

# Sharia-Compliant Portfolio of Islamic Stocks Listed on Indonesia Stock Exchange (IDX)

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## ABSTRACT

This study aims to establish a stock portfolio following Sharia principles under the premise that investors with Sharia-compliant attentiveness will not only focus on financial risk and return. Implementation of criteria following Sharia principles also needs to be considered, given that there is a prohibition on riba-based assets involved in the selected investment instruments. Sharia-Compliant's portfolio selection model is not only carried out by a particular rate of return but also by adding a riba-based debt ratio as a parameter of Sharia principles implementation by the stock instrument. Both criteria are chosen within the assumption that the main objective of investment by following Sharia principles is to obtain reasonable rates of return without violating any of Islamic law. Based on data processing of 14 Islamic stocks samples listed on JII during the 2014-2018 period, we are successfully result a portfolio quadrant where 3 best stocks were selected according to their good rate of return and low rate riba-based debt ratio. The finding shows that the value of a portfolio's returns is 1,11% with 3,90% as the value of standard deviation. Although the value of portfolio's return is relatively low, the portfolio's shows promising results on performance by using three main methods as benchmarks; Sharpe's, Treynor's, and Jensen's Measurements.

**Keywords:** *Sharia-Compliant Portfolio, Islamic Stocks, Riba-Based Debt Ratio*

## 1. INTRODUCTION

Like other investors, Muslim investors also have a necessity of financial investment to utilize potential from their fund possessions [1]. Pragmatically, the Islamic capital market's presence aims to draw trust and attention of potential Muslim investors to boost up their relevancy so that their economic advantages can be optimized [2]. Moreover, the involvement of Sharia investment is also expected to reduce the dependence of the firms that issuing Islamic stocks to use riba-based debt on conventional bank. A Stock instrument that listed on Indonesia Stock Exchange (IDX) should qualify from screening process to be classified as a stock that complies with Sharia principles. DSN-MUI and Bapepam-LK which interchanged by Financial Services Authority (OJK) at present set quantitative requirements for financial ratio of the total amount of riba-based debt with no more than 45% [3]. Based on the results of interviews with the OJK in research conducted by Baharudin [4] mentioned that these requirements are based on Imam Al-Ghazali's words that the total amount of debt cannot be higher than capital. Meanwhile, the concept that are used to determine the combination formula of equity and riba-based debt is tafriq alhalal 'al-haram; by separating

halal and haram assets [4]. It becomes one of the requirements to be fulfilled by all firms that issue Islamic stock in Indonesia.

Investment activities based on Sharia principles must be carried out under Islamic law, given the fact that Islamic principles prohibit any involvement of riba-based assets [5-8]. When investing in stocks, a Sharia-compliant investor does not only need to consider financial risk and return of investment but also needs to pay attention to the implementation of Sharia principles, including the involvements of riba-based assets. Riba itself is an addition amount from debt's payments, which violates a Sharia principle for justice and fairness [9]. Considering this reason, an investor whose complies with Islamic law is required to avoid investing in stock with low obedience in Sharia principles, or in other words, high riba-based asset involvements. However, practically, this requires an analytical tool that is well-designed to guarantee that investment activities conducted by investors are under Sharia principles and do not implicitly uphold riba practice [9].

This study aims to select a portfolio of stocks based on Sharia principles, considering that there are not many portfolio selection models with

consideration of Islamic principles' implementation to the stock instruments [10]. For this reason, alternative' method offered in this study is by adding the criteria for the Sharia Riba-Based Debt Ratio. It is a measurement for the performance of Islamic principles' implementation in the stock instruments despite also prioritizing the return' value. Thus, the main objective of investment in stock instruments can be achieved without violate Islamic law.

## **1.1. Related Work**

### **1.1.1. Return of Stock**

According to Tandelilin [11] the rate of return is one of the factors that motivates investors to be engaged besides return as a fruit for the risks taken by investors in their investment. Simply, the stock return is the result or income obtained by investment funds into a stock instrument. Meanwhile, according to Irala and Patil [12] the formulation of the return value of stocks can be calculated as follows:

$$R_t = \frac{\text{Closing Price}_t - \text{Closing Price}_{t-1}}{\text{Closing Price}_{t-1}} \quad (1)$$

### **1.1.2. Riba-Based Debt Ratio (RBDR)**

In the Islamic perspective, one of the key aspects' obedience in the Investment activity is the Halal principle, where it is prohibited to purchase the firm's stocks within any direct or indirect interest or riba involvements [6-13]. IDX determines the criteria for stocks that listed into the Sharia category based on Bapepam-LK regulation number KEP-208/BL/2012 regarding Criteria and Issuance of Sharia Securities' list. One of the criteria is the amount of riba-based debt which when compared to total assets should not higher than 45% [3]. According to Adlan and Mawardi [14] the calculation of this ratio can be formulated as follows:

$$UBR = \frac{\text{Utang Berbasis Riba}}{\text{Total Aset}} \times 100\% \quad (2)$$

### **1.1.3. Sharia-Compliant Portfolio**

The first step in the selecting process of a Sharia-Compliant portfolio is to ensure security' fulfilments with Sharia principles [6]. The better company's performance in maintaining the application of its Sharia criteria such as managing a minimum amount of riba-based financial instruments, the company's stocks will be preferred by Muslim investors [14].

Meanwhile, the current conventional portfolio selection model only focuses on optimizing the rate of return by minimizing risk, without paying any attention to Sharia principles' accordance [15]. In the other hand, the implementation of Sharia principles itself is a significant factor for investors in making

investment decisions [16]. Besides, such approach through particular criteria related to the religiosity is necessary to be considered since it will also affect public' interest [17-19], which in this case is an investor who adheres to Sharia principles. Specific guidelines need to be introduced as an additional constraint (optimization) model in making a portfolio that complies with Sharia principles, given the fact that Sharia prohibits involvement in interest-based assets [5-8].

## **1.2. Our Contribution**

This study presents an analytical method in the formulation of stocks portfolio based on the implementation of Sharia principles criteria. This research is conducted in order to deliver an alternative method of Sharia-compliant portfolio selection model for the stock exchange industry, especially for Sharia-compliant investors in Indonesia. So the purpose of investment activities can be achieved without violating Islamic law. The criteria for applying Sharia principles that are measured using the Riba-Based Debt Ratio (RBDR) is a novelty of this research.

## **1.3. Paper Structure**

The framework of this study will be as follow: section 1 brings up an introduction and the criteria used in a Sharia-compliant portfolio selection model and the contribution of this research. Section 2 provides a literature review in formulating a Sharia-compliant portfolio selection model. Section 3 describes the research method, which is then explained in section 4. This research is completed by conclusions and recommendations for further research in section 5.

## **2. BACKGROUND**

This study aims to develop a new method of Sharia-compliant portfolio selection model by adding the level of riba-based debt ratio as the implementation of Sharia principles. We expect that the output of this research could be an alternative method in selecting Islamic stocks that is not only focus on the optimal rate of return with certain risks but also considering the application of Sharia principles. As BinMahfouz and Hassan [10] mentioned that the expansion additional criteria in the screening process to accordance with Sharia principles has not been widely investigated up to this point. Thus, academic contributions are needed [6]. By having ground on this matter, the portfolio' selection model in this study is carried out by adding criteria that are considered under Sharia principles in selecting instruments that can be included in the portfolio.

The first criteria are Islamic stocks that have a good rate of return, assuming that the main objective of Islamic stock investors remain expect the optimal returns. The second criteria are the level of Riba-Based Debt Ratio (RBDR) which describes the application of Sharia principles from the firms issuing Islamic stock. The lower rate of the RBDR that owned by the firms that issuing Islamic stock means a good implementation of Sharia principles and vice versa.

Sharia-compliant portfolio selection process requires steps that must be taken in order to find out the performance of stocks instrument based on the two predetermined criteria. The process is illustrated in Figure.1 as follows:

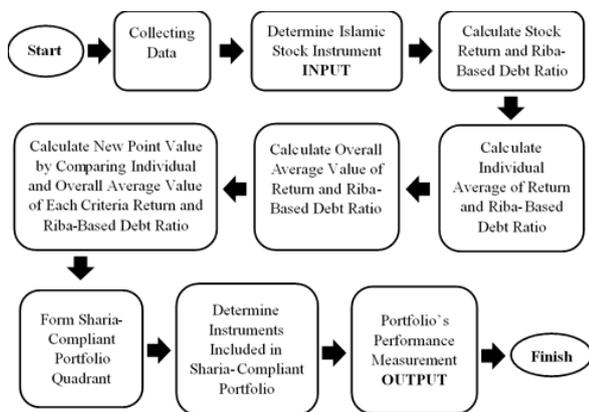


Figure 1. Flowchart of research model

### 3. METHOD

The population variable used in this study is all Islamic stock instruments that are listed on IDX. Sampling was carried out through a purposive sampling method with the criteria for stock instruments included in the Jakarta Islamic Index (JII) continuously during the 2014-2018 periods. Based on these criteria, 14 Islamic stocks were selected as the research samples. Based on described research model (Figure.1), analytical data process is carried out by program Microsoft Excel as a data analysis tool. The Microsoft Excel program was chosen considering the need of data analysis that can describe accurate results and easiness to operate. Microsoft Excel program are very helpful with the existence of several argument functions such as *Average*, *Sum*, *Stdev.p*, and others [20]. In addition, analytical data process using Microsoft Excel program can also present output in the form of nominal data and graphic data such as charts. So the research output can be interpreted more clearly and easily.

### 4. RESULT AND DISCUSSION

The initial process is to determine the rate of return and Riba-Based Debt Ratio (RBDR) from the sample instrument. Stock return is the comparison between the current price of stock and the stock's price in the previous period or commonly known as Capital Gain/Capital Loss [21]. Meanwhile, the RBDR is a financial requirement by IDX as a condition that a registered stock can be categorized as Islamic stock when the ratio owned by the firms issuing Islamic stock is not more than 45% [3], where this ratio is a percentage between the amount of riba-based debt and its total assets. The calculation results of the rate of return and RBDR for each instrument during the 2014-2018 period are shown as follows:

Table 1. Return on year calculated value

	ADRO	AKRA	ASII	BSDE	ICBP	INDF	KLBF	PGAS	SMGR	SMRA	TLKM	UNTR	UNVR	WIKA
2014	-4,59%	-5,83%	9,19%	39,92%	28,43%	2,27%	46,40%	36,36%	14,49%	94,87%	33,26%	-8,68%	24,23%	132,95%
2015	-50,48%	74,15%	-19,19%	-0,28%	2,87%	-23,33%	-27,87%	-54,25%	-29,63%	8,55%	8,38%	-2,31%	14,55%	-28,26%
2016	229,13%	-16,38%	37,92%	-4,17%	27,26%	53,14%	14,77%	-1,64%	-19,52%	-19,70%	28,18%	25,37%	4,86%	-3,48%
2017	9,73%	-28,50%	0,30%	-1,45%	3,79%	-3,79%	11,55%	-35,19%	7,90%	-28,68%	11,56%	66,59%	44,07%	-34,32%
2018	-34,68%	-7,93%	-0,90%	-26,18%	17,42%	-2,30%	-10,06%	21,14%	16,16%	-14,81%	-15,54%	-22,74%	-18,78%	6,77%

and,

Table 2. RBDR on year calculated value

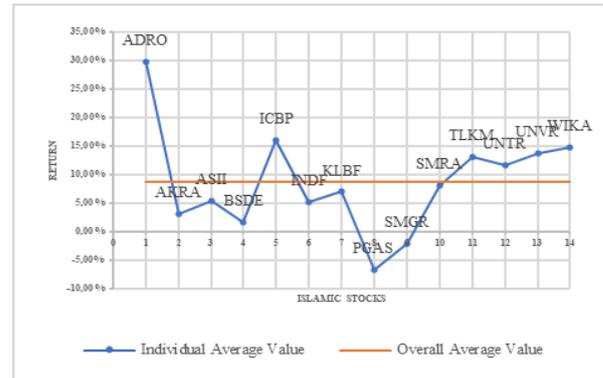
	ADRO	AKRA	ASII	BSDE	ICBP	INDF	KLBF	PGAS	SMGR	SMRA	TLKM	UNTR	UNVR	WIKA
2014	30,28%	6,24%	15,88%	5,41%	10,54%	26,69%	2,38%	7,61%	16,92%	17,55%	9,99%	1,26%	8,75%	18,64%
2015	26,30%	5,81%	14,16%	5,71%	20,38%	28,09%	2,88%	19,30%	16,93%	19,84%	20,83%	0,41%	10,81%	11,32%
2016	20,91%	4,62%	9,66%	1,16%	16,96%	25,78%	1,84%	18,01%	20,14%	23,76%	17,70%	0,48%	14,29%	15,03%
2017	18,96%	7,80%	8,51%	3,44%	5,93%	19,98%	1,88%	5,34%	15,61%	21,70%	17,87%	5,51%	18,25%	14,06%
2018	17,78%	11,86%	9,63%	6,96%	5,16%	23,25%	1,81%	6,55%	12,99%	24,92%	21,38%	8,39%	2,36%	7,09%

The next step is calculating the average value of both the Return and RBDR criteria. According to Hartono [21] the average value is one of the methods used in calculating expected returns based on historical data, where this method is widely used if the return data does not have clear patterns and trends. On this step, data calculation is carried out by using the argument function in Microsoft Excel, namely 'Average' to determine the average rate of return and RBDR for each Islamic stock instrument. The results of the calculation are shown as follows:

**Table 3.** Average value of return and RBDR

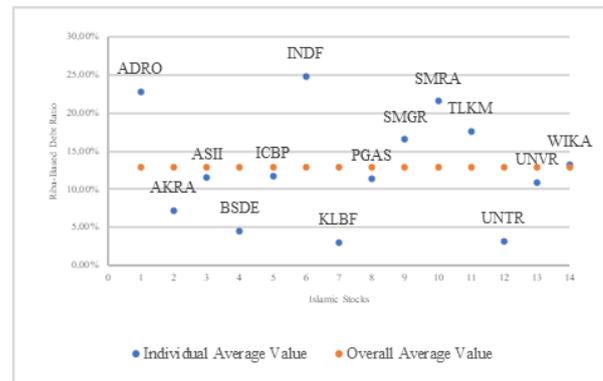
t	Stock Code	Return Average	RBDR Average
1	ADRO	29,82%	22,85%
2	AKRA	3,10%	7,27%
3	ASII	5,46%	11,57%
4	BSDE	1,57%	4,54%
5	ICBP	15,95%	11,79%
6	INDF	5,20%	24,76%
7	KLBF	6,96%	3,07%
8	PGAS	-6,71%	11,36%
9	SMGR	-2,12%	16,52%
10	SMRA	8,05%	21,55%
11	TLKM	13,17%	17,55%
12	UNTR	11,65%	3,21%
13	UNVR	13,79%	10,89%
14	WIKA	14,73%	13,23%

In the next step, we conduct a comparison from independent-average value of each sample of Islamic stocks with the overall average of both the Return and RBDR levels. This step is conducted to determine which sample(s) of stocks that have the performance regarding criteria's requirement. We assume that the first criteria of the average independent return value for each stock is higher than the average value of the entire selected sample. The second criteria will be fulfilled if the average individual RBDR value is smaller than the overall average value. Based on the results of individual average calculations of Return and RBDR, we found out that the Overall Average value of each criteria are 8.62% for Return and 12.87% for RBDR. The comparison results of those criteria can be seen on the chart as follows:



**Figure 2.** Return performance comparison

and,



**Figure 3.** RBD ratio performance comparison

After two of graphs for each of the return criteria and RBDR are successfully formed, the next step is to reduce the average value both of the graphs to the *x-axis* and *y-axis*. This step is conducted by determining the new point of the return value and RBDR with the following equation:

$$R_q = \bar{R}i - \bar{R}t \tag{3}$$

Where:

- $R_q$  : New Point Value of Return
- $\bar{R}i$  : Individual Average Return of Stock *i*
- $\bar{R}t$  : Overall Average Return

and,

$$U_q = \bar{U}i - \bar{U}t \tag{4}$$

Where:

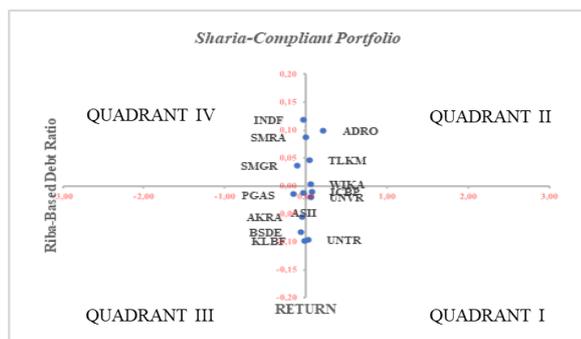
- $U_q$  : New Point Value of RBDR
- $\bar{U}i$  : Individual Average RBDR of Stock *i*
- $\bar{U}t$  : Overall Average RBDR

The equation above then applied by using Microsoft Excel program and generated a new point value from each criterion, both of Return and RBDR for each sample of Islamic stocks. The result can be seen as follows:

**Table 4.** New point value of return and RBDR

No.	Stock Code	New Point Value (R)	New Point Value (RBDR)
1	ADRO	0,21	0,10
2	AKRA	-0,06	-0,06
3	ASII	-0,03	-0,01
4	BSDE	-0,07	-0,08
5	ICBP	0,07	-0,01
6	INDF	-0,03	0,12
7	KLBF	-0,02	-0,10
8	PGAS	-0,15	-0,02
9	SMGR	-0,11	0,04
10	SMRA	-0,01	0,09
11	TLKM	0,05	0,05
12	UNTR	0,03	-0,10
13	UNVR	0,05	-0,02
14	WIKA	0,06	0,00

Based on Table 4 data, Sharia-compliant portfolio quadrant was built by combining the *x-axis* (Return) and the *y-axis* (RBDR).



**Figure 4.** Sharia-Compliant portfolio quadrant

Where Quadrant-I is a collection of stocks that fulfilled the good Return and low rate of RBDR criteria, so it is selected as a Sharia-Compliant Portfolio.

**Table 5.** Category of Sharia-Compliant portfolio quadrant

Category	QUADRANT I	QUADRANT II	QUADRANT III	QUADRANT IV
Criteria	Good Return with Low Rate of RBDR	Good Return with High Rate of RBDR	Low Return with Low Rate of RBDR	Low Return with High Rate of RBDR
Stocks	ICBP, UNTR, UNVR	ADRO, TLKM, WIKA	AKRA, ASII, BSDE, KLBF, PGAS	INDF, SMGR, SMRA

Based on the results of the portfolio containing 3 islamic stocks in Quadrant-I, the portfolio returns value and the standard deviation of each stock are calculated using monthly return data for the 2014-2018 period or 60 months. To simplify this calculation, the argument functions average and

stdev.p are used within assistance of the Microsoft Excel program. This step is conducted so that performance of the portfolio that has been formed can be measured. The calculation of the return value and standard deviation of this portfolio is carried out with the assumption that investors distribute their funds equally among the 3 Islamic stocks in Quadrant-I, which are 33% from the total investment funds.

**Table 6.** Portfolio's return and St. deviation

Portfolio	Return	St. Deviation
Sharia-Compliant Portfolio	1,11%	3,90%

The next process is conducted in order to measure the portfolio performance. However, before measuring portfolio performance, the return value and standard deviation of benchmark instruments and risk-free instruments such as IHSG and SBIS are required, considering that the possibility of Bank Indonesia not paying compensation is very small. The return values and standard deviation of the IHSG and SBIS are as follows:

**Table 7.** Benchmark instruments return and St. deviation

Benchmark Instruments	Return	St. Deviation
IHSG	0,67%	3,05%
SBIS	0,53%	0%

In addition, Beta ( $\beta$ ) value and Alpha ( $\alpha$ ) value from the Sharia-compliant portfolio are also needed to support the measurement of its performance. This process is conducted by regressing portfolio returns and market returns. The regression results can be seen in the table as follows:

**Table 8.** Portfolio's Beta and Alpha

Portfolio	Beta ( $\beta$ )	Alpha ( $\alpha$ )
Sharia-Compliant Portfolio	0.8041	0,0047

Then the performance measurement is carried out using three main methods, namely Sharpe, Treynor and Jensen. The results of measuring the performance of the three methods are described as follows:

• *Sharpe's Measure*

Sharpe's measurement is conducted by comparing the value of portfolio return and risk-free instrument return with standard deviation of portfolio. The higher result of the Sharpe measurement value, means a good portfolio performance [20]. According to Bodie et al. [22] the equation of Sharpe's measure as follows:

$$S = \frac{\bar{r}_p - \bar{r}_f}{\sigma_p} \tag{5}$$

Where:

- $S$  : Sharpe's measure
- $\bar{r}_p$  : Portfolio's Return
- $\bar{r}_f$  : Risk Free Instrument's Return
- $\sigma_p$  : Portfolio's St. Deviation

**Table 9.** Sharpe measurement result

	<i>Sharia-Compliant Portfolio</i>
<b>Sharpe Portfolio</b>	0,14747736
<b>Sharpe Market</b>	0,04484726

The results of the first portfolio performance measurement through the Sharpe method show a higher portfolio value of 0.1475 compared to the market value of 0.0448. That means the performance of Sharia-compliant portfolio is classified as good performance [22].

• *Treynor's Measure*

Treynor method is almost the same as the Sharpe method but differs from the comparison instrument, where the comparison used is portfolio's beta value. Same as the Sharpe method, the higher result of the Treynor measurement value, means a good portfolio performance. According to Bodie et al. [22] the equation of Treynor's measure as follows:

$$T = \frac{\bar{r}_p - \bar{r}_f}{\beta_p} \tag{6}$$

Where:

- $T$  : Treynor's measure
- $\bar{r}_p$  : Portfolio's Return
- $\bar{r}_f$  : Risk Free Instrument's Return
- $\beta_p$  : Portfolio's Beta

**Table 10.** Treynor measurement result

	<i>Sharia-Compliant Portfolio</i>
<b>Treynor Portfolio</b>	0,00715560
<b>Treynor Market</b>	0,00136768

The results of performance measurement based on the Treynor method show a higher portfolio value of 0.0072 compared to the market value of 0.0014. That also means that the performance of Sharia-compliant portfolio is classified as a portfolio with good performance good performance [22].

• *Jensen's Measure*

Jensen method is conducted to determine how much the portfolio's performance to generate returns above the market return. In simple terms, Jensen method is carried out by measuring the alpha value ( $\alpha_p$ ) [20]. Result of Jensen method is considered as portfolio with good performance if the portfolio's alpha produces a positive value.

**Table 9.** Jensen measurement result

	<i>Sharia-Compliant Portfolio</i>
<b>Jensen's alpha (<math>\alpha_p</math>)</b>	0,00465404

The results of the last measurement carried out by Jensen's method shows that portfolio has a positive alpha ( $\alpha_p$ ) value of 0.0047, which means that the performance of Sharia-compliant portfolio can be classified as a good performance portfolio [20].

Based on the results of data analysis using Microsoft Excel program, we found out that the output of Sharia-Compliant Portfolio is dissimilar with conventional stock portfolios in general stances, where the quadrant of the portfolio in this study not only describe stock performance based on the rate of return but also could describe the implementation-level of Sharia principles owned by the firms issuing Islamic stock. This is important for investors considering that there are differences on policy between various countries regarding degree of tolerance on the proportion of riba-based debt ratio owned by the firms issuing Islamic stock as a risk in the Islamic financial industry [23]. The calculation of the return and standard deviation of the Sharia-compliant portfolio shows the result of each 1,11% and 3,90%. Although this return's value is not yet optimized, according to Derigs and Marzban [5] that addition of Sharia criteria will have an impact on reducing portfolio performance. However, the level of risk faced is also classified as lower, which is in line with the statement

of Basov and Bhatti [24] that Sharia restriction also has several benefits as it can reduce excess risk.

## 5. CONCLUSION

This research presents, as the best of our knowledge, the first Sharia-compliant portfolio that used the criteria for riba-based debt ratio as a measurement of the Sharia principles' implementation in the selection of Islamic stocks, especially those listed on the Indonesia Stock Exchange (IDX). Based on the built-model, we found out a portfolio quadrant that describes the performance of each stock group based on return criteria and riba-based debt ratio criteria. Quadrant-I is a group of stocks selected as a portfolio containing stocks that comply with Sharia principles, where this group of stocks has a good return and degree Sharia principles' implementation. The main concern of this model is to provide investors with the best portfolio returns while still paying attention to the application of criteria that are under Sharia principles. For this reason, this research can also be developed in a longer data period, so that the results of the analysis can be more comprehensive. Thus, optimal portfolio analysis using the solver technique in Microsoft Excel can also be utilized to provide more ideal proportion so that the performance of this portfolio can be maximized.

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