

# Financial Statement Analysis of Cement Industry Companies with Dupont System Method to Performance Measurement Periode 2018-2021


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**Abstract**— The purpose of this study was to evaluate the financial performance of cement industry companies in Indonesia which includes four companies namely SMCB, SMGR, INTP, and SMBR for the 2018-2021 period using the Dupont system method considering the analysis of the Covid-19 pandemic. Descriptive-quantitative analysis and the DuPont system method were used as analytical methods. The data used in this study comes from the annual reports of four companies listed on the Indonesia Stock Exchange. The results show that the Covid-19 pandemic had a significant impact on the financial performance of companies in the cement industry, especially in terms of profitability and use of funds. These factors can affect the company's financial performance during the Covid-19 pandemic, so management must pay attention to these factors to improve the company's financial performance. This study can help investors and stakeholders understand the impact of the Covid-19 pandemic on the financial performance of companies in the cement industry in Indonesia and can provide information to companies about the challenges they are facing during the pandemic. In addition, the analysis of the Dupont system method also shows that factors such as net profit margins, asset efficiency, and financial leverage affect the financial performance of companies in the cement industry. The results of this study can be used as a basis for improving the company's financial performance in the future by optimizing these factors.

**Keywords**—Cement Industry, Dupont, Covid-19 pandemic.

## I. INTRODUCTION

The cement industry in Indonesia is a sector that has an important role in the national economy. Along with the increasingly rapid economic growth, the need for building materials such as cement is also increasing. Therefore, the cement industry sector is one sector that is quite promising for investors in obtaining large profits. However, in 2020, Indonesia and the world are facing the Covid-19 pandemic which has had a significant impact on the economy and the business world. The Covid-19

pandemic has not only affected public health but has also affected the financial performance of companies in various sectors, including the cement industry. Therefore, it is necessary to analyze the financial performance of cement industry companies in Indonesia for the 2018-2021 period by considering the impact of the Covid-19 pandemic (Harahap, 2010).

Based on the background above, the formulation of the problems that can be raised in this research are 1) What is the financial performance of cement industry companies in Indonesia for the 2018-2021 period? 2) What is the impact of the Covid-19 pandemic on the financial performance of cement industry companies in Indonesia?; 3) What factors influence the financial performance of cement industry companies in Indonesia?

The specific objectives of this study are 1) To measure the financial performance of cement industry companies in Indonesia for the 2018-2021 period using the DuPont system method; 2) To determine the impact of the Covid-19 pandemic on the financial performance of cement industry companies in Indonesia; 3) To identify the factors that influence the financial performance of cement industry companies in Indonesia.

This research is expected to provide information regarding the financial performance of cement industry companies in Indonesia for the 2018-2021 period. In addition, it is also to provide information regarding the impact of the Covid-19 pandemic on the financial performance of cement industry companies in Indonesia and provide information on the factors that affect the financial performance of cement industry companies in Indonesia. This research is expected to be a reference for company management in making strategic decisions and as a reference for investors and stakeholders in determining investment in the cement industry sector in Indonesia.

## II. LITERATUR REVIEW

### A. Financial Performance

Financial performance is a description of the financial condition in a certain period both regarding aspects of raising funds and channeling funds which are usually measured by indicators of capital adequacy,

liquidity, and profitability (Jumingan, 2006: 239). Financial performance is an analysis carried out to see how far a company has implemented using financial implementation rules that have met the standards and provisions in SAK (Financial Accounting Standards) or GAAP (General Accepted Accounting Principles) (Fahmi, 2011: 2). Based on the above, financial performance is a description of the company's financial condition in a certain period, both in terms of obtaining funds and channeling funds, which is usually measured by indicators of capital adequacy, liquidity, and company profitability.

### B. Dupont System

In the business world, a businessman is required to be able to analyze the company's operations. This capability is useful for business owners to assess the strengths and scope of improvements needed to run their business. Various tests can be used to perform this analysis. There are several ways or methods that can be used in analyzing financial statements including ratio analysis, market value added analysis (Market Value Added/MVA), Economic Value Added/ EVA analysis, Balance Score Card (BSC), Capital analysis Asset, Management, Equity and Liquidity and the Du Pont System (Karlinda & Ratnasari, 2021). In this study, the technique or method of measuring company performance used is the analysis of the Du Pont system, because the Du Pont system is comprehensive for measuring a company's efficiency in the use of assets and profit levels. sales of products produced by the company during a certain period. Therefore, this analysis is suitable to find out how efficient a company is in operating its capital because it has several key indicators that provide an overview of the company's financial condition. The Du Pont system in it relates the ratio of operating turnover or assets to the ratio of revenue to profit/margin and shows how the two interact to influence return on investment (ROI), i.e. a company's profitability on company assets. The higher the return on invested capital (Karlinda & Ratnasari, 2021). Dupont analysis is an analytical method pioneered by the DuPont Corporation. The company developed the Dupont analysis method in 1920. Dupont analysis was considered useful for avoiding misleading conclusions about the effectiveness of company analysis. Dupont is already known as a successful entrepreneur. In his business, he has his own way of analyzing his financial statements. The method is almost the same as regular financial statement analysis. However, the approach is more integrative and uses the composition of financial statements as an element of analysis (Sofyan Syafri 2010:333). Dupont is designed to show the relationship between return on assets, asset turnover, profit margin, and leverage (Mulyawan, 2015).

Dupont's analytical calculations are based on a key indicator, namely return on equity (ROE). The ROE indicator itself has three financial indicators that influence it. These indicators include operational

efficiency, effective use of funds, and financial leverage. Operational efficiency is represented by net profit margin or net profit divided by total sales or revenue, asset utilization efficiency is measured by the investment turnover ratio, and financial leverage is measured by the equity ratio. As Dupont Analysis is closely related to ROE, it is also closely related to the three main indicators of ROE (Arifin, 2019). These indicators are:

#### a. Net Profit Margin (NPM)

Net profit margin, also known as sales revenue ratio or gross profit margin, is a profitability ratio that measures the amount of net profit earned for each amount of sales by comparing a company's net profit to sales. In other words, the profit margin shows what percentage of turnover is left after the company has paid all costs.

Creditors and investors use this ratio to measure how effectively a company can convert sales into net income. Investors want to ensure that profits are high enough to pay dividends, while creditors want to ensure that companies have enough profits to repay loans (Deanta, 2016). In other words, outsiders want to know the company's performance by knowing this Net Profit Margin at equation (1).

$$NPM = \frac{\text{Net Income}}{\text{Revenue}} \quad (1)$$

#### b. Total Asset Turnover

Asset Turnover Ratio is a performance ratio that measures a company's ability to generate sales from its assets by comparing turnover with the average total assets. In other words, this ratio shows how effectively a company can use its assets to be sold.

Total Asset Turnover calculates turnover as a percentage of assets to show how many sales are generated for each company's value at equation (2).

$$\text{Asset Turnover Ratio} = \frac{\text{Revenue}}{\text{Total Assets}} \quad (2)$$

#### c. Financial Leverage

The Financial Leverage Ratio often called the equity or debt ratio, is a ratio that measures a company's equity value by analyzing its total debt. This ratio is used to compare debt or equity to assets and equity to measure the true value of a company's equity (Dharma, 2018).

Based on this, the financial debt ratio is useful for measuring a company's total debt burden and comparing it to assets or equity. This ratio shows how much of the company's assets are owned by shareholders rather than creditors. If the shareholders own most of the assets, the company is said to be underleveraged. If creditors own most of the assets, the company is considered highly leveraged. All of these measurements are important for investors to understand

how risky a company's capital structure is and whether the investment is warranted at equation (3).

$$\left| \text{Financial Leverage ratio} = \frac{\text{Total Assets}}{\text{Total Equity}} \right. \quad (3)$$

#### d. ROE (Return On Equity)

Dupont Analysis is based on ROE calculations, where ROE calculations are at equations (4),(5), and (6).

$$\left| \text{ROE} = \text{NPM} \times \text{Asset Turnover} \times \text{Financial Leverage} \right. \quad (4)$$

$$\left| \text{ROE} = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Total Equity}} \right. \quad (5)$$

$$\left| \text{ROE} = \frac{\text{Net Income}}{\text{Total Equity}} \right. \quad (6)$$

Besides being useful for investors, dupont's analysis is also useful for business managers. dupont analysis calculations that break down the financial components that affect company performance make managers know the strengths and weaknesses of the company's financial components. managers can use it to provide guidance on how to run their business to run more efficiently (Dwiningsih, 2018).

### III. METHODOLOGY

This study uses descriptive and quantitative analysis research methods using Dupont analysis. This research is research conducted to obtain information that can be used to solve a problem. Based on the type of data and analysis model, this research is included in quantitative research. The subjects included in this study are companies in the cement sector that are listed on the Indonesia Stock Exchange (IDX). The samples for this study were four companies, namely SMCB, SMGR, INTP and SMBR for the 2018-2021 period. The sampling technique is the technique of collecting data using document research methods and literature study (Ernawati, 2019).

The instrument used by the authors in this study uses the Dupont System Analysis to assess the financial performance of cement sector companies (SMCB, SMGR, INTP and SMBR). The financial data for each cement sector company is taken from the annual report from each company's official website for the 2018-2021 period. The financial data will be calculated against the profit margin ratio indicator, Total Asset Turnover Ratio, Financial Leverage Ratio, and ROE for each company.

### IV. RESULT AND DISCUSSION

This research was conducted at cement sector companies in Indonesia. Several cement companies

whose financial performance was assessed were PT. Semen Indonesia (Persero) Tbk. (SMGR), PT. Build Solutions Indonesia Tbk. (SMCB), PT Indocement Tunggal Prakarsa Tbk. (INTP), and PT Semen Baturaja (Persero) Tbk (SMBR). Following are the results of calculating Net Profit margin, Asset Turnover, Financial Leverage, and ROE (Return On Equity) for each company in the 2018-2021 period. Table 1, Table 2, Table 3, and Table 4 shows a financial performance of each company.

Table 1. SMGR's Financial Performance

	2018 <i>in millions Rp.</i>	2019 <i>in millions Rp.</i>	2020 <i>in millions Rp.</i>	2021 <i>in millions Rp.</i>
Net Income	3,517,373	2,268,151	2,317,236	2,157,170
Revenue	30,687,626	40,368,107	35,171,668	34,957,871
Profit Margin ratio	0.115	0.056	0.066	0.062
Revenue	30,687,626	40,368,107	35,171,668	34,957,871
Total Assets	50,783,836	79,807,067	78,006,244	76,504,240
Total Asset Turnover Ratio	0.604	0.506	0.451	0.457
Total Assets	50,783,836	79,807,067	78,006,244	76,504,240
Total Equity	32,615,315	33,891,924	35,653,335	39,782,883
Financial Leverage Ratio	1,557	2,355	2,188	1923
Net Income	3,517,373	2,268,151	2,317,236	2,157,170
Total Equity	32,615,315	33,891,924	35,653,335	39,782,883
ROE	0.108	0.067	0.065	0.054

Table 2. SMCB Financial Performance

	2018 <i>in millions Rp.</i>	2019 <i>in millions Rp.</i>	2020 <i>in millions Rp.</i>	2021 <i>in millions Rp.</i>
Net Income	-780,601	566,262	618,629	706,107
Revenue	10,377,729	11,057,843	10,108,220	11,218,181
Profit Margin ratio	-0.075	0.051	0.061	0.063
Revenue	10,377,729	11,057,843	10,108,220	11,218,181
Total Assets	18,667,187	19,567,498	20,738,125	20,243,444
Total Asset Turnover Ratio	0.556	0.565	0.487	0.554
Total Assets	18,667,187	19,567,498	20,738,125	20,243,444
Total Equity	6,416,350	6,982,612	7,566,179	11,182,197
Financial Leverage Ratio	2,909	2,802	2,741	1810
Net Income	-780,601	566,262	618,629	706,107
Total Equity	6,416,350	6,982,612	7,566,179	11,182,197
ROE	-0.122	0.081	0.082	0.063

Table 3. INTP's financial performance

	2018 <i>in millions Rp.</i>	2019 <i>in millions Rp.</i>	2020 <i>in millions Rp.</i>	2021 <i>in millions Rp.</i>
Net Income	1,145,937	1,835,305	1,806,337	1,788,496
Revenue	15,190,283	15,939,348	14,184,322	14,771,906
<b>Profit Margin ratio</b>	<b>0.075</b>	<b>0.115</b>	<b>0.127</b>	<b>0.121</b>
Revenue	15,190,283	15,939,348	14,184,322	14,771,906
Total Assets	27,788,562	27,707,749	27,344,672	26,136,114
<b>Total Asset Turnover Ratio</b>	<b>0.547</b>	<b>0.575</b>	<b>0.519</b>	<b>0.565</b>
Total Assets	27,788,562	27,707,749	27,344,672	26,136,114
Total Equity	23,221,589	23,080,261	22,176,248	20,620,964
<b>Financial Leverage Ratio</b>	<b>1,197</b>	<b>1,200</b>	<b>1,233</b>	<b>1,267</b>
Net Income	1,145,937	1,835,305	1,806,337	1,788,496
Total Equity	23,221,589	23,080,261	22,176,248	20,620,964
<b>ROE</b>	<b>0.049</b>	<b>0.080</b>	<b>0.081</b>	<b>0.087</b>

Table 4. SMBR Financial Performance

	2018 <i>in thousands Rp.</i>	2019 <i>in thousands Rp.</i>	2020 <i>in thousands Rp.</i>	2021 <i>in thousands Rp.</i>
Net Income	73,564,912	27,593,178	1,189,571	58,355,914
Revenue	1,995,807,528	1,999,516,771	1,721,907,150	1,751,585,770
<b>Profit Margin ratio</b>	<b>0.037</b>	<b>0.014</b>	<b>0.001</b>	<b>0.033</b>
Revenue	1,995,807,528	1,999,516,771	1,721,907,150	1,751,585,770
Total Assets	5,538,079,503	5,571,270,204	5,737,175,560	5,817,745,619
<b>Total Asset Turnover Ratio</b>	<b>0.360</b>	<b>0.359</b>	<b>0.300</b>	<b>0.301</b>
Total Assets	5,538,079,503	5,571,270,204	5,737,175,560	5,817,745,619
Total Equity	3,473,671,056	3,482,293,092	3,407,888,607	3,466,244,521
<b>Financial Leverage Ratio</b>	<b>1,594</b>	<b>1,600</b>	<b>1,683</b>	<b>1,678</b>
Net Income	73,564,912	27,593,178	1,189,571	58,355,914
Total Equity	3,473,671,056	3,482,293,092	3,407,888,607	3,466,244,521
<b>ROE</b>	<b>0.021</b>	<b>0.008</b>	<b>0.0003</b>	<b>0.017</b>

#### A. Net Profit Margin Analysis

The higher the NPM, the more effectively the company manages its operational costs and earns a greater profit from each sale. A high NPM can be an indicator of a company's success in achieving financial goals and creating value for shareholders. Table 5 shows that in 2018-2021 the highest NPM value was achieved by PT. Indocement Tunggal Initiative.

Table 5. NPM from SMGR, SMCB, INTP, and SMCB for the period 2018 to 2021

	2018	2019	2020	2021
<b>SMGR</b>	11.50%	5.60%	6.60%	6.20%
<b>SMCB</b>	-7.50%	5.10%	6.10%	6.30%
<b>INTP</b>	7.50%	11.50%	12.70%	12.10%
<b>SMBR</b>	3.70%	1.40%	0.10%	3.30%

#### B. Asset Turnover Ratio Analysis

Asset turnover illustrates the company's efficiency in generating sales from its assets. The higher the turnover asset value, the more efficient the company is in using its assets to generate income. That is, a company can generate more sales with fewer assets or generate the same sales using fewer assets, which can increase the profitability of the company. Table 6 shows the asset turnover ratio from SMGR, SMCB, INTP, and SMCB for the period 2018 to 2021. However, too high is not always good because it can indicate a risk to the health of the company, such as a lack of investment in business development and growth (Halim, 2009).

Table 6. Asset Turnover Ratio from SMGR, SMCB, INTP, and SMCB for the period 2018 to 2021

	2018	2019	2020	2021
<b>SMGR</b>	0.604	0.506	0.451	0.457
<b>SMCB</b>	0.556	0.565	0.487	0.554
<b>INTP</b>	0.547	0.575	0.519	0.565
<b>SMBR</b>	0.36	0.359	0.3	0.301

#### C. Financial Leverage Ratio Analysis

Financial leverage is a financial ratio that measures the extent to which a company uses borrowed funds (debt) to finance its operations and investment activities, compared to the share capital invested by shareholders. Table 7 shows the financial leverage ratio of SMGR, SMCB, INTP, and SMCB for the period 2018 to 2021. In this case, the higher the financial leverage ratio, the more debt companies use to finance their operations, and the greater the financial risk faced by the company (Riswan, 2014).

Table 7. Financial Leverage Ratio of SMGR, SMCB, INTP, and SMCB for the period 2018 to 2021

	2018	2019	2020	2021
<b>SMGR</b>	1,557	2,355	2,188	1,923
<b>SMCB</b>	2,909	2,802	2,741	1,81
<b>INTP</b>	1,197	1,2	1,233	1,267
<b>SMBR</b>	1,594	1,6	1,683	1,678

#### D. ROE analysis

ROE is Return on Equity, which measures the level of profit generated by the company against the capital invested by the owner. Table 8 shows ROE from SMGR,

SMCB, INTP, and SMCB for the period 2018 to 2021. SMGR's ROE trend decreased from 2018 to 2021 even though the company still manages to generate stable profits. This was caused by a decrease in Asset Turnover and Financial Leverage which could not be compensated for by an increase in Net Profit Margin (Mujannah, 2019).

Table 8. ROE from SMGR, SMCB, INTP, and SMCB for the period 2018 to 2021

	2018	2019	2020	2021
SMGR	0.108	0.067	0.065	0.054
SMCB	-0.122	0.081	0.082	0.063
INTP	0.049	0.08	0.081	0.087
SMBR	0.021	0.008	0.0003	0.017

SMCB's ROE trend has increased significantly from 2018 and managed to reach a positive value in 2019 even though the Net Profit Margin is still below the industry average. This was due to a significant increase in Asset Turnover and Financial Leverage from year to year.

INTP's ROE trend increased from 2018 to 2020 and then stagnated in 2021. This was due to an increase in Asset Turnover and Net Profit Margin even though Financial Leverage was relatively stable from year to year.

Figure 1 shows ROE Comparison Chart for each company. Meanwhile, in 2018, SMBR had a relatively low ROE of 2.1%, and continued to decline in 2019 and 2020. However, in 2021 the company's ROE managed to increase to 1.7%. The decline in SMBR's ROE over the past three years was due to a decrease in Net Profit Margin and Asset Turnover Ratio.

Based on an analysis using the duPont system method for the four cement companies, namely Semen Indonesia (SMGR), Solusi Bangun Indonesia (SMCB), Indocement Tunggal Prakarsa (INTP), and Semen Baturaja (SMBR), it can be concluded that the COVID-19 pandemic had a negative impact on performance the finances of the four companies, especially in 2020 when the pandemic was at its peak (Moridu, 2020).

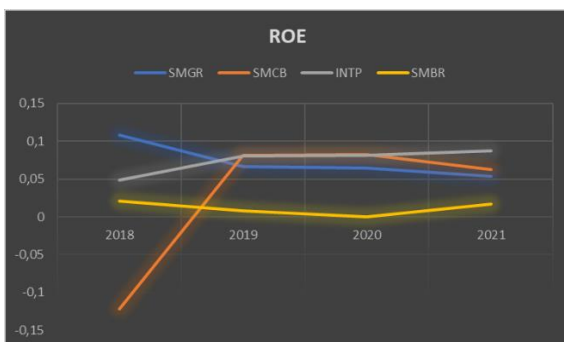


Figure 1. ROE Comparison Chart for each company

In the pre-pandemic period (2018), the four companies had a relatively stable ROE, with SMGR having the highest ROE at that time. However, during the

pandemic (in 2020), SMBR and SMGR's ROE decreased compared to SMCB and INTP. However, in post-pandemic 2021, the ROE of the four companies has increased again, although it has not reached the same level as the pre-pandemic period.

The decrease in ROE of the four companies during the pandemic period was mainly due to a decrease in Net Profit Margin (NPM), which occurred for all companies except SMCB, which actually experienced an increase in NPM. Figure 2 shows a graph comparison of NPM in each company. This decrease in NPM was caused by a decrease in revenue and or an increase in operating costs due to the impact of the pandemic which resulted in reduced production and sales.

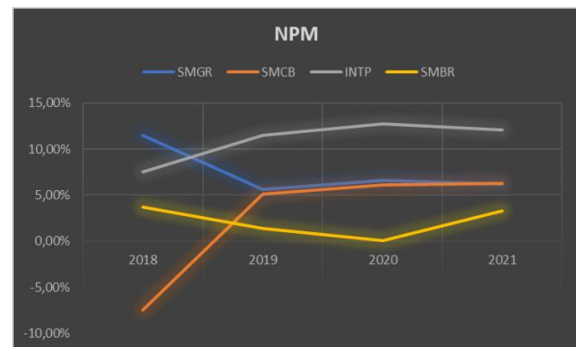


Figure 2. Graph Comparison of NPM in each company

Nonetheless, the four companies managed to maintain or increase Asset Turnover (ATO), which shows that the four companies can utilize their assets to generate income even in difficult situations. Figure 3 shows a graph comparison of asset turnover ratio in each company.

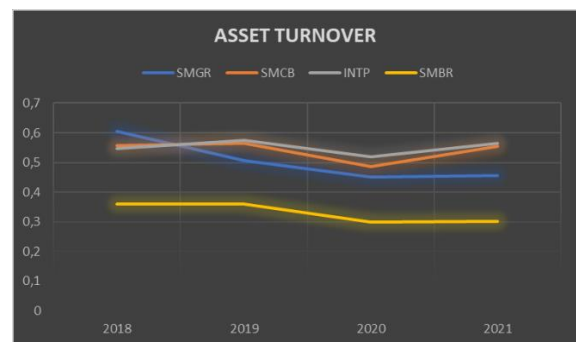


Figure 3. Graph Comparison of Asset Turnover Ratio in each company

Figure 4 shows a comparison of the Financial Leverage Ratio in each company. On the Financial Leverage side, the four companies are relatively stable in managing their debt, with SMBR having the lowest Financial Leverage in all periods (Rini, 2018).

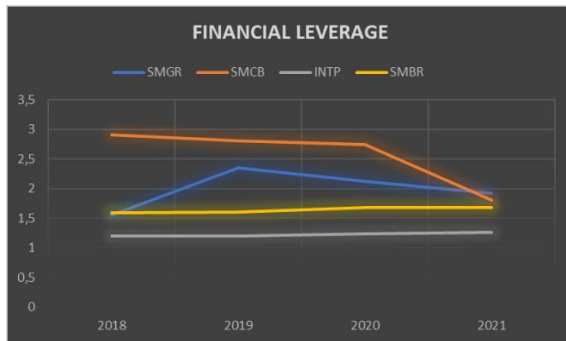


Figure 4. Graph Comparison of Financial Leverage Ratio in each company

Overall, the COVID-19 pandemic had a significant negative impact on the financial performance of the four cement companies, especially in 2020 when the pandemic was at its peak. However, the four companies were able to survive and even experience increased performance in 2021 after the pandemic. Even so, these companies still need to implement the right strategy to optimize their performance in the future, especially in the face of unpredictable risks such as a pandemic (Saraswati, 2015).

#### V. CONCLUSION

There are many financial statement analysis techniques that can be used by financial statement analysts. One of them is the DuPont financial statement analysis model. This method of analysis is broader, because it is an analysis that combines balance sheet and income statement. So, this analysis allows the analyst to evaluate the two financial statements simultaneously.

In the pre-pandemic period (2018), these four companies had a relatively stable ROE, with SMGR's ROE being the highest at that time. However, during the pandemic (2020), SMBR and SMGR's ROE decreased compared to SMCB and INTP. However, in the 2021 post-pandemic year, the ROE of the four companies increased again, although not to the same level as in the pre-pandemic period. The decline in the ROE of the four companies during the pandemic was mainly due to the decrease in Net Profit Margin (NPM) that occurred for all companies except SMCB, which experienced an increase in NPM. However, the four companies were able to maintain or increase their Assets Turnover (ATO), indicating that the four companies were able to generate income from their assets even in difficult situations.

Despite its strengths, Dupont's financial statement analysis model is not without its drawbacks. This analysis is only intended to clarify the circumstances of the financial statements that lack detail. Thus, analysts who need more detailed information must use other analytical methods.

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