The Effect Inflation, Interest Rate, Exchange Rate, Return on Assets (ROA), and Debt Ratio (DER) on Stock Return (Case Study on Telecommunication Subsector Listed in Indonesia Stock Exchange Period 2011 – 2015)

Nindina Jatiningtyas[1] and Aldilla Iradianty[2]

School of Economics and Business, Telkom University, Bandung, Indonesia

nindinatyas@gmail.com[1], iradianty.a@gmail.com[2]

Abstract. *This study examined about the effect of inflation, interest rates, exchange rates, return on assets (ROA), and the debt ratio (DER) on stock returns. The object of this study is the telecommunication subsector companies listed in Indonesia Stock Exchange 2011-2015 period. The sampling technique used is nonprobability sampling with four companies as the sample, they are, PT Telekomunikasi Indonesia, PT Indosat, PT XL, and PT Smartfren. Method used in this research is panel data regression method. The results from this study is simultaneously variable inflation, interest rates, exchange rates, return on assets (ROA), and the debt ratio (DER) had no significant effect on stock returns. Similarly, partially, variable inflation, interest rates, exchange rates, return on assets (ROA), and the debt ratio (DER) had no significant effect on stock.*

Keywords. *stock returns; telecommunication subsector; macroeconomics; return on asset; debt ratio.*

I. INTRODUCTION

Capital market is a market that provides expenditure resources with a relatively long period of time, which invested in capital to create and multiply the means of production and ultimately boost the economic activity [10].

Investments in financial assets can be in the form of direct investment and indirect investment. Direct investment is done by directly buying financial assets of a company either through intermediaries or by any other means. Meanwhile, indirect investment is done by buying shares of the investment company that has a portfolio of financial assets from other companies [5].

The investment advantages in the telecommunications sector have attracted several foreign investors through direct investment. One of them is Singapore who is willing to invest related to the provision of integrated communication line [1]. In addition to Singapore, Malaysia also participating in the investment through PT XL Axiata that was ranked first in investment of foreign funds flow in Indonesia Stock Exchange in 2015 [13]. Besides Singapore, the UK also intends to invest in the telecommunications sector worth of USD 1.14 million which have received principle license from BKPM in early January 2016 in the field of wireless telecommunications business [11].

Although the condition of telecommunications subsector is very good, however, the income of the four major players in the field has a different pattern. Based on the financial statements of the company, PT Telekomunikasi Indonesia (Telkom) had rising revenues from 2011-2015. PT Telkom's revenue in 2015 is amounted to 102.4 trillion rupiah. PT Indosat's revenue increased in 2012, then declined in 2014 is amounted to 19.4 trillion rupiah, in 2015 the company succeed to raise the revenue to 26.4 trillion. PT XL experienced increasing revenue continuously until 2014 reached 23.4 trillion, but declined in 2015 to 22.8 trillion. PT Smartfren is a company that has the lowest income than any other company. Nevertheless the company has actually experienced increasing revenue every year, the revenue of PT Smartfren in 2015 is amounted to 3 trillion rupiah.

Director of the Institute for Development of Economics and Finance (INDEF), Sri Hartati revealed that Indonesia's economic growth in the quarter II / 2015 is slower. The growh in real sector industries including food and beverages was declined, while the tremendously growing industry is the telecommunications industry [3]. According to economist Hendri Saparini, the telecommunications industry is currently in need of long-term solutions. This solution is needed because the telecommunications industry sector still grew more than 9% [16].

Investment in the telecommunications sector had a positive impact on economic growth so that investment and economic growth in the area is always proportional. The greater the investment is, the greater the economic growth of the region. Meanwhile the smaller the investment, the less the economic growth of the region [6].

The main objective of an investor doing an investation is to get return. Return is the total return of an investment in a given period. In making investments, other than obtaining stock returns in the form of dividends and capital gains, investors also have a variety of risks such as capital loss and liquidation. To avoid the risk of substantial losses, investors should be able to analyze the condition of the company. The analysis process can be done by analyzing the company's internal conditions or external conditions. One of company's internal conditions is the financial condition of companies that can be analyzed using financial ratio including profitability ratio and funding decision ratios [5]

Profitability ratios are used to determine the company's ability to generate profit. One way to measure the profitability ratios is by using Return on Asstes (ROA). Funding decision ratio is a ratio used to determine a company's ability to pay its long term debts. How to measure the funding decisions ratio is by Debt Ratio (DER) [8].

Meanwhile, to analyze the external conditions of a company can be done by analyzing the macroeconomic factors such as considering the inflation rate, interest rate, and exchange rate. Based on the data from Bank Indonesia, the highest inflation rate was recorded in August 2013 by 8.79%. The lowest inflation was recorded in 2012, with a value of 3.56% in February. While the average rate of inflation in 2014 and 2015 is the same, which is 6.4%. The condition of rupiah exchange rate against the USD in 2011 to 2015 was fluctuated but tends to increased. Meanwhile, the interest rate also experience an increase and decrease, but not significant during the years 2011 to 2015.

Research conducted by Nidianti obtained results that partially, ROA has no significant effect on stock return, DER, interest rates and inflation have a significant effect on stock returns. While simultaneously, ROA, DER, interest rates and inflation have a significant effect on stock returns of food and beverage company at the Indonesia Stock Exchange [12].

The study in 2012 conducted by Zohaib Khan et al receive a result that interest rates and inflation does not significantly influence stock return, while the exchange rate has a significant value on stock returns [9].

The purpose of this study was to determine the effect of inflation, interest rates, exchange rates, return on assets (ROA), and the debt ratio (DER) on stock returns simultaneously and partially.

II. LITERATURE REVIEW

I. Inflation:

Inflation is a tendency of increasing general goods' price continuously, which are caused by the money supply are too many compared to the goods and services provided [4]. The type of inflation is :

1. Low inflation

Low inflation is inflation that occur less than 10 percent per year

2. Medium inflation
   Medium inflation is inflation that occur between 10 percent until 30 percent per year
3. High inflation
   High inflation is inflation that occur between 30 percent until 100 percent per year
4. Hiperinflation
   Hiperinflation is the highest type of inflation that occur more than 100 percent per year

II. Exchange rate:

The currency exchange rate is the price of one foreign currency unit in domestic currency or it can also be said as the price of domestic currency against foreign currencies [4].

Factors that effect the demand of exchange rate :

1. Import payment
   Higher import of products and service will increasing the demand of foreign currency, it makes the exchange rate going weak.
2. Capital outflow
   Greater capital outflow, make the demand of foreign currency higher and will weaken the exchange rate
3. Speculation
   More speculative of foreign currency by the speculators, the demand of foreign currency will raise and then weaken the exchange rate of the domestic currency against foreign currencies.

Factor that effect the supply of exchange rate :

1. Percentage of export
   The greater volume of a percentage of exports of products and services, the greater amount of foreign exchange that is owned by a state which in turn will drive the exchange rate higher.
2. Capital inflow
   The greater inflows into a country, the exchange rate tends to strengthen.

III. Interest Rate:

Bank interest can be defined as remuneration given by the bank based on the conventional principles to customers who buy or sell its products. Interest can also be interpreted as a price to be paid to customers (who have deposits) and to be paid by customer to the bank (customer who obtained a loan) [7].

Factor that effect interest rate are :

1. Funding requirements
   If banks are short of funds, while increasing loan application, it is done by the bank before the funds are quickly met by increasing deposit rates. The increase in deposit rates will automatically increase lending. However, if the funds are deposits much while saving a little request, then the savings rate will go down.
2. Competition
   In the fight of deposits, the most important thing for bank are watching the competitors. If the interest savings average is 16 % and the bank need quick fund, the bank should raise the deposit interest above the interest of competitors. However, contrary to the loan interest rate must be below competitors.
3. Government policy
   Interest savings and loan interest rate must not exceed a predefined
4. Target of the desired profit

If the desired profits is large, tokk a large loan interest

5. Time period

   The longer the loan term, the higher interest. This is due to the magnitude of potential future risk. Conversely, if a short-term loan, the interest is relativity lower

6. Quality of assurance

   More liquid guarantees given, the lower credit interest is charged, and vice versa.

7. The company's reputation

   The reliability of the company that will earn credits largely determine the interest rate to be charged the company a bonafide possibility of relatively small risk of bad loans.

8. Competitive product

   For product that are competitive, interest loans is relatively low when compared to products which are less competitive

9. Guarantee of a third party

   If the parties to guarantee is bonafide, both in terms of ability to pay, as well as loyalty to the good name of the bank, the interest charged is different.

IV. Profitability Ratio:

Profitability ratios are used to determine relatively, whether the benefit generated is sufficient compared to the assets invested. Profitability ratio used in this research is the return ration of assets or Return on Assets (ROA) [7]. The return of the assets determine the amount of net revenue generated from the company's assets by connecting the net income to the total assets. ROA formula is:

$$ROA = \frac{Net\ income}{Total\ assets} \qquad (1)$$

V. Funding Decision Ratio

This ratio is used to determine the source of corporate funding, whether the assets financing is by debt, or by stockholders' equity. The funding decision ratio used in this research is Debt Ratio / DER [8]. Debt ratio shows how much debt used to finance the corporate assets. This ratio formula is:

$$DER = \frac{total\ debt}{total\ assets} \qquad (2)$$

VI. Stock Return

Returnis the overall return of an investment in a given period. Return consists of capital gain (loss) and dividends [5]. The formula of stock return is:

$$Stock\ return = \frac{Pt - Pt-1}{Pt-1} \qquad (3)$$

Return divided by capital gain (loss) and yield :

1. Capital gain (loss)

   Capital gain (loss) is the difference of the price of current investment relative to the price of last period.

2. Yield

   Yield is the percentage of cash receipts periodically the investment price of a certain period of an investment.

VII. Theoretical Framework

In investing, the investors have several risks including capital loss and the possibility of the company being liquidated. To avoid the risks, before investing, the investors should conduct an analysis of the company. The analysis can be done both using macroeconomic analysis and fundamental analysis. Macroeconomic analysis can be done by analyzing the rate of inflation, interest rate, and exchange rate. While fundamental analysis can be done using some financial ratios such as Return on Assets and Debt Ratio.

Inflation is the increasing trend of the prices for goods generally in continuous basis, which is caused by the money supply too much compared to the goods and services provided. Currency exchange rate (exchange rate) is the price of one unit of foreign currency in the domestic currency or it can also be said as the price of domestic currency against foreign currency. Bank interest can be defined as remuneration given by the bank based on the conventional principles to customers who buy or sell products. The interest can also be interpreted as a price to be paid to customers (who have deposits) against the price to be paid by the customers to the bank (the customers who obtained a loan).

Return on Assets (ROA) is a ratio used to measure the effectiveness of the company in generating profits. While Debt Ratio (DER) is a ratio between the debt and its own capital.

From the theoretical explanation, the framework formed is as follows:

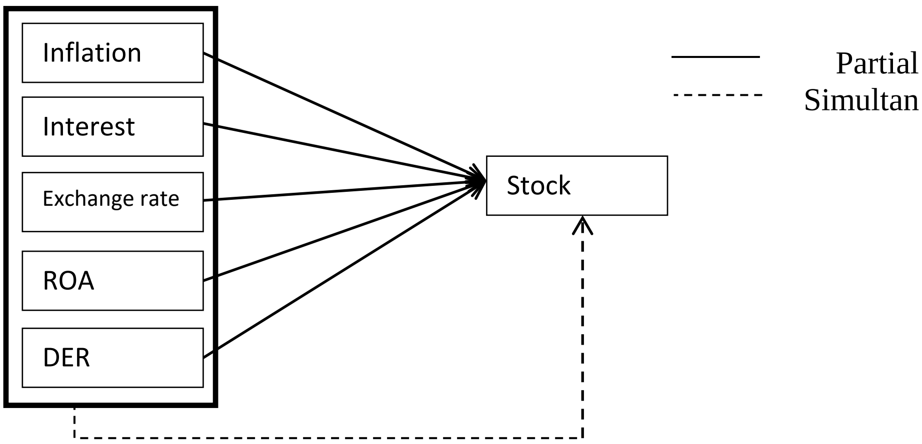

Figure 1 Theoretical Framework

The hypothesis in this study is that there is a significant difference between inflation, interest rate, exchange rate, ROA, and DER on stock return.

III. METHODOLOGY

Variables used in this research including dependent variable, which is stock return, and the independent variables which are inflation, interest rates, exchange rates, ROA, and DER. Samples of this study is all telecommunications subsector companies listed on the Indonesian stock exchange year 2011-2015. This study uses secondary data obtained from the website of the Indonesian stock exchange, the company's financial statements, as well as www.finance.yahoo.comto get stock prices.

The sampling technique used is purposive sampling with the criteria

(1) telecommunications subsector company listed on the Indonesia Stock Exchange,
(2) have a complete financial statements.

Based on the criteria, then chosen 4 companies which are PT Telekomunikasi Indonesia, PT Indosat, PT XL, and PT Smartfren.

The method used in this research is panel data regression analysis. Panel data is a data set that contains individual data sample (households, companies, country/city, etc) at a specific time period. The data panel have robust nature of some types of Gauss Markov's violations assumptions, ie heteroskedasticity and normality. In addition, with certain treatments such data structures can be expected to provide more information (high informational content) [2].

Statistical analysis used is regression analysis of panel data using Eviews7.0. The test used is the model specification testing and hypothesis testing. Specification testing used is chow test. Chow test is a statistic test which becomes the basis of consideration of common effect or fixed effect model selection. Hypothesis testing conducted is F test and T test. F test is used to determine the effect simultaneously, and T test is used to determine the effect partially.

IV. RESULT AND DISCUSSIONS

Model Specification Testing

Table 1 Chow Test

Redundant Fixed Effects Tests
Pool: TELEKOMUNIKASI
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.633958	(3,11)	0.6084
Cross-section Chi-square	3.189546	3	0.3633

Based on the results of Chow test, the value of Chi Square Prob is 0.3633, which means higher than 0.05. Based on these values, it can be concluded that the right model for the study is common effect.

Hypothesis Testing

Based on Chow test that has been done, the regression testing in this study uses common effect model. The results of the test are in table 2 and table 3 below

Table 2 Common Effect Model, F Test

R-squared	0.490103	Mean dependent var	-0.050500
Adjusted R-squared	0.307997	S.D. dependent var	0.271671
S.E. of regression	0.225994	Akaike info criterion	0.106708
Sum squared resid	0.715026	Schwarz criterion	0.405428
Log likelihood	4.932921	Hannan-Quinn criter.	0.165021
F-statistic	2.691308	Durbin-Watson stat	1.816722
Prob(F-statistic)	0.066015		

Based on Table 2, there is coefficient of determination R Square of 0.4901. It means that 49.01% of the independent variables (inflation, interest rate, exchange rate, ROA, and DER) affects the dependent variable (stock return). The rest of 50.99% is explained by other variables that are not examined in this study.

Based on Table 2, it can be seen that the value of F-statistic is 2.69. This value is greater than the significance level of 0.05 so that it can be concluded that variables of inflation, interest rate, exchange rate, ROA, and DER have no effect on stock returns of telecommunication subsector companies listed in Indonesia Stock Exchange in the period of 2011 – 2015.

Table 3 Common Effect Model, T Test

Dependent Variable: RETURN?
Method: Pooled Least Squares
Date: 10/02/16 Time: 21:42
Sample: 2011 2015
Included observations: 5
Cross-sections included: 4
Total pool (balanced) observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLASI?	-0.047584	0.072674	-0.654759	0.5232
SUKUBUNGA?	0.240681	0.144475	1.665899	0.1179
NILAITUKAR?	-0.047291	0.053842	-0.878315	0.3946
ROA?	0.810248	0.424436	1.909000	0.0770
DER?	-0.116126	0.611969	-0.189758	0.8522
C	-1.161001	0.684066	-1.697206	0.1118

1. The Effect of Inflation on Stock Returns

   Based on table 3, variable of inflation has Prob. value (P-value) of 0.5232, which means exceeding the significance level of 0.05 so that variable of inflation has no effect on stock return. The condition of inflation in Indonesia from 2011 to 2015 is likely to increase despite fluctuations from year to year. Inflation causes the weakening purchasing power of consumers, but the stock returns of telecommunication subsector companies are not affected by the size of inflation occurred in Indonesia. These results are similar to the study conducted by Zohaib Khan and his colleagues in 2012 where inflation has no effect on stock returns.

2. The Effect of Interest Rate on Stock Returns

   Based on the results of the T-test, Prob. Value (P-value) for the variable of interest rate is 0.1179. This value is greater than 0.05 so variable of interest rate has no effect on stock returns. If the interest rates increases, people tend to save rather than invest in the stock market, because the risks of saving is smaller than the risks of investing in shares. However, it does not correspond with the results of this study in which the interest rate does not affect the rate of stock return in the telecommunications subsector. The results of this study contradict the research conducted by Purnomo in 2012. Research conducted by Purnomo came to the conclusion that the interest rate affects the stock returns.

3. The Effect of Exchange Rate on Stock Returns

   The results of T test to variable of Exchange rate obtain Prob. value (P-value) of 0.3946. As the value is greater than 0.05, so that there is no significant effect partially between the exchange rate and stock returns.This result is contrary to the research conducted by Utami and his colleagues in 2015. Research conducted by Utami provides results that exchange rate has a significant effect on stock returns. The exchange rate in Indonesia itself is not too volatile, but it tends to rise.

4. The Effect of ROA on Stock Returns

   Based on the results of T test, the value obtained by ROA is 0.0770. This value is greater than the specified significance level of 0.05. In theory, the higher the ROA, the better the performance of the company assessed because the company can use the assets optimally. However, in this study ROA has no significant effect. These results differ from the results of research conducted by Nurhakim in 2016. Research conducted by Nurhakim shows that ROA has significant effect on stock returns.

5. The Effect of DER on Stock Returns

Based on the results of T test, DER variable has Prob. value (P-value) of 0.8522. This value is greater than the significance level of 0.05 so that H_0 is accepted. It can be concluded that in partial, DER variable has no effect on stock returns. These results contradict the results of research conducted by Nidianti in 2013. In the research by Nidianti, DER has a significant effect on stock returns.

V. CONCLUSION

This study investigated the impact of inflation, interest rate, exchange rate, ROA, and DER on stock return of telecommunication subsector year 2011-2015. Result of the panel data regression are :

Simultaneously, variable of inflation, interest rate, exchange rate, ROA and DER has no significant effect on stock return.

Partially, inflation has no significant result on stock return. Interest rate has no significant effect on stock return. Exchange rate has no significant effect on stock return. ROA has no significant effect on stock return, and DER has no significant effect on stock return.

Based on these conclusions, investors should not analyze the variables of inflation, interest rates, exchange rates, ROA, and DER when are about to invest even though the result on the telecommunications sub-sector is not significant. Investor should look for other factor that maybe can influence the stock return before decided to invest.

The recommendation for further research are use more variable to get the effect of variable on stock return. Next researchers can use another year or added the year that use for research.

References

[1] Agustinus, Michael. (2015, 4 December). Perusahaan Telekomunikasi Singapura Berminat Investasi 2 T di RI. DetikFinance [online]. Available : http://www.bkpm.go.id/id/publikasi-investasi/detail/berita-investasi/perusahaan-telekomunikasi-singapura-berminat-investasi-rp-2-t-di-ri. [28 April 2016]

[2] Ekananda, Mahyus. (2014). *Analisis Ekonometrika Data Panel : Bagi Penelitian Ekonomi, Manajemen, dan Akuntansi*. Bogor : Mitra Wacana Media

[3] Fajriah, Lily Rusna. (2015). *Sindo News : Ekonomi Makin Lesu, Siap-Siap PHK Massal.* [online]. http://ekbis.sindonews.com/read/1023981/34/ekonomi-makin-lesu-siap-siap-phk-massal-1436935557. [2 September 2016]

[4] Firdaus, Rachmat and Maya Ariyanti. (2011). *Manajemen Perkreditan Bank Umum : Teori, Masalah, Kebijakan dan Aplikasi Lengkap dengan Analisis Kredit.* Bandung : Alfabeta

[5] Hartono, Jogiyanto. (2016). *Teori Portofolio dan Analisis Investasi*. Yogyakarta : BPFE Yogyakarta

[6] Indosat. (2015). *Laporan Keuangan PT XL Axiata Tbk Tahun 2011-2015*. [online]. https://indosatooredoo.com/en/investor-relation/informasi-keuangan/laporan-keuangan. [26 April 2016]

[7] Kapitan, Anton. (2015, 07 Mei). Pasti! Investasi Telekomunikasi Seluler Tingkatkan Perekonomian Daerah. Kompasiana.com [online]. Available : http://www.kompasiana.com/tonykapitan/pasti-investasi-telekomunikasi-seluler-tingkatkan-perekonomian-daerah_552cb0046ea8346e418b466f. [28 April 2016]

[8] Kasmir. (2011). *Bank dan Lembaga Keuangan Lainnya*. Jakarta : Rajawali Press

[9] Keown, Arthur J, et all. (2011). *Manajemen Keuangan.* Jakarta : PT Indeks

[10] Khan, Zohaib, Sangeen Khan, and Lala Rukh, “Impact of Interest Rate, Exchange Rate, and Inflation on Stock Returns of KSE 100 Index” in IJER, vol 3, p.153, October 2012

[11] Latumaerissa, Julius R. (2012). *Bank dan Lembaga Keuangan Lain.* Jakarta : Salemba Empat

[12] Lestarini, Ade Hapsari. (2016). *Metro TV News : Perusahaan Telekomunikasi Inggris Siap Investasi USD 5 Juta ke Indonesia.* [online]. http://ekonomi.metrotvnews.com/makro/JKRj64yK-perusahaan-telekomunikasi-inggris-siap-investasi-usd5-juta-ke-indonesia. [2 September 2016]

[13] Nidianti, Putu Imba, “Impact of Company’sInternal and External Factor on Food and Beverages Stock Return at Indonesia Stock Exchange – Pengaruh Faktor Internal dan External Perusahaan terhadap *Return*

Saham *Food and Beverages* di Bursa Efek Indonesia” in E-Journal Akuntansi Universitas Udayana, vol 5.1, p.130, 2013
[14] Nugroho, Adam Rizky. (2015, 27 Juli). Investasi Langsung Tumbuh Positif, Sektor Telekomunikasi Jadi Pilihan. Bareksa.com [online]. Available : http://www.bareksa.com/id/text/2015/07/27/investasi-langsung-tumbuh-positif-sektor-telekomunikasi-jadi-pilihan/11008/news. [28 April 2016]
[15] Nurhakim, Anistia, Irni Yunita, and Aldilla Iradianty, “The Effect of Profitability and Inflation on Stock Return at Pharmaceutical Industries at BEI in the Period of 2011-2014”, in Asia Pasific Journal of Advanced Business and Social Studies, vol.2, p.206-208, 2016
[16] Purnomo, Tri Hendra, and Nurul Widyawati, “Impact of Exchange Rate, Interest Rate, and Inflation on Properties Company Stock Return – Pengaruh Nilai Tukar, Suku Bunga, dan Inflasi terhadap Return Saham pada Perusahaan Properti” in Jurnal Ilmu dan Riset Manajemen, vol. 2 no.10, p.19, 2013
[17] Savithri, Agnes. (2015). *Industri : Industri Telekomunikasi Masih Tumbuh 9%*. [online]. http://industri.bisnis.com/read/20150908/101/470370/industri-telekomunikasi-masih-tumbuh-9. [2 September 2016]
[18] Smartfren Telecom. (2015). *Laporan Keuangan PT Smartfren Telecom Tbk Tahun 2011-2015*. [online]. http://www.smartfren.com/id/financial-report/. [26 September 2016]
[19] Telkom Indonesia. (2015). *Laporan Keuangan PT Telekomunikasi Indonesia Tbk Tahun 2011-2015*. [online]. http://www.telkom.co.id/laporan-keuangan. [26 April 2016]
[20] Utami, Widya Retno, Sri Hartoyo, and Tubagus Nur Ahmad Maulana, “The Effect of Internal and External Factors on Stock Return : Empirical Evidence from the Indonesian Construction Subsector”, in Asian Journal of Business and Management, vol.03, p376, 2015
[21] Wira, Desmond. (2014). *Analisis Fundamental Saham.* Bogor : Penerbit Exceed
[22] XL Axiata. (2015). *Laporan Keuangan PT XL Axiata Tbk Tahun 2011-2015*. [online]. http://www.xl.co.id/corporate/en/investor/information/annual-report. [26 April 2016]