Company Size Growth, Stock Liquidity and Return of Stock: Role of Mispricing

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***Abstract*—The main objective of this study is to provide information and knowledge for prospective investors before deciding to buy shares, and also to develope the relationship inter variable between the company size growth and stock liquidity with return of stock, also to examine the stock's return that is influenced by the company size growth and stock liquidity, mediated by mispricing variable, in the companies listed on the Indonesia Stock Exchange. Sampling method used is purposive sampling. The samples in this study were companies registered in LQ45 Index from January 2013 to December 2017. This study used structural equation modeling with 24 companies listed in LQ45 Index consecutively for 5 years as samples. The results of this study indicate that during January 2013 until December 2017 stock's return was influenced positively and significantly by company size growth and mispricing, and mispricing itself is positively influenced by company size growth. However, stock liquidity does not significantly affect toward the stock's return and mispricing. Therefore, investors must develop an information network with external parties in order to obtain information and knowledge about changes in the business environment of prospective issuer.**

***Index Terms*—Return, mispricing, size, stock, liquidity.**

I. Introduction

In making investments, the investor will consider two main things and informations, namely the expected return and investment risk. The returns obtained by investors in their investments is called expected return; this will occur because the investors are faced with uncertainty or risks that must be dealt with in their investments. Rational investors will always try to obtain information and carry out various analyses to reduce the uncertainty in their investments or to minimize the existing risks even on the stock that listed on LQ45, while the LQ45 index is an index consisting of 45 shares of listed companies selected based on the considerations of liquidity and market capitalization, under the criteria that have been determined. Reviewing and replacing the list of shares by IDX are conducted every six months and the LQ45 index is the index that has had high return in the last five years, with an average return of 43.67%.

The findings of the researches by Chen, Lung and Wang, 2009 [1] and Waruwu and Pratomo, 2015 [2] suggested that mispricing has a positive relationship with share turnover. Therefore, the higher the level of liquidity of the company's shares, the higher the level of mispricing of the company's shares.

This is caused by an excessive sense of optimism on dividend growth. Excessive transactions resulting from this optimism will lead to high share turnover and cause a rise in share value above its fundamental value. Market anxiety due to a specific occurence not only can produce high share turnover because investors are competing to sell their shares but also create mispricing.

According to Waruwu and Pratomo, 2015 [2], another cause might be the stock sellers' ignorance of information because they are in need of large amount of money in a short time.

This can also cause the stock price to deviate from its fair price. In short, stock liquidity can be expected to have an effect on mispricing. Other study of the relationship between stock mispricing with return conducted by Brennan and Wang, 2010 [3] and Permatasari, 2017 [4] found that the level of mispricing has a positive and significant effect on the return of the first week of regression after the mispricing period, so that it can be expected to affect stock returns.

Furthermore, the other research proves that the size growth can be expected to have an effect on stock return. According to Kim, J. H., & Shamsuddin, 2008, [5] the shares of the small-sized companies tend to have relatively low valuation, which is one of the causes of ambiguity valuation, also the study conducted by Setiyono, 2016 [6] proves a positive relationship between the average stock return and the company size was indicated but different from study conducted by Stambaugh, 2015 [7] stated that small-sized companies have a premium that is nearly double from the predicted estimation.

Brennan and Wang, 2010 [3], Hirshleifer and Jiang, 2010 [8] showed that firm's size has an influence on the negative level of mispricing of the company's shares. In other words, the smaller the size of a company, the greater the level of mispricing of the company's shares, Aji, 2012 [9]. However, there are opinions from Pyo and Shin, 2013 [10] which stated that company's size has a positive influence on the level of mispricing of company's shares. In other words, size growth can be expected to have an effect on mispricing.

Shares that have high stock liquidity are not only profitable for investors but also for issuers. High level of stock liquidity can boost the issuer's reputation in the eye of investors so that it is important for the issuer to pay attention on the stock liquidity of a company, while the results of the study from Pettengil, Sudarman and Mathur, 2000 [11] showed that systematic risks and stock liquidity, as measured by the size of

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the bid-ask spread, have a significant influence on the company's stock return. The study is also supported by Kumianny, Elly and Leng, 2002 [12], where the results of their researches reveal that liquidity of shares partially has positive and significant effect on stock return. But it is different from the research by Situmeang and Muharam, 2015 [13] which indicated that individually the stock liquidity factor has a negative and not significant effect on stock return. The various explanation of prior different research that make the research gap in this study becomes one of the foundation in this study, in order to get a new answer to the phenomenon that occurred, this research tries to prove hypothesis as follows; 1). The growth of stock has a positive effect on stock return, 2). Liquidity has a positive effect on stock return, 3). The growth of stock has a positive effect on stock mispricing, 4). Liquidity has a positive effect on stock mispricing, 5). Mispricing has a positive effect on stock return.

II. Literature Review

A. Business Environment

As a system, companies are often associated with other public activities. Business management is becoming increasingly complex along with economic development. Developments in industrial mechanism systems have provided implications for business organizations or companies. More alternatives and opportunities are open to achieving organizational goals. Based on the scale of influence, the business environment can be divided into micro-environment and macro environment. The business environment is anything that affects business activities in an organization or company such as; the environmen of Economic and law, social, technology, Competition and Business Global, Nickels *et al.*, 2015 [14]. This business environment will provide opportunities and threats as well as the strengths and weaknesses of the company and therefore, the business environment factors above greatly affect prospective investors in investing their money.

B. Stock Return

According to Jogiyanto, 2009 [15] stock returns are the profits obtained by the shareholders as a result of the investments. Stock returns are divided into two types, namely returns that have been generated and are calculated based on historical data (realized returns) and returns that are expected to be obtained by investors in the future (expected return). Realized return is a return that has been yielded and is relatively calculated. This realized return can be used to measure company performance as a basis for determining future returns and risks. Meanwhile, the expected return is a return that is expected to gain in the future and is uncertain.

According to Tandelilin, 2010 [16], the source of investment returns consists of two main components, namely: a). Yield, which is a return component that reflects cash flow or income obtained periodically from an investment, b) Capital gain or loss, which is an increase or decrease in the prices of securities, which can provide profits or losses for investors. Based on the above descriptions, then stock returns can be formulated as follows:

$$\textbf{Return of stock} = \frac{P_t - P_t - 1}{P_t - 1}$$

C. Mispricing

Mispricing is a phenomenon that can occur in both rational and irrational environment. In a rational context, asymmetric information can bring stock prices to diverge or deviate from the actual values simply because the investors set the prices through trading behavior, Waruwu and Pratomo, 2015 [2]. According to Alzahrani, 2006 [17], the behavior of financial theory explains mispricing in an irrational sphere that occurs when investors make systematic mistakes in estimating the values of the shares. Another statement by Brennan and Wang, 2010 [3] is that mispricing occurs when there are differences in the values of market prices or market returns with the fundamental prices and fundamental returns. It happens due to errors or assumptions circulating in the market. Such occurrence is inevitable, because many factors continue to influence and the behavior of the market continues to change. According to Sadka and Scherbina, 2008 [18], rational investors as investors who seek profits will transact against mispricing, so this will push the stock prices back to their fundamental values. Such situation indicates that the condition of mispricing is temporary so that prices and deviant stock returns will return to their fundamental values within an indefinite period.

Brennan and Wang, 2010 [3] concluded that mispricing can be estimated using the volatility of monthly residual returns of the company's shares. The greater volatility of the residual returns indicates that the stock is more mispriced, and the smaller volatility of the residual returns indicates that the stock is less mispriced (Waruwu and Pratomo, 2015 [2].

Volatility returns during the period are calculated by the formula as follows:

$$\sigma = \sqrt{\tau \times \frac{1}{n-1} \sum_{t-1}^{n} \left(R_t - \overline{R_t} \right)^2}$$

σ = Volatility of stock returns
τ = Number of trading periods
R = Log return

D. Company Size Growth

One way to measure the company or *Firm size* is by looking at the market capitalization , Fama and French, 1995 [19]. Market capitalization is calculated from the total value of all existing outstanding shares and the calculation can be done by multiplying the number of shares outstanding at the current market price ,Waruwu and Pratomo, 2015 [2]. Thus, the formula is obtained as follows:

$$\textbf{Firm size growth} = \frac{FirmSizet - FirmSizet - 1}{FirmSizet - 1}$$

A company that has a large size shows that it has reached the maturity stage and reflects its relative stability and has good long-term prospect.

E. Stock Liquidity

Stock liquidity is defined as the volume and frequency of transactions that occur in the capital market. In this context, liquidity is interpreted as an ease of an effect to be traded in

the securities market without experiencing sharp price changes, Aji, 2012 [9].

Investments in securities certainly will not be separated from risks, whether the investor sell their securities below the purchase prices or when the securities cannot to be traded in short term or are called as liquidity risk. Liquidity risk is a risk that is caused by the stagnant flow of cash flow as a result of securities that cannot be sold immediately. Therefore, every investor needs to beware of the risk of stock liquidity (Waruwu and Pratomo, 2015 [2].

Furthermore, Waruwu and Pratomo, 2015 [2] stated that Stock liquidity can be assessed in three measurements, namely; 1). *Amihud Illiquidity;* It is to measure the price impact that occurs due to a transaction. The greater the price impact, the more illiquid the stock. The Amihud Illiqiudity equation of return divided by calculated price and volume; 2) *Amihud Risk,* it is a measurement of fluctuations in stock liquidity. Stock liquidity keeps changing over time, meaning that there is uncertainty about the transaction costs that will arise when investors want to sell their shares in the future. As stock liquidity can affect prices, fluctuations in stock liquidity can also affect prices. The greater the fluctuation of stock liquidity, the more illiquid the stock. The equation for calculating amihud risk is *standard deviation (amihud illiquidity);* 3). Share Turnover, It is a measurement of transaction activity, namely trading volume. The greater the value of share turnover, the more liquid the stock. The turnover share is calculated by equation of Volume transaction divided with outstanding share, while Return equal stock return in *t* period; Price equal stock price in *t* period; Volume equal number of shares traded in *t* period; Outstanding share equal number of shares outstanding in *t* period, Amihud *et al.*, 2005 [20].

TABLE I: NORMALITY ASSESSMENT

Variable	Min	Max	Skew	c.r.	kurtosis	c.r.
FSG	-,571	,808	,232	,946	-,096	-,196
VR	,427	1,000	-,952	-3,887	-,327	-,667
RS	-,573	,808	,138	,563	-,238	-,486
AI	,000	,001	1,736	7,086	2,200	4,490
AR	,000	,002	1,862	7,602	3,254	6,642
ST	,032	,788	1,085	4,428	1,612	3,291
Multivariate					25,124	12,821

Source: Results of data processing using AMOS 22.0

III. RESEARCH METHODOLOGY

This research is a quantitative approach with secondary data sourced from financial statements. The population in this study is a company classified in the index LQ45 from January 1, 2013 to December 31, 2017. The number of companies that become the research sample is 24 companies with the observation for 5 years period, so total data to be processed amount to 120 data obtained from financial report data sourced from www.idx.co.id [21]. The variables in this study are; stock liquidity is measured by three indicators, namely Amihud Iliquidity, Amihud Risk, and Share Turnover. Meanwhile, mispricing is measured by looking at the volatility of stock returns. While, the data analysis technique used in this study is the Structural Equation Model (SEM) using Amos Program or often referred to as the Path Analysis. SEM is a technique that allows testing of a series of relationships that are built between one or several dependent variables with one or several independent variables simultaneously, Ferdinand, 2002 [22].

IV. ANALYSIS AND DISCUSSION

A. Instrument Testing

Based on the table above, it can be seen that the normality result of multivariate c.r is known to be 12.821 which is more than 2.58, so that it can be concluded that the data distribution of this study is not normal.

B. SEM Testing

Bellow can be explained the table that prove the fit model of this study.

Based on Table II, the results of model testing proves that all goodness of fit index meet to the criteria for model fit or good fit, such as; Chi-Square (χ2), Probability, CMIN / DF value, GFI or a conformity index, AGFI, TLI, IFI, RMSEA, NFI, and hoelter. So this model may to use for predicting the relationship of independence variables with dependence variable.

TABLE II: MODEL TESTING RESULTS

No.	*Goodness – of Fit Index*	*Cut OffValue*	*Result*	Criteria
1	X2 *Chi-Square* (df =)	< α, df	8,164	Good Fit
2	*Probability*	≥ 0.05	0,226	Good Fit
3	CMIN/DF	≤ 2.00	1,361	Good Fit
4	GFI	≥ 0.90	0,974	Good Fit
5	AGFI	≥ 0.90	0,910	Good Fit
6	CFI	≥ 0.95	0,996	Good Fit
7	TLI	≥ 0.95	0,991	Good Fit
8	IFI	≥ 0.90	0,997	Good Fit
9	RMSEA	≤ 0.08	0,060	Good Fit
10	NFI	≥ 0.90	0,987	Good Fit
11	*Hoelter*	≤ 200	153	Good Fit

Source: Results of data processing using AMOS 22.0

C. Hypotheses Testing

Notes:
FSG=Firm's size growth
Likuiditas = Stock Liquidity
AI=Amihud Iliquidity
AR=Amihud Risk,
RS=Return of Stock
ST=Share Turnover
VR= Mispricng

The structural equation produced by the fit model formed from AMOS 22 output is as follows:

$$MIS = -0{,}246\ FSG + 0.028\ LIQ \quad (1)$$

$$RS = 0.977\ FSG + 0.011\ LIQ + 0.042\ MIS \quad (2)$$

Based on the first structural equation it can be concluded that if the FSG variable falls one unit and the other variable remains then the mispricing variable will increase by 0.246 units, if the liquidity variable rises by one unit and the other variable remains then the mispricing variable will increase by 0.028 units.

Based on the second structural equation it can be concluded that if the FSG variable rises by one unit and the other variable remains, the stock return variable will increase by 0.977 units; if the liquidity variable rises by one unit and the other variable remains, the stock return variable will increase by 0.011 units; and if the mispricing variable rises by one unit and the other variable remains, the stock return variable will increase by 0.042 units.

Bellow can be explained the relationship on intervariables to prove the hypotheses on this study.

1) The effect of size growth on stock return

Based on observation in Table III, the testing of the effect of size growth variables on stock returns has a p-value of 0,000 which is $<\alpha$ 0.05 which can be concluded that Ho is rejected and H1 is accepted. This also means that growth size has a significant positive effect on stock returns with beta coefficients 0.977, because the beta coefficient has a positive value. It indicates that the size growth variable has the same direction as the stock return variable, meaning that if the size growth increases by one unit, then stock returns will increase by 0.977 units. This is not in line with the theory of "Size Effect" from Banz,1981 [23] which states that the realized stock return of the company is influenced by the size of the company. The smaller the size of the company, the higher the stock return applies because a company with large size is seen to have smaller level of risks compared to one that have small size, due to large diversification in terms of operations and also low trade costs. In this study, the reserachers get different results. This is because the increase in the size of the company also reflects the stability and performance improvement of a company. The stability and performance improvement of a company will be a sign for investors that the company is feasible, and entice them to invest their funds for the shares. Such behavior of investors buying shares of the company causes an increase in the market price of a stock. Therefore, stock returns are positively affected by growth in size. This result is supported by the theory of Setiyono, 2016 [6] which states there is a positive relationship between the average stock return and company size.

2) The effect of size growth on mispricing

Based on observation in Table III, the testing of the effect of size growth variable on mispricing has a p-value of 0,000 which is $<\alpha$ 0,05, so that it can be concluded that Ho is rejected and H1 is accepted. It means that growth size has a significant positive effect on stock returns with beta coefficient 0,246. The positive value of beta coefficient indicates that the size growth variable has the same direction as the stock return variable. It also means that if the size growth increases by one unit, then the stock return will increase by 0.246 units. This is because the increase in the size of the company also reflects the stability and performance improvement of a company. The stability and performance improvement of a company will be a sign for investors that the company is feasible and whose shares are worth for investment. The behavior of investors who buy shares of the company can cause the price to deviate from its fair price and mispricing. Thus, mispricing is influenced positively by growth in size. This result is supported by research from Pyo and Shin, 2013 [10] which reveals that there is a positive relationship between the level of mispricing and company size in South Korea.

TABLE III: HYPOTHESIS TESTING

Variables		Variables	*Estimate*	*S.E.*	*C.R.*	*P*	*Label*
VR	<---	FSG	,246	,055	4,442	***	Accepted
VR	<---	Liquidity	,028	,263	,108	,914	Rejected
RS	<---	VR	,042	,016	2,573	,010	Accepted
RS	<---	Liquidity	,011	,044	,255	,799	Rejected
RS	<---	FSG	,977	,010	98,260	***	Accepted

Source: Results of data processing using AMOS 22.0

3) The effect of stock liquidity on stock return

Based on observation in Table III, the testing of the effect of stock liquidity variable on stock return has a p-value of 0.799 ie> α 0.05, it can be concluded that Ho is accepted and H1 is rejected, meaning the growth size does not have a significant positive effect on stock return with beta coefficient 0.011. When the beta coefficient has a positive value, the size growth variable has a directional movement with the stock return variable. Based on the descriptive data obtained, stock liquidity has a fluctuating distribution, and makes a company's stock liquidity which is increasing not necessarily reflect an increase in the value of a company's stock, and vice versa. A company's stock liquidity increases with the increase in its volume of stock transactions in the stock market, and these transactions can occur when the value of the company's shares either increases or decreases. For that reason, stock return is not significantly affected by stock liquidity. This result is supported by research from Situmeang and Muharam, 2015 [13] which suggest that there is a non-significant relationship between stock liquidity and stock return.

4) The effect of stock liquidity on mispricing

Based on observation in Table III, testing the effect of stock liquidity variables on mispricing has a p-value of 0.914, namely> α 0.05, so that it can be concluded that Ho is rejected and H1 is accepted. It means that stock liquidity has no significant positive effect on mispricing with a beta coefficient of 0.028. As the beta coefficient has a positive value, the stock liquidity variable has a direction with the mispricing variable. Based on the descriptive data obtained, stock liquidity has a fluctuating distribution. This is due to the policy of the Board of Directors of PT Indonesia Stock Exchange Decree No. Kep-00071 / BEI / 11-2013 which came into effect on January 6, 2014 and stipulated a change in the number of share lots from 500 to 100 sheets, and many investors or ordinary stock players in the stock exchange did

not fully understand the characteristics of the stock exchange. The behavior ofordinary investors causes the stock trading volume to increase randomly, and it is out of the behavior of expert investors. Shortly, the stock liquidity of a company cannot reflect the mispricing of a company, and mispricing is not significantly affected by stock liquidity. This result is supported by research from Waruwu and Pratomo, 2015 [2] which reveals that there is no significant relationship between stock liquidity and mispricing.

5) The effect of mispricing on stock return

Based on Table III, testing the effect of mispricing variable on stock return has a p-value of 0.010, which is $<\alpha$ 0.05. It can be concluded that Ho is rejected and H1 is accepted which means significant mispricing has a positive effect on stock return with a beta coefficient of 0.042. When the beta coefficient has a positive value, the mispricing variable has a direction with the stock return variable, meaning that if the mispricing has increased by one unit, then the stock return will increase by 0.042 units. This is in conjunction with the theory of "Efficient Market" which states that the form of the capital market mechanism includes a number of activities (events) that affect several circumstances. Capital market efficiency is determined by how much the influence of the relevant information that is taken into account on the investment decision making. This is because mispricing and stock return are very closely related, where differences in stock prices make stock prices change, and this is supported by the behavior of investors who often take advantage of inefficient market condition and the stocks deviating from the real value to get abnormal return. As a result, stock return is positively affected by mispricing. This result is supported by theories from Brennan and Wang, 2010 [3], Bodie *et al.*, 2011 [24] and Permatasari, 2017 [4] which show that the level of mispricing has a positive and significant effect on stock return.

TABLE IV: DIRECT, INDIRECT AND TOTAL EFFECTS

	Direct Effects			**Indirect Effects**			**Total Effects**		
	FSG	Liquidity	VR	FSG	Liquidity	VR	FSG	Liquidity	VR
VR	,409	,010	,000	,000	,000	,000	,409	,010	,000
RS	,985	,002	,026	,011	,000	,000	,995	,003	,026
AI	,000	-1,030	,000	,000	,000	,000	,000	-1,030	,000
AR	,000	-,795	,000	,000	,000	,000	,000	-,795	,000
ST	,000	,359	,000	,000	,000	,000	,000	,359	,000

Source: Results of data processing using AMOS 22.0

6) Direct, indirect and total effects

Based on Table IV, it can be seen that the direct effect of size growth on mispricing has a value of 0.409; the direct effect of liquidity on mispricing is 0.010; the direct effect of size growth on stock returns is 0.985; the direct effect of liquidity on stock returns is 0.002; and the direct effect of mispricing on stock returns is 0.026.

Based on Table IV, the value of indirect effect of size growth on mispricing is 0,000; the value of indirect effect of liquidity on mispricing is 0,000; the value of indirect effect of size growth on stock returns is 0.011; the value of indirect effect of liquidity on stock returns is 0,000; and the value of indirect effect of mispricing on returns share is 0,000.

Based on Table IV, the effect value of total growth size on mispricing is 0.409; the effect value of total liquidity on mispricing is 0.010; the effect value of total growth size on stock return is 0.995; the effect value of total liquidity on stock return is 0.003; and the total mispricing effect value on stock return is 0.026. It can be concluded that the effect of total size growth and liquidity on stock returns influencing mispricing moderation variable needs to be further considered both directly and indirectly. Changes in size growth can affect stock return indirectly through the mediating effect of mispricing. This is because the increase in company's size also reflects the stability and improvement of the performance of a company, that can attract investors to invest their funds in the shares. The increasing volume of transactions of a stock will make investors take advantage of inefficient market condition and stocks deviating from the real value to get abnormal return. In other words, stock return is influenced indirectly by size growth through the mediating effect of mispricing.

V. CONCLUSIONS

1) Stock return is significantly and positively influenced by size growth. Positive value of beta coefficient means that size growth variable has a directional movement with variable stock returns. Changes in size growth can affect stock returns due to increased growth in company size and also reflect the stability and improvement of company performance. Stability and improvement in company performance will provide an indication for investors that the company is feasible to get investment. This will be an experience and knowledge for investors in choosing prospective issuers. This result is supported by the theory of Setiyono, 2016 [6] revealing that there is a positive relationship between the average stock return and the company's size.

2) Mispricing is significantly and positively influenced by growth in size, when beta coefficient has a positive value, the size growth variable has a directional movement with the variable of shares return. It means that changes in size growth can affect mispricing because of the increase in the size of the company and it also reflects the stability and improvement of a company's performance. The stability and improvement of a company's performance will give a sign and information for investors that the company is feasible and help them in making decision to buy the shares. Therefore, investors must develop an information network with external parties in order to obtain information and knowledge about changes in the business environment of prospective issuers. This is supported by research from Pyo and Shin, 2013 [10] which

suggested that there is a positive relationship between the level of mispricing and the company's size in South Korea.

3) Stock return is not significantly affected by stock liquidity, Even positive value in beta coefficient means that the size growth variable has a directional movement with the stock return variable but changes in liquidity cannot affect stock return because the increasing liquidity of a company's stock does not necessarily reflect an increase in the value of a company's stock, and vice versa. This result is supported by research from Situmeang and Muharam ,2015 [13] which stated that there is a non-significant relationship between stock liquidity and stock return.

4) Mispricing is not significantly affected by stock liquidity Even the beta coefficient has a positive value, the stock liquidity variable has a movement in the same direction as the mispricing variable but changes in liquidity cannot affect mispricing, this is due to the Directors' Decision policy of the Indonesia Stock Exchange no. Kep-00071 / BEI / 11-2013 which took effect on January 6, 2014 and stipulated changes in the number of shares lots from 500 to 100 sheets, and many investors in the stock exchange did not fully understand the characteristics of the stock exchange. This result is supported by research from Waruwu and Pratomo 2015 [2] indicating that there is a non-significant relationship between stock liquidity and mispricing.

5) Stock return is positively and significantly influenced by mispricing. When the beta coefficient has a positive value, the mispricing variable has a directional movement with the variable of share return. It means that mispricing changes can affect stock return because mispricing and stock returns are very closely related. This result is supported by theories from Brennan and Wang, 2010 [3], Bodie *et al*., 2011 [24] and Permatasari, 2017 [4] which showed that the level of mispricing has a positive and significant effect on stock return.

6) In general, this study has academic implications for the development of knowledge management in the selection of investment strategies and specifically developing research models the relationship between growth in firm size and stock liquidity with return of stock can be further developed with mispricing variables as intermediary variables, and For Practical implication, the growth in company's size can be a good signal and information for investors to develop investment strategies and manage their business environment, because the increasing size of a company reflects the stability and improvement of of a company's performance, and investors need to take advantage of inefficient market condition and stocks deviating from the real value to get abnormal return.

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