Comparative Analysis of Investment Risk and Return in Crypto Currency, LQ-45 Index Shares, Exchange Rates and Gold during the Covid-19 Pandemic

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Abstract

The purpose of this study is to determine the return and risk conditions between investments in the form of crypto currency, LQ-45 Index shares, Exchange Rates and Gold. The research period was carried out during the Covid-19 pandemic, namely from March 2020 to June 2023. The results showed that investing with Crypto Currency provided the highest return as well as risk compared to other investments studied in this study. The research results also show that there are no differences between the four investments studied. The suggestion for this research is investors should be careful in choosing the type of investment because each investment has different risks and returns and to expand the variables and research period.

Keywords: *Risk*, *Return*, *Investment.*

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A. INTRODUCTION

The Covid-19 pandemic has changed the way of life and social habits in Indonesia. The Covid-19 pandemic has also changed people's goals in life, especially in terms of allocating their funds. As a result of this pandemic, some of the funds owned by the community which previously would not have been allocated to the health sector, are now being allocated to the health sector.

The Covid-19 pandemic case was first recorded in Indonesia, namely on March 3 2020. On June 21 2023 the government officially announced that the Covid-19 pandemic had ended, but had changed to become endemic Covid-19 through Presidential Decree No. 17 of 2023 concerning Determination The end of the Covid-19 Pandemic Status in Indonesia.

Community funds that were intended for investment, but due to this incident, will no longer be allocated to the investment sector. Investment in general can be divided into two, namely real assets investment, namely tangible products and financial assets investment or investment in intangible products (Nugraha, 2019; Cornell, 2021). One example of real assets investment is gold. Gold is categorized as a tangible asset because investment in gold can be seen in its shape and form. Meanwhile, examples of financial assets investment are crypto currency, shares and exchange rates between currencies (Kong & Lin, 2021; Sagi, 2021).

During Covid-19, domestic share prices fell significantly, including LQ-45. LQ-45 is the leading index on the IDX. The index consists of 45 stocks with the largest and

most liquid capitalization levels, as well as the largest portion of share ownership. Before Covid-19 entered Indonesia, the LQ-45 index was able to grow by 3.23% at the end of 2019 (cnbcindonesia.com). After the arrival of Covid-19 in Indonesia in February 2020, several shares that were part of the LQ-45 experienced a decline of 15%. This clearly has an impact on the Indonesian economy which will affect stock trading in Indonesia, so that this will influence investor reactions and also affect the market situation on the Indonesian Stock Exchange as a whole (Khoiriah, 2020).

From the tests carried out by (Made, 2020) it was concluded that the rupiah exchange rate was significantly affected by the implementation of the PSBB during the Covid-19 pandemic, namely starting from the beginning of 2020. These significant changes tended to move in a negative direction or in other words changes this significant decline in the rupiah exchange rate against the US dollar. The decline in the rupiah exchange rate against the US dollar after the PSBB announcement.

Precious metals or gold are practical and easy investments for anyone to make. The value of gold tends to increase even though it takes a long time to make a profit which increases over time. Gold prices tend to rise due to inflation. Inflation is a process of increasing prices and occurs continuously (Maharani & Saputra, 2021; Curtin et al., 2019). Inflation can also be interpreted as the process of decreasing the value of a currency. Gold obtained now will have a different value in the future. People's purchasing power has decreased, various systems have restricted activities, and economic centres have been closed and so on (Hagiworo, 2022; Nadeem et al., 2019).

Investment is capital investment, usually in the long term for the procurement of complete assets or the purchase of shares and other securities to obtain profits. Investment is one way to get profit or income. Risk can be interpreted as the possibility of the difference between the actual return received by investors and the expected return (Li et al., 2020; Prayuda & Kuswanto, 2019). The greater the possibility of the difference, the higher the investment risk (Kristhy, 2022; Jackson & Jackson, 2021).

Based on the background above, the research objectives can be formulated as follows:

1. To find out the development of return on investment in crypto currency, LQ-45 Index shares, exchange rates and gold during the Covid-19 pandemic in Indonesia;
2. To find out the development of crypto currency investment risks, LQ-45 Index shares, exchange rates and gold during the Covid-19 pandemic in Indonesia.
3. To find out the order of investment between crypto currencies, LQ-45 Index shares, exchange rates and gold during the Covid-19 pandemic in Indonesia.
4. To find out the differences in crypto currency investments, LQ-45 Index shares, exchange rates and gold during the Covid-19 pandemic in Indonesia.

B. LITERATURE REVIEW

1. Investment

Investment can be interpreted as placing capital in one or more assets and for a certain period of time with the hope of getting a return in the future (Ni, 2021; Kaiser & Freybote, 2022). Investment is also said to be a commitment of a sum of money or other resources that is currently (present time) with the hope of obtaining benefits in the future (in the future). Investments are categorized into 3 types, namely short, medium and long term investments as well as investments in real assets and non-real assets. Assets classified as real assets are land, gold, property, while those in the form of financial assets are various forms of securities such as stocks, bonds, mutual funds, warrants, options and futures as well as international equities (Tandelilin, 2010; Bodie, Kane, & Marcus, 2014).

2. Crypto Currencies

Investment in crypto currencies in recent years has been in great demand in various circles, especially among millennial. Crypto currencies are increasingly popular because investors see crypto currencies as the currency of the future and race to buy now before the value of the crypto currency becomes higher. Crypto currency trading has been legalized as a commodity by the Commodity Futures Trading Supervisory Agency (Badan Pengawas Perdagangan Berjangka Komoditi) with the issuance of Bappebti No. 7 of 2020 which regulates the types of crypto assets that can be traded on the physical crypto asset market. Investing in crypto currency can be done by buying and selling on an exchange that functions as a marketplace. Namely platforms (places) that bring buyers and sellers together until there is an exchange of crypto assets. Investing in crypto currencies can be done by investors without intermediaries where direct transactions occur between investors. The type of crypto currency that has a large transaction volume is bitcoin.

3. LQ45 Index

The LQ45 index is a stock that is in great demand by investors and is one of the stock index indicators on the IDX which can be used as a reference for assessing stock trading performance (Nurhartanti, 2013) in (Ahmad, 2018). The LQ45 stock is a market index containing 45 issuers, launched in February 1997. A total of 45 issuers were selected based on liquidity, market capitalization (number of shares times price, the total value of a company), and also predetermined criteria.

4. Exchange Rate

The exchange rate of a country's currency or exchange rate is a measurement tool that is able to describe the economic condition of a country. The exchange rate is a benchmark for how much a country's money is worth when compared with the value of other countries' money, in this case using the United States dollar. According to Sukirno (2016) the foreign exchange rate or foreign exchange rate shows the price or value of a country's currency expressed in terms of the value of another country's

currency. Foreign exchange rates are defined as the value of one currency against another (Umar, Muhammad & Gang Sun, 2016). The foreign exchange rate can also be defined as the amount of domestic money needed, namely the number of rupiah needed to obtain one unit of foreign currency. Exchange rates can be influenced by several factors, one of which is investor sentiment in particular, and public sentiment in general (Made, 2020).

5. Gold

According to Dipraja (in Mahessara & Kartawinata (2018)), gold is always referred to as the Barometer of Fear. Gold has advantages compared to other metals because it is different from other metals which easily rust, change colour or fade. These natural properties cause the value or price of gold to be very valuable. When a recession occurs, people usually allocate their funds to buy gold to protect the value of their wealth. Two types of economic situations that make people anxious are inflation and deflation. Gold has been proven as a means of storage to maintain wealth against both deflation and inflation.

6. Return on Investment

The main reason people invest is to make a profit. In the context of investment management, the level of investment profit is referred to as return. The concept of risk and return by Markowitz (1995) by introducing a model in which investors must focus on two things, namely the expected return of an asset and the risk that can be seen through the standard deviation of the return on the asset. Return can be categorized into two, namely actual return and expected return. According to Fahmi (2015), returns are one of the reasons that motivate investors and are also a response to investors' courage in taking risks on their investments.

7. Investment Risk

Risk can be interpreted as the possibility that the actual return is different from the expected return. Investors who have an averse attitude towards risk are called risk-averse investors. Investors like this will not want to take the risk of an investment if the investment does not provide an expectation of a proper return as compensation for the risk that must be borne by the investor. Conversely, investors who are willing to take risks in investing are called risk-taker investors.

The investor's attitude towards risk will depend heavily on the investor's preference for risk. Investors who are more daring will choose a higher investment risk, which is followed by expectations of a high rate of return as well. And vice versa, investors who do not want to take risks that are too high, of course, will not be able to expect too high a rate of return.

Risk calculation can be done by calculating the standard deviation (σ) of the return. According to Jones (2016), risk is the level of potential loss that will arise because the actual return does not match the expected return. Every investment

decision is related to risk because investment decision tools are not always complete and can be considered perfect.

C. METHOD

The population used in this research is the closing price at the end of each month of Crypto Currency, which in this case is represented by Bitcoin, LQ-45 Index shares, the USD Dollar Exchange Rate against Rupiah and Gold during the period of the Covid-19 pandemic. The measurement period for the Covid-19 pandemic begins when the first person infected with Covid-19 was announced, namely in March 2020 until the government through Presidential Decree No. 17 of 2023 announced that the Covid-19 pandemic had become endemic. The data used in this research was 164 data. The sampling technique in this research is a saturated sampling technique, meaning that this research takes all monthly closing prices of Bitcoin, LQ-45 Index shares, Exchange Rates and Gold, which has 41 data from each instrument so that a total of 164 observations are obtained.

The operational definition of variables in this study, namely: 1) Returns, The comparison of return period t with period t-1; 2) Standard Deviation (Risk), That is the statistical value that measures the deviation of the dataset relative to the mean and is calculated as the square root of the variance.

In this research, the type of data used is secondary data obtained from the site www.yahoofinance.com which includes historical data on the closing prices of Bitcoin, LQ45 shares, exchange rates and gold. The data obtained is quantitative data which is data in the form of numbers or numbers and the nature of this data is time series data. The analysis techniques used in this research are descriptive analysis and comparative analysis. The closing price data for each instrument is processed using the Microsoft Excel program to obtain the value of each variable. Next, the value of each variable is processed using the SPSS application using the Kruskall-Wallis test.

D. RESULT AND DISCUSSION

1. Descriptive Analysis

Descriptive analysis is a fundamental component of statistical analysis and data exploration. Its primary purpose is to summarize and present data in a meaningful way, allowing researchers, analysts, and decision-makers to gain insights, detect patterns, and understand the basic characteristics of a dataset.

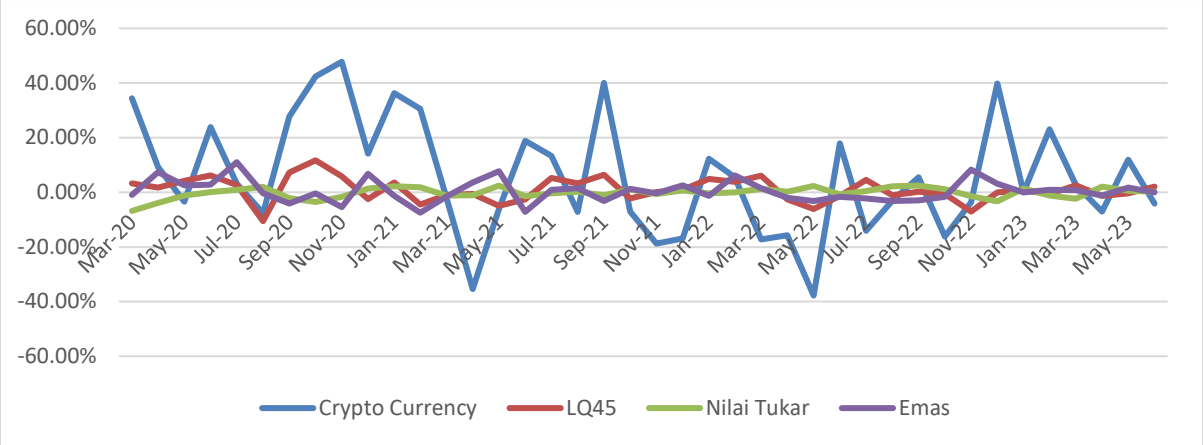


Figure 1. Crypto Currency returns compared with the LQ-45 Index, Exchange Rates and Gold (March 2020-May 2023)

Based on the image above, it can be seen that returns from crypto currency have the highest fluctuations when compared with the LQ-45 Index, Exchange Rates and Gold.

a. The average monthly return of crypto currency, which in this case is represented by bitcoin, was 5.94% during the research period, namely March 2020 to June 2023. The highest monthly return was 47.77% which occurred in November 2020, while the lowest return (loss) was - 37.77% which occurs in May 2022
b. The average monthly return of LQ-45 Index shares was 0.93% during the research period, namely March 2020 to June 2023. The highest monthly return was 11.71% which occurred in October 2020, while the lowest return (loss) was -10.56% which occurred in August 2020
c. The average monthly return on the exchange rate was -0.18% during the research period, namely March 2020 to June 2023. The highest monthly return was 2.46% which occurred in May 2021, while the lowest return (loss) was -6.80% which occurred in March 2020
d. The average monthly return on gold was 0.49% during the research period, namely March 2020 to June 2023. The highest monthly return was 11.03% which occurred in July 2020, while the lowest return (loss) was -7.45% which occurred in February 2021.

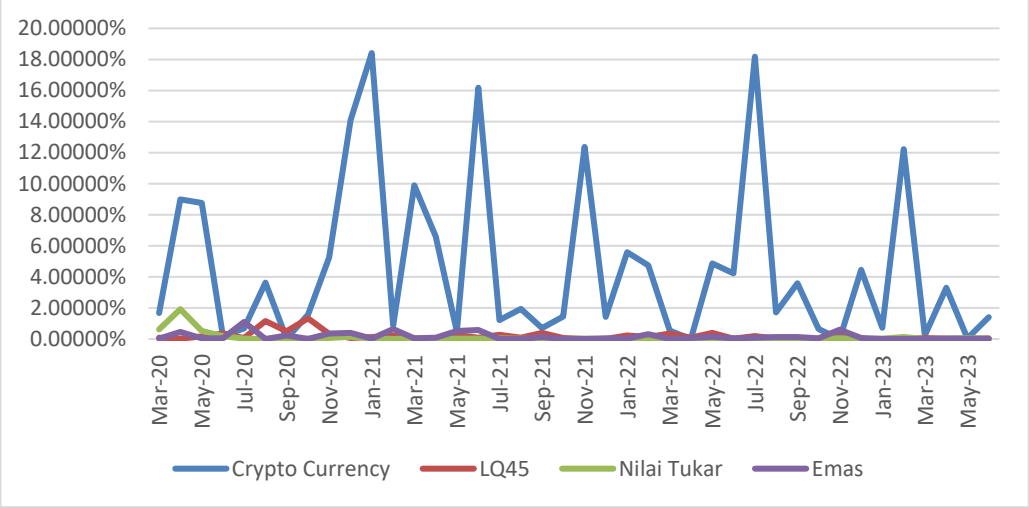


Figure 2. The Risk Value (standard deviation) of crypto currency investments compared to LQ-45 Index, Exchange Rate and Gold stocks (March 2020-May 2023)

Based on the picture above, the risk value (standard deviation) of crypto currency investments is very high when compared to LQ-45 Index, Exchange Rate and Gold stocks.

a. The average risk value of cryptocurrency represented by bitcoin is 4.34% during the study period, namely March 2020 to June 2023. The highest risk value is 18.41% which occurs in November 2020, while the lowest risk is 0.00319% occurring in February 2022
b. The average risk value of LQ-45 Index shares is 0.19% during the study period, namely March 2020 to June 2023. The highest risk value is 1.33% which occurs in October 2020, while the lowest risk is 0.00008% occurring in September 2022
c. The average risk value of the exchange rate is 0.04% during the study period, namely March 2020 to June 2023. The highest risk value is 0.51% which occurs in March 2020, while the lowest risk is 0.00015% occurring in July 2022
d. The average risk value for gold is 0.16% during the study period, namely March 2020 to June 2023. The highest risk value is 1.10% which occurs in July 2020, while the lowest risk is 0.00067% occurring in March 2023.

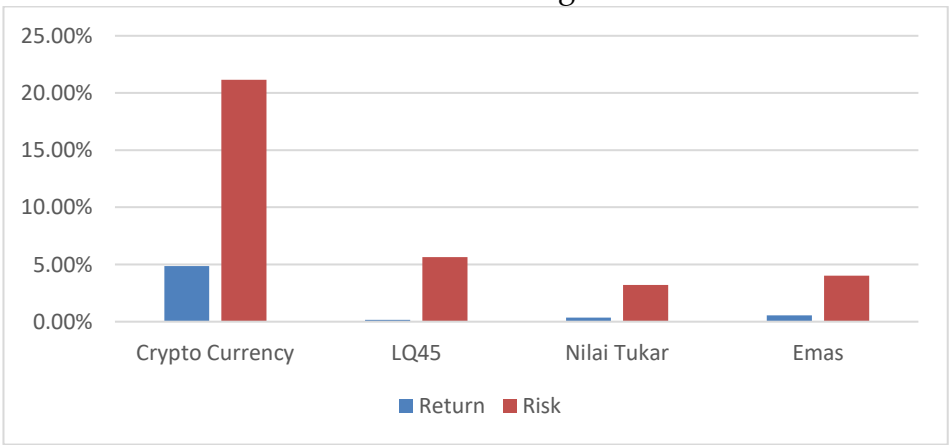


Figure 3. The Average Return and risk conditions between crypto currency, LQ-45 index shares, USD exchange rate against the Rupiah and gold prices

The image above is an image that shows the average return and risk conditions between crypto currency, LQ-45 index shares, USD exchange rate against the Rupiah and gold prices.

The highest return among the four variables studied was the return from crypto currency using bitcoin, which was 4.87%. The second highest return is investment using gold, namely 0.55%. The third highest return is the return from investment in the form of the USD exchange rate against Rupiah with a value of 0.36%, while the lowest return is the return from investment using LQ-45 Index shares with a return of 0.17%.

The highest risk among the four investments studied is the risk of crypto currency using Bitcoin at 21.15%. The investment with the next highest risk is investment using LQ-45 Index shares at 5.64%. The third highest risk is investment with the variable studied being 4.02% and the investment with the lowest risk is investment using the USD to Rupiah exchange rate variable.

2. Kruskall-Wallis Test

The Kruskal-Wallis test is a non-parametric statistical test used to determine whether there are significant differences between three or more independent (unrelated) groups or treatments. It is an extension of the Wilcoxon-Mann-Whitney test, which is used for comparing two independent groups. The Kruskal-Wallis test is often employed when the assumptions of parametric tests like ANOVA (Analysis of Variance) are not met, particularly when the data does not follow a normal distribution or when the data consists of ordinal or ranked values.

Table 1. ANOVA Test Result

Ranks

	Kelompok	N	Mean Rank
Variabel	BITCOIN	36	116.90
	LQ45	36	67.29
	NILAI TUKAR	36	38.76
	EMAS	36	67.04
	Total	144	

Based on the table above, it can be concluded that the highest ranking is crypto currency using bitcoin. The second rank is investment using LQ-45 shares. The third position is investment using gold and the last or lowest position is investment in the form of exchange rates.

Table 2. Kruskall-Wallis Test Result

Test Statistics[a,b]

	Variabel
Kruskal-Wallis H	65.518
df	3
Asymp. Sig.	.847

a. Kruskal Wallis Test

b. Grouping Variable: Kelompok

Based on the Kruskall Wallis ranking test table, it can be seen that the significance value of 0.847 is greater than the set alpha of 0.05. Then this result can give the meaning that there is no difference between the four variables studied.

Investment during the Covid-19 pandemic in Indonesia, namely in the period March 2020 to June 2023, provided different returns and risks for each variable studied. Investments using crypto currency provide the highest returns, namely 4.87%, but also provide the greatest risk, namely 21.15%. Investors who have the courage to take risks (risk takers) will usually invest in this product because it provides the highest return, but at the same time provides the highest risk too.

Investing using LQ-45 Index shares apparently provides the lowest return of 0.17%, but carries a large risk of 5.64%. So it can be seen that returns are lower than the risks faced by investors during the Covid-19 pandemic in Indonesia.

Likewise with the returns and risks faced by investors who invest in foreign currency and gold. They face higher risks compared to the expected returns. The results of the Kruskall Wallis test show that there is no difference between the four variables studied. Investments using crypto currency, LQ-45 Index shares, and the USD exchange rate against the rupiah and gold investments apparently provide returns and risks that are no different. So whichever investment an investor chooses will bring different returns and risks.

E. CONCLUSION

Based on the research and discussion above, the following conclusions can be drawn: 1) Investing in crypto currency provides the highest returns when compared to LQ 45 Index shares, exchange rates and gold; 2) Investing in crypto currency also provides the highest risk compared to other variables examined in this research; 3) Crypto currency is ranked highest compared to other variables; and 4) There is no difference between crypto currency, LQ-45 Index shares, exchange rates and gold.

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