increase the stock price.

One of the factors that affect the supply and demands of shares is the price level of the shares itself. If the price is considered too high for the market, the demand of shares will decrease. In the other condition, if the price is low, the demand of shares will increase. Stock splits are the changing of nominal value per shares and add the outstanding shares in accordance with the split factor. Stock split usually conducts when the stock price is too high, which decreases the ability of investors to purchase the stocks. By splitting the stock, the high price is expected to decrease, so it will attract more investors and increase the trading volume of the stocks.

Basically, there are 2 kinds of stock splits, they are:

1. Stock split- up, is the decreasing nominal values per each stock that result in the increasing number of outstanding stocks. For example, stock split with 2:1, 3:1, and 4:1 factors.
2. Stock split- down, is the increasing the nominal value per each stocks and decreasing the number of outstanding stocks. Such as, split- down with 1:2, 1:3, 1:4 splitting factors.

In Indonesia so far, the emittents only do the stock split- up, and never found the stock split- down cases. With stock split, the old stocks are destroyed and the new stocks (with the new nominal value) are published. The amount of new stocks usually increases for 25% or more, in comparison with the old outstanding stocks.

Some market participators especially the emittents believe that the split activity can give many benefits for the company. McGhough (1993) reported that the benefit, in general, is comes from the decreasing stock's price which attracts more investors and it make the stocks more liquid to trade, and change the odd lot investor to round lot investor.

- Odd lot investor is investor who purchases no more than (maximum) 500 stocks (1 lot).
- Round lot investor is investor who purchases more than (minimum) 500 stocks (1 lot).

Although split is believed to give benefit to the company but still lots of arguments arise. The parties whose support the split believe that lower stock price

will add the stock ability to trade in every situation and increasing market efficiency, attracting small investors to invest, showing the market liquidity, the shareholder can get profit even in small amount by doing split (the stock price can significantly raise or decrease by its volatility) strong signal for the stocks show that the management feel optimistic on his company's growth.

The opposite parties believe that the level of price nowadays is still not enough to guarantee the succeed of split because of the business uncertainty, the split price level is placing the company to a group that have low stock value so it will impact the trustworthy investor to that price, the increase of stock split will increase the servicing cost for shareholders.

The affect of split for shareholders raises the problem about the existence of profit for shareholders. The market price of the stock reflects the value of the company. The higher the stock price means the higher the value of the company and vice versa. Because of it, every company always watches its stock price. Low stock price is seldom consider as low company performance. However, if the stock price is too high, it will decrease the investors' ability to buy, so the stock will difficult to rise again. In order to anticipate that condition, many companies do split to increase the investors' ability in purchasing stocks.

2. 7. Motives for Issuing Stock Split

Researchers have examined hypothesis about stock split using two divergent but complementary approaches such surveying managers and using

market data. Few researchers have surveyed managers to get their view about stock split, most of them have used stock market data to make inferences about managerial motives and explain real effects of stock split. They infer the main objective of the split is returning the stock price to a normal range after an unusual growth period. The normal range is based on market and industry- wide price averages and possibly on some firm specific prices.

Their results partially supported the signaling motive but not the liquidity motive. A research which have done by Baker and Powell (1993) surveyed 136 respondents in US, showed that manager believes the most important reason for undertaking a split is moving the stock price into a better trading range (over 50.7%). The second most highly ranked motive is improving the stock liquidity (22.1%), followed by signaling optimistic managerial expectations about the future (14%), and attracting more investors (2.9%). Few managers think increasing the total market value of the firms stock or conserving cash as important motives for issuing stock split.

According to Riepe (2000), there are at least three reasons why management splits their stock:

1. Liquidity. His impression form listening to CFO's talk is that having a liquid stock is a good thing. A split lowers the stocks price, which typically makes a stock attractive to a larger group of investors. In which, it might just drive share prices higher.

2. Management signaling. Companies like to see their stock price rise. It seems unlikely that a firm would split its stock if it were bearish on its prospects. Therefore. a split can be interpreted as a vote of confidence by management. After all, who has better information about company's prospects?

3. Starved of attention. It suggests that company that thinks their shares are undervalued split their stock to gain attention of analyst. The idea is that split causes analysts to re-examine the company. In addition, if management is right, the analyst will find its more prospects, more favorable, and issue an upgrade on the stock rating.

2. 8. The Efficient Market Hypothesis

There are many definitions of efficiency for different points of views. For the investment point of view, market efficiency means the market price of stocks reflect all available information about economy, about financial markets and about the company itself. Tandelilin in his book explained it by using a proverb "no one can beat the market". It means, if there is efficient market and all within reach information is easy and cheap for market participants. Thus equilibrium price will be formed. No investor gets the abnormal return because market price adjusts quickly to new information.

Husnan classified these information into 3 types, those are:

- Information in the form of past price changing
- Public information
- Public and private information

Even as Fama (1970) classified Efficient Market Hypothesis (EMH) as follows:

1. Weak- form market efficiency means all historical information (past stock price and trading volume) will reflect in the current price. Market participants cannot use past stock price to predict future stock price. It is because market prices fluctuate randomly as individual stocks adjust very rapidly to new information. This price movement will not follow any pattern (random movement).

   Unlike the above opinions, this has given by academicians. Many analysts use stock price movement to decide an investment. Wong Yee (1991), a Singaporean analyst pointed out that by interpreting the daily movements of stock prices, the future trends could be generated.

2. Semi- strong form of market efficiency means that stock prices reflect all historical information and published information. The form of published information areas follows:

   - Published information, which only influence the stock price of announcing firm. Listed company, which is related to corporate events, will announce it. As the examples are dividend announcements,

earning announcements, changing in accounting method, changing in management personnel and others.

- Published information that only affects the stock price of certain firms. It can be government regulation or other regulation, which influence the stock price of regulated company. The example is reserved requirement regulation for all banks. Such kind of regulation will affect the stock price of all banks.
- Published information, which affects the stock price of all listed firms in Jakarta Stock Exchange. It can be regulation or policy, which influence the stock price of all listed information, such as accounting policy to include statement of cash flow in the listed firm's financial statement. There is no chance for investors to earn abnormal return in their return in their kind is market if they only analyze the published information.

3. Strong- form market efficiency; no investors can earn abnormal return since all information, publicly available or insider have been reflected in stock price.

Husnan had already done research in Jakarta Stock Exchange for different years. First, in 1991 in corporation with Hanafi, he found the reflection of past information in stock price for the year 1990. Again in 1994 he found the possibility to get significant abnormal return in JSX. This condition did not fulfill the requirement for semi strong form of Efficient Market Hypothesis. Husnan

further research showed the development of JSX, which had already fulfilled the requirements of the semi- strong market hypothesis.

2. 9. Spread Theory

Bid- ask spread is the difference between the highest asking price and lowest bid price (Jogiyanto, 1998). Spread that happened in JSX is market spread, which mean the difference between the highest bid and the lowest ask that happened in certain period (Hamilton, 1991). The spread is also known as cost of transaction immediacy to investor (Hamilton, 1991). Some empirical study explained spread with market making cost and inter dealer competition. Related with those spread measurement, Hamilton (1990) argued that there are two spread models: dealer spread and market spread. Dealer spread is the difference between the bid price and the ask price that caused individual dealer wants to trade securities with their own activa. While market spread is the difference between highest- bid with lower- ask that happened in a certain time.

The result of this research concluded that both spread has different relation with components that affected them like costs, information, and competitions. Cost of immediacy to investor can be measured directly by using market spread, while market making cost and inter dealer competition using dealer spread. Some researches that conducted in USA, most probably cannot conduct directly in Indonesia, especially in JSX. This is because most of the literature is more focused in NYSE market, AMEX, Or OTC and as we all known, that in those

secondary markets, dealer who acts as trading mediator were dominant (Aitkein and Frino, 1996). On the other side, JSX activities are more competitive order matching market or known as order driven market system where investors only allowed giving trading order and doing transaction trough brokers. Investors cannot directly participate in JSX transaction, and market spread type is the ideal situation for JSX. The existence of difference market structure can support the high level of spread (Tinic and West, 1974: Neal, 1992).

Spread calculation by market maker is a compensation to cover three kinds of costs, they are: inventory holding cost, order processing cost and (adverse) information cost (Stoll, 1989). Inventory holding cost reflects the price risk and opportunity cost toward securities ownership. Order processing cost relates with securities trading process, communicating, recording and transaction clearing. Information cost happens when there is a transaction between dealer and investor whose have superior information.

The research conducts by the researcher is more related to information cost in the split announcement. The assumption is that information cost or adverse selection risk were consider change while inventory holding cost and order processing cost were considered fixed (relatively to bid ask percentage) for the period around the split. Information cost will increase if dealer do the transaction with investor whose have information. High information cost will reflect high information asymmetry. This can be showed by the increase of spread (Stoll 1978; Howe and Lin, 1992). Glosten and Harris (1988) found the change of spread in

common stock was arise because information asymmetry. Capital market participants can use that way, spread for the unbalanced information proxy that faced by them.

2. 1. 0. Theoretical Frameworks

The previous studies that are used as a base of this research are:

The research result from Barker (1956) and Lamoureux & Poon (1987) concluded that the amounts of stockholders were increasing after the split. According to Lamoureux & Poon (1987) those increasing were caused by the declining of price, the stock price volatility become larger so it will attract investors to add the amount of stocks they owned. As the result, the liquidity was also increase because of the increasing amount of investor whose can sell or buy stock.

Different result showed by Copeland (1979), Conroy, Harris and Bennet (1990), found that there was a decrease in liquidity after the split with each of them using trading volume and bid- ask spread as proxy. Those result was neither in opposite with Murray (1985), who conclude that split does not effecting trading volume nor the bid ask spread.

Fama et. al. (1969) has done the test based on the hypothesis that stock split that followed by increasing dividend, was mean by market as the predictor of dividend increasement. The changing of dividend can become information concerning the management beliefs in future profit. The result showed by Fama

(1966) in this result is the stock price was increase on pre- stock split announcements.

The result of Grinblatt (1984) basically in accordance with Johnson (1966) research that took sample of 146 companies listed in New York Stock Exchange (NYSE) on 1959, with hypothesis that stock split does not have significant influence on changing of stock price with controlling variable dividend per shares, earning per shares, and index of industrial stock price. The research result showed that stock price react positively and significant to split announcement and dividend paid is no significantly affecting stock price.

Asquith et. al. (1989) also done research on stock split with observed whether if the stock split consist the accounting profit information. But, the most interesting from this research is company act as a sample did not paid their dividend for the last five years before stock split. After the split announcement, research showed that stock price gave significantly positive reaction.

Ewijaya and Indriarto (1999) also conducted same research on stock split. This research used 75 companies sample in JSX with differentiate to 40 companies that announced stock split and 35 companies that did not publish their split, here those companies act as supervisors. This research focused on whether stock split has negative significant influence. The result is that stock split has negative influenced with relative stock price. This analysis result is not in accordance with the research done by Johnson (1966), where the research showed positive significant result on the change of stock price because of split.

Sri Fatmawati and Marwan Asri (1999) research examines thirty companies, which did stock splits in JSX during July 1995 to June 1997. The results of this research indicate that there are significant differences among stock price, turnover volume, and bid-ask spread for before and after the listing date. Besides that, the difference of bid- ask spread is affected by stock price, volatility, and trading volume.

Jogiyanto (2000) result on his research on stock split effects also showed that stock split has no significant effect on stock price and trading volume. Split only showed significant moves on a day before and after the announcement.

Suad Husnan (2000) also has the same result; he used event window for 5 days before and after the announcement for his research range because Indonesia's stock market is in low efficiency condition, means that the stock price and trading volume seem significant fluctuate on the announcement day. There is no significant influence on the announcement.

2.1.1. Hypothesis Formulation

The hypothesis testing with paired different test in this research was formulated with zero hypothesis (H_0) and alternatives hypothesis (H_1), (H_2), and (H_3). Hypothesis from this study are:

H_0 = There is no significant influence from stock split announcement

It has been well known that the split decision can be made in order to decrease the price of the stock in to the optimal level. Baker and Gallagher (1980)

argued that most of the manager that conducted split was tend to make the stock price in the optimal trading range so it can improve the stockholders' liquidity. The same thing also resulted in Lakonishok & Lev's (1987) research that split caused the stock price in the normal trading range. The main motive for the company to announce stock split is to arrange the stock price to a better trading level (Baker & Powell, 1993). In the other side, Johnson (1966) concludes that the split announcement caused the improvement of the stock price. So, the alternative hypotheses can be arranged:

H_1 = There is significant influence of stock split announcement in absolute stock price condition

The split activities can influence the trading volume and the amount of stockholders, which in this case is getting higher (Barker, 1956; Lamoureux & Poon, 1987; Conroy & Flood, 1989; Szewczyk & Tsetsekos, 1991). In the other side, Copeland (1979) found a decreasing of liquidity that measured with the trading volume, broker's profit and the bid- asks spread after the split. That way the alternatives hypothesis was arranged:

H_2 = There is significant influence from stock split announcement in stock price and trading volume

Glosten & Milgrom (1985) developed the intuitive model to explain the existence of adverse selection risk that faced by the dealer as an impact of trading with the informed traders and also the effect to bid ask spread. The information absorbent by market participants through public split announcement will decrease the information asymmetry so the dealer will tend to lesser and finally will resulted in the decrease of bid ask spread. Those positive relations were also supported by Forjan & McConry (1991) research. Conroy, Harris & Benet (1990) gave different conclusion from their research. They used estimation period for two months before announcement and event period for two months after ex- date, for 1981- 1983 samples. The result was showed that absolute spread is decreasing while spread percentage is significantly increasing. The increasing of spread percentage also proved by Ferris, Hwang & Sarin (1993) by focusing on the market characteristics in post split period. Based on those researches and arguments above, the hypothesis was arranged:

H_3 = There is significant influence from stock split announcement in spread value

CHAPTER III

RESEARCH METHOD

3.1. Research Method

The analysis method used in this thesis is correctional descriptive along with doing some research on some stocks on go public companies listed in JSX. The descriptive method in this thesis will systematically explain about the level of stock price growth and trading volume for some stocks in JSX during period of 5 days before and 5 days after the split announcement, adopted from and Sri Fatmawati & Marwan Asri (1999) research that conducted in Indonesia stock market condition. Meanwhile, the correlation was used to search the relation happened between stock split which done to all variables.

3.2. Research Subject

The subject of this research were the company listed on JSX from the period January 2000 to December 2001 announced a stock split during the period of consideration. The reasons behind the chosen period were because of the completeness of data during that period, and since the ICMD have not provided information for the period after 2001.

3.3. Research Setting

This thesis research used data downloading and got all information needed from JSX corner at Faculty of Economics UII Jogjakarta as the representative of Jakarta Stock Exchange, Jakarta.

3.4. Research Instrument

Data collection was executed by compiling the secondary data that was available and quoting properly from data sources in the FE UII library and Jakarta Stock Exchange. Data collection and the source of data are described below:

a. Companies that were listed on the Jakarta Stock Exchange and announced stock split. Data will gather from the Indonesia Capital Market Directory 1998 – 2000 and the annual Jakarta Stock Exchange statistic.
b. Daily stock price collected from the Bisnis Indonesia daily newspaper
c. Data of daily trading volume level (Rp) collected from Bisnis Indonesia daily newspaper
d. Stock price level (Rp) collected from the Indonesia Capital Market Directory 1998, 1999, and 2000
e. Bid ask level (Rp) collected from annual Jakarta Stock Exchange

3.5. Research Variables

Operational variables used in this thesis are:

1. Stock split- up

   The definition is the change of nominal value per stocks and the increasing amount of stocks. Stock split conducted when the stock price was considered too high.

2. Stock price

   Stock price is the valuation of a stock that trade in form of currency. Price usually formed by the existence of supply and demand in the market. The stock price used in this research is the closing price that occurred in JSX. The daily closing price data will calculate in to average price. In this analysis, the price was differentiating to:

   - Pa = is the stock price that applied in certain period or t- period before stock split
   - Po = is the stock price in certain period or t period by the time of stock split
   - Pb = is the stock price in certain period or t period after stock split

3. Stock trading volume

   Stock trading volume is the over all of purchasing transaction value or stock trade by investor in form of currency. The stock trading volume in this research was divided to:

- Va = is the amount of stock trading volume that occurred in certain period or t- period before stock split
- Vo = is the amount of stock trading volume in certain period or t- period by the time of stock split
- Vb = is the amount of stock trading volume in certain period or t+ period after stock split

4. Spread determined by closing price based on the daily buy and sell offer. In this case the writer used the Howe and Lin (1992) model to calculate the spread percentage.

$$\% \text{ Spread} = \frac{(ask - bid)}{\{(ask + bid)/2\}}$$

3.6. Research Procedures

In order to answer the research problems, it is imperative to construct research procedures. The procedures were arranged as follows:

- Finding each variables
- Determining the event window, which is 5 days before and after the split
- Gathering the daily stock price, trading volume and bid ask for 5 days around the split for each splitting companies
- Doing the statistic test to find out whether there was a significant variation on the relationship among variables in both period (before and after split)

- Analyzing and interpreting the data
- Deriving conclusion and any other findings

3.7. Technique of Data Analysis

3.7.1. Population and Sample

These research populations are go public companies that listed in JSX. Using purposive sampling method, population used is population that already fulfilled the criteria required in this research. The stock sample chosen is listed in JSX and it is not affected by any other events, such as bonus share, right issue, dividend payment, and earning announcement. This requirement made to avoid the ambiguity from the other events or misspecifications in determining the research sample that can affect the analysis result.

3.7.2. The Period of Observation

This research used data interval or estimation for 5 days before and 5 days after the split announcement. Data used in this research is secondary data collected from emittent's Daftar Harian Efek (DHE) that conduct stock split without affected by any other event from 1999 until 2001.

3.7.3. Analysis Steps

a. Identificating of the event date, listing date of stock split.
b. Determining the event window, which were 5 days before and 5 days after the stock split

c. Obtaining the data daily stock price, trading volume, and delta price on the event window.

d. Finding each variable by calculation.

e. Doing the statistic test to find out whether there was a significant variation on the relationship among variables in both period (before and after split)

f. Analyzing and interpreting the data

g. Deriving conclusion and any other findings

3.7.4. Data Analysis Method

Secondary data that has been collected using splitting companies data will analyze and make into comparison, which are the delta of stock price and trading volume before and after stock split with estimation period 5 days before and after split announcement. Analyzing the relation of stock split with price or trading volume, using statistic distribution calculation t output method because this research was using small amount sample (less than 40).

Step in data analyzing is to estimate the stock price variable, stock trading volume in relation with the level of spread that caused by the split policy. The relation between spread (dependent variable) with price, trading volume (independent variable) can be formulated:

$$S_{it} = \beta_0 + \beta_1 PRICE_{it} + \beta_2 VOL_{it} + \varepsilon_{it}$$

Where: S_{it} = spread

$PRICE_{it}$ = stock price

VOL_{it} = trading volume

ε_{it} = error term (bug variable)

I = days I

T = years

This analysis also used hypothesis testing which later data processing using SPSS (Statistical Product and Service Solution) statistic program with paired t- test to test whether the research factors has significant influence to the stock growth with 95% level of confident (mistake tolerant level 5%) in JSX.

The t output calculation will use to determine the spot area in statistic paragraph to know the split influence to stock price or trading volume. To make a conclusion from the calculation, hypothesis made:

1. H_0 = 0 both population averages is identical (average stock price and trading volume before and after stock split is similar)

   H_a $\neq$ 0 both population averages is not identical (average population before and after split is different)

2. In hypothesis making, it is also need to determine the level of (α), which is tolerable level of mistake. This research determined the level of alpha α for 5%, after that, determine the t table, which is $t_{(0.05)(n-1)}$.

This hypothesis data will be calculated in SPSS program. The stock price and trading volume for before and after stock split were calculated in SPSS program using regression method and comparing with the tolerable level of mistake to find out whether the result were match with the hypotheses made.

CHAPTER IV

DATA ANALYSIS AND DISCUSSION

4.1 Research Description

In this research, the researcher uses secondary data, which are, companies trading volume, stock price, and bid ask spread. Those data were taken from Jakarta Stock Exchange file through JSX corner at FE UII. The data for splitting companies was collected from Indonesian Capital Market Directory (ICMD).

The sample uses in this study is obtain from IMD. There are 78 stocks split announcements in all industries for the period 1999 to 2001. Unfortunately there are only 39 companies that appropriate to all research requirements, so this event study uses only 39 companies as the sample for this research.

The research process is continue by looking at the trading volume, stock price, and the value of bid- ask spread for the period determined, which are, 5 days before and 5 days after the split announcement. The next process is to make statistical comparison between average stock price, trading volume, and the spread value before and after the split announcement to check whether there is significant difference of statistical stock price between those periods. Determining the impact of stock price variable, trading volume, and stock price volatility to the spread level are the final process. Data is processes by using Microsoft Excel and was analyzed by using SPSS release 10.0 for the test of significant model.

Table 4.1 is the list of the splitting companies, and their splitting date that uses in this research.

Table 4.1.

Splitting Companies

No	Company	Code	Splitting Date
1	Bank Century Intervest Corp.	BCIC	April 1, 1999
2	Sahid Jaya Hotel	SHID	June 4, 1999
3	Suba Indah	SUBA	June 9, 1999
4	BBL Dharmala Finance	BBLD	July 26, 1999
5	Bank Global Inti	BGIN	August 16, 1999
6	Igar Jaya	IGAR	August 16, 1999
7	Eka Dharma Tape	EKAD	September 6, 1999
8	Bhakti Investama	BHIT	September 8, 1999
9	Enseval Putra Mega Trading	EPMT	September 13, 1999
10	Dankos Laboratories	DNKS	September 20, 1999
11	Kalbe Farma	KLBF	September 27, 1999
12	Sunson Textile	SSTM	September 27, 1999
13	Budi Acid Jaya	BUDI	September 28, 1999
14	Kurnia Kapuas	KKGI	September 29, 1999
15	Pan Indonesia Bank	PNBN	October 4, 1999
16	Bhakti Investama	BHIT	February 8, 2000
17	Astra Graphia	ASGR	March 7, 2000
18	Sona Topas Tourism	SONA	April 7, 2000
19	Trimegah Securities	TRIM	April 24, 2000

20	Bentoel International	RMBA	April 25, 2000
21	Medco Energi Int.	MEDC	June 2, 2000
22	Asiaplast Industri	APLI	August 16, 2000
23	United Tractors	UNTR	September 5, 2000
24	Indofood Sukses Makmur	INDF	September 29, 2000
25	Asuransi Harta Aman P	AHAP	October 2, 2000
26	Bahtera Adimina Samudra	BASS	October 9, 2000
27	Intraco Penta	INTA	November 6, 2000
28	Fastfood Indonesia	FAST	December 5, 2000
29	Evershine Textile Industries	ESTI	December 11, 2000
30	Charoen Pokphand	CPIN	January 15, 2001
31	Ultra Jaya Milk	ULTJ	January 16, 2001
32	Dharma Samudra Fishing Industries	DSFI	January 22, 2001
33	Ramayana Lestari Sentosa	RALS	February 15, 2001
34	Bank BCA	BBCA	May 15, 2001
35	Summit Plast Interbenua	SMPL	July 31, 2001
36	Sarasa Nugraha	SRSN	August 6, 2001
37	Millenium Pharmacon Int.	SDPC	September 3, 2001
38	HM Sampoerna	HMSP	September 24, 2001
39	Siantar Top	STTP	December 20, 2001

4.2 Research Findings and Discussions

It is widely believes that stock splits are purely cosmetic, since the corporation's cash flows are unaffected, each shareholder retains his proportionate ownership and the claims of other classes of security holders are unaltered. Although stock splits appear to be purely cosmetic changes, research shows real effects associated with them. Despite extensive study, controversies still abound in the literature about these effects. These controversies include whether stock splits affect shareholder wealth, change a stock risk, improve liquidity, and provide signals to the market. The objective of this research is to verify empirically that stock splits relate those real effects especially stock liquidity as measured by bid-ask spread. As from the reasons above the bid-ask spread of the split announcement on 1999-2001 can be seen on Table 4.2 below

Table 4.2

TRADING VOL, STOCK PRICE, SPREAD of Stock Split

On 1999-2001

999				PERIODE 2000				PERIODE 2001		
ge				Average				Average		
ng Vol	Mrkt Price	SPREAD	t	Trading Vol	Mrkt Price	SPREAD	t	Trading Vol	Mrkt Price	SPREAD
4944,4444	1641,667	0,018615	-5	39437,5	3748,125	0,003938	-5	37250	4387,5	0,004641
0555,5556	1691,667	0,029783	-4	7875	3759,375	0,007458	-4	144500	4500	0,003366
1611,1111	1675	0,039822	-3	20000	3728,75	0,006351	-3	37833,33	4604,167	0,004008
9333,3333	1666,667	0,031996	-2	11312,5	3678,75	0,007626	-2	110833,3	4612,5	0,003993
51833,3333	1688,889	0,035151	-1	15937,5	3761,875	0,007045	-1	79750	4595,833	0,004178
283111,111	597,2222	0,064695	0	345312,5	655	0,02336	0	376916,7	988,3333	0,008844
128388,889	608,3333	0,043073	1	205875	643,125	0,00862	1	230333,3	1000	0,011564
199333,333	605,5556	0,038991	2	478375	630,625	0,009557	2	634750	978,3333	0,0066
471055,556	602,7778	0,042561	3	623875	625	0,010051	3	326750	967,5	0,00755
676722,222	636,1111	0,033288	4	461250	624,375	0,008484	4	961833,3	981,6667	0,006599
366555,556	561,1111	0,030582	5	351562,5	612,5	0,020104	5	1140167	977,5	0,006543

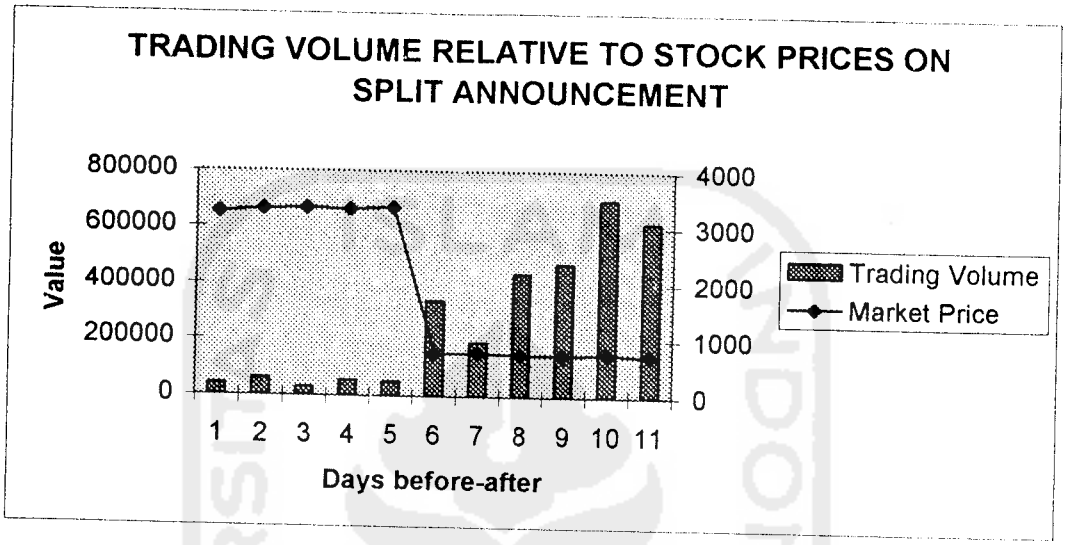
Source: Jakarta Stock Exchange

From Table 4.2 above, we can combine the stock price reactions prior to split announcement around 1999-2001 as a time series movement on Figure 1 below:

Figure 1

Trading Volume Relative to Stock Price

On Split Announcement



Source: Microsoft excel

As from Figure 1 above, we can see that stock price moves to decline after the split and follows by the increasing of trading volume. These will prove that the split-up factor will increase the trading volume. The condition of macro economic will impact on fundamental actions on public enterprise and followed by the improving of market liquidity for current obligations especially to their stockholders, and lowering the transaction costs. The trading range hypothesis suggests that splits realign per share price to a preferred price range (Mc. Nichols and Dravid, 1990), since the need to realign share prices usually stems from pre split price run up (Lakonishok and Lev, 1987). The trading range hypothesis links splits more to past performance than to future performance. Baker and Philips

(1994) reported that managers frequently justified splits on the basis that they improve liquidity and marketability. The increasing liquidity after stock splits appears as a result of the increasing stock ownership and the number of transactions, and follows by raising the book value of its stock.

The impact of split announcement increases the absolute price (true price) as from the split-up factor and we can see on Table 4.3 below:

Table 4.3

Trading Volume-Stock Price-Absolute Price And Spread on Split Actions

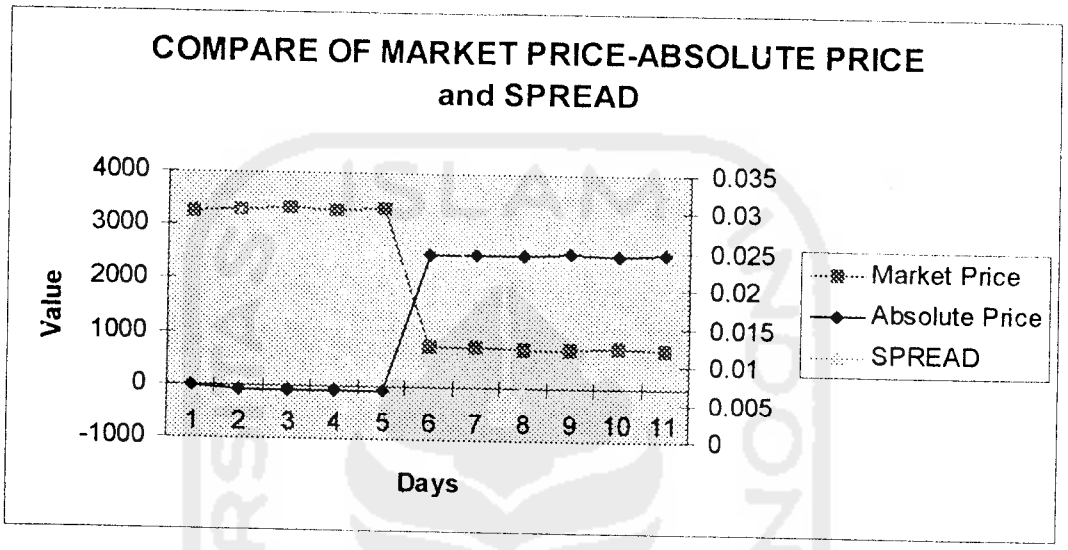
Day	Trading Vol	Mrkt P	Abs P	SPREAD
-5	40543,9815	3259,097	-14,1898	0,009065
-4	60976,8519	3317,014	-77,8009	0,013536
-3	29814,8148	3335,972	-94,6991	0,016727
-2	53826,3889	3319,306	-75,4861	0,014538
-1	49173,6111	3348,866	-89,0046	0,015458
0	335113,426	746,8519	2483,912	0,0323
1	188199,074	750,4861	2496,574	0,021086
2	437486,111	738,1713	2508,449	0,018383
3	473893,519	731,7593	2511,088	0,020054
4	699935,185	747,3843	2510,694	0,016123
5	619428,241	717,037	2519,861	0,019076

As from Table 4.3, we can see their movements on Figure 2 below

Figure 2

Market P-Absolute P-SPREAD

On Split Announcement



Source: Microsoft excel

From Figure 2 we can look the opposite movement from market price and absolute price and it indicates that the true price (absolute price) will increases after the split and also indicates that the ask price will also increases as the result from lowering the market price. The impact from these actions is followed by the increasing book value of its stock and will lowering the bid price after the split. The final impact is raising the spread, up from these actions. Investors are always buying at lower level of market price and will take the increasing of the book value after the stocks are being sold.

In the emerging market, stocks always bought at a specified risk premium that always followed by widely spread between risks adjusted to market price and

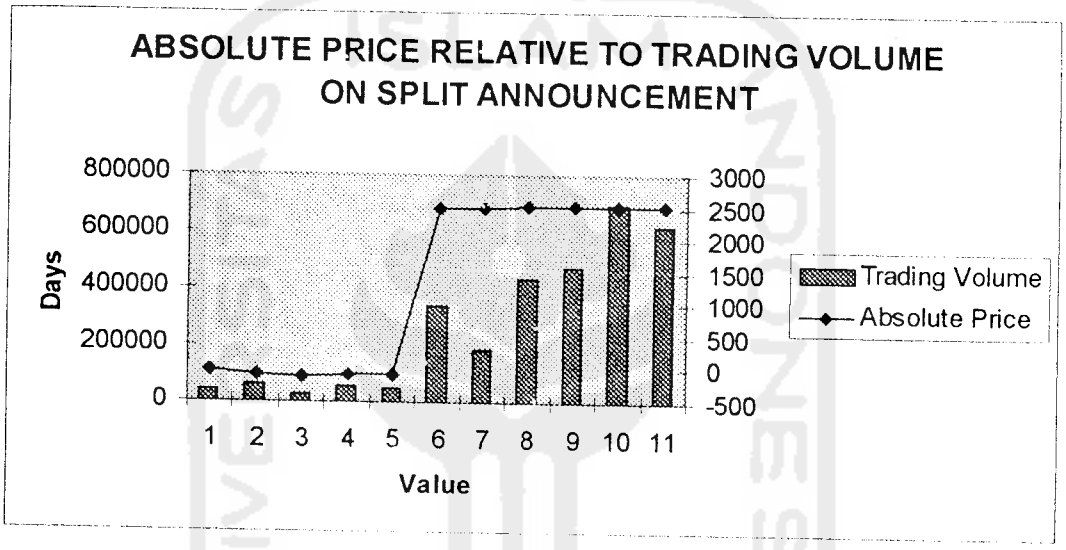
the book value of stocks. For those conditions, the split up factors are perform market liquidity and will result adjusted lower risk for each stock.

Those conditions will describe on Figure 3 below:

Figure 3

The Absolute Prices Relative to Trading Volume

On Split Announcement



Source: Microsoft excel

From Figure 3 above, we can conclude that the increase of absolute price will followed by the increase of the trading volume. These will improve the market liquidity from the split itself. The lowering market price and the increasing book value of stocks will follow these actions. The absolute price itself can be computed by using formula of market price multiplied by the split factor. It indicates the cost amount of stock that must be paid by each buyer for each stock sold. The demand side will push up to a maximum level for the days after the split.

As from the evidences above we can test the statistical hypothesis bellows:

Table 4.4

The Correlation of Trading – Market Price – Absolute Price And Spread

Correlations

			Trading Volume	Market Price	Absolute Price	SPREAD
Spearman's rho	Trading Volume	Correlation Coefficient	1,000	-,836**	,900**	,500
		Sig. (2-tailed)	.	,001	,000	,117
		N	11	11	11	11
	Market Price	Correlation Coefficient	-,836**	1,000	-,936**	-,600
		Sig. (2-tailed)	,001	.	,000	,051
		N	11	11	11	11
	Absolute Price	Correlation Coefficient	,900**	-,936**	1,000	,509
		Sig. (2-tailed)	,000	,000	.	,110
		N	11	11	11	11
	SPREAD	Correlation Coefficient	,500	-,600	,509	1,000
		Sig. (2-tailed)	,117	,051	,110	.
		N	11	11	11	11

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.4 we can look that there are some significant relations from trading, market price, and absolute price with spread below:

a) The negative relation on trading volume and market price from split announcement with significant level 0,001

b) The positive relation on trading volume and absolute price from split announcement with significant level 0,000

These conditions prove the trading range theory and the signaling effect from the stock split itself, which are derive from the fact that the split announcement will improves the market liquidity and decreases the stock price. These will make the "true price" (absolute price) increase after the split. Those conditions can be use as a model test for the influence indicator of the spread from the split announcement on Table 4.5 below:

Table 4.5
Regression Analysis of Split Announcement

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	,015	,002		7,477	,000	,010	,020		
	Trading Volume	-1,63E-08	,000	-,703	-1,531	,164	,000	,000	,269	3,722
	Absolute Price	5,416E-06	,000	1,245	2,709	,027	,000	,000	,269	3,722

a. Dependent Variable: SPREAD

Source: SPSS 10. 05

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Market Price	-51,686[a]	-1,376	,211	-,461	3,615E-05	27665,820	3,594E-05

a. Predictors in the Model: (Constant), Absolute Price, Trading Volume

b. Dependent Variable: SPREAD

Source: SPSS 10. 05

As from Table 4.5 above the conclusions are:

a) There is no significant influence from trading volume on spread

b) There is no significant influence from market price on spread

c) There is a significant influence from absolute price on spread with significant level 0,027

The regression equation from those variables is:

$$Y = ,015 - 1,63E\text{-}08\ X_1 + 5,416E\text{-}06\ X_2$$
$$(-1,531) \qquad (2,709)$$

where X_1 = trading volume

X_2 = absolute price

Y = spread value

Trading volume (X_1) and spread (Y) has a negative relation, so if the amount of trading volume increases, the amount of spread will tend to decrease. Otherwise, if the trading volume is decreases, then the spread values will increases. In the absolute price (X_2), we can conclude that if the absolute price is increases, it will make the spread value (Y) rises. The regression test shows that there is no significant relation between those variables, so if we relate X_1 with Y, it will have no effect on X_2. That relation also exists in opposite condition. These conditions support the trading range theory that from lowering the market price will boost the liquidity of each stock and the absolute price will climb over and the spread relation is positive to it.

As from the evidence above we can prove the statistical hypothesis as:

a) Split is significantly influence by spread from the absolute price with significant level 0,027 so the null hypothesis is rejected.

b) Stock prices are not significantly influenced by spread, and then the null hypothesis is accepted.

c) Trading volume is not significantly related with spread then the null hypothesis is accepted.

After we have tested for the relation of absolute price and bid- ask spread from stock split announcement, now we test the differences of the absolute prices for the period before and after the split, whether it has significant difference as on Table 4.6 below:

Table 4.6

The One-t test for Absolute Price

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Absolute P	3,290	10	,008	1334,4907	430,8341	2238,1474

Source: SPSS 10.05

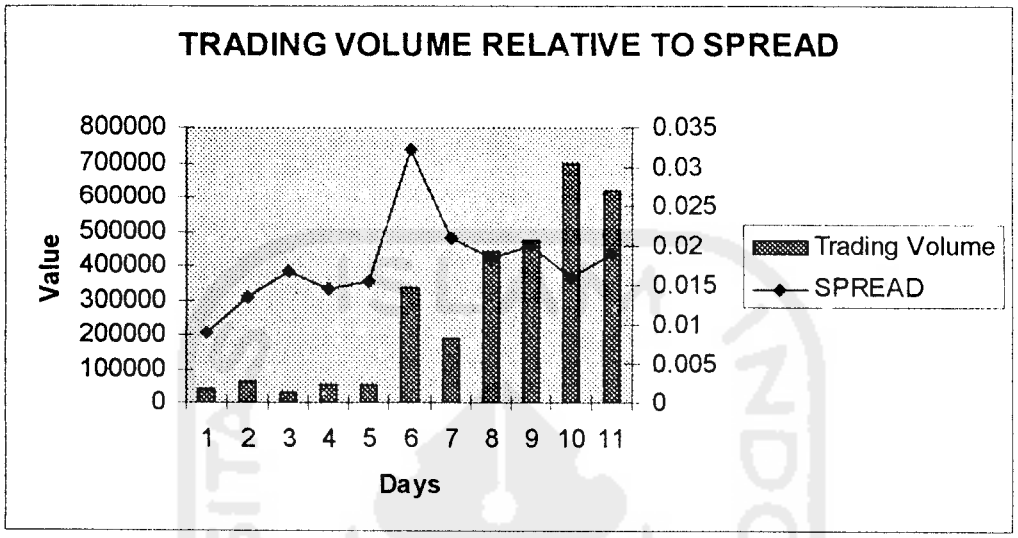
In Table 4.6 we can look that the absolute prices are show significant differences from days before and after the split, it indicate that from the increase of absolute price will perform the market liquidity as a result from the increasing of the book value of the stock and lowering the market prices from trading activities.

We can look the spread movement around the split announcement on Figure 4 below:

Figure 4

The Movements of SPREAD Relative

On The Market Liquidity



Source: Microsoft excel

In Figure 4 above, we conclude that there is opposite movement from trading volume and spread, it is taken from the increasing of absolute price after the split and the decreasing of the market price. The increasing level of trading volume will follows this. These will supports the signaling effect hypothesis, that after the split, there is no significant effect of the spread to trading volume but still the relation among them is exists. After we test those relations and the influence value, now we look on the effect of the changes of each influence around the split (spread).

Table 4.7

One t value test for Delta Conditions

After the Split

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Delta Trading	1,247	10	,241	52625,842	-41406,7	146658,4
Delta Price	-,974	10	,353	-231,0964	-759,6207	297,4279
Delta Absolute Price	,983	10	,349	230,3683	-291,8056	752,5421
delta SPREAD	,440	10	,669	,0009	-,0037	,0055

Source: SPSS 10. 05

As from Table 4.7 we can look that there are no significant influences for the changes of trading, price, absolute price, and spread before and after the split. These are support and prove that the statistical hypotheses are no significantly influence to stock split announcement in stock price and trading volume of delta condition. These are proofs that splits are just a lipstick action for improving market liquidity. These conditions are improving the "market reaction" of split announcement that is no influence on those fundamental actions of days before and after the "split". These conditions are in correlation with the periods of the samples that are most effected.

Table 4.8
The Regression Analysis of
Delta conditions on SPREAD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	,017	,001		12,761	,000	,013	,020		
	Delta Trading	-3,60E-09	,000	-,086	-,334	,748	,000	,000	,682	1,467
	Delta Price	4,361E-06	,000	,586	,038	,970	,000	,000	,000	5148,285
	Delta Absolut Price	1,098E-05	,000	1,458	,096	,927	,000	,000	,000	5161,271

a. Dependent Variable: SPREAD

As from Table 4.8 above, we look that there are no significant influences of split on delta stock price, delta trading, and delta absolute price that indicate by spread factor for the period before and after the split. The information absorbent that done by all market participants through public split announcement will decrease the information asymmetry, so the dealer will tend to less and finally will result in the decrease of bid ask spread.

From the regression above we can drive the regression equation below:

$$Y = ,017 - 3,60E\text{-}09\ X_1 + 4,361E\text{-}06\ X_2 + 1,098E\text{-}05\ X_3$$
$$(-,334) \qquad (,038) \qquad (,096)$$

where Y = spread

X_1 = delta trading

X_2 = delta price

X_3 = delta absolute price

As from the regression equation above we analyze that delta trading, delta price and delta absolute price are not significantly influence the split as on spread measurement. All of those variables have negative relations to spread value. For example if the amount of delta trading (X_1) is increases, the spread amount (Y) will decreases. This is proving the market efficiency hypotheses that from 1999-2001 periods, the Indonesia capital market is in inefficiency conditions from the fact that there is no significant change on the days before and after the split. The spread factor is most affected by the absolute price condition around the days after the split as a result from raising the book value of the stocks.

4.3 Research Implication

The implications to previous research compare with this research result are as follows:

1) There is no relation of the changes or the movements of each element of market indicator around the split announcement. These will prove the weak form market efficiency for all corporate actions. This result is in accordance with Suad Husnan research on 1991.

2) The motive around the split actions is not proving the signaling effect and trading range theory especially around 1999 – 2001 period. It will impact on the pattern of the decision making around the days after the split. These actions are not in correlation with Baker and Powell's research that conducted their research for the market signaling effect on US. As on the efficient market conditions that most believed by 136 respondents in US, show that manager believes the most important reason for undertaking a split is moving the stock price into a better trading range.

3) From the spread theory, this result is proving that the dealer and market spread are most affect the market liquidity after the split by raising the absolute price over the market price. These are followed by the increasing book value of each stock and it is indicates the highest asking price and the lowest biding price. They also tend to lower the transaction costs. That's why these actions are important events for market participants. Stoll, Howe and Lin also have the same reason for split action based on their research conducted in 1992.

As a whole, the results of this thesis research are inconsistent to the prior research done by other researchers. It shows that there is some information, which is more precious than split announcements. And implicitly shows the difference characteristic of Indonesian capital market to others. Prasentiantono, Tony and Dumairy on their article "*Ekonomi Indonesia Masih Cenderung Overheating*". On Kompas December 30, 1996 confirmed that Indonesian capital market has not showed the real economic condition and some indicators are also inconsistent such as high-risk low return.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1. Research Conclusion

This thesis research examined the effect of stock split announcements on stock price, trading volume, and the bid ask spread in some company listed in Jakarta Stock Exchange. Based on the statistical test and analysis that have been done, some conclusions are drawn as follows:

1. There are significant differences between average stock price in absolute condition before and after the split announcement, so this test result accepting the first hypothesis, which concluded the fact that, there is significant influence of stock split announcement to stock price. Or in the other words, because of the t- value test showed significant differences then the decreasing of stock price after the split proved the theory that there is lower level of stock price in comparison with before the split announcement.
2. The trading volume before split increased to the day of announcement, because this condition is related with the trading range theory and the signaling result. The split-up effect is purposed to increase the demand of each stock and will fix the market liquidity. The t value test of stock price and trading volume in delta condition show that there is no significant influence after the split. This research does not support the research, which is conducted by Dolley (1933), Barker (1956), Demsetz (1977), Lamoureux and Poon (1987), Conroy et. al (1990), but in the other side it supported by Copeland (1979) research. The lower level of trading volume before the split and significant showed that there is an increasing of stock liquidity. The calculation showed that there are no significant changes

of trading volume for the whole sample as the result of split announcement, means that the second hypothesis was rejected. This condition indicates that the split activities do not affect the number of stockholders but more on the portion of stock owned by old investor.

3. The spread level was increasing before the announcement. The t value test showed that there is no significant change of the spread between before and after the split. It means that spread after the split is higher than before, or there is an increasing of spread caused by the split activities. Those improvements will result in the increasing of stock liquidity. The same result showed by Sri Fatmawati and Marwan Asri (1999).

5.2. Research Recommendation

After completing of this research, the following recommendation have been proposed:

1. Further research concerning stock split is need to be performed to increase the available information for companies considering stock split for their stockholders and for other investors.
2. Further research, hopefully, can see more detail of the impact of stock split in the research sample. Means that the split effect can be grouped based on the company size, industry, and etc.
3. Further research can search on the stock split effect to the number of stockholders, both individual and institutional.

4. The event windows for the same research hopefully can be conducted over 5 days centered on the split announcements. The purpose of this research is to provide empirical evidence on the effect of split announcements that longer than 5 days.

APPENDICES

Regression on bid- ask spread, trading volume, stock price and absolute stock price

Descriptive Statistics

	Mean	Std. Deviation	N
SPREAD	,0178	,00585	11
Trading Volume	271671.9	252387,38328	11
Market Price	1910,1768	1346,22734	11
Absolute Price	1334,4907	1345,10924	11

Correlations

		SPREAD	Trading Volume	Market Price	Absolute Price
Pearson Correlation	SPREAD	1,000	,361	-,646	,643
	Trading Volume	,361	1,000	-,854	,855
	Market Price	-,646	-,854	1,000	-1,000
	Absolute Price	,643	,855	-1,000	1,000
Sig. (1-tailed)	SPREAD	.	,138	,016	,016
	Trading Volume	,138	.	,000	,000
	Market Price	,016	,000	.	,000
	Absolute Price	,016	,000	,000	.
N	SPREAD	11	11	11	11
	Trading Volume	11	11	11	11
	Market Price	11	11	11	11
	Absolute Price	11	11	11	11

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Absolute Price, Trading Volume[a]	.	Enter

a. Tolerance = ,000 limits reached.

b. Dependent Variable: SPREAD

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,739[a]	,546	,433	,00441	,546	4,820	2	8	,042	1,882

a. Predictors: (Constant), Absolute Price, Trading Volume

b. Dependent Variable: SPREAD

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,000	2	,000	4,820	,042[a]
	Residual	,000	8	,000		
	Total	,000	10			

a. Predictors: (Constant), Absolute Price, Trading Volume

b. Dependent Variable: SPREAD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	,015	,002		7,477	,000	,010	,020		
	Trading Volume	-1.63E-08	,000	-,703	-1,531	,164	,000	,000	,269	3,722
	Absolute Price	5,416E-06	,000	1,245	2,709	,027	,000	,000	,269	3,722

a. Dependent Variable: SPREAD

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Market Price	-51,686[a]	-1,376	,211	-,461	3,615E-05	27665,820	3,594E-05

a. Predictors in the Model: (Constant), Absolute Price, Trading Volume

b. Dependent Variable: SPREAD

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Trading Volume	Absolute Price
1	1	2,605	1,000	,05	,02	,02
	2	,328	2,817	,93	,04	,07
	3	,066	6,269	,02	,94	,91

a. Dependent Variable: SPREAD

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,0136	,0255	,0178	,00433	11
Residual	-,0053	,0093	,0000	,00394	11
Std. Predicted Value	-,973	1,769	,000	1,000	11
Std. Residual	-1,191	2,101	,000	,894	11

a. Dependent Variable: SPREAD

Non- Parametric Correlations

Correlations

			Trading Volume	Market Price	Absolute Price	SPREAD
Spearman's rho	Trading Volume	Correlation Coefficient	1,000	-,836**	,900**	,500
		Sig. (2-tailed)	.	,001	,000	,117
		N	11	11	11	11
	Market Price	Correlation Coefficient	-,836**	1,000	-,936**	-,600
		Sig. (2-tailed)	,001	.	,000	,051
		N	11	11	11	11
	Absolute Price	Correlation Coefficient	,900**	-,936**	1,000	,509
		Sig. (2-tailed)	,000	,000	.	,110
		N	11	11	11	11
	SPREAD	Correlation Coefficient	,500	-,600	,509	1,000
		Sig. (2-tailed)	,117	,051	,110	.
		N	11	11	11	11

**. Correlation is significant at the 0.01 level (2-tailed).

Non- Parametric Correlations on Delta Condition

Correlations

			Delta Trading	Delta Price	Delta Absolut Price	SPREAD
Spearman's rho	Delta Trading	Correlation Coefficient	1,000	-,345	,282	,091
		Sig. (2-tailed)	.	,298	,401	,790
		N	11	11	11	11
	Delta Price	Correlation Coefficient	-,345	1,000	-,864**	-,500
		Sig. (2-tailed)	,298	.	,001	,117
		N	11	11	11	11
	Delta Absolut Price	Correlation Coefficient	,282	-,864**	1,000	,564
		Sig. (2-tailed)	,401	,001	.	,071
		N	11	11	11	11
	SPREAD	Correlation Coefficient	,091	-.500	,564	1,000
		Sig. (2-tailed)	,790	,117	.071	.
		N	11	11	11	11

**. Correlation is significant at the 0.01 level (2-tailed).

Trading Vol

1999	-5	-4	-3	-2	-1	t	1	2	3	4	5
BBLD	200000	67500	12500	30000	367500	62500	15000	51500	9500	84000	46000
DNKS	37500	15000	2500	0	0	343500	125500	212000	1000	165000	218000
EKAD	2500	3500	0	0	0	1000	2000	4000	5000	2000	1000
IGAR	16500	2000	0	0	0	1987500	129500	1159000	2991500	4778000	1679000
KKGI	5000	10000	5000	10000	9000	60000	6000	86000	130500	35000	126500
KLBF	26000	1500	59500	0	0	22500	842000	60500	943000	792500	871000
SHID	28500	31500	30500	25000	5000	0	0	68500	45000	12000	4500
SUBA	8000	7500	5000	5000	2500	1500	10000	0	10000	5000	2500
SSTM	80500	136500	169500	284000	82500	69500	25500	152500	104000	247000	150500
Rata-Rata	**44944,44**	**30555,556**	**31611,11**	**39333,33**	**51833,33**	**283111,1**	**128388,9**	**199333,3**	**471055,6**	**676722,2**	**366555,6**

Trading Vol

2000	-5	-4	-3	-2	-1	t	1	2	3	4	5
ASGR	46500	3500	6500	5500	3000	1386500	259000	2375500	948000	2157500	844000
ESTI	22500	2500	25000	3000	15500	35000	15000	20000	2500	22500	32500
INDF	38000	7000	25000	49500	5000	542000	469500	23000	2342000	76000	918000
INTA	1000	3500	6000	5000	6000	30000	20000	40000	51000	20500	6000
MEDC	100500	4500	58000	1000	3500	132000	185000	76000	381500	31500	405500
RMBA	5000	10500	7500	10000	9000	379000	461500	1008000	1186500	1129000	472000
SONA	69500	16500	2500	5000	20000	75000	55000	59500	38000	45000	55000
UNTR	32500	15000	29500	11500	65500	183000	182000	224000	21500	205000	79500
Rata-Rata	**39437,5**	**7875**	**20000**	**11312,5**	**15937,5**	**345312,5**	**205875**	**478375**	**623875**	**461250**	**351562,5**

Trading Vol

2001	-5	-4	-3	-2	-1	t	1	2	3	4	5
CPIN	12500	15000	500	54500	54500	57500	72500	65000	121500	282000	249000
HMSP	2500	2500	500	25500	26000	237000	17000	290000	308500	220500	232000
ULTJ	36500	191500	53500	317000	117000	300000	414000	812000	1012000	1022000	1098500
BBCA	110000	610000	125000	155000	90000	1030000	500000	1665000	90000	2090000	2215000
DSFI	21000	47500	34500	73500	31000	219000	228500	929000	250000	2119000	2079000
SMPL	41000	500	13000	39500	160000	418000	50000	47000	219000	24000	69500
Rata-Rata	**37250**	**144500**	**37833,33**	**110833,3**	**79750**	**376916,7**	**230333,3**	**634750**	**326750**	**961833,3**	**1140167**

Market P

1999	-5	-4	-3	-2	-1	t	1	2	3	4	5
BBLD	725	725	700	800	975	950	875	875	800	800	675
DNKS	2650	2650	2600	2600	2600	525	525	500	475	500	475
EKAD	1900	1900	1900	1900	1900	1400	1400	1400	1400	1400	875
IGAR	3000	3500	3500	3500	3500	225	200	200	175	200	150
KKGI	1300	1300	1225	1225	1225	600	575	575	575	550	600
KLBF	3075	3000	3000	3000	3000	575	600	550	600	700	700
SHID	400	425	425	375	375	200	325	375	400	425	425
SUBA	700	700	700	600	600	300	375	375	375	500	525
SSTM	1025	1025	1025	1000	1025	600	600	600	625	650	625
Rata-Rata	**1641,667**	**1691,6667**	**1675**	**1666,667**	**1688,889**	**597,2222**	**608,3333**	**605,5556**	**602,7778**	**636,1111**	**561,1111**

Market P

2000	-5	-4	-3	-2	-1	t	1	2	3	4	5
ASGR	9500	8500	8350	8100	8100	1000	975	950	925	950	900
ESTI	950	950	925	1025	1150	250	235	235	235	235	230
INDF	3710	3800	3800	3810	4025	850	840	790	775	790	775
INTA	1025	1025	1050	1050	1050	525	525	525	525	500	500
MEDC	4275	4200	4025	4050	4250	850	850	825	825	825	850
RMBA	8675	8625	8800	8500	8575	750	725	725	725	725	700
SONA	1000	1000	1000	975	975	525	500	500	500	500	500
UNTR	1850	1875	1880	1920	1970	490	495	495	490	470	445
Rata-Rata	**3748,125**	**3759,375**	**3728,75**	**3678,75**	**3761,875**	**655**	**643,125**	**630,625**	**625**	**624,375**	**612,5**

Market P

2001	-5	-4	-3	-2	-1	t	1	2	3	4	5
CPIN	2600	2600	2600	2600	2600	525	525	525	525	525	500
HMSP	16050	16700	17300	17350	17300	3300	3325	3175	3150	3175	3150
ULTJ	1200	1225	1250	1250	1225	240	235	240	240	235	255
BBCA	1700	1700	1700	1725	1725	875	900	950	900	925	925
DSFI	3125	3150	3175	3150	3075	625	625	600	600	625	625
SMPL	1650	1625	1600	1600	1650	365	390	380	390	405	410
Rata-Rata	**4387,5**	**4500**	**4604,167**	**4612,5**	**4595,833**	**988,3333**	**1000**	**978,3333**	**967,5**	**981,6667**	**977,5**

BID-ASK SPREAD 2001

ASK-BID

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
CPIN	120	50	50	50	100	50	75	25	25	25	25
HMSP	50	50	50	50	50	25	25	25	25	25	25
ULTJ	25	25	25	25	25	5	5	5	10	5	5
BBCA	25	25	25	25	25	25	25	25	25	25	25
DSFI	25	25	25	25	25	25	25	25	25	25	25
SMPL	25	25	50	50	25	5	10	5	5	5	5

ASK+BID

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
CPIN	[illegible]	5100	5150	[illegible]	5100	[illegible]	975	1025	1025	1025	1025
HMSP	32050	[illegible]	34550	[illegible]	34600	6275	6625	6375	6275	6325	6275
ULTJ	2425	2475	[illegible]	[illegible]	2475	475	465	475	470	475	505
BBCA	[illegible]	[illegible]	[illegible]	[illegible]	3425	[illegible]	1775	1875	1775	1825	1825
DSFI	6225	[illegible]	[illegible]	[illegible]	5175	1225	1225	1225	1225	1225	1225
SMPL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	780	755	775	805	815

SPREAD 2001

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
CPIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.012195	0.012195	0.012195	0.012195
HMSP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.001961	0.001992	0.001976	0.001992
ULTJ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.005376	0.005263	0.010638	0.005263	0.00495
BBCA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.007042	0.006849	0.006849
DSFI	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.010204	0.010204	0.010204	0.010204
SMPL	0.001759	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.003311	0.003226	0.003106	0.003067
Rata-Rata	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0066	0.00756	0.006599	0.006543

BID-ASK SPREAD 2000

ASK-BID

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
ASGR	25	25	175	150	50	25	25	[illegible]	25	25	25
ESTI	25	25	25	75	50	45	10	[illegible]	15	15	65
INDF	10	5	10	10	15	5	[illegible]	[illegible]	10	5	5
INTA	50	125	75	25	100	25	25	[illegible]	50	25	75
MEDC	50	75	125	175	75	25	50	[illegible]	25	25	25
RMBA	50	175	75	75	175	25	25	[illegible]	25	25	25
SONA	25	25	25	50	25	175	25	[illegible]	25	25	25
UNTR	5	35	30	40	15	5	[illegible]	[illegible]	5	5	5

ASK+BID

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
ASGR	16575	17025	16625	16250	16150	[illegible]	[illegible]	[illegible]	1675	[illegible]	1820
ESTI	1875	1925	1675	1975	2250	[illegible]	480	[illegible]	435	485	405
INDF	7430	7605	7590	7610	8365	1725	[illegible]	[illegible]	1540	[illegible]	1545
INTA	[illegible]	1975	[illegible]	2125	2000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	925
MEDC	[illegible]	8525	8025	8025	8575	1725	1650	[illegible]	1625	1625	1675
RMBA	17350	17425	17575	17075	16975	1525	1475	[illegible]	1425	1425	1375
SONA	2025	1975	2025	2000	1975	[illegible]	1025	[illegible]	1025	1025	1025
UNTR	[illegible]	[illegible]	3730	3800	3925	975	985	[illegible]	[illegible]	935	886

SPREAD 2000

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
ASGR	[illegible]	[illegible]	[illegible]	[illegible]	0.001548	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ESTI	0.006667	0,0064935	0.006667	0.018987	0.011111	0.049451	0.010417	[illegible]	[illegible]	0.015464	0.080247
INDF	0.000673	0.0003287	0.000659	0.000657	0.00093	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INTA	0.012195	0.0316456	0.018072	0.005882	0.025	0.011328	0.012195	[illegible]	[illegible]	0.012321	0.040541
MEDC	0.002941	0.0043988	0.007786	0.010903	0.004373	0.007246	0.015152	[illegible]	0.007692	0.007692	0.007463
RMBA	0.001441	0.0050215	0.002134	0.002195	0.005155	0.008197	0.008475	[illegible]	0.008772	0.008772	0.009091
SONA	0.006173	0.0063291	0.006173	0.0125	0.006329	0.1	0.012195	[illegible]	0.012195	0.012195	0.012195
UNTR	0.000677	0,0047106	0.004021	0,005263	0.001911	0.002564	0.002538	[illegible]	0.002564	0.002674	0.002825
Rata-Rata	0.003938	0,0074578	0,006351	0,007626	0,007045	0.02336	0,00862	0,009557	0,010051	0,008484	0.020104

BID-ASK SPREAD 1999

ASK-BID

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
BBLD	25	25	25	25	75	25	25	75	50	25	25
DNKS	25	25	25	75	175	25	25	25	25	25	25
EKAD	650	600	550	250	200	525	550	475	550	475	300
IGAR	25	400	850	900	925	25	25	25	25	25	25
KKGI	75	50	250	125	100	25	25	50	50	25	50
KLBF	25	25	50	100	100	25	25	25	25	25	25
SHID	25	25	25	25	25	225	50	25	50	25	25
SUBA	50	250	275	250	300	450	250	200	250	175	200
SSTM	25	25	50	25	25	25	25	50	25	25	25

ASK+BID

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
BBLD	1475	1425	1425	1575	1875	1875	1775	1675	1650	1575	1525
DNKS	5325	5275	5225	5125	4975	1075	1025	1025	975	975	975
EKAD	3250	3200	3150	2750	2600	2075	2100	2125	2100	2075	2000
IGAR	5975	6600	6450	6300	6225	425	375	375	375	375	325
KKGI	2675	2650	2300	2525	2600	1175	1175	1150	1100	1075	1150
KLBF	6125	5975	5950	5800	5500	1125	1175	1075	1025	1025	1075
SHID	825	825	825	775	775	575	750	775	675	625	625
SUBA	1450	1250	1275	1250	1300	1250	900	1000	1050	1025	1200
SSTM	2025	2025	2000	1975	2025	1175	1175	1150	1125	1125	1225

SPREAD 1999

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
BBLD	0.008475	0.0037719	0.008772	0.007937	0.02	0.006667	0.007042	0.022388	0.013825	0.007937	0.009434
DNKS	0.002347	0.0023697	0.002392	0.007317	0.017586	0.011628	0.012195	0.012195	0.013514	0.012821	0.012821
EKAD	0.1	0.09375	0.087302	0.045455	0.038462	0.126506	0.130952	0.111765	0.1375	0.114155	0.075
IGAR	0.002092	0.030303	0.065891	0.071429	0.074297	0.029412	0.033333	0.033333	0.033333	0.033333	0.030462
KKGI	0.014019	0.009434	0.054348	0.024752	0.019231	0.010638	0.010638	0.021739	0.022727	0.011628	0.021739
KLBF	0.002041	0.0020921	0.004202	0.003621	0.009091	0.011111	0.010638	0.011628	0.010204	0.009091	0.009091
SHID	0.015152	0.0151515	0.015152	0.016129	0.016129	0.195652	0.033333	0.015129	0.03125	0.015152	0.015152
SUBA	0.017241	0.1	0.107843	0.1	0.115385	0.18	0.138889	0.1	0.108696	0.085366	0.083333
SSTM	0.006173	0.0061728	0.0125	0.006329	0.006173	0.010638	0.010638	0.021739	0.010204	0.009804	0.010204
Rata-Rata	**0,018615**	**0,0297828**	**0,039822**	**0,031996**	**0,035151**	**0,064695**	**0,043073**	**0,038991**	**0,042561**	**0,033288**	**0,030582**

Avrg Abs P	-5	-4	-3	-2	-1	t	1	2	3	4	5
1999	-27,7778	-61,1111	-63,8889	-16,6667	-13,8889	969,4444	1005,556	1013,889	1005,556	1008,333	1025
2000	-10,625	-43,125	0,625	31,875	-28,125	3083,125	3097,5	3110,625	3111,875	3118,75	3128,75
2001	-4,16667	-129,167	-220,833	-241,667	-225	3399,167	3386,667	3400,833	3415,833	3405	3405,833
Average	**-14,1898**	**-77,8009**	**-94,6991**	**-75,4861**	**-89,0046**	**2483,912**	**2496,574**	**2508,449**	**2511,088**	**2510,694**	**2519,861**

Abs P 2001

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
CPIN	25	25	25	0	0	2075	2075	2075	2075	2075	2075
HMSP	0	-700	-1250	-1350	-1300	12750	12725	12850	12900	12875	12900
ULTJ	-25	-50	-50	-50	-50	960	965	960	960	960	945
BBCA	0	0	0	-25	-25	825	800	750	800	775	775
DSFI	0	-50	-50	-25	25	2500	2500	2500	2500	2500	2500
SMPL	-25	0	0	0	0	1285	1255	1270	1260	1245	1240
Avrg	-4,16667	-129,167	-220,833	-241,667	-225	3399,167	3386,667	3400,833	3415,833	3405	3405,833

Abs P 2000

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
ASGR	0	-25	150	300	400	7600	7525	7550	7550	7550	7575
ESTI	0	-25	0	-75	-200	700	705	710	700	700	715
INDF	-10	-95	-90	-100	-380	2855	2870	2920	2935	2920	2935
INTA	-25	-25	-50	-50	-25	475	500	475	475	525	525
MEDC	0	-25	200	175	-50	3400	3425	3450	3450	3450	3425
RMBA	-25	-125	-150	100	100	7900	7925	7950	7950	7950	7975
SONA	-25	0	-25	-25	0	475	475	475	475	475	475
UNTR	0	-25	-30	-70	-120	1355	1355	1355	1360	1380	1405
Avrg	-10,625	-43,125	0,625	31,875	-28,125	3083,125	3097,5	3110,625	3111,875	3118,75	3128,75

Abs P 1999

EMITEN	-5	-4	-3	-2	-1	t	1	2	3	4	5
BBLD	-25	0	0	-75	-250	-225	-175	-150	-100	-75	50
DNKS	-25	0	25	50	75	2100	2125	2125	2175	2150	2150
EKAD	-50	0	50	400	500	600	575	600	625	625	750
IGAR	0	-500	-650	-600	-575	2775	2800	2800	2800	2800	2825
KKGI	-75	-50	25	-25	-50	700	700	700	725	750	700
KLBF	0	75	75	125	275	2500	2475	2525	2450	2375	2375
SHID	-25	-25	-25	0	0	0	0	0	-25	-25	-25
SUBA	-50	-50	-75	-50	-100	-150	125	100	0	100	0
SSTM	0	0	0	25	0	425	425	425	400	375	400
Avrg	-27,7778	-61,1111	-63,8889	-16,6667	-13,8889	969,4444	1005,556	1013,889	1005,556	1008,333	1025