



# Financial Performance Analysis of Manufacturing Companies Listed on the IDX Before and During Covid-19

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## Authors' contributions

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## ABSTRACT

**Aims:** Comparing and analyzing manufacturing companies listed on the IDX (Indonesian Stock Exchange) before and during the global financial crisis due to Covid-19 for the 2015-2021 period.

**Study Design:** This study uses quantitative descriptive method.

**Place and Duration of Study:** Indonesia Stock Exchange for the period 2015 to 2021.

**Methodology:** This study utilizes quantitative information types with auxiliary information sources whose information is obtained from the annual financial statements of each company with a sample of 184 companies representing the period before Covid-19 and 190 companies representing the period during Covid-19. The information investigation utilized various tests utilizing IBM SPSS 25, including Graphic Insights Test, Kolmogorov Smirnov One Sample Test, and Mann Whitney Test.

**Results:** The results show that there are tremendous differences in the proportion of ROA, EPS, CR, and DER before and during the global financial crisis due to Covid-19 in manufacturing sector companies listed on the IDX. The ROA and EPS ratios decreased significantly during the Covid-19 period and CR and DER increased significantly during the Covid-19 period, which means that Covid-19 affected all ratios so that there were significant differences between before and during the global financial crisis.

**Conclusion:** This study shows that there are significant differences in the financial performance of manufacturing sector companies before and during Covid-19.

Keywords: ROA; EPS; CR; DER; Covid-19; financial performance.

### 1. INTRODUCTION

The world had experienced Covid-19 at the end of 2019 which began to enter Indonesia in early 2020, the spread of which began in Wuhan. Corona Virus is a virus that causes mild to moderate upper respiratory tract infections, such as the flu. The pandemic has an impact not only on the health crisis on the human body but also has a multifaceted impact on all existing sectors. After the arrival of Covid-19 which caused the global financial crisis that succeeded in crippling almost all economic sectors, the world is experiencing a global financial crisis, and almost all countries, especially Indonesia, have experienced a financial crisis to date, especially in early 2020, the year the virus entered [1].

The global financial crisis due to the Covid-19 pandemic has almost paralyzed the world economy, including Indonesia. Not only the financial sector but also the real chancellor. One of them is that manufacturing companies are directly affected by various government policies that hinder economic activity during the outbreak of Covid-19, which is influenced by the number of areas exposed to Covid-19. The emergence of government policies that cause delays in the process of purchasing raw materials, production, and sales. As a result, the decline in the utility of the manufacturing industry in some sectors is

inevitable and production capacity declines. This economic crisis caused prices to rise and made the value of the rupiah weaken compared to the dollar, low inflation, and exports. This certainly has a huge impact on the finances of manufacturing companies, which is related to financial performance which is predictably weak during the Covid-19 outbreak due to several of the above and other things [2].

Fig. 1. shows that there is a turn, namely the decline in exports in the first year when there was Covid-19 in 2020. Then in the second year when there was Covid-19 in 2021, industrial exports in Indonesia began to increase from the previous year. However, it cannot be concluded that manufacturing companies are in good condition because on the other side, Indonesia's inflation rate is still low at 1.87%, which is still far from the government standard of 3% which indicates that the selling price of products is still low.

Financial performance can be measured by analyzing financial statements. These results can answer questions about information uncertainty and it can be ascertained that there are no more doubts in making decisions such as investments, forecasting future profits, and measuring performance and seeing the health of the company. Measurement of financial performance



Fig. 1. Indonesian export chart for industrial sector  
 Source: <https://statistik.kemendag.go.id> (2022)

is very important for the company because it can help parties who have internal and external interests in determining the steps that must be taken in the next or future period [3].

In this study the authors took the ROA (Return on Asset) ratio to find the results of whether the company was able to make a profit during the global financial crisis due to Covid-19 and EPS (Earning Per Share) to see the net profit for each share that was able to be achieved and given to shareholders. investors when the company runs its operations. Moreover, utilizing the liquidity proportion (CR) to deliver sureness whether the financial state of assembling organizations recorded on the Indonesia Stock Trade during the worldwide financial emergency because of Coronavirus where the organization is capable or not to pay its momentary commitments, Then, the measurement of the leverage ratio (DER) in this study was conducted to show results regarding the health and level of financial independence of manufacturing companies listed on the Indonesia Stock Exchange before and during Covid-19 related to debt [4].

Previous research conducted by Lai, Aziz., & Ching [5], Sadaeq [6], Pillai [7], Doowon, Ryu., Maria, H. K., & Doojin [8], Fook, Yap., & Ben [9], and Anwar [10] showed a massive contrast in financial execution among when the worldwide emergency. In the mean time, research led by Natalia [11], Irawan [12], and Wijayangka [13] found that there was no significant difference in financial execution among when the worldwide emergency. From the discoveries of these investigations, it shows that there are contrasts in the aftereffects of the worldwide emergency that has hit the world before which were broke down through the organization's financial execution so this point is intriguing to be rethought, to be specific the examination of financial execution by dissecting financial proportions previously and during the worldwide financial emergency due to the Coronavirus and this is an update of the previous global financial crisis that had previously hit the world which was made a phenomenon in previous research. This research can also be useful for internal and external parties of the company, for internal parties, namely company management, which can be used as material in making financial decisions and making basic policies related to financial performance in the next period to be better and for external parties such as users of financial statement information and prospective investors can be taken into consideration to invest in related companies.

## **2. LITERATURE REVIEW, HYPOTHESIS DEVELOPMENT AND RESEARCH METHODS**

### **2.1 Literature Review**

#### **2.1.1 Fundamental theory**

Fundamental theory burdens financial ratios based on national and global economic phenomena, either directly or indirectly, that affect the company's financial performance. This theory analyzes the company's financial ratios which are assumed to have an influence on the company's financial performance and aims to assess and compare the company's performance between competitors who are still in the same sector and assess the past financial performance of the company itself [14]. In accordance with this research, which takes global phenomena that threaten the world economy including Indonesia and affects financial performance as a result of Covid-19. As explained above, the global financial crisis due to the Covid-19 pandemic has hampered economic activities, especially manufacturing companies, namely processing raw materials into finished goods where the process of purchasing raw materials, production, and sales indicates the weakening of financial ratios in manufacturing companies.

#### **2.1.2 Scope of manufacturing industry**

Manufacturing organizations are modern organizations that interaction unrefined components into semi-completed products or completed merchandise. Producing organizations are indistinguishable from industrial facilities that utilization machines, gear, methods, and laborers [15].

Indonesian manufacturing companies or manufacturing producing ventures recorded on the Indonesia Stock Exchange (IDX) are assembled into areas and sub-areas. There are 3 areas, specifically [15]:

1. Raw materials and chemical industry.
2. Different industry.
3. Consumer goods industry.

#### **2.1.3 Financial report**

Financial statements are a product of the financial reporting process. This has been regulated by applicable accounting standards, manager incentives, implementation mechanisms, and supervision. The motivation behind fiscal reports is to give data about finance and reporting entities that are useful for financial

backers, loan specialists, and different banks in settling on choices for them, namely as providers of capital [16]. Financial statements are needed and are the main key to retrieving data in this study, namely secondary data from the annual financial statements of manufacturing companies to the next stage and calculate the related ratios in this study.

#### **2.1.4 Analysis of financial performance and ratios**

Financial execution is a movement completed by an organization to quantify the organization's presentation in utilizing capital successfully and effectively to accomplish organization objectives. Evaluation of financial performance is one of the ways used by management to obtain results that are displayed in financial statements, therefore the results of measuring financial statements are very important for providers of funds to see the potential or status of the company. In measuring the financial performance of a company can use financial ratios. Each ratio has a specific reason, then each result of the ratio is measured and interpreted into a decision by the parties who have an interest [17].

#### **2.1.5 Impact of manufacturing industry during Covid-19**

The performance of the national manufacturing industry began to experience a significant decline in March 2020 and decrease in productive activity. In the context of regenerating the industrial sector in general and the manufacturing sector in particular in the period and post Covid-19, the government has taken policy steps and various countermeasures, which are generally in the form of fiscal and non-financial incentives, such as granting credit, reopening exports, restructuring of facilities, and investment incentives [18]. The decline in productive activity experienced by manufacturing companies will be answered through an analysis of financial performance using financial ratios in this study whether Covid-19 really affects the financial performance of manufacturing companies.

## **2.2 Hypothesis Development**

### **2.2.1 Differences in ROA (Return on assets) of manufacturing companies before and during Covid-19**

ROA (Return on Assets) is a profitability indicator that can assess the company's ability to earn

profits. This proportion additionally shows the degree of the executives adequacy of an organization from the benefits produced from deals and venture pay [4]. Research was conducted by Lai, Aziz., & Ching [5], Sadaeq [6], Pillai [7], and Doowon, Ryu., Maria, H. K., & Doojin [8] tracked down a massive contrast in levels previously and during the worldwide emergency due to Covid-19.

H1: There is a significant difference in ROA in manufacturing company recorded on the IDX during the Covid-19

### **2.2.2 Differences in EPS (Earning Per Shares) of manufacturing companies before and during Covid-19**

EPS (Earning Per Share) is a profitability ratio that assesses the level of ability per share to form company profits. Company management, common shareholders and prospective shareholders are very concerned about Earning Per Share because it is an indicator of the company's success [4]. The results of research by Lai, Aziz., & Ching [5] and Fook, Yap., & Ben [9] tracked down a huge distinction in levels previously and during the worldwide emergency due to Covid-19.

H2: There is a significant difference in EPS in manufacturing company recorded on the IDX during the Covid-19.

### **2.2.3 Differences in CR (Current Ratio) of manufacturing companies before and during Covid-19**

CR (Current Ratio) is a ratio that measures the company's ability to pay short-term debt or debt due immediately after full collection [4]. Research conducted by Pillai [7], Fook, Yap., & Ben [9], and Irawan [12] found significant differences in levels before and during the global crisis due to Covid-19.

H3: There is a significant difference in CR in manufacturing company recorded on the IDX during the Covid-19

### **2.2.4 Differences in DER (Debt to Equity Ratio) of manufacturing companies before and during Covid-19**

DER (Debt to Equity Ratio) is a ratio that describes the financing of a company and shows the company's own capital to meet all its

obligations [4]. Research previous conducted by Pillai [7], Anwar [10], and Irawan [12] found significant differences in levels before and during the global crisis due to Covid-19.

H4: There is a significant difference in DER in manufacturing company recorded on the IDX during the Covid-19

## 2.3 Research Method

### 2.3.1 Research design

This study dissects financial execution when Coronavirus utilizing proportions financial contained in the budget reports of assembling organizations. Then it will be broke down to figure out contrasts in financial execution when the worldwide financial emergency because of Coronavirus.

### 2.3.2 Population and research sample

The population in this study are Manufacturing Companies listed on the Indonesia Stock Exchange (IDX). The sample selection was done by using data from the research population, namely all manufacturing companies listed on the IDX for the 2015-2021 period. Due to conditions such as IPOs and delisting in the

middle of the research period, there were no complete data on several companies so that the sample number of companies before Covid-19 was 184 companies and during Covid-19 there were 190 companies.

### 2.3.3 Data collection technique

This study utilizes quantitative information with optional information sources as financial reports acquired through the Indonesia Stock Exchange (IDX) or the authority site of each organization.

### 2.3.4 Analytical methods

The kind of examination in this exploration is illustrative quantitative examination and information handling through measurable strategies gathered from auxiliary information. The information show investigation strategy in this study is relative examination, to be specific by looking at the financial exhibition of assembling organizations previously and during the worldwide financial emergency because of Coronavirus. The speculation in this review was tried through the Independent Sample T-Test with the condition that the information was regularly conveyed and the Mann Whitney Test in the event that the information was not normally distributed.

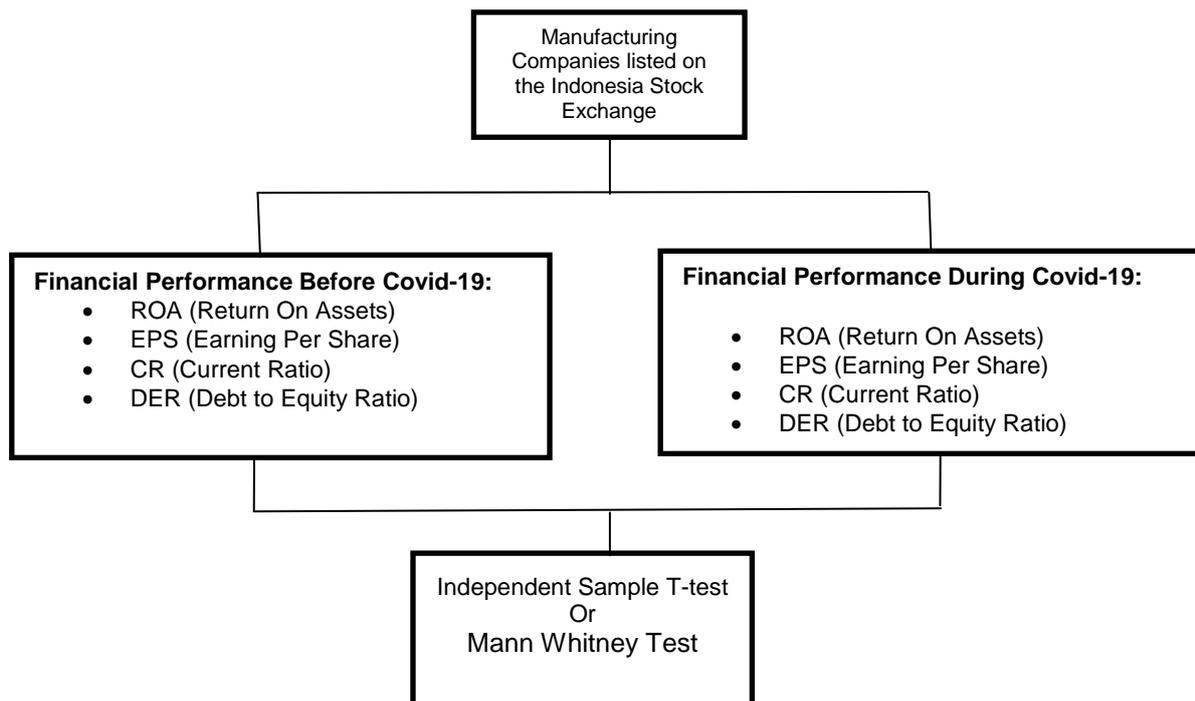


Fig. 2. Research framework

### 3. RESULTS AND DISCUSSION

#### 3.1 Results

##### 3.1.1 Statistical analysis of manufacturing companies before and during Covid-19

###### 3.1.1.1 Descriptive statistical analysis

Based on the table above, it can be seen that the minimum, maximum, average, and standard deviation values of each variable in all samples of manufacturing companies before and during the global financial crisis due to Covid-19. Based on the table, it can be seen that the highest ROA before and during Covid-19 was achieved by Merck Indonesia Tbk and Tiga Pilar Sejahtera Food Tbk, namely 92.10% and 105,99%, respectively. Meanwhile, the lowest values before and during Covid-19 were achieved by Sunson Textile Manufacture Tbk and Tirta Mahamka Resourche Tbk, which were -289% and -107,99, respectively. Meanwhile, the average ROA of the companies studied between before and during Covid-19 decreased by 5,6462 to 5,1881.

Table 1, shows that the highest EPS before and during Covid-19 was achieved by Charoen Pokphand Indonesia Tbk and Indofood CBP Sukses Makmur Tbk, which was 2754.82 and 1431,20, respectively. Meanwhile, the lowest values before and during Covid-19 were achieved by Multi Prima Sejahtera Tbk and Asahimas Flat Glass Tbk, which were -2394.1 and -993. Meanwhile, the average EPS for the companies studied between before and during Covid-19 decreased by 81,9786 to 45,0400.

Based on Table 1, it shows that the highest CR before and during Covid-19 was achieved by the Campina Ice Cream Industri Tbk dan Kirana Megatara Tbk, namely 15,82 times and 24,80 times, respectively. Meanwhile, the lowest values before and during Covid-19 were achieved by Semen Indonesia Tbk, which were 0.03 times, respectively. Meanwhile, the average CR of the companies studied between before and during Covid-19 increased by 1,9610 to 2,1502.

Table 1, shows that the highest DER before and during Covid-19 was achieved by Tirta Mahakam Resources Tbk dan Asia Pacific Investama Tbk, which was 23,91 and 11,42. Meanwhile, the lowest values before and during Covid-19 were achieved by Bentoel Internasional Investama Tbk and Asia Pacific Investama Tbk, which were -

5,02 and -30,25, respectively. Meanwhile, the average EPS for the companies studied between before and during Covid-19 increased by 1,4471 to 1,5517.

###### 3.1.1.2 Normality test

The normality test of this data was done as an essential prior to testing the theory. On the off chance that the information importance esteem is more prominent than 0.05 (normally distributed) a test with the Independent Sample T-Test will be performed. In the event that the information is under 0.05 (not regularly circulated), the Mann Whitney Test will be done.

##### 3.1.2 Comparison of the financial performance of manufacturing companies in 2015 to 2021 before and during covid-19 based on ROA, EPS, CR, and DER ratios

In view of the table above, it tends to be finished up:

- a. Based on Table 3. it is known that the significance value of ROA before and during the global financial crisis due to Covid-19 is smaller than 0.05, this demonstrates that the organization do encountered a huge distinction in the proportion of Return On Assets (ROA) between before and during Covid-19.
- b. Based on Table 4. it is known that the significance value of EPS before and during the global financial crisis due to Covid-19 is smaller than 0.05, this demonstrates that the organization do encountered a huge distinction in the proportion Earning Per Share (EPS) ratio between before and during Covid-19.
- c. Based on Table 5. it is known that the significance value of CR before and during the global financial crisis due to Covid-19 is smaller than 0.05, this demonstrates that the organization do encountered a huge distinction in the proportion Current Ratio (CR) ratio between before and during Covid-19.
- d. Based on Table 6. it is known that the significance value of DER before and during the global financial crisis due to Covid-19 is smaller than 0.05, this demonstrates that the organization do encountered a huge distinction in the proportion Debt To Equity Ratio (DER) between before and during Covid-19.

**Table 1. Descriptive statistical results of ROA, EPS, CR, and DER ratios for overall before and during Covid-19 in 2015-2021 Period**

		<b>N</b>	<b>Minimum</b>	<b>Maksimum</b>	<b>Mean</b>	<b>Std. deviation</b>
ROA	Before	797	-289	92,10	56,462	18.17288
	During	396	-107,99	105,99	51,881	15.47672
EPS	Before	797	-2394,10	2754,82	819,786	287.1114
	During	396	-993	1431,20	450,400	169.7833
CR	Before	797	0,03	15,82	19,610	1.88022
	During	396	0,03	24,80	21,502	2.0224
DER	Before	797	-5,02	23,91	14,471	2.65376
	During	396	-30,25	11,42	15,517	2.36555

Source: SPSS data processed (2022)

**Table 2. Normality test results for manufacturing companies' financial performance average of 5 years before and 2 years during Covid-19**

	<b>One sample Kolmogorov-Smirnov test</b>	<b>Normality test results</b>
	<b>Sig.</b>	
ROA Before	0.000 <sup>c</sup>	<b>Abnormal</b>
ROA During	0.000 <sup>c</sup>	
EPS Before	0.000 <sup>c</sup>	<b>Abnormal</b>
EPS During	0.000 <sup>c</sup>	
CR Before	0.000 <sup>c</sup>	<b>Abnormal</b>
CR During	0.000 <sup>c</sup>	
DER Before	0.000 <sup>c</sup>	<b>Abnormal</b>
DER During	0.000 <sup>c</sup>	

Source: SPSS data processed (2022)

**Table 3. Results of different ROA tests before and during the Covid-19 pandemic**

		<b>N</b>	<b>Average</b>	<b>Asymp. Sig. 2 tailed</b>
ROA	Before	184	56,462	0,003
	During	190	51,881	
	Total	374		

Source: SPSS data processed (2022)

**Table 4. Results of different EPS tests before and during the Covid-19 Pandemic**

		<b>N</b>	<b>Average</b>	<b>Asymp. Sig. 2 tailed</b>
EPS	Before	184	819,786	0,042
	During	190	450,400	
	Total	374		

Source: SPSS data processed (2022)

**Table 5. Results of different CR tests before and during the Covid-19 pandemic**

		<b>N</b>	<b>Average</b>	<b>Asymp. Sig. 2 tailed</b>
CR	Before	184	19,610	0,019
	During	190	21,502	
	Total	374		

Source: SPSS data processed (2022)

**Table 6. Results of different DER tests before and during the Covid-19 pandemic**

		<b>N</b>	<b>Average</b>	<b>Asymp. Sig. 2 tailed</b>
DER	Before	184	14,471	0,000
	During	190	15,517	
	Total	374		

Source: SPSS data processed (2022)

### 3.2 Discussion

- a. ROA measures a company's ability to earn profits from managing its assets. From the aftereffects of exploration directed on the ROA proportion when the worldwide financial emergency because of Coronavirus, there is significant differences. These outcomes are as per the exploration of Lai, Aziz., & Ching [5], Sadaeq [6], Pillai [7], and Doowon, Ryu., Maria, H. K., & Doojin [8]. This is presumably because at one year during the Covid-19 outbreak, the Indonesian economy changed which caused a decline in GDP and PMI for manufacturing companies, export levels, and inflation. And also since the organization has not had the option to expand the economy of scale and extent of the economy and the organization has not been ideal and productive in dealing with its resources for create benefits for the organization and in the second year since the Covid-19 outbreak, manufacturing companies have begun to adapt to the efforts of companies and the government so that causing an increase from the first year during the presence of Covid-19.
- b. EPS measures the capacity per offer to shape the organization's benefits. From the consequences of exploration led on the EPS proportion before and after the global financial crisis due to Covid-19, there is significant differences. This is in accordance with the research of Lai, Aziz., & Ching [5] and Fook, Yap., & Ben [9]. This is presumably because at one year when the Covid-19 stock declines, investors prefer to sell shares or panic selling which causes stock prices and the JCI to decline and in the second year during the Covid-19 pandemic, manufacturing companies have tried to increase profits and can assure investors' confidence again that the company's activities have returned to normal and healthy which has led to an increase from the first year before Covid-19.
- c. CR measures a company's ability to pay short-term debt or debt due immediately after full collection. The consequences of this study show that there is significant differences in the CR proportion during the perception time frame before and during the global financial crisis due to Covid-19. These outcomes are in accordance with

the exploration of Pillai [7], Irawan [12], and Fook, Yap., & Ben [9] It is suspected that at one year during Covid-19 the company was unable to maintain stability between profitability and liquidity which caused current assets to increase every semester. This also indicates that there stuck accompanied by a decrease in the value of profitability and the company prefers long-term debt compared to short-term liabilities during Covid-19 and in the second year during Covid-19 the company was able to be more stable in managing its current assets so that the CR value decreased from the first year before Covid-19.

- d. DER measures the financing of a company and shows the company's own capital to meet all of its obligations. The aftereffects of this study show that there is significant differences in the DER ratio before and after the global financial crisis due to Covid-19. These results are in line with research by Irawan [12], Dermirhan, H. G., & Waseem (2014), and Pillai [7]. This is presumably due to the Covid-19, in the early years manufacturing companies requires a sufficiently huge expense so a few organizations make loans to third parties resulting in high levels of debt and large companies such as manufacturing companies choosing long-term debt to finance their companies and in the second year during Covid-19, the company was more efficient in borrowing money from third parties and used it for expansion which led to a decrease in the value of the DER.

### 4. CONCLUSION

The consequences of the Mann Whitney Test on the ROA, EPS, CR, and DER ratios for 2015 to 2021 before and during the global financial crisis due to Covid-19 in manufacturing companies listed on the Indonesia Stock Exchange (IDX) show that there is significant differences.

### 5. SUGGESTION

Researchers recommend this study to managers of liquidity companies to make improvements, especially from profit margins and increase total asset turnover, but managers of related companies must achieve a balance between profitability and profitability. Company managers

must also reduce and manage with long-term discipline in order to reduce the company's interest expense and make periodic forecasts and take policy steps to improve the condition of the related company due to the influence of the global crisis due to Covid-19 to be more effective and effective in reaching the company, for potential owners of capital or investors can be considered in investment activities in related companies from the results of this study, and for the future research can add other ratios such as activity or other ratios that are not used in this study to assess financial performance more deeply before and during Covid-19 as well as wait until the global financial crisis caused by Covid-19 is completely over.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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