Financial Ratio Analysis in *DU PONT SYSTEM* to Measure Financial Performance PT. Terminal Teluk Lamong

Fittrofin Amalia Farisa[1], Iis Dewi Ratih[1*], Niluh Shanthi Sekarini[1*]

***Abstract*—Companies are defined as organizational units that use various factors of production and produce goods and services to be sold to households, other companies or the government in a profit-oriented manner. In this global era, competition among actors is increasingly competitive. In this research will be conducted to measure the company's financial performance using ratio analysis in the DuPont System at PT. Teluk Lamong Surabaya Terminal in the period 2016 to 2018. The DuPont System can identify the cause of the inefficiency of a company based on its financial statements. The purpose of this financial ratio analysis is to see and evaluate the company's current and future financial condition. This study aims to determine the results of financial performance at the company PT. Teluk Lamong Surabaya Terminal in the period 2016 to 2018.**

***Keywords*—Du pont system, Financial ratios, Financial statements**

I. INTRODUCTION

Company is defined as an organizational unit that uses various factors of production and produces goods and services to be sold to households, other companies or the government with a profit orientation *(profit oriented)*. In the economic activity, the company has a big role, namely providing various needs of the community. As we know that every individual in his life needs goods or services [8]. In this global era, competition among actors is increasingly competitive. With the increasing number of competitors, each company must be able to run the company's performance as well as possible.

Company management is also required to run and manage company performance to make it more efficient and effective so that the company can achieve high profits. In addition, company management must also be able to understand financial reports, because financial reports are used to determine the good and bad conditions of a company and as a reference for running a better company in the future.

This research will be conducted to measure the company's financial performance using financial ratio analysis in the DuPont System at PT. Teluk Lamong Surabaya Terminal in the period 2016 to 2018. The DuPont System can identify the cause of the inefficiency of a company based on its financial statements. This system also has other advantages such as dividing *return on equity (ROE)* into three parts, namely the sales profit component, the asset efficiency component, and the component usage *leverage*.

This study aims to determine the results of financial ratio analysis in the DuPont System and the financial performance of PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018.

II. LITERATURE REVIEW

A. Financial Statements

1. Definition of Financial Statements

The financial report is an information that summarizes all activities (activities) of the company. One of the important tasks for company management is to prepare financial reports every year [12].

2. Purpose of financial statements

Based on PSAK No. 1 (Revised 1998), the purpose of general purpose financial statements is [13] :

a) Provide information about the company's financial position, performance and cash flow that is useful for most users of the report in order to make economic decisions.
b) As well as showing the accountability (stewardship) of management for the use of the resources entrusted to them.

3. Financial Statement components include the following [7] :

a) Balance sheet
b) Income statement
c) Statement of Changes in Equity
d) Cash flow statement

4. Notes to Financial Statements
5. Parties with an Interest in Financial Statements

There are 7 groups of users of financial statements, as follows [4]:

a) Investors
b) Employees
c) Lenders
d) Suppliers and Other Creditors
e) Customers
f) Government
g) Society.

[1] Department of Business Statistics, Institut Teknologi Sepuluh Nopember, Kampus ITS Sukolilo, Surabaya, 60111, Indonesia. Email: iisdewiratih@gmail.com, shanthi.sekarini@teluklamong.co.id

B. Financial Statement Analysis

1. Definition of Financial Statement Analysis

Financial Statement Analysis is a process for dissecting financial reports, examining each element and examining the relationship between these elements with the aim of obtaining a good and accurate understanding and understanding of financial statements. [1].

2. Purpose of Financial Statement Analysis

The objectives of financial statement analysis are as follows [6] :

a) Initial screening tool in choosing investment alternatives or mergers
b) Forcasting tools regarding future conditions and performance.
c) As a diagnostic process for management problems, operations or other problems.
d) Evaluation tools for management.
e) Reducing the dependence of decision makers on pure guesswork, guesswork, and intuition.
f) Reducing and narrowing the scope for inevitable uncertainty in any decision-making process.
g) Provide a proper and systematic basis for using considerations.

3. Weaknesses of Financial Statement Analysis

Weaknesses of financial statement analysis are as follows [6] :

a) Financial statement analysis is based on financial reports.
b) The object of analysis is financial statements only.
c) The object of financial statement analysis is historical data that describes the past and this condition may not be the same as future conditions or circumstances.
d) Consolidated financial statements or foreign currency conversions need special attention.

C. Financial Ratio Analysis

1. Definition of Financial Ratio Analysis

Financial Ratio Analysis is a way of analysis using comparisons of quantitative data contained in the balance sheet and profit and loss [5].

2. Purpose of Financial Ratio Analysis

Financial ratio analysis is a technique to quickly determine the company's financial performance [9]. The objectives are as follows:

a) Evaluating the current situation.
b) Predicting future financial conditions.

3. Comparative Method of Financial Ratio Analysis

Ratio comparison analysis, which can be done with two events, is as follows [11] :

a) Horizontal analysis, which compares the company's financial ratios from one period to another. For example, comparing the company's ratio in 2005 and the ratio in 2006 so that a conclusion can be drawn whether the company's performance has increased / growth or vice versa.

b) Vertical analysis, which compares the company's financial ratios with similar companies or industries in the same period. For example, PT X is engaged in the cigarette industry, then the PT X 2006 ratio is compared to the 2006 PT Y ratio which is also engaged in the cigarette industry or compares the 2006 PT X ratio with the 2006 cigarette industry average so that it can be concluded about the company's performance.

4. Financial Ratio Components

Some of the components of financial ratios that can be used to analyze a company's financial development are as follows [5] :

a) The liquidity ratio is a ratio that shows the company's ability to meet all of its short-term liabilities or debts. Liquidity Ratio consists of :
   1) Net Working Capital
   2) Current Ratio
   3) Quick Ratio
   4) Cash Ratio
b) Profitability ratio is a ratio that shows the company's ability to generate profits. Profitability ratio consists of :
   1) Gross Profit Margin
   2) Net Profit Margin
   3) Return On Investment (ROI)
   4) Return On Equity (ROE)
   5) Earning per Share
c) Solvency ratio is the ratio used to calculate the company's leverage. The Solvency Ratio consists of :
   1) Debt to Equity (DER)
   2) Long term debt to equity ratio
   3) Debt to Assets Ratio
d) Activity ratio is a ratio that shows the effectiveness of the company's management in managing its business. Activity ratio consists of :
   1) Receivable Turnover
   2) Inventory Turnover
   3) Assets Turnover
   4) Account Payable Turnover

D. Du pont System

Through the DuPont system, it is hoped that the causes of the inefficiency of a company can be found based on its financial statements. This system also has other advantages such as dividing return on equity (ROE) into three parts, namely the sales profit component, the asset efficiency component, and the use of the leverage component [11].

1. *Return On Investment* (ROI)

ROI contributes to achieving fairness because ROI is a quantitative and clear measure that can be understood and is usually within the control of managers [2].

The basic ROI formula is basically a summary of a longer formula, namely operating profit divided by sales, which results in profit margin multiplied by sales divided in advance by total assets resulting in asset turnover. It also means that ROI is the multiplication of the profit margin earned by a company and the turnover on assets owned by the company [10].

$$\text{ROI} = \frac{\text{Operating Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \tag{2.1}$$

$$\text{ROI} = \text{marjin x } \textit{turnover} \tag{2.2}$$

2. *Return On Equity* (ROE)

ROE is a special measure for the ownership of shareholders and business owners because it is a direct measure of the company's returns to owners [2].

The relationship of annual profit after tax to registered shareholder equity. This ratio is used as a measure of the effectiveness of the invested shareholder's funds [3].

$$ROE=\frac{\text{Net Profit}}{\text{Equity}} \quad (2.3)$$

III. RESEARCH METHODOLOGY

A. *Data source*

The data used is secondary data obtained from the financial statements of PT. Lamong Bay Terminal on March 10, 2020 in the Finance Division PT. Terminal Teluk Lamong Surabaya.

B. *Research variable*

Fokus penelitian yang dilakukan adalah laporan keuangan perusahaan yang terdiri dari neraca dan laporan laba rugi selama tiga tahun yaitu 2016, 2017, dan 2018.

C. *Analysis Step*

The analysis steps carried out in this study are as follows:

1. Calculating and analyzing financial ratios using the horizontal analysis method in the period 2016 to 2018 to determine the company's financial performance and the development of the company's financial ratios from year to year.
2. Perform Du pont System analysis
3. Interpret the analysis results.
4. Draw conclusions and suggestions.

IV. ANALYSIS AND DISCUSSION

A. *Financial Statement Analysis*

The following is an analysis of financial statements with the following ratios.

1. Liquidity Ratio

The liquidity ratio is used to show the company's ability to meet all its liabilities or debts in the short term. Here is the analysis.

a. Net Working Capital

NWC = Current Assets - Current Liabilities

TABLE 1.
NET WORKING CAPITAL PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Current asset (Rp)	Current liabilities (Rp)	NWC (Rp)
2016	110.354.614.893	116.660.981.385	6.306.366.492
2017	261.119.283.492	165.026.253.438	96.093.030.054
2018	453.255.107.568	201.594.534.659	251.660.572.909

Based on Table 1, the results of the calculation of the financial ratios of PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018 has increased, from 2016 to Rp. (6,306,366,492) to Rp. 96,093,030,054 in 2017 and then increased again by Rp. 251,660,572,909 in 2018. The higher the liquidity of the company, the higher the company's ability to pay its current liabilities.

b. Current Ratio

$$CR=\frac{\text{Current Asset}}{\text{Current Liabilities}}x\ 100\%$$

TABLE 2.
CURRENT RATIO OF PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Current asset (Rp)	Current liabilities (Rp)	CR (%)
2016	110.354.614.893	116.660.981.385	94,59
2017	261.119.283.492	165.026.253.438	158,23
2018	453.255.107.568	201.594.534.659	224,84

Based on Table 2 the results of financial ratio calculations at PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018, the company's current ratio increased. In 2016, it was 94.59%, meaning that every IDR 1.00 current debt was guaranteed by IDR 9459 current assets available. Whereas in 2017 the current ratio increased by 158.23% and in 2018 experienced another increase of 224.84%. The increase in current ratio was due to a decrease in current assets followed by a decrease in current debt. This increase in the company's ability to pay current debt shows that the level of company liquidity has increased.

c. Quick Ratio

$$QR=\frac{\text{Current Asset - Stock}}{\text{Current Liabilities}}x\ 100\%$$

TABLE 3.
QUICK RATIO PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Current asset (Rp)	Inventory (Rp)	Current liabilities (Rp)	QR (%)
2016	110.354.614.893	20.030.703	16.660.981.385	94,59
2017	261.119.283.492	31.218.023	65.026.253.438	158,23
2018	453.255.107.568	11.332.089	201.594.534.659	224,84

Based on Table 3 the results of the Quick Ratio calculation, PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018, the company's Quick Ratio has increased in 2016 by 94.59%, increased by 158.23% in 2017 and increased again in 2018 to 224.84%, meaning every Rp1, 00 current liabilities are guaranteed by Rp2,22484 more liquid assets. This ratio indicates that the company's liquidity is in good condition.

1. Activity Ratio

Activity ratio is a ratio that shows the effectiveness of the company's management in managing its business. Here is the analysis.

a. Fixed Assets Turnover

$$FATO=\frac{\text{Sales}}{\text{Fixed Assets}}x\ 1\ \text{time}$$

TABLE 4.
FIXED ASSETS TURNOVER PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Sales (Rp)	Fixed assets (Rp)	FATO (time)
2016	25.893.338.900	27.223.433.038	0,95
2017	20.286.106.269	33.560.503.039	0,604
2018	706.881.227.399	45.578.153.894	15,51

Based on Table 4 the results of the calculation of the financial ratios of PT. Lamong Bay Terminal during the period 2016 to 2018, Fixed Assets Turnover increased in 2016 by 0.95 times, then in 2017 it decreased to 0.604 times and in 2018 it increased again by 15.51 times. This means that the lower the fixed asset turnover rate, the more inefficient the company manages its fixed assets in generating sales. However, in 2018 it has increased so that companies can manage their fixed assets efficiently.

b. Total Assets Turnover

$$\text{TATO} = \frac{\text{Sales}}{\text{Total Assets}} \text{x 1 time}$$

TABLE 5.
TOTAL ASSETS TURNOVER OF PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Sales (Rp)	Total assets (Rp)	TATO (time)
2016	25.893.338.900	137.578.047.931	0,188
2017	20.286.106.269	294.679.786.531	0,069
2018	706.881.227.399	498.833.261.462	1,417

Based on Table 5, the calculation results of the financial ratios of PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018, Total Assets Turnover decreased in 2016 by 0.188 and 2017 by 0.069 times and increased in 2018 to 1,417 times. The lower the asset turnover rate, the more inefficient the company manages its total assets in generating sales. However, in 2018 it has increased so that companies can manage their fixed assets efficiently.

2. Solvency Ratio

The solvency ratio is the ratio used to calculate the company's leverage. Here is the analysis.

a. Debt Ratio

$$\text{DR} = \frac{\text{Total Amoun of Debt}}{\text{Total Assets}} \text{x 100\%}$$

TABLE 6.
DEBT RATIO OF PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Total Amoun of debt (Rp)	Total assets (Rp)	DR (%)
2016	127.735.679.673	137.578.047.931	92,85
2017	169.681.556.654	294.679.786.531	57,58
2018	266.474.824.577	498.833.261.462	53,42

Based on Table 6, the calculation results of PT. Lamong Bay Terminal during the period 2016 to 2018, the Debt Ratio has decreased, namely in 2016 amounting to 92.85%, 2017 to 57.58%, and in 2012 amounting to 53.42%. This means that in 2018 53.52% of total assets were financed by loan capital.

b. The Debt Equity Ratio

$$\text{DER} = \frac{\text{Long-term Debt}}{\text{Owner's Equity}} \text{x 100\%}$$

TABLE 7.
THE DEBT EQUITY RATIO PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Long-term debt (Rp)	Owner's equity (Rp)	DER (%)
2016	11.074.698.288	135.000.000.000	8,20
2017	4.655.303.216	135.000.000.000	3,45
2018	64.880.289.918	135.000.000.000	48,06

Based on Table 7 the results of the calculation of the financial ratios of PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018, The Debt Equity Ratio has decreased and increased. In 2016, DER was 8.20%, decreased to 3.45% in 2017 and increased in 2018 by 48.06%. DER of 48.06% means that the company's loan is 48.06% of its own capital, this shows the greater the financial risk that the company bears. The increase in DER was due to an increase in own capital followed by an increase in total debt. The greater the DER value, the greater the company's debt.

c. The Debt to Total Capitalization Ratio

$$\text{DTCR} = \frac{\text{Long-Term Debt}}{\text{Long-Term Debt+Owne's Equity}} \text{x 100\%}$$

TABLE 8.
THE DEBT TO TOTAL CAPITALIZATION RATIO PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Long-term debt (Rp)	Owner's equity (Rp)	DTCR (%)
2016	11.074.698.288	135.000.000.000	7,58
2017	4.655.303.216	135.000.000.000	3,33
2018	64.880.289.918	135.000.000.000	32,46

Based on Table 8 the calculation results of the financial ratios of PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018, the Debt to Total Capitalization Ratio has decreased and increased, namely in 2016 of 7.58% to 3.33% in 2017 and increasing in 2018 by 32.46%. This ratio shows that in 2018 32.46% of total long-term capital was the company's long-term loan. DTCR is influenced by the amount of long-term debt and equity.

3. Profitability Ratio

Profitability ratio is a ratio that shows the company's ability to generate profits. Here is the analysis.

a. Net Profit Margin

$$\text{NPM} = \frac{\text{Net Profit After Tax}}{\text{Sales}} \text{x 100\%}$$

TABLE 9.
NET PROFIT MARGIN OF PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	Net income after tax (Rp)	Sales (Rp)	NPM (%)
2016	14.936.417.287	25.893.338.900	57,68
2017	94.756.249.077	20.286.106.269	467,10
2018	203.589.526.571	706.881.227.399	28,80

Based on Table 9 the results of the calculation of the financial ratios of PT. Teluk Lamong Surabaya Terminal during the period 2016 to 2018, Net Profit Margin decreased in 2017 by 467.10% to 28.80% in 2018. The lower Net Profit Margin indicates that sales cannot generate large net profit after tax. The lower the Net Profit Margin, the less good the company's operating activities.

B. Analisis Du Pont System

It is hoped that the DuPont system can identify the causes of the inefficiency of a company based on its financial statements.

1. *Return On Investment* (ROI)

ROI = NPM x TATO x 100%

TABEL 10.
RETURN ON INVENSTMENT PT. TERMINAL TELUK LAMONG PERIODE 2016-2018

Year	NPM (%)	TATO (time)	ROI (%)
2016	57,68	0,188	10,86
2017	467,10	0,069	32,16
2018	28,80	1,417	40,81

Based on Table 10, the calculation results of the Return On Investment of PT. Lamong Bay Terminal during the period 2016 to 2018 has increased, namely in 2016 amounted to 10.86%, increased to 32.16% in 2017, increased again by 40.81% in 2018. This is also influenced by the NPM value. in 2017, which increased by 467.10% from 2016. In 2018, ROI increased to 40.81% from 2017. This is because NPM in 2018 has decreased to 28.80% which was originally 467.10% in 2017. Another factor that caused an increase in ROI in 2018 was an increase in total asset turnover (TATO) to 1,417 times which was originally 0.069 times from 2017. The increase in ROI in 2018 indicates that the company's management ability has increased in carrying out asset management to generate income. operating profit.

2. *Return On Equity* (ROE)

$$\text{ROE} = \frac{\textit{Return On Investment}}{\textit{(1-Debt Ratio)}} \text{ x } 100\%$$

TABLE 11.
RETURN ON EQUITY PT. TERMINAL TELUK LAMONG 2016-2018 PERIOD

Year	ROI (%)	DR (%)	1-DR	ROE (%)
2016	0,109	0,928	0,072	151,76
2017	0,322	0,576	0,424	75,81
2018	0,408	0,534	0,466	87,62

Based on Table 11, the calculation results of the Return On Equity of PT. Lamong Bay Terminal during the period 2016 to 2018, namely in 2016 amounted to 151.76%, decreased to 75.81% in 2017, and in 2018 experienced an increase of 87.62%. A decrease in ROE indicates that the level of net income earned by company owners on the capital invested in the company is decreasing. However, in 2018 ROE has increased so that the level of net income earned by company owners for capital invested in the company increases.

V. CONCLUSIONS AND SUGGESTIONS

A. Conclusion

The conclusions obtained in this study are as follows:

1. Liquidity Ratio

Net Working Capital during the period 2016 to 2018 has increased. The higher the liquidity of the company, the higher the company's ability to pay its current obligations. Current Ratio for a period of 3 years has increased. The increase in current ratio is due to a decrease in current assets followed by a decrease in current debt. This increase in the company's ability to pay current debt shows that the level of company liquidity has increased. Quick Ratio has increased, this ratio indicates that the company's liquidity is in good condition.

2. Activity Ratios

Fixed Assets Turnover is relatively up and down. In 2017 Fixed Assets Turnover decreased. This is the lower the fixed asset turnover rate, the more inefficient the company manages its fixed assets in generating sales. In 2018 it has increased so that the company can manage its fixed assets efficiently. Total Assets Turnover during the period 2016 to 2018 has decreased. The lower the asset turnover rate, the more inefficient the company manages its total assets in generating sales. However, in 2018 it has increased so that companies can manage their fixed assets efficiently.

3. Solvency Ratio

Debt Ratio during the period 2016 to 2018 is very small, the smaller the Debt Ratio, the smaller the amount of loan capital used to generate profits for the company. The Debt Equity Ratio during the period 2016 to 2018 has increased. The increase in DER was due to an increase in own capital followed by an increase in total debt. The greater the DER value, the greater the company's debt. Debt to Total Capitalization Ratio during the period 2016 to 2018 shows an increase. This ratio shows that in 2018 32.46% of total long-term capital was the company's long-term loan. DTCR is influenced by the amount of long-term debt and equity.

4. Profitability Ratio

Net Profit Margin during the period 2016 to 2018 increased and decreased. Net Profit Margin decreased in 2018, which means that the lower the company's operating activities are getting less good.

5. Dupont System

The increase in ROI in 2018 indicates that the company's management ability has increased in carrying out asset management to generate operating profit.

A decrease in ROE indicates that the level of net income earned by company owners on the capital invested in the company is decreasing. However, in 2018 ROE has increased so that the level of net income earned by company owners for capital invested in the company increases.

B. Suggestions

The suggestions obtained from this research are as follows :

1. The profitability ratio shows a low condition in 2018, so it is necessary to increase profitability so that the company can increase sales.
2. The Du Pont System as shown from ROI and ROE shows an increasing situation in 2018. Because ROI and ROE are stable the company only needs to check the efficiency of its main costs, namely by optimizing the resources owned by the company such as factory infrastructure so that the stability of the company remains well.

REFERENCES

[1] A. Johar. 2007. *Cara Cerdas Menilai Kinerja Perusahaan (Aspek Finansial & Non Finansial) Berbasis Komputer*. Jakarta : PT Elex Media Komputindo.

[2] B. J. Edward. 2007. *Manajemen Biaya Penekanan Strategis Edisi 3*. Jakarta : Penerbit Salemba Empat.

[3] F. M. Hendy. 2008. Istilah Pasar Modal A-Z. Jakarta : PT Elex Media Komputindo.

[4] G. Muhammad. 2005. *Teori Akuntansi*. Jakarta : Penerbit Almahira.

[5] Hantono. 2018. *Konsep Analisa Laporan Keuangan dengan Pendekatan Rasio dan SPSS*. Jakarta : Penerbit Deepublish.

[6] Kariyoto. 2017. *Analisa Laporan Keuangan*. Malang : Universitas Brawijaya Press (UB Press).

[7] L. M. Elizabeth. 2008. *Akuntansi Dasar I Ringkasan Teori dan Soal*. Jakarta : PT. Grasindo.

[8] P. K. Tri and P. Antyo. 2006. *Aspek Dasar Ekonomi Mikro.* Jakarta : PT. Grasindo.

[9] R. Freddy. 2006. *Analisis SWOT : Teknik Membedah Kasus Bisnis*. Jakarta : Pt. Gramedia Pustaka Utama.

[10] Rudianto. 2008. *Akuntansi Manajemen : Informasi Untuk Pengambilan Keputusan Manajemen*. Jakarta : PT Grasindo.

[11] S. Arief and U. Edy. 2009. *Panduan Praktis Dasar Analisa Laporan Keuangan Pengetahuan Dasar Bagi Mahasiswa dan Praktisi Perbankan*. Jakarta : PT. Grasindo.

[12] S. A. Y. Nanok and K. S. Madya. 2009. *Akuntansi & Pelaporan Keuangan untuk Bisnis Skala Kecil dan Menengah*. Jakarta : PT. Grasindo.

[13] S. Leny. 2010. *Panduan Praktik Memahami Laporan Keuangan*. Jakarta : PT. Elex Media Komputindo.