

PUBLIC ATTENTION AND FINANCIAL INFORMATION AS DETERMINANTS OF FIRMS PERFORMANCE IN THE TELECOMMUNICATION SECTOR

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Abstract

The remarkable progress of information technology had driven every firm to publish their financial performance by using internet. This circumstance resulted in the high public attention in order to generate the stock return. In addition, financial information such as financial ratio namely DER, LEV, NPM, ROI, and ROE were supposed to influence the firm's performance either in positive or negative effects. This study focused on the investigation of public attention (PA) and financial information as determinants of financial performance on four companies in Telecommunication sector, Indonesia Stock Exchange (IDX), within time period from 2007 to 2012. Hereby, we pointed out that public attention and financial information considerably contribute to firm performance, in which the Pooled Least Square (EGLS) with cross section and period weight was employed. The results showed that Public Attention (PA) positively contributed towards stock return. Further, financial ratio such as debt-to-equity ratio (DER) negatively influenced the return. Leverage (LEV), net profit margin (NPM) and return on investment (ROI) positively related to return. However, return on equity (ROE) showed the contrary sign, in which it negatively influenced the return but was statistically insignificant. Then, we reported that the stock price (LN_{SP}) did not significantly contribute towards return (RET).

Keywords: *public attention, financial information, financial ratios, firm performance, return.*

Capital market is one of indicators that relates to the economic growth of a country. In Indonesia, capital market is prevalently used as the reflection of economic performance. The increasing performance of capital market is illustrated as the successfully process about bargaining activity between company and investors, either in sell-

ing or buying any securities. Due to this circumstance, dependency appears between them. On one side, the company actively seeks for the candidate of investors who have interests for investing their money on it. On the other side, investors are struggling to select the best company that can provide the best return for them.

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Return is primarily an indicator that is necessarily considered by investors in making an investment decision. As mentioned by Brigham & Ehrhardt (2005), there are numerous listed companies which are able to provide high return for their investors. It also eminently confirmed by Tandelilin (2010) who notes that return is the most considerably factor when investors determining to put their money on a certain firm.

This research focuses on identification and investigation in regard to the utilization of public attention and financial information in predicting stock return. We hereby follow the previous research conducted by Tandelilin (1997) and Bank et al. (2011) which have tried to reveal the contribution of financial information and public attention towards stock return. We concentrate to combine the concept of public attention and financial information gathered from internet and financial statements in order to investigate the predictability between these 2 concepts in emerging market, specifically in Telecommunication sector.

The analytical foundation of our empirical investigation of the return variance is provided by a model of information retrieval over internet. We conjecture that public has its own influence in changing the behavior of price movements. Therefore, the number of sequential incoming information within the market is essentially necessary by investors. To empower the process of investigation, we employ the concept of fundamental information such as financial ratios as suggested by Tandelilin (1997).

With regard to the effect of public attention, we anticipate that investors in capital market are classified as informed and uninformed investors. They actively drive the market towards certain condition. This means that the pattern of price co-movement is obviously related to the activity of information retrieval. We envisage that the transformation of technology information from the analog system to the digital system has brought

significant changes to market. As mentioned by Fang & Peress (2009), the information is getting simply to gather. This statement is supported also by Bank et al. (2011). They notice that the simplicity of information technology seems like a pool of information.

Research about the concept of public attention is already highlighted by seminal studies. Neuman (1990) reveals that media coverage and corresponding public attention is useful in analyzing the time series data of political issues. His study is extended by Fang & Peress (2009) who note that the media coverage can be useful in explaining the variation of cross section stock return. Further, Bank & Peter (2009), Bank et al. (2011), Da et al. (2011), Usman & Tandelilin (2013), and Fink & Johann (2013) discover that public attention is flexible in measuring the performance of capital market. Firstly, Da et al. (2011) and Bank et al. (2011) employ the Google's feature as a measurement of investor attention towards either certain stock or company. They examine the searches activity over the internet that is measured by Google insight exhibits positive and significant contribution to the increase of return and liquidity. Moreover, Usman & Tandelilin (2013) point out that by utilizing the internet, it is plausible for everyone in attenuating the gap which is called as asymmetry information. Also, Fink & Johann (2013) use the newest proxy for measuring the public attention, namely Google trends. The concept between Google insight and Google trend is not eminently different. These measurements collect the information retrieval conducted by users who type the keywords regarding to the company's names or its ticker symbol.

In addition, we employ the financial information which is collected from the fundamental ratio. Several studies have been reported in regard to reveal the predictability of fundamental ratio in explaining the variation of stock return. One of the studies is conducted by Cohen et al.

(1976). They find that financial ratio such as security's turnover ratio (TOR) is strongly and empirically useful in explaining the volatility of common stock return in the context of international comparison, particularly in New York Stock Exchange (NYSE), American Stock Exchange (AMEX), Tokyo Stock Exchange (TKYO), and Rio De Janeiro Stock Exchange (RIO). Lewellen (2000) does the same research which explains that financial ratios are considerably important as the determinants of return. However, his study focuses on the use of dividend yield (DY), book-to-market ratio (B/M), and earning price ratio (E/P) in explaining the return variation in AMEX and NASDAQ. Moreover, Tandelilin (1997) conducts the research in the area of Indonesia Stock Exchange (IDX). He notes that fundamental ratios such as liquidity ratio, leverage ratio, activity ratio, profitability ratio, and capital market ratio are primarily related to the systematic risk ($\hat{\alpha}$). Walid (2009) reviews that characteristics and the cross-sectional variation of Japanese stock return can be explained by book-to-market ratio and market capitalization. The firm's characteristic is not limited to book-to-market and market capitalization only, but also supported by the other fundamental information regarding to financial information. In addition, Kheradyar et al. (2011) discover the relationship between stock return and financial ratio. Their study shows that fundamental ratios such as dividend yield, earning yield, and book-to-market ratio significantly contribute to stock return at every sample used in Malaysia Stock Exchange. Martani et al. (2009) document the similar procedure of research. They point out that accounting information from financial reports can be used to describe the firm's condition. In particular, their study employ the net profit margin (NPM), return on equity (ROE), current ratio (CR), debt to equity ratio (DER), and price-to-book value (PBV) as predictors in explaining the effects of all these ratios towards stock return.

Exploring further link between public attention and financial information towards stock return contributes to the burgeoning of similar studies. It is therefore the purpose of this paper to briefly investigate the influence of public attention (PA) and DER, leverage (LEV), NPM, return on investment (ROI), ROE and stock prices (LNSP) on stock return (RET) in Telecommunication sector, and IDX with the period of observation from January 2007 to December 2012.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Public attention and Stock Return

Our starting point in developing the concept of public attention comes from the research conducted by Bank & Peter (2009). They employ the information retrieval over the internet as a surrogated indicator in measuring the public attention. Hereby, the measurement for quantifying the public attention is based on the number of searches done by investor on the internet. This sheds a new light on the perception of the public attention. A large literature considers the information retrieval over internet is useful to measure the number of investors who have the new information as the consideration for determining an appropriate stock. Bank et al. (2011) report that the number of Search Volume Index (SVI) has positive correlation and one-way causal relationship with stock return. It denotes that stock return rises as the quantity of information retrieval by using internet gets bigger.

The above previous researches also relate to the literature about order imbalance. We conjecture that the level of public attention is suitable for determining the uninformed investors. As mentioned by Bank et al. (2011), investors are divided into 2 types, namely informed and uninformed investors. We suppose that uninformed investors commonly use internet as the sources of

data and information regarding to the recent condition of company. Further we note that asymmetry information exists between these investors. Due to efforts to attenuate the level of asymmetry information, uninformed investors tend to use the internet as the information provider.

Johnson et al. (2005) point out that the degree and kind of media coverage given to a firm sends signals to investors over and above the information being reported. By selecting specific issues and firms to report on from an unlimited array of choices, the press for the public, and implicitly identifying which issues and firms are important. In this circumstance, the informed investors will gain the superior performances than the uninformed investors. However, this condition can be diminished if uninformed investors use the internet in gathering information that relates to the stock which provides better return to compensate the risk. Hence, we design the first hypothesis as the increase of public attention will positively increase the return generated by company.

Financial Information and Stock Return

The number of investors who have immediate access to the information is limited. It is prevalent because the investors are directly faced by risks. In order to compensate the risks, company has to provide the real information regarding firm's condition and the equal return for investors. These 2 factors are essential in stimulating the investors to put their money on the firm. The academic communities have proposed a variety of roles to overcome this issue. Usman & Tandelilin (2013) note that the uninformed investors tend to have inferior performance compare to the informed investors. This condition happens because the incoming information is not spread evenly. Therefore, companies have tried to use the internet as a new alternative media for publishing their financial information to facilitate and simplify the investors

in discovering the appropriate information. The variety of information can be grouped as financial ratios such as DER, LEV, NPM, ROI, ROE, and stock price itself (Martani et al., 2009).

According to Brigham & Ehrhardt (2005), it is plausible for investors to measure the risk and return on an investment by quantifying the difference of gain and its standard deviation. They suggest that there are 2 methods in explaining and predicting the behavior of return, namely fundamental analysis and technical analysis. These techniques are useful each other. However, we consider explaining and predicting the stock return is difficult for researchers or investors. Several studies have shown that fundamental analysis is commonly used for investing in a long-term horizon time. On the other hand, technical analysis is particularly employed by traders in gaining the short-term return.

A wide range of valuable information regarding the fundamental and technical analysis can be obtained from the internet. The analysis of fundamental is performed by utilising the fundamental information regarding the financial statements and ratios. Brigham & Ehrhardt (2005) classify the financial ratios into 5 categories, which are liquidity ratios, asset management ratios, debt management ratios, profitability ratios, and market value ratios. While the procedure of technical analysis as suggested by Brown et al. (1998), needs historical prices, trading activity, and the news in regard to corporate action conducted by company.

In the context of corporate finance, information regarding financial performances is necessary by investors. As studied by Martani et al. (2009) and Kheradyar et al. (2011), we employ several fundamental information concerning on financial information, namely DER, LEV, NPM, ROI, ROE, and LNPS. These fundamental variables are needed in determining whether the stock has a good prospect in generating return or the stock tend to result in high risk.

DER is commonly used as determinant of stock return (Tandelilin, 1997). It depicts the firm's ability in fulfilling its liabilities. A high DER generally means that a company has been aggressively funding its growth with debt. This can result in volatile earnings as an impact of the additional interest expense. Research conducted by Liu (2005) reports that the property investment companies in general are highly geared because they are financed heavily on debt and their capital is tied up in the properties. Therefore, Liu (2005) shows that Modigliani and Miller (MM) theory which is prevalently applied in corporate finance sectors is under perfect competition. In addition to this, he points out that the value of the firm is independent of the capital structure of the firm, in which there is positive relationship between the firm's leverage and systemic risk. Higher gearing ratio implies higher systemic risk. In particular, companies incorporated within the same business group with different level of debt-to-equity ratio yield different expected rate of returns on their equities. Besides, he also finds that there is positive and significant relationship between expected rate of return on equity and debt-to-equity ratio. It is clearly seen that, the increasing of debt-to-equity ratio inclines to result in positive impact towards firm's return. Henceforth, we design the second hypothesis as higher debt-to-equity ratio will result in the higher return that can be generated by the company.

We also investigate the effect of company's leverage towards return. In this case, we start the valuation of firm's leverage with the proposed model by Modigliani & Miller (1958). We specifically define the leverage as the financial leverage that has a long-term impact to the composition of company's financial activities. Theoretical finance has always related the leverage to as one of the fundamental sources of either financial risk or risk of investment. In the present days, the decisions regarding to capital structure are critical. Since the

leverage is concentrated not only on operational activity, but also regarding the financing activity, we argue about composing the best threshold of leverage will influence the firm's ability in managing its return for investors. Therefore, we hypothesize the third hypothesis "stock return is higher as the firm's leverage gets bigger".

The utilization of NPM has been reviewed by Martani et al. (2009). They report that NPM significantly and positively relates to adjusted and abnormal return for the companies listed in the Indonesian manufacturing sector. Their research was commenced with the observation period from 2003-2006. Hereby, their finding obviously notes that from investors' point of view, financial ratios are useful in making decision on investment. With the same motive as mentioned by Martani et al. (2009), we conjecture that NPM has positive influence towards RET. Thus, we design the fourth hypothesis as the higher net profit margin will result in the bigger return.

As mentioned by Brigham & Ehrhardt (2005), ROI is commonly applied by investors to any form of investment including project within operation, a company as a whole, or even a personal investment by an individual investor. This ratio can be easily found in the financial statement. Investors who intend to invest on an investment portfolio incline to calculate the probability of return on investment that offers the best return. Therefore, the increase of ROI will positively relate to RET. Thus, we propose the fifth hypothesis "the increase of return on investment will positively influence the stock return".

Information concerning on the level of profitability is one of consideration in deciding whether the investors will invest their money on or not. Virtually all investors incline to investigate the company's ability in generating return. Hereby, we employ ROE as an indicator in measuring the profitability ratio. The number of net income available for investor is a determinant of firm's perfor-

mance to provide return for its stockholder. Indeed, the effect of ROE has been investigated by Martini et al. (2009) and Pouraghajan et al. (2013). Martani et al. (2009) show that ROE has positively and significantly influenced the return. While Pouraghajan et al. (2013) note that ROE has significant relationship with earning per share (EPS). Here, we identify the same notion, in which the high ROE will attract investors to put their money on the certain stocks. Henceforth, we conjecture the sixth hypothesis where the higher return on equity will positively contributes to the stock return.

Stock price is a relevant indicator in identifying the performance of stock. The increasing of stock prices depicts as the positive trend. Otherwise, the decreasing of it tends to show the negative trends. Another trend that is commonly found is known as side-ways trend. It illustrates that the company has experienced no improvement in its trading activity (Brown et al., 1998). Study conducted by Kaniel et al. (2009) note that the histori-

cal price has related to return. It is clearly seen and observable by following the stock movements. Hence, the up-ward trend shows that firm can generate higher return than the previous day, week, month, or year. On the other hand, the down-ward trend describes the inability of firm in generating higher return or even negative. Therefore, we hypothesize the seventh hypothesis, in which return will be higher as the stock price gets bigger.

Variable Measurements

The measurement of every variable is essential in order to clear the process of data collection. Hereby, we strongly consider to expand the concept of public attention as suggested by Bank & Peter (2009) and further combine it with the usage of fundamental ratios which are surrogated the financial information. The measurements of variables are shown in Table 1 as follows.

Table 1. Variable Measurements

| Variables | Measurement |
|-----------|--|
| PA | Public attention is measured by utilizing the number of internet searches activity regarding the company listed in the Telecommunication sector. We collect the time series data (monthly searches activity) which ranges from 0 to 100 % that can be obtained from Google trends (available at: www.google.com/trends/). |
| DER | $DER = \frac{\text{Total Debt}}{\text{Total Equity}}$ |
| LEV | $LEV = \frac{\text{Earning Before Interest and Tax}}{\text{Earning Before Interest and Tax} - \text{Interest}}$ |
| NPM | $NPM = \frac{\text{Net Income}}{\text{Net Sales}}$ |
| ROI | $ROI = \frac{\text{Gain from Investment}}{\text{Cost of Investment}}$ |
| ROE | $ROE = \frac{\text{Net Income Available to Common Stockholder}}{\text{Common Equity}}$ |
| LNSP | Stock prices are available in Indonesia Stock Exchange website. Here, we use the monthly time series data of stock prices. |
| RET | $\text{Stock Return} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}}$ |

METHOD

The process of data collection is performed by conducting observation on the internet. We consider to gathering the data regarding public attention from Google. Hereby, we note that every search activity done by Google is represented as public interest. Investors who decide to buy certain stock usually use the physical information concerning the company's news or information. However, seminal studies have conjectured that the conventional information retrieval is now presumably substituted by information retrieval over the internet (Bank et al., 2011).

The data in regard to public attention is collected in particular categorization. We intend to avoid the number of bias by selecting the appropriate internet search activity that relates to specific information of company. Therefore, Google has filtered the searches activity in two groups, namely search activity based on financial, and business and industrial searches.

Our sample is drawn from 4 companies with the time period of observation from January 2007 to December 2012. We compile the samples from IDX, specifically we utilize the companies listed in the Telecommunication sector. At first, we have collected 10 companies as the samples. However, we truncate as many as 6 companies. The reducing number of sample happens due to purposive sampling criteria. Hereby, we note several criteria in process of collecting the final sample as follows: (1) the company has actively traded and listed in IDX, particularly every company incorporated in the Telecommunication sector and must be listed on the IDX main board before 1th January 2007; (2) the company has never experienced suspension during the time of observation either from January 2007 to December 2012 or for more than 12 months at any time period; (3) the company actively publishes its financial statements during the time period of observation from January 2007 to December 2012; and (4) the company

has the search activity that can be quantified by Google trends in regard to information retrieval done by investors.

According to purposive sampling criteria above, we reduce 60 % of our sample. This means that we employ a data set of 4 companies that are selected based on the above criteria, and specifically collect the specific data from the website of IDX and Indonesian Capital Market Directory CD-ROM (ICMD CD-ROM). Moreover, we determine the Telecommunication sector as the sample due to the high performance of its trading activity in generating return. Besides, Indonesia has become the potential market for the company in order to expand its market. Hereby, we consider that the utilization of Telecommunication sector will provide a new test of whether the fundamental information collected from financial ratios can predict the aggregate stock return. We focus exclusively on short-term horizon testing by providing the data for monthly observation as many as 76 time series data and 4 cross-sectional companies (TLKM (PT. Telkom Indonesia, Tbk), ISAT (PT. Indosat, Tbk), EXCL (PT. ExcelcomindoTbk), and BTEL (PT. Bakrie Telecom, Tbk) that meet the criteria of purposive sampling method. Totally, we do the hypotheses testing by using 288 observation data.

The issue of predictability financial ratios in explaining the variation of stock return has been served in seminal studies. This issue is essential in investigating whether the public attention and financial information can be utilized as predictors in explaining the changes of return. Hereby, several studies have reported that financial ratios have power in predicting the pattern of return. Martani et al. (2009) employ ordinary least square (OLS) technique in investigating the effects of financial ratios, firm size, and cash flow from operating activities in the interim report to the stock return in IDX. Further, Kheradyar et al. (2011) use generalized least square (GLS) method in examining the determinants of return which consist of earn-

ing yield (EY), DY, and book-to-market ratio in Bursa Malaysia. Both Martani et al. (2008) and Kheradyar (2011) have strongly shown the ability of financial ratio in explaining the variation of stock return. Hereby, we used the following model for examining the hypotheses testing.

$$RET_{i,t} = \alpha + \beta_1 PA_{i,t} + \beta_2 DER_{i,t} + \beta_3 LEV_{i,t} + \beta_4 NPM_{i,t} + \beta_5 ROE_{i,t} + \beta_6 ROI_{i,t} + \beta_7 LNSP_{i,t} + \varepsilon_t \quad (1)$$

Where:

- $RET_{i,t}$: stock return of firm i in time t
- α : constanta
- $PA_{i,t}$: public attention of firm i in time t
- $DER_{i,t}$: debt-to-equity ratio of firm i in time t
- $LEV_{i,t}$: leverage of firm i in time t
- $NPM_{i,t}$: net profit margin of firm i in time t
- $ROE_{i,t}$: return on equity ratio of firm i in time t
- $ROI_{i,t}$: return on investment of firm i in time t
- $LNSP_{i,t}$: logarithm natural of stock price at firm i in time t
- ε_t : error term

As shown at equation 1 above, we use stock return as a single dependent variable. We consider that the performance of every company listed on Telecommunication sector, IDX, relates to several

determinants. These determinants are determined by employing fundamental information which is reflected in firm's financial statement. This information is essential for investors, whether they will start an action to buy the stock or not.

With respect to the equation above, we use stock return as the measure of financial performance. Hereby, RET denotes as the monthly return or every sample used from the Telecommunication sector. PA is the public attention which is measured by using Google trends. Google provides data ratio in form of percentage which ranges from 0-100. DER is debt-to-equity ratio which reflects the proportion of total debt to total equity. LEV is leverage which displays the information in respect of leveraging activity done by firm. Hereby, we note that leverage is particularly represented as financial leverage. NPM is net profit margin which describes the proportion of net income to net sales. ROE and ROI are shown as the proxy of profitability ratio which relate to the stock return. ROI is concerning on measuring the rate of change of money due to investing. By applying the return on investment formula in Table 1, we determine a X % change in money on an investment. While ROE focuses on company's net income divided by its average stockholder's equity. LNSP denotes the logarithm natural of monthly stock

Table 2. Summary Statistics

| Variables | Mean | Max | Min | Std. Dev. | Observation | Cross Section |
|-----------------------|-------|-------|---------|-----------|-------------|---------------|
| Panel A: | | | | | | |
| Dependent Variable | | | | | | |
| RET | 0,038 | 0,955 | -0,955 | 0,578 | 265 | 4 |
| Panel B: | | | | | | |
| Independent Variables | | | | | | |
| PA | 22,5 | 100 | 0 | 26,696 | 265 | 4 |
| DER | 1,60 | 4,53 | 0,66 | 0,868 | 265 | 4 |
| LEV | 0,56 | 0,82 | 0,4 | 0,117 | 265 | 4 |
| NPM | 2,21 | 16,56 | -0,32 | 4,899 | 265 | 4 |
| ROE | 4,76 | 38,1 | -200,71 | 46,739 | 265 | 4 |
| ROI | 4,56 | 16,51 | -36,32 | 10,876 | 265 | 4 |
| LNSP | 4643 | 11200 | 50 | 3406,936 | 265 | 4 |

prices for samples incorporated on Telecommunication sector.

RESULT

We start the elaboration of research findings by observing the result of descriptive statistics. We summarize the information about the characteristic of research variables as can be seen as follows.

The descriptive data in Table 2 is obtained by employing the formulas in Table 1. As can be seen, Table 2 illustrates the data in regard to mean, minimum, maximum, standard deviation, observation, and the number of cross sectioned used. Our sampling period as the same as the purposive sampling criteria that is determined at the purposive sampling method. The time series data is started on January 2007 and ended on December 2012. It is obviously known that the number of cross section performed in our study is only four companies which are collected from the Indonesian Telecommunication Sector. In addition to this, we also use the LN (logarithm natural) of stock prices in anticipating the probability of bias in the process of estimation.

Table 1 provides the data in regard to the elaboration of summarize statistics. We consider showing the data in form of descriptive statistics in order to simplify the fundamental information relating the variables used in this study. It is discernible that we use seven independent variables comprise of PA, DER, LEV, NPM, ROE, ROI, and LNSP. While, the dependent variable used in this study is RET.

In particular, it is clearly seen in panel A that the monthly return of companies listed on the Telecommunication sector is around 0,038 % on average, with the minimum return -0,955 and the maximum return 0,955 %. While, the average of PA surrogated by the result of information retrieval over the internet through Google is 22,5 %. It

means that the hit regarding to the available information by investors in time series searches activity from January 2007 to December 2012 is 22,5%, with the lowest (minimum) searches activity at 0% and the highest (maximum) searches activity at 100%. It is important to note that the result of searches activity conducted by investors is relative in certain time period only, and not absolute.

Further in panel B, the variable of DER depicts the average value at 1,60, with the minimum DER around 0,66 and maximum DER 4,53. This means that the 4 of samples have used debt in supporting their financing activity. Then the leverage ratio which represents the activity of LEV shows the average value at 0,56 with the minimum score at 0,4 and the maximum around 0,82. NPM displays the average value at 2,21 in which the minimum NPM is -0,32 and the maximum NPM stand at 16,56. Moreover, profitability ratios are represented by ROE and ROI. Here, we note that the average score of ROE for the company listed on Telecommunication sector is 4,76 with the minimum ROE stand at -200,71 and the maximum 38,1. In addition, the data regarding to ROI shows the average value around 4,56 with the minimum ROI at -36,32 and the maximum ROI about 16,51. Lastly, LNSP shows the average value at IDR 4643 with the minimum price at IDR 50 and the maximum price stand around IDR 11200.

The Procedure of Hypotheses Testing

The hypotheses testing are performed by utilizing the pooled EGLS (with period weight). It is clearly shown that the form of examination is panel data analysis. Firstly, we conduct the model selection by employing the preliminary test in order to determine which model that would be used. As suggested by Gujarati (1995), there are 3 models that can be performed in testing the panel data, namely pooled least square model (PLS), fixed effect model (FEM), and random effect model

(REM). As the criteria in determining the most efficient model, we employ the Chow test and Hausman test. Chow test concentrates on comparing between PLS and FEM model, while Hausman test is necessarily important in comparing between FEM and REM.

The justification relates to these 2 models are following Baltagi (2005) criteria. We build the hypotheses in need of selecting the best model. The null hypothesis shows that if both F and Chi square value are not statistically significant at the 5% level, the process of hypotheses testing will adopt the PLS model. Otherwise, if both F and Chi square value are statistically significant at the 5% level, it will follow the FEM. In this case, if the result of Chow test recommends using the FEM, we continue to conduct the Hausman test with the same justification as Chow test. However, we need to change the null hypothesis that previously determined as PLS model with REM. The result of Chow test is shown in Table 3.

Table 3. Chow Test

| Redundant Fixed Effects Tests | | |
|----------------------------------|-----------|--------|
| Pool: TELECOMMUNICATION | | |
| Test cross-section fixed effects | | |
| Effects Test | Statistic | Prob, |
| Cross-section F | 1,418298 | 0,1292 |
| Cross-section Chi-square | 2,988645 | 0,0874 |

We conduct the Chow test in order to compare the utilisation between the FEM and PLS. We firstly test the variables by involving all the independent variables using FEM. Then we performed the Chow test. Due to the result of cross section F and Chi-Square with 4 cross sectional data, we gain the result that recommends the PLS as the most appropriate model to be run for examining the equation 1.

As can be seen above, Table 3 describes that both F and Chi-square gained from Chow test result are statistically insignificant at 5% level. This output recommends that the most efficient and the most

appropriate model used is PLS model. This means that we do not have to conduct the Hausman test as the continuation of panel data selection process. However, we conjecture that it is still plausible that in the process of regression we find the problem of heterocedasticity. To date, we overcome the problem of heterocedasticity by employing pooled EGLS with the period weight. Therefore, the problems regarding the heterocedasticity among individual samples in panel data and autocorrelation are solved and the procedure of hypotheses testing can be continued on the next step.

Hypotheses Testing

In the next step, we commence the procedure of hypotheses testing. Hereby, we employ 7 independent variables in order to explain the variation of dependent variable. Hypotheses testing are done by utilizing E-Views 6 as the statistical tool. In particular, we use the panel data regression with pooled EGLS (period weight). The results of hypotheses testing are available in Table 4 as follows.

Table 4. Executive Regression of Pool Data

| Variable | B | t-Statistic | Prob. |
|--------------------|---------|-------------|--------|
| C | -0,3831 | -4,8912*** | 0,0000 |
| PA | 0,0007 | 4,0828*** | 0,0001 |
| DER | -0,1376 | -4,8875*** | 0,0000 |
| LEV | 1,0046 | 5,0921*** | 0,0000 |
| NPM | 0,0022 | 1,6387 | 0,1025 |
| ROI | 0,0145 | 4,1614*** | 0,0000 |
| ROE | -0,0033 | -4,4467*** | 0,0000 |
| LNSP | 0,0041 | 0,6593 | 0,5103 |
| R-squared | | 0,2286 | |
| Adj, R-squared | | 0,2076 | |
| F-statistic | | 10,8825 | |
| Prob (F-statistic) | | 0,0000 | |
| Mean Dependent | | 0,0713 | |
| Durbin-Watson | | 2,0129 | |

The output of hypotheses testing in Table 4 is performed by employing the pooled EGLS with period weighted process. We precisely employ the

equation 1 on the investigation of the influences of each independent variable towards dependent variable. The statistical model used in our study is clearly seen as follows:

$$RET_{i,t} = \alpha_0 + \beta_1 PA_{i,t} + \beta_2 DER_{i,t} + \beta_3 LEV_{i,t} + \beta_4 NPM_{i,t} + \beta_5 ROE_{i,t} + \beta_6 ROI_{i,t} + \beta_7 LNPRICE_{i,t} + \varepsilon_t$$

After examining the model with pooled least square (EGLS) model, we discover that the use of seven independent variables is arguably strong in explaining the variation happens in the model. Here, we note that the coefficient of determination or R^2 resulted by the output is around 0,2286 or equal as 22,86%. It denotes that the ability of our model in explain the variation within stock return is 22,86%, while the remaining score is possibly related to the other factors which are not included in our equation. Further, F statistic describes a value as 10,8825 which mean that the independent variables (PA, DER, LEV, NPM, ROI, ROE, and LNPRICE) simultaneously and significantly contribute towards the dependent variable (RET).

*** (Statistically significant at the 0,01 level)

** (Statistically significant at the 0,05 level)

* (Statistically significant at the 0,10 level)

The output of hypotheses testing in Table 4 also describes the magnitude and the influence of every independent variable towards the dependent variable. As mentioned in the literature, we suppose that the seven independent variables comprise of PA, DER, LEV, NPM, ROI, ROE, and LNPRICE are able to predict the variation of RET for the listed companies on the Telecommunication sector, IDX.

Our study review the relationships between the variables used. We do believe that public attention to a number of information is necessarily beneficial in making investment decisions. Hence, we note that there is positive relationship between

PA surrogated by the result of information retrieval through internet (Google trends) and RET. The sign of PA towards RET shows positive correlation. If the number of public attention is increasing, it will result in positive or even an increasing return for the companies listed on the Telecommunication sector. Specifically, RET tends to get higher as 0,0007 due to the increase of PA as a%. Therefore, we infer that the first hypothesis is supported in which the PA positively and significantly relates to RET. On this account, media organizations are essentially brokers competing in a market for financial information, deploying specialized resources to collect, assemble, market, and sell information on business related issues. Thus, this notion is in line with Johnson et al. (2005) who state that success in the market for financial information is presumably based on the quality of the goods.

A negative relationship is found between the DER and RET. The coefficient regression of DER obviously shows a negative sign, in which the increase of debt inclines to cause the lower return. It denotes that the use of debt in financing the activity tend to raise the risk. This condition discernibly leads to the negative signal for investors. They incline to believe that a company with a high debt relatively bears high risk, and vice versa. Our empirical evidence of negative relationship between DER and RET confirms that the second hypothesis is not supported.

We test the third hypothesis which investigates the influence of LEV towards RET. We find the primarily result which shows that leverage has influenced the return positively. It can be observed from the positive value of $\hat{\alpha}_3$ (LEV) which shows coefficient regression as 1,0046. This circumstance is rationally logic in which the higher leverage particularly the financial leverage will result in better performance in the long-term period. Henceforth, we note that the third hypothesis which examines the influence of LEV towards RET is supported.

Furthermore, the hypothesis testing in regard to the causal relationship between NPM and RET is performed then. We conjecture that the level of NPM resulted by the samples is strongly related to their ability in generating RET. According to the output drawn in Table 4, it is obviously seen that NPM displays positive sign ($\hat{\alpha}_4 = 0,0022$) which interpreted, the higher RET is caused by the increase of NPM. However, the relationship between these 2 variables is statistically insignificant (the significance of β_4 is 0,1025). Thus, we conclude that the fourth hypothesis is not supported and not fully in line as previously explained in our literature review.

Table 4 also shows the result for interaction between ROI towards RET. Based on the result, we report that ROI has significantly and positively influenced the RET. With respect to this result, the business model offers various benefits to investors. The ability of company in order to provide better return is primarily important for investors

in making decisions whether they will invest their money on or not. The difference between earning and the initial investments is discernibly considered by the investors. Hereby, we notice that the ability of samples in generating return as the compensation for their investor is strong as expected. Concerning to the sign and the probability, we find that the higher ROI is positively and significantly resulting to the increasing RET. Therefore, the fifth hypothesis is supported as well.

Result of statistical test concerning the link between ROE and RET is also observable in Table 4. The result depicts that ROE is negatively and significantly related to stock return. This condition is somehow contrary to a priori expectation, in which the increase of ROE should have stimulated the increase of RET. Relating to irrelevancy between ROE and RET, we note that the sixth hypothesis is not supported.

Testing the latest hypothesis, we discover the positive causal relationship between LNSP and

Table 5. The Magnitudes of Each Variable after Being Tested by Performing the Stepwise Technique

| Independent Variables | β_1 | β_2 | β_3 | β_4 | β_5 | β_6 | β_7 |
|-----------------------|--------------------|---------------------|----------------------|-----------------------|------------------------|----------------------|----------------------|
| PA | 5,68187 0,58167 | 0,00002 0,27868 | 0,00004 0,6242 | -0,00051 0,0042*** | -0,000527 0,0008*** | 0,0007 0,0001*** | 0,0007 0,0001*** |
| DER | | -0,00375 0,46166 | -0,01966 0,0499** | -0,06777 0,0000*** | -0,015224 0,2392 | -0,02884 0,0409** | -0,1376 0,0000*** |
| LEV | | | 0,06695 0,0705* | 0,23140 0,0000*** | 0,06498 0,1338 | 0,09679 0,0314** | 1,0046 0,0000*** |
| NPM | | | | 0,00135 0,1150 | 0,00182 0,0685* | 0,00256 0,0182** | 0,0022 0,1025 |
| ROI | | | | | 0,00308 0,0000*** | 0,0060 0,0000*** | 0,0145 0,0000*** |
| ROE | | | | | | -0,0010 0,0011*** | -0,0033 0,0000*** |
| LNSP | | | | | | | 0,0041 0,5103 |
| R ² | 0,0007 | 0,003 | 0,0589 | 0,2517 | 0,3062 | 0,2256 | 0,2286 |

Description:

- t-statistics are shown in parentheses
- *** : (Statistically significant at the 0,01 level)
- ** : (Statistically significant at the 0,05 level)
- * : (Statistically significant at the 0,10 level)

RET. However, the output shows that the interaction of these 2 variables is statistically insignificant. In regard to this circumstance, we do believe that even though the relationship is statistically insignificant, investors will use the information regarding stock price as one of data in making decision. Besides, other researchers such as Brown et al. (1998) believe that the trend of historical prices is useful in determining the future movement of price and return, although the certainty of this technique has not yet been investigated thoroughly. Hence, we report that the LN_{SP} in seventh hypothesis is not supported and statistically insignificant to the RET.

Our research is considerably trying to reveal the influence of public attention and the financial information gathered from fundamental ratios as determinants of stock return. Hereby, in order to obtain the robust test, we conduct the regression procedure by implementing the stepwise technique. As shown in Table 5, firstly we insert the PA as a single independent variable in investigating the influence of PA/ β_1 towards RET. We discover that even though the samples have experienced the hit in term of information retrieval over internet conducted by Google users respectively, the coefficient regression shows insignificant effect towards stock return. This condition remains stable after we insert the second (DER) and third variables (LEV). However, the circumstance inclines to be different after we put the fourth (NPM) and fifth variables (ROI), the sign of PA changes to be negative. This means that according to several fundamental information which have been collected by investors from the internet, the available data or even the news and information is not preferable for them. Despite the higher information retrieval is clearly shown, but the return is not increasing on the same pattern. Further, the sign of PA alters to be positive. This exists after we put on the sixth (ROE) and seventh variables (LN_{SP}). It denotes that investors are going to recognize in which the information starts

to be more useful when they make decision about selecting the appropriate and better return.

In addition, involving financial information that can be collected from financial statements is clearly beneficial for investors. This kind of information relates to the future prospect of company in regard to activity of gaining return. Hereby, we use several ratios that supposed to be determinants in forming the return. Based on the output of stepwise technique, we consider that the utilization of DER/ β_2 remains stable negative sign towards RET. This magnitude is obviously the same even though we have inserted the additional independent variables already. We point out that, the samples are commonly operated by using the debt as their funding. This kind of activity if not controlled as optimally as possible tends to cause the negative signal, in which investors do not want to be faced on the high risk of investment. Therefore, some empirical researches and theories have suggested that the optimal capital structure needs to be considered by the financial manager.

Different with DER, the contribution of leverage ratio, in particular LEV/ β_3 shows the positive signal towards RET. In this case, financial leverage can be utilized in form of long-term funding activity. With respect to Telecommunication sector, the samples used in this study seem funding their operational activities with long-term liabilities or even releasing the new shares to public. Therefore, they can use and manage the capital properly.

NPM/ β_4 , ROI/ β_5 , and ROE/ β_6 are surrogated indicators of profitability ratios. The 2 of these variables, NPM and ROI show positive and significant contribution on RET. However, ROE does not significantly contribute to the variation of RET. The obtained result is little bit contrary to our hypotheses development, in which our notion is developed based on conjecture that ROE will positively contribute to stock return. Then, the seminal literatures note that stock price is posi-

tively related to stock RET. However, we find that this factor insignificantly influences the return even though the output shows positive sign for the relationship between LNSP/ β_7 and RET.

DISCUSSION

The analysis and investigation about the influences of public attention and financial information towards stock return have been reported by numerous studies. Neuman (1990) documents that time series data relates to news and information from media coverage has influence someone when gives their perspective towards political choices. Then, study reported by Neuman is extended by Fang & Peress (2009). They point out that media coverage is really useful in predicting the cross-sectional of stock return and bond. In particular, they note a logic excuse, in which the company exposed by positive rumor is relatively generating better return (positive) and vice versa (negative). Compare to the study conducted by Bank et al. (2011) and Da et al. (2011), the utilization of information technology (IT) such as internet and search media called as Google has been reviewed comprehensively. Hereby their researches confirm that information retrieval over the internet is beneficially essential in measuring the level of investor's recognition. Specifically, recognition released by investor is a form of investor's attention towards some stocks. They can easily type a keyword which represents the identity of certain stock such as the firm's name or its ticker symbols. Further Bank et al. (2011) and Da et al. (2011), show that asymmetry information exists between investors. They divide it into informed and uninformed investors. By searching the information in regard to firm's action or news, in fact will turn the uninformed investor to be informed investors and immediately attenuate the level of asymmetry information between them.

Our empirical research shows that public attention represented by information retrieval

over the internet, which utilize Google as a search engine machine relates to the news or information about company, positively and significantly contributes to the financial performance measured by stock return. Specifically, we find that the magnitude of public attention towards stock return of companies incorporated within the Telecommunication sector fluctuates unwittingly. Firstly, we note the negative relationship between PA and RET. However, after we employ several additional independent variables, we find that the sign of PA changes to be positive. This result notably in line with the studies mentioned by Fang & Peress (2009); Bank et al. (2011); Da et al. (2011); Fink & Johann (2013); and Usman & Tandellilin (2013), which show that public attention or investor's attention positively contributes in generating better return for investors. Secondly, our finding relates to the explanation of Johnson et al. (2005). They point out that the degree and kind of media coverage given to a firm sends signals to investors over and above the information being reported. Further, as cited by Johnson et al. (2005) from the research conducted by McCombs (1992), by selecting specific issues and firms to report on from an unlimited array of choices, the press "set the agenda" for public, implicitly identifying which issues and firms are important.

Further, we investigate the results with respect to the influence of financial performance towards return. Hereby, we use fundamental information such as DER, LEV, NPM, ROI, ROE, and LNSP. Firstly, we report that there is negative contribution from DER towards RET. We suppose that every sample in our research, including TLKM, ISAT, EXCL, and BTEL have utilized debt to finance their activity. For investors, this condition is definitely dangerous if the company does not consider the proportion of its capital structure carefully. This probably happens because the capital structure is relatively dominated by debt. Given to this structure, the more company use debt for funding its operational activity, the more it has to

pay for interest. On the other side, the composition of account payable is much bigger. Thus, the uncontrollable use of debt leads to high risk. This type of company is relatively avoided by investors as documented by Tandelilin (1997) and Pouraghajan et al. (2013).

Variables such as LEV, ROI, and ROE show positive relationships with RET for companies incorporated in Telecommunication sector. These results mean that LEV positively contributes towards RET. In the long-term period, the usage of leverage will result in positive impact towards firm performance. Moreover, the 2 of profitability ratios namely ROI and ROE reflect the different result, in which ROI positively contributes to return but on the other hand ROE shows negative and significant impact towards RET.

The output of NPM depicts positive contribution towards RET. It denotes that company can generate better profit which is reflected by the increase of stock return. This result also confirmed by the studies of Tandelilin (1997), Martani et al. (2009), and Pouraghajan et al. (2013), in which NPM shows positive causal relationship towards RET. In addition to this, our result shows that LNPS signaling positive sign towards RET, but this relationship is statistically insignificant. This output indicates that the price movement does not release a comparable effect to return generated by the company. After investigating the data, we find that PT. Bakrie Telecom.Tbk (BTEL) has experienced side-ways trend for its price movement. We conjecture that it is affecting our result. According to Brown et al. (1998) the side-ways price movement will not result in return because it denotes a thin trading. However, only BTEL had experienced this pattern.

CONCLUSION AND SUGGESTIONS

Conclusion

The number of literature review relating to investigation and identification on public attention

and financial performance has evolved considerably. Our test provides strong evidence in regard to explanation and predictability of stock return. By implementing a group of fundamental information and public attention, we discover that variation on stock return is eminently related to the information. Besides, we document that public attention has influenced the firm performance. Firms need to utilize this advantage, particularly using the internet to attract the candidate of investors. By posting some new information through internet, firms can press the cost of promotion that usually done conventionally. Therefore, investors can access the news and information easily.

Further, we emphasize that the use of fundamental information such as financial ratio is obviously important. Some studies have already reported the beneficial of fundamental information. Henceforth, the findings of this study confirm that financial ratios are not only used to understand the current and past performance and future prediction of firm, but they are also useful as a tool for planning and controlling the activities of the company.

Suggestions

Our finding has delivered a substantial issue relating to the contribution of public attention towards financial performance. This issue is clearly essential as an effort to attenuate the asymmetrical information among the prospective investors in Indonesia stock exchange (IDX). Based on our finding, we suggest three recommendations. Firstly, it is important to all public listed companies, particularly in the Telecommunication sector to showcase their financial information in increasing the public attention and investor awareness of their entity. By publishing the related information on internet, prospective investors will easily find the specific information with respect to the listed company. Secondly, a vast body of literature already documented the relationships between fun-

damental information and return. However, only a limited number of studies have been reported to analyze the essence of public attention surrogated by the usage of Information Technology (IT) towards return. Therefore, it is plausible to broadening the econometrical model regarding to the combination of IT and financial performance. Thirdly, our finding is limited to examine the general effect of IT and fundamental information toward firms' performance. We strongly suggest to the next research to build a portfolio model as the continuation of investigating the contribution of IT and financial information toward firm performance.

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