II.   LITERATURE REVIEW

2.1   Capital Market

Indonesian capital market plays an important role in mobilizing funds to support the growth of the national economy. The main target is to increase work productivity through business expansion and revamping capital structure to enhance enterprise competitiveness.

Husnan (2001) said the capital market is the market for the various long-term financial instruments (securities) that can be traded, either in the form of debt and equity capital, whether issued by governments, public authorities, and private companies. The capital market is a means of funding for companies and other institutions (government), and as a means for investing activities for the community.

2.2   Capital Market Efficiency

In trading activity in the capital markets, information is one of the important factors to be known by market participants. Information on the capital market is related to the decisions made by the investor to choose the efficient investment

portfolio. There are variety of information published in capital market whether information that affects some companies and information that have an impact on all companies in the capital market.

An efficient market is a market where the price of all securities traded reflected all available information (Tandelilin, 2007). According to Husnan (2001), an efficient capital market is a market that the prices of the securities already reflect all relevant information. The faster the new information is reflected in securities prices, the more efficient the market. Thus it would be very difficult for investors to gain profit over the normal level consistently while doing trade transactions on the Stock Exchange. Some of the conditions that must be met to achieve an efficient market, are: 1. There are many investors who are rational and strive to maximize profits, 2. All market participants can obtain information at the same time in a way that is easy and inexpensive, 3. Information that occurs is random, 4. Investors react quickly to new information, so prices securities change according to changes in the actual value due to such information.

According to Fama in Jogiyanto (2010) the form efficient market can be grouped into three, known as the efficient market hypothesis:

1. The Weak Efficient Market Hypothesis

    Market efficiency is said to be weak (weak-form) because the decision-making process of selling and buying stock the investors use price data and volume of the past. Based on past price and volume the various models of technical analysis used to determine the price, whether the direction of price is going up or going down. If the direction of the price will go up, it was

decided to buy. If the direction of the price will go down, it was decided to sell. Technical analysis assumes that stock prices always recur, which after rising in a few days, it will certainly go down in the next few days, then up again and down again, and so on.

2. The Semistrong Efficient Market Hypothesis

Market efficiency is said to be the half strong (semi strong-form) because the decision-making process selling - buying stock the investors use past price data, the volume of the past, and all published information such as financial reports, annual reports, announcements exchanges, financial information internationally, government regulations, political events, and other things that can affect the national economy. This means that investors use a combination of technical analysis and fundamental analysis in the process of calculating the value of the stocks, which will be used as a a guide in the purchase price bid and offer prices.

3. The Strong Efficient Market Hypothesis

Market efficiency is said to be strong (strong-form) as investors using more complete data, that is: the price of the past, the volume of the past, the information published and unpublished private information in general. Calculation of price estimated by using information that is expected to generate more sales decisions - to buy stocks more precise and higher return. Here are some strong form market efficiency indicators:

a. Profits earned is very thin due to the low price fluctuations.

b. The market price is approached the company's instrinsic price.

c. Symmetric information that investors have an equal opportunity to obtain information.

d. Investor analysis capabilities relatively different.

e. Markets react quickly to new information.

2.3 Stock Return

Tandelilin (2001) stated return is the profit earned by the investor of the investment. One thing that is very reasonable if investors demanded a certain level of return on funds that have been invested. In the context of investment management, it is necessary to distinguish between the expected return and the actual return. Actual return is the rate of return that has been obtained by the investor. While the expected return is the rate of return anticipated by the investors in the future, so the nature of expected return has not occurred. Actual return a capital gain/loss is the difference between the current stock price period (Pi_t) with stock prices in the previous period (Pi_{t-1}). Mathematically return realization can be formulated as follows (Jogiyanto, 2010).

$$Ri_t = \frac{Pi_t - Pi_{t-1}}{Pi_{t-1}}$$

Explanation:

Ri_t = rate of stock return

Pi_t = stock prices in the period t

Pi_{t-1} = stock price in the previous period t-1

While the expected return can be calculated using 3 estimation models (Jogiyanto, 2010) :

1. Mean Adjusted Model

    Mean adjusted model assumes that the expected return is constant, that is equal to the mean value of previous actual return during the estimation period, as follows:

    $$E\,[\,Ri_t] = \frac{\sum_{j=t1}^{t2} Ri_j}{T}$$

    Explanation :

    $E\,[\,Ri_t]$ = securities expected return i on t period

    Ri_j = securities actual return i on j period

    T = the span of estimation period from t1 until t2

    The estimation period is generally a period before the event. Event period also called the observation period or event window.

2. Market Model

    The calculation of expected return using market model done in two stages :

    1. Form the expectation models using realization data during the estimation period.

    2. Using this model of expectation to estimate the return in the window period.

        Model expecatations can be formed using the OLS regression techniques (Ordinary Least Square) by the equation :

$$Ri_j = \alpha i + \beta i. Rm_j$$

Explanation :

Ri_j = securities actual return i on j period

i   = intercept for i securities

βi = coefficient slope which is Beta from i securities

Rm_j = market return index on estimated j period

3. Market Adjusted Model

This model assumes that the best predictor for estimating the returns of a security is the market index return at that time. By using this model, it is not necessary to use the estimation period to form estimation model because securities estimated return is the same as the market index. Market index that can be chosen for IDX market, for example Composite Stock Price Index (IHSG). Return market index can be calculated using the following formula (Jogiyanto, 2010):

$$Rm_t = \frac{(IHSG_t - IHSG_{t-1})}{IHSG_{t-1}}$$

Explanation :

Rm_t = market return

$IHSG_t$ = market price indeks in t period

$IHSG_{t-1}$ = market price index in the previous period

Other expected return calculation models :

    a. Capital Asset Pricing Model (CAPM)

        Expected return measured by considering the market return and risk-free interest rate. CAPM model is used as the basis for calculating the expected return is as follows :

$$E\ (R_i) = \ R_1 = \ \beta(R_m - R_{f)}$$

Explanation :

R_f = risk free rate

R_m = market return

β = beta of each stocks which calculated using interpolation with
         daily return data

Capital Asset Pricing Model (CAPM) has several weaknesses which include (Andyono, 2009):

1. Model CAPM calculate the expected return of an asset, but using historical return data (actual) that cause bias in the calculation..

2. The CAPM is a single-period models where testing is done in a matter of months or years. However, in the meantime there are a lot of economic fluctuations that cause noise in the results.

3. Market risk premium and beta must be constant in the period.

The expected stock returns (expected return) is the expected revenue from a stock in the future, in accordance with the risk level of the stock. Before calculating the expected return, first find the coefficient alpha and beta values for each stock by

regressing Ri_t with Rmt Rm_t during the period. Calculating the normal return by using alpha and beta values that previously calculated, while market return used is the market return during the research period.

2.4 Abnormal Return

According Jogiyanto (2010) abnormal returns is the difference between the actual return happens with the expected return. Abnormal return is the difference between the actual return and expected return that may occur before the official published information or the information leak has occurred before the official information published (Samsul, 2006). According to Samsul (2006), to calculate abnormal return of i stock on t day, can use this following formula:

$$ARi_t = Ri_t - E\ (Ri_t)$$

Explanation :

ARi_t	= securuities abnormal return i on t event
Ri_t	= securuities actual return i on t event
$E\ (Ri_t)$	= securuities expected return i on t event

2.4.1 Types of Abnormal Return

Abnormal return can be classified into 4 groups (Samsul, 2006) :

a. Abnormal Return (AR)

Abnormal return happens every day in every type of stock, which is the difference between the actual return and the expected return calculated on

a daily basis. Because it is calculated daily, then within a window period it can be seen which stock that has highs or lows abnormal return, and may also be known on what day the most powerful reactions occur in each type of stock.

b. Average Abnormal Return (AAR)

Average abnormal return is the average - average abnormal return (AR) of all types of stocks that are being analyzed on a daily basis. AAR can show the strongest reactions, both positive and negative, of all types of stocks on a certain days during the window period.

c. Cummulative Abnormal Return (CAR)

Cummulative abnormal return is a daily cumulative AR from the first day untilthe next day of every types of stock. So the CAR during the period before the event will be compared with the CAR during the period after the event.

d. Cummulative Average Abnormal Return (CAAR)

Cummulative average abnormal return is a daily cumulative of AAR from the first day until the next day. From the graph of CAAR it can be seen daily the tendency of increase or decrease that occurred during the window period, so the positive or negative impact from the events to the overall species studied stock can also be known.

2.5   Trading Volume Activity

Trading volume activity is the ratio between the number of stocks traded by the number of stocks outstanding during a particular period. Trading volume activity (TVA) is used as an indicator of the liquidity of a stock.

Trading volume is the number of stocks traded in a single trading day. In terms of its function, it can be said that the trading volume activity is a variation of the event study. Trading volume activity approach can be used to test the weak form efficient market hypothesis because in the markets that are not efficient or efficient in the weak form, the price change is not immediately reflect the available information so that researchers could only observe the reaction of the capital market through movement trading volume on the capital markets studied (Sunur, 2006). According to Mulatsih (2009), to calculate trading volume activity of a stock can use this following formula:

$$TVA_{it} = \frac{\text{the amount of stocks from company i traded on t time}}{\text{the amount outstanding stocks from i company on t time}}$$

2.6   Loan to Value

Definition of loan to value according to Investopedia is a lending risk assessment ratio that financial institutions and others lenders examine before approving a mortgage. Meanwhile, according to Justin Pritchard (The New York Times Company), loan to value tells you how much of a property is being financed. It is a way to tell how much equity you hae in a property. Simply, loan to value is the

ratio between the loan value with the estimated value of assets which is used as collateral. Related to loan to value the problem is about mortgage (KPR).

Ratios loan to value or financing to value, hereinafter called LTV or FTV, is the ratio between the value of the credit or financing that may be provided by the Bank to the value of collateral property at the time of credit or financing based on the price of the last assessment (Bank Indonesia Circular Letter No.15/40/DKMP). Loan to value policy tightening issued by Bank Indonesia to anticipate and minimalize growth in mortgages and properties that are too high may encourage an increase in the price of property assets that do not reflect the actual price, thus increasing credit risk for banks with large exposure to property loans.

Under Circular No. 15/40/DKMP scope of the policy applied to commercial banks that provide mortgages or property. The calculation of a credit value and the value of collateral in calculating the LTV for commercial banks are:

a. Credit value is determined based on a credit limit that is received by the debtor as specified in the credit agreement.

b. Collateral value is determined based on the estimated value of the bank against the collateral property to the guidelines on Bank Indonesia regulation concerning commercial bank asset quality assessment.

Table 2.1 Maximum Magnitude Determination of Loan to Value (LTV) for Credit
or Mortgages (KPR)

No.	Credit Facility or Funding to:	Building Area	The Magnitude of LTV
1.	1 (first)	$>70m^2$	70%
2.	1 (first)	$22m^2 – 70m^2$	80%
3.	2 (second)	$>70\ m^2$	60%
4.	2 (second)	$22m^2 – 70m^2$	70%
5.	3 (third) and so on	$>70m^2$	50%
6.	3 (third) and so on	$22m^2 – 70m^2$	60%

Source: Bank Indonesia Circular Letter No.15/40/DKMP

2.7 Capital Market Reaction to The Announcement of Loan to Value Policy Implementation

The market will react to the events that contain informations. The market reacted because of the events contains an information that has economic value that could affect the value of the company. This information will provide a signal for investors in making decision for investment so it is also take effect toward the fluctuations in price and trading volume in the capital market. If the market (investors) and public considers the information of implementation LTV policy as good news for the property and banking sectors, the market will respond by buying stocks of the banking and property sectors as the stock price will rise, so the return obtained is also high.

Society and investors believe with company's performance and trust to invest their capital in capital market. That is means the implementation of LTV policies will have a good influence for the company and in the long term it can be a good influence on the economy.

However, if the market (investors) and public considers that the information of the implementation LTV policy as bad news for the property and banking sectors, the market will respond by selling the property and banking sector stocks because stock prices will fall, so the return earned also decreased. Society and investors considered that the implementation of LTV policies have a bad effect on the performance of the banking sector and property, so that the society decided not to invest especially in banks and property stocks. If public and investor trust to the company decreases it will affect the performance of the company and of course have a negative impact on the economy

The implementation of LTV policy impacted on the distribution of housing loans or property. With the decline in mortgage, it is successfully suppress the growth of property loans and reduce the risk of non-performing loan (NPL). Credit growth is reduced because consumers have to pay a higher down payment. This is why people are afraid to make loans to banking institutions for disrupting the ability of the consumer installment.

The implementation of loan to value (LTV) policy by the central bank to commercial banks on 24 September 2013 causing a decrease in lending facility (mortgage). The reduced of mortgage distribution caused the demand for property decreases. Based on Residential Property Price Survey on quarter VI in 2013 conducted by Bank of Indonesia, it is suggesting that the mortgage remains the main source of financing the purchase of residential property. The impact of policy implementation LTV according to mass media will affect the value of the property and property sales volume also declined due to reduced consumer

purchasing power. This condition will affect the company's performance and it will caused the profitability of the company and it is expected to decrease the price of property stocks and property stocks trading volume.

Hersini (2013) stated by the issuance of Bank Indonesia's policy, is expected to have an impact on decline in housing units sales volume. This was caused by the declining consumer purchasing power due to increased down payments. The declining sales also give a ripple effect on the property sector as a provider of property. Developer target sales assigned at the beginning of the year in order to improve the profit are threatened cannot be reached, resulting in the declining in the profitability of the company. This decrease will affect the performance of the property and it is expected to affect the stock price as well as expectations of investors toward property stocks in obtaining the return in the future.

2.8 Event Study

Jogiyanto (2010), stated event study is the study of market reaction to an event that the information is published as an announcement. Event study is a research technique that allows the researchers to assess and learn the effect of an event on stock prices in the capital market. Event study can also be used as an analytical tool to know is there any significant reaction in capital market toward events which can influence the stock price of a company in the capital market. For test the information content it is more focused on monitoring the market reaction due to an announcement. If an announcement contains information content, it is

expected that there will be a reaction in the market at the time when the announcement was accepted by the market.

The market reaction is characterized by changes in the price of concerned securities. The market reaction can be measured by using the return as the value of changes in prices or by using abnormal return. If the abnormal return is used to measure the reaction then an announcement that has information content is expected to deliver the abnormal return to the market. Otherwise, if an announcement does not contain information that can be said it is not give abnormal return on the market. So based on that definition, event study methodology can be used to see the reaction of the capital market, which is reflected in the company' stock price, for a particular event.

2.9   Previous Research

In this research, the researchers tried to examine the effect of loan to value policy implementation towards capital market in property companies enlisted in IDX. Some of the results of previous studies related to this research are as follows:

Table 2. Previous Research

Researcher	Title	Variable	Result
Bei (2015)	Impact of LTV Policy Implementation Towards Reaction of Capital Market in Indonesia Stock Exchange (IDX): An Event Study Approach	Abnormal return and trading volume activity (TVA)	LTV policy doesn't affect the banking stocks. While on the property stock there is market reaction which shown on abnormal return and changes

			in trading volume activity on property stocks on the period before to when and when-after, while in before and after there is no significant difference
Gunanta (2014)	Impact of the Loan to Value Regulation Limitation towards Property Stock Price	Stock price	LTV policy has an impact on property stock price
Natidya (2014)	Market Reaction towards Bank of Indonesia Policy Concerning The Loan to Value Limitation on Mortgage (KPR): Analysis of Property and Banking Sector	Abnormal return	The tightening of LTV policy and the publication of circular letter from BI has an information content, which is the market react negatively toward both of two that informations
Saraswati (2014)	The Analysis of Bank Indonesia Policy Concerning Loan to Value on PT Bank Tabungan Negara (PERSERO) Tbk. Branch Singaraja	-	The impact of the LTV policy is BTN Batch Singaraja have a declining in the amount of credit and have a competion between bank in order to distribute the mortgages
Setiawan and Mimba (2015)	Market Reaction towards Loan to Value Regulation	Abnormal return	There is a reaction in the market towards the announcement of LTV which is occurs in t-1, t-0, and t+2. For paired sample t-test shows

			there is no significant difference on market reaction before and after the announcement.
Wirawan (2014)	Reaksi Pasar Modal Indonesia Terhadap Pengumuman Kebijakan *Loan to Value*	*Abnormal return* dan *trading volume activity* (TVA)	There is significant abnormal return for 1 (one) trading day of the event period which is occurs on t+1. There is also significant difference on the trading volume activity (TVA) in the event period before and after LTV policy announcement.