ASIAN JOURNAL OF ECONOMICS AND BUSINESS MANAGEMENT
2023, VOL. 2, NO. 1, 425 – 437
https://doi.org/10.53402/ajebm.v2i1.283

Comparison of investment in stocks, gold, and mutual funds before and during the crisis due to the Covid-19 pandemic in Indonesia

M. Syah Utama Zufa*
Tri Joko Prasetyo

Accounting Department, University of Lampung, Indonesia

ABSTRACT

Wuhan, China was the epicenter of the virus epidemic known as COVID-19. The developing COVID-19 issue affects the finances of numerous nations, including Indonesia. The government is taking precautions against the spread of COVID-19 by encouraging people to stay home, decrease their movement, avoid crowded places, and add PSBB in 2020 and PPKM in 2021. This study compared the return and risk of stocks, gold, and mutual funds before and after the COVID-19 pandemic, which happened as a result of a crisis occurrence. The data used spans from January 2015 through December 2022 and includes the LQ45 Index's ending price as retrieved from idx.co.id, Antam's gold price as seen on Logammulia.com, and the primary NAV/unit of Manulife mutual funds as seen on Bareksa's official website, Bareksa.com. By using the One-Way ANOVA test followed by the Tukey HSD follow-up test, the result was that before the Covid-19 pandemic there were differences in returns and risks between investment in stocks, gold and mutual funds where before Covid-19 stocks were investments that had the highest returns and risks. Then, It was found that during the pandemic there were differences in returns and risks between stock, gold, and mutual fund investments, with mutual fund investments having the highest return and risk. his research is limited by the fact that only stocks, gold, and mutual funds were examined, with equity mutual fund statistics from Manulife Saham Andalan used for mutual funds. This study focuses on the time of the crisis brought on by the COVID-19 pandemic, but it is anticipated that future studies will be able to incorporate additional investment tools.

KEYWORDS

Before Covid-19; During Covid-19 Return; Risk; Stocks; Gold, Mutual Funds

Received: 7 February 2023
Accepted: 15 March 2023
Published: 22 March 2023

Introduction

The emergence of the Covid-19 pandemic from China impacted the world, including Indonesia, which resulted in an unstable economy in Indonesia. The government is implementing preventive measures by imposing PSBB in 2020 and PPKM in 2021 to prevent the spread of Covid-19. In a crisis, investors generally consider the impact that might occur on their investment. Investment is investing a portion of funds in tangible assets such as land and gold or financial assets such as stocks, mutual funds and bonds to obtain future benefits (Tandelilin, 2010).

The Indonesia Stock Exchange is where stock buying and selling transactions occur in Indonesia. The IDX provides information on an ongoing basis to investors regarding stock conditions. On the idx.co.id page, it is known that the Indonesia Stock Exchange has several indices showing stock market conditions, including the JCI and LQ45. According to Hartono (2017), the Composite Stock Price Index (IHSG) consists of companies listed on the Indonesia Stock Exchange stock price movements. In Indonesia, the capital market is included in the class of capital markets where transactions are minimal because most are not actively traded. Therefore, the JCI is an index that describes all listed companies, which is considered insufficient to describe in more detail. Then, the LQ45 index is presented as an alternative where the companies included in this index consist of 45 companies whose shares are most actively traded (Hartono, 2017). To see the movement of the LQ45 index before and during Covid-19 found on the idx.co.id page, it is known that the LQ45 in 2020 has decreased compared to 2019. In December 2019, the LQ45 index was at 1014.47 until finally, in 2020 fell drastically to 691.12. This could be caused by the concerns of market players in dealing with the Covid-19 virus outbreak, resulting in panic selling by investors causing the LQ45 index to fall and become unstable.

In addition to stocks, there are other types of investment, namely mutual funds. As reported on the official website of the Financial Services Authority (OJK), namely ojk.go.id, mutual funds are a forum for collecting public funds, which are carried out and managed by legal entities, in this case, investment managers, to then invest in securities such as bonds, Bank Indonesia certificates, and stocks. There are four types of mutual funds: money market mutual funds, fixed-income mutual funds, mixed mutual funds, and equity mutual funds (Savitri, 2020). Equity mutual funds are mutual funds that place at least 80% of their funds in stocks, and the remaining 20% is transferred to the money market. One of the stock mutual fund products is manulife saham andalan mutual funds, reported by bareksa.com. Mutual funds managed by Manulife Aset Manajemen Indonesia are mutual funds that aim to generate

CONTACT M. Syah Utama Zufa syahutamaz@gmail.com

increased capital by investing in the shares of several companies engaged in well-positioned sectors. On the stock exchange and provide long-term investment performance. To see the movement of the NAV/Unit of the manulife saham andalan mutual funds before and during Covid-19 that is found on the bareksa.com page, and it is known that the NAV/Unit during Covid-19 in 2020 has decreased compared to 2019. As of December 2019, NAV/Unit The Manulife Saham Andalan mutual funds was 1911.64 until finally 2020; it decreased to 1238.72 in March 2020.

Apart from stocks and mutual funds, there is a type of investment considered safe: gold. Gold as a type of tangible investment that is safe to invest in was reported from the idxchannel.com page that gold investment is relatively popular in Indonesia because it is considered safe and can maintain the rupiah exchange rate and inflation. When the Covid-19 pandemic emerged in 2020, stocks and mutual funds declined, experiencing massive corrections, while the price of gold increased. To see the movement of gold prices, you can see on the metalmulia.com page, and it is known that gold bars per gram at the end of 2019 amounted to IDR 771,000/gram and during Covid-19 in 2020 it experienced a high increase reaching IDR 1,027,000/gram. This contrasts the LQ45 and manulife saham andalan mutual funds, which showed a decline, and gold soared.

Investors invest in the stock market to look at economic conditions and company performance, which is reflected in stock prices. If conditions are good and the company's performance is good, the company's stock price will increase, increasing the return received. Conversely, if the conditions are not good and the company's performance is not good, the stock price will decrease, resulting in reduced returns received. Unfavourable conditions will increase the price or demand for gold because gold has a safe value (Savitri, 2020). Research conducted by Lim & Wijaya (2013) suggests that during the 2008 global financial crisis, gold was a better type of investment than LQ45, JII, and KOMPAS 100 during the crisis. At the time after the crisis, LQ45, JII, and KOMPAS 100 were better types of investment than gold because, during a crisis, stocks had a lower return than gold. Research conducted by Akhtaruzzaman et al. (2021) also said that the pandemic impacted human health and the financial market; it was found that gold played a good role as a safe-haven asset.

In investing in any investment instrument, be it stocks, gold, or mutual funds, investors aim to make a profit, in other words, to get some money in the future. According to Tandelilin (2010), the basis for investment decisions is return and risk. Return is the result obtained from investment activities (Hartono, 2017). Return is a reasonable thing to consider by investors for the number of funds invested, and it is also natural if investors expect the highest return. However, it should be noted how much risk. The greater the risk, the greater the desired rate of return (Tandelilin, 2010). Based on the description of the three types of investment above, namely stocks, gold, and manulife saham andalan mutual funds, of course, investors are faced with the right investment choices in times of crisis, so researchers are interested in researching to be able to test differences in returns on investment in stocks, gold, and mutual funds before the crisis due to the Covid-19 pandemic, in being able to test the difference in risk in stock, gold and mutual fund investments before the crisis due to the Covid-19 pandemic, to be able to test the difference in returns on investment in stocks, gold and mutual funds during the crisis due to the Covid-19 pandemic, and to be able to test the difference in risk in investing in stocks, gold and mutual funds during a crisis due to the Covid-19 pandemic.

Literature review

Consumption

According to Mankiw (2007), consumption is the purchase of goods and services by households, including equipment, vehicles, basic needs, and educational expenses. The consumption pattern of each individual is different from others, where a person will arrange his consumption needs based on the priorities of each individual. Consumption and investment are two interrelated activities, and the postponement of current consumption can be interpreted as an investment for consumption in the future. With the resources owned, households consume to get satisfaction or utility (Hartono, 2017). How do households determine what proportion of their income is for consumption now and how much income will be allocated for the future.

Investment

According to Savitri (2020), investment means using current income to generate more. Investment is a form of wanting to invest a portion of funds in tangible assets, for example, land and gold or financial assets, namely stocks, mutual funds and bonds that are currently being made with the desire to gain profits or returns in the future (Tandelilin, 2010). Technically, anything that generates a return is considered an investment. Investments are often associated with or refer to higher returns such as stocks and mutual funds. Expenditures made by households, namely consumption as a form of need to meet current needs, while spending on investment aims to improve living standards in the future (Mankiw, 2007). According to Hartono (2017), there are various types of financial investments as follows:

1. Direct investments, namely investments made by directly buying assets that can be sold and bought individually, such as deposits, stocks, and securities, are referred to as direct investments.
2. Indirect investments, namely investments made through investment companies for investors with small capital and the need to gain sufficient knowledge and experience in making investments, are referred to as indirect investments. Ordinary investors find it challenging to invest optimally, but they can invest with the help of investment companies. In this case, it is like a stock mutual fund.

Returns

Return is the output or income you get when you invest. Furthermore, returns are divided into two types: realized returns that have occurred and expected returns for those that have not occurred but are expected to occur in the future (Hartono, 2017).

1. Realized return, or what is known as a realized return, is the level of profit that has occurred. Return realization uses historical data as a reference in its calculations. In measuring the performance of an object, realized return is considered necessary, and realized return is helpful as a basis for determining expected return and risk in the future. The measurement of realized returns often used in calculating realized returns is the total return consisting of capital gains or losses and dividends.
2. The expected return is undoubtedly different from the realized return, where the realized return is something that has happened, while the expected return has properties that have not happened. Expected return, also known as expected return, is the profit investors hope to get. Of course, in this case, the expected return is measured based on the expected future value, historical return values, and the existing expected return model.

Risks

One of the biggest fears that makes someone reluctant to invest is losing money or experiencing a loss. It must be understood that investing is not one hundred per cent safe, but it can minimize risk so that you do not experience sizable losses (Savitri, 2020). Risk is the possibility of an unexpected event (Brigham & Houston, 2019). According to Suputra (2021), the risk is systematic and non-systematic. According to Savitri (2020), several risks are often associated with the investment, including market risk, issuer risk, political and legal risk, liquidity risk, interest rate risk, and currency exchange risk.

Research concept

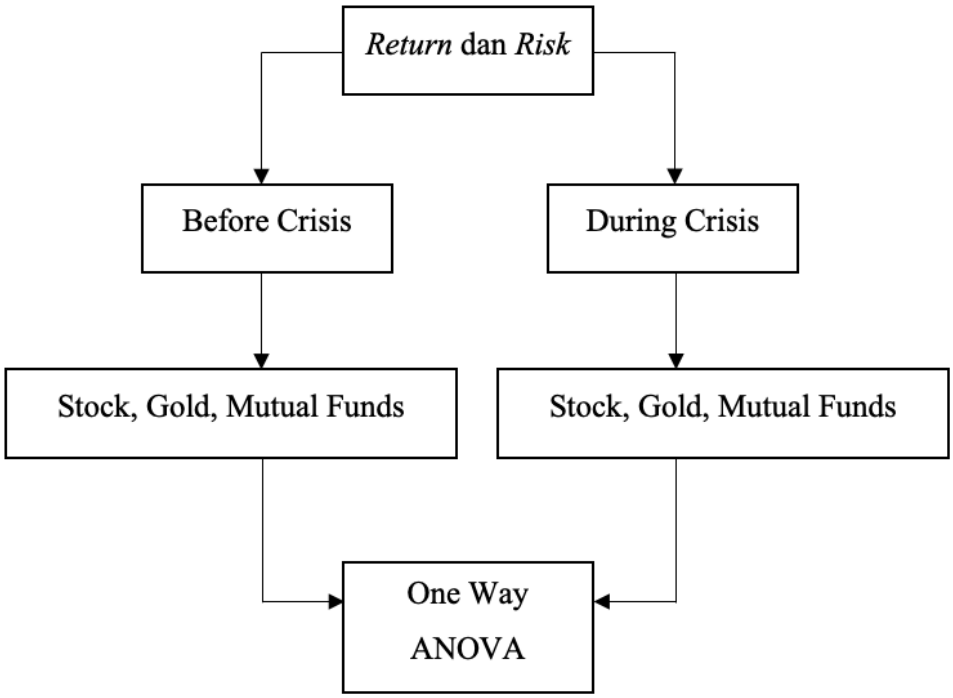

Figure 1. Research Concept

Methods

Population and sample

A population is a group that wants to generalize the results of their research (Salkind, 2018). The population of this study uses data based on the LQ45 index, gold prices, and NAV/unit of Manulife Saham Andalan Mutual Funds. According to Salkind (2018), if everyone in a population cannot be tested, then the only way is to take a sample or part of the population, and the sample is part of the population. According to Sugiyono (2013), what is meant by the sample is part of the total population. The sample used comes from the history of the LQ45 index, gold price, and NAV/unit of the Manulife Saham Andalan Mutual Fund during the observation period, start from January 2015 to December 2022. The researcher used purposive sampling as a method of sampling in this study. Below is table 1 of the research samples used.

Table 1. Research Sample

No		Notes	Amount
1	LQ45 Index	January 2015 – December 2019	60
	Gold	January 2015 – December 2019	60
	Mutual Fund (MSA)	January 2015 – December 2019	60
	Sample before *Covid-19*		180
2	LQ45 Index	January 2020 – December 2022	36
	Gold	January 2020 – December 2022	36
	Mutual Fund (MSA)	January 2020 – December 2022	36
	Sample After *Covid-19*		108
	Overall sample		288

Types and sources of data

The data type used is quantitative with a comparative research type, and the data source researchers use secondary data. Index LQ45 data obtained from the official website of the Indonesia Stock Exchange, namely idx.co.id, data on the history of Antam's gold price at Logammulia.com, and Manulife Saham Andalan Mutual Funds on the official Bareksa website, namely Bareksa.com

Operational definition of research

Return is the output or reward obtained from the investment. The formula for calculating returns using capital gains, according to Hartono (2017), is as follows:

$$R_{x1} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Notes:
Rx1 = Return / Investment Profit Rate
Pt = Current year's price
Pt-1 = Last year's price

$$\mathbf{SD} = \sqrt{\frac{\sum_{\mathbf{i=1}}^{\mathbf{n}}[\mathbf{Xi} - \mathbf{E(Xi)}]^{\mathbf{2}}}{\mathbf{n}}}$$

Risk is the possibility of an unexpected event occurring (Brigham & Houston, 2019). According to Hartono (2017) risk can be measured by the standard deviation formula as follows:

Notes:
SD = Standard Deviation
Xi = i-th value
E(Xi) = experimental value
n = large sample > 30 using n and small sample < 30 n-1

Data analysis techniques
Descriptive statistics

This research uses descriptive statistics. According to Priyatno (2017), the descriptive analysis describes statistical data such as minimum value, maximum value, mean (mean), sum, standard deviation, variance, and range. Descriptive statistics are statistics used to analyze research data in such a way as to describe and describe research data that has been collected according to conditions and as it exists without aiming to conclude (Priyatno, 2017).

Normality test

According to Priyatno (2017), conducting a data normality test is essential when using a parametric statistical test. This research is an average comparison test, so it is necessary to do a normality test first. This study used the Shapiro-Wilk normalization test. The test criterion is that the data can be said to be generally distributed if Sig > 0.05, and the data is said to be not normally distributed if Sig < 0.05. The researcher performed data transformations and outliers to produce normally distributed data as a condition for using parametric statistics, namely One Way ANOVA.

One Way ANOVA

According to Priyatno (2017), One Way ANOVA or one-way analysis of variance can be helpful to as a way if you want to test the differences between three or more independent data samples that have no relationship or connection. This test must meet the normality assumption, meaning the data must be distributed normally. Ha, who was declared accepted, had a sig value of <0.05, and Ha, declared rejected, had a sig value of > 0.05.

Results

This research was conducted using monthly data for the LQ45 Index for the period January 2015 – December 2022, monthly data for gold prices for the period January 2015 – December 2022, and monthly data for NAB/Manulife Shares Andalan Mutual Fund Unit for the period January 2015 – December 2022 as research objects. Data from these three types of investment were obtained through the official websites IDX.co.id, Logammulia.com, and baresa.com. Based on this, 180 research samples were obtained consisting of 60 LQ45 Index samples, 60 gold samples, 60 mutual fund samples used to represent the period before Covid-19 and 108 research samples were obtained consisting of 36 LQ45 Index samples, 36 gold samples, 36 samples of mutual funds used to represent the current period of Covid-19.

Descriptive statistics

Without aims to make conclusion, researchers use descriptive statistics because they are closely related to describing or providing information related to data or conditions shown, such as minimum and maximum values. The followings are the results of the descriptive statistical test of return before Covid-19 and risk before Covid-19 as well as the results of the descriptive statistical test of return during Covid-19 and risk during Covid-19 for the three types of investment shown in table 2, table 3, table 4, table 5

Table 2. Results of Descriptive Statistical of Return Before Covid-19

	Invest	N	*Min*	*Max*
Return (Before)	LQ45	60	-0.0962	0.0879
	Gold	60	-0.0467	0.0764
	Manulife Saham Andalan Mutual Fund	60	-0.0864	0.0913

(Source: data processed, 2023)

After looking at table 2 above, it can be seen that the minimum value and maximum value of return for each type of investment before Covid-19. Based on the table above, it can be seen that before Covid-19, the highest return on stocks was in December 2017 at 0.0879, which means that this type of stock investment can obtain the highest return of up to 8.79% while the lowest return on stocks is in April 2015 of -0.0962, which means that this type of stock investment has the lowest return of up to -9.62%. Gold had the highest return in August 2019 of 0.0764, which means that this type of investment in gold can obtain the highest return of up to 7.64%, while the lowest return is in October 2015 of -0.0467, which means that this type of investment in gold has a return lowest to -4.67%. In mutual funds, the highest return was in Januari 2019, which means that this type of mutual fund investment can get the highest return of 9.13%, while the lowest return was in April 2015 at -0.864, which means this type of mutual fund investment has the lowest return of up to -8.64%.

Table 3. Results of Descriptive Statistical of Risk Before Covid-19

	Invest	N	*Min*	*Max*
Risk (Before)	LQ45	60	0.0048	0.0254
	Gold	60	0.0011	0.0174
	Manulife Saham Andalan Mutual Fund	60	0.0047	0.0229

(Source: data processed, 2023)

After looking at table 3 above, it can be seen that the minimum and maximum value of the risk of each type of investment before Covid-19. Based on the table above, it can be seen that before Covid-19, the highest risk for stocks was in August 2015 at 0.0254, which means that stocks have a risk level of up to 2.54%, while the lowest risk is in September 2017 at 0.0048, which means stocks have the lowest risk of 0.48%. In gold, the highest risk was in April 2018 at 0.0174, which means gold has a risk level of up to 1.74%, while the lowest risk was in November 2015 at 0.0011, which means gold has the lowest risk of 0.11%. In mutual funds, the highest risk was in August 2015 at 0.0229, which means that mutual funds have a risk level of up to 2.29%, while the lowest risk is in October 2017 at 0.0047, which means that mutual funds have the lowest risk of 0.47%.

Table 4. Results of Descriptive Statistical of Return During Covid-19

	Invest	N	*Min*	*Max*
Return (During)	LQ45	36	-0.2142	0.1171
	Gold	36	-0.0645	0.1309
	Manulife Saham Andalan Mutual Fund	36	-0.2240	0.1621

(Source: data processed, 2023)

After looking at table 4 above, it can be seen that the minimum and maximum values of return for each type of investment during Covid-19. Based on the table above, it can be seen that during Covid-19, the highest return on stocks was in November 2020 at 0.1171, which means that this type of stock investment can earn a return of 11.7% while the lowest return on stocks is in March 2020 of -0.2142 which means that this type of stock investment has the lowest return of -21.4%. Gold had the highest return in March 2020 of 0.1309, which means that this type of gold investment can get the highest return of 13.09%, while the lowest return on gold is in November 2020 at -0.0645, which means that this type of gold investment has the lowest return of -6.45%. In mutual funds, the highest return was in November 2020 at 0.1621, which means that mutual funds can obtain a return of 16.2%, while the lowest return on mutual funds is in March 2020, which is -0.2240, which means that the investment type of mutual funds has the lowest return, by -22.4%.

Table 5. Results of Descriptive Statistical of Risk During Covid-19

	Invest	N	*Min*	*Max*
Risk (During)	LQ45	36	0.0061	00563
	Gold	36	0.0036	0.0199
	Manulife Saham Andalan Mutual Fund	36	0.0055	0.0476

(Source: data processed, 2023)

After looking at table 5 above, it can be seen that the minimum and maximum risk values for each type of investment during Covid-19. Based on the table above, it can be seen that during Covid-19, the highest risk for stocks was in March 2020 at 0.0563, which means that stocks have a risk level of up to 5.6%, while the lowest risk is in August 2022 at 0.0061, which means stocks have the lowest risk of 0.61%. In gold, the highest risk is in March 2020 at 0.0199, which means gold has a risk level of up to 1.99%, while the lowest risk is in December 2021 at 0.0036, which means gold has the lowest risk of 0.36%. In mutual funds, the highest risk was in the same month, namely in March 2020 at 0.0476, which means that mutual funds have a risk level of 4.76%, while the lowest risk is in December 2021 at 0.0055, which means that mutual funds have the lowest risk of 0.55%.

Normality test

In the normality test, the researcher uses the Shapiro-Wilk test, which aims to find out the data used in the research and whether the research data is usually distributed or not normally distributed. In this study, the researchers performed data transformations and outliers so that the data were normally distributed so that they could use parametric statistics, namely One Way ANOVA.

Table 6. Return Normality Test Results Before Covid-19

	Invest	Shapiro-Wilk Sig.
Return (before)	LQ45	0.254
	Gold	0.116
	Manulife Saham Andalan Mutual Fund	0.268

(Source: data processed, 2023)

After looking at table 6 above, the data can be said to be normally distributed if the significance value is above 0.05 or 5%. After processing the data, it is known that LQ45 has a significance value of 0.254 > 0.05, the data is usually distributed, gold has a significance value of 0.116 > 0.05, and the data is typically distributed. Mutual funds have a significance value of 0.268 > 0.05. The data is normally distributed, so the data requirements must be normally distributed to carry out the One Way ANOVA test fulfilled.

Table 7. Risk Normality Test Results Before Covid-19

	Invest	Shapiro-Wilk Sig.
Risk (before)	LQ45	0.225
	Gold	0.131
	Manulife Saham Andalan Mutual Fund	0.130

(Source: data processed, 2023)

After looking at table 7 above, it can be seen that the data can be said to be normally distributed if the significance value is above 0.05 or 5%, and it is known after processing the data it is found that LQ45 has a significance value of 0.225 > 0.05 the data is usually distributed, gold has a significance value 0.131 > 0.05 the data is usually distributed and mutual funds have a significance value of 0.130 > 0.05 the data is normally distributed, the data requirements must be normally distributed to carry out the One Way ANOVA test fulfilled.

Table 8. Return Normality Test Results During Covid-19

	Invest	Shapiro-Wilk Sig.
Return (During)	LQ45	0.101
	Gold	0.091
	Manulife Saham Andalan Mutual Fund	0.185

(Source: data processed, 2023)

After looking at table 8 above, it can be seen that the data can be said to be normally distributed if the significance value is above 0.05 or 5%. It is known after processing the data, it is found that LQ45 has a significance value of 0.101 > 0.05, the data is usually distributed, and gold has a significance value of 0.091 > 0.05, the data is usually distributed. Mutual funds have a significance value of 0.185 > 0.05. The data is usually distributed, and the data requirements must be normally distributed to carry out the One Way ANOVA test is fulfilled.

Table 9. Risk Normality Test Results During Covid-19

	Invest	Shapiro-Wilk Sig.
Risk (During)	LQ45	0.083
	Gold	0.062
	Manulife Saham Andalan Mutual Fund	0.232

(Source: data processed, 2023)

After looking at table 9 above, it can be seen that the data can be said to be normally distributed if the significance value is above 0.05 or 5%, and it is known after processing the data it is found that LQ45 has a significance value of 0.083 > 0.05 the data is usually distributed, gold has a significance value 0.062 > 0.05 the data is usually distributed and mutual funds have a significance value of 0.232 > 0.05 the data is normally distributed, so the data requirements must be normally distributed to carry out the One Way ANOVA test fulfilled

Hypothesis testing

In this section, a hypothesis test is carried out with the aim of testing at the same time to find out whether there are differences in returns and risks between the three types of investment, namely stocks, gold and mutual funds, before Covid-19 and whether there are differences in returns and risks between the three types of investment, namely stocks, gold, and mutual funds during Covid-19. This test uses the One Way ANOVA test on each variable. The provisions in this study are that Ha is accepted if the significance value is <0.05, whereas Ha is rejected if the significance value is > 0.05. The results and discussion of different tests on each return and risk variable before Covid-19 and during Covid-19.

Results of different test returns on stocks, gold, and mutual funds before Covid-19

The first hypothesis, or the first alternative hypothesis proposed in this study, is "there are differences in returns on investment in stocks, gold, and mutual funds before Covid-19". The first hypothesis test used the One Way ANOVA test, and the results of this first hypothesis test are shown in the tables below.

Table 10. Descriptive Result

Descriptives		
	Invest	*Mean*
Return (Before)	LQ45	0.081030
	Gold	0.030377
	Manulife Saham Andalan Mutual Fund	0.037535

(Source: data processed, 2023)

Table 11. One Way ANOVA Test

ANOVA		
	F	Sig.
Between Groups	82.143	0.000

(Source: data processed, 2023)

After looking at the test results in table 10 above, it can be seen in the descriptives section that the average return of the three types of investment shows before Covid-19 is as follows:

1. The average stock return before Covid-19 was 0.081030
2. The average gold return before Covid-19 was 0.030377
3. The average mutual fund return before Covid-19 was 0.037535

Thus, descriptively it can be seen that of the three different types of investment, the highest average return before Covid-19 was in stocks, namely 0.081030, then mutual funds, 0.037535, and finally gold, 0.030377. In general, these three types of investment have different returns. However, to test whether these three types of investment have different returns, it can be seen in table 11 One Way ANOVA Different Test. The results show a significance of 0.000 <0.05, so Ha1 is accepted, which means there are differences in returns on investment in stocks, gold, and mutual funds before Covid -19. To find out how much the difference in returns was between the three types of investment before Covid-19, the researchers conducted the HSD Tukey follow-up test in table 12

Table 12. Tukey HSD Return Continuation Test Before Covid-19

Invest (I)	**Invest (J)**	***Mean Difference* (I-J)**	**Sig.**
LQ45	Gold	0.0506532	0.000
LQ45	Manulife Saham Andalan Mutual Fund	0.0434950	0.000
Manulife Saham Andalan Mutual Fund	Gold	0.0071582	0.224

(Source: data processed, 2023)

In table 12, the Tukey HSD follow-up test shows that the mean or margin difference between LQ45 and gold is 0.0506532 with a significance value of 0.000 <0.05, meaning there is a significant difference in returns between LQ45 and gold. It can also be seen that the mean or margin difference between LQ45 and mutual funds is 0.0434950 with a significance value of 0.000 <0.05, which means that there is a significant difference in returns between LQ45 and mutual funds. Meanwhile, the mean or margin difference between mutual funds and gold is 0.0071582, with a significance value of 0.224 > 0.05, which means there is no significant difference in returns between mutual funds and gold.

Results of the different risk tests on stocks, gold and mutual funds before Covid-19

the second or alternative hypothesis proposed in this study is "there is a difference in risk in investing in stocks, gold, and mutual funds before Covid-19". The second hypothesis test uses the One Way ANOVA test, and the results of this second hypothesis test are shown in the tables below.

Table 13. Descriptive Result

Descriptives		
	Invest	*Mean*
Risk (before)	LQ45	0.099642
	Gold	0.071630
	Manulife Saham Andalan Mutual Fund	0.095005

(Source: data processed, 2023)

Table 14. One Way ANOVA Test

ANOVA		
	F	Sig.
Between Groups	56,421	0,000

(Source: data processed, 2023)

After looking at the test results in table 13 above, it can be seen in the descriptives section that the average risk of the three types of investment shows before Covid-19 is as follows:

1. The average stock risk before Covid-19 was 0.099642
2. The average risk of gold before Covid-19 was 0.071630
3. The average risk of mutual funds before Covid-19 was 0.095005

Thus, it can be seen descriptively that of the three different types of investment, the highest average risk before Covid-19 was in stocks, namely 0.099642, then mutual funds, 0.095005, and finally gold, 0.071630. In general, the three types of investment have different risks. However, to test whether these three samples have different risks, it can be seen in table 14 One Way ANOVA Different Test, the results show a significance of 0.000 <0.05, then Ha is accepted, and Ho is rejected, which means there are differences in risk in stock, gold and mutual fund investments. before Covid-19. To find out how big the difference in risk is between the three types of investment, the researcher conducted a turkey follow-up test in table 15 as follows:

Table 15. Turkey HSD Risk Continuation Test Before Covid-19

Invest (I)	Invest (J)	*Mean Difference* (I-J)	Sig.
LQ45	Gold	0.0280119	0.000
Manulife Saham Andalan Mutual Fund	Gold	0.0233750	0.000
LQ45	Manulife Saham Andalan Mutual Fund	0.0046369	0.214

(Source: data processed, 2023)

In table 15, the Tukey HSD follow-up test shows that the mean or margin difference between LQ45 and gold is 0.0280119 with a significance value of 0.000 <0.05, which means there is a significant difference in risk between LQ45 and gold. It can also be seen that the mean or margin difference between mutual funds and gold is 0.0233750, with a significance value of 0.000 <0.05, which means that there is a significant difference in risk between mutual funds and gold. Meanwhile, the mean or margin difference between LQ45 and mutual funds is 0.0046369 with a significance value of 0.214 > 0.05, which means there is no significant difference in risk between LQ45 and mutual funds.

Test results for different returns on stocks, gold, and mutual funds during Covid-19

the third or alternative hypothesis proposed in this study is "there are differences in returns on investment in stocks, gold, and mutual funds during Covid-19". The third hypothesis test uses the One Way ANOVA test, and the results of this third hypothesis test are shown in the tables below.

Table 16. Descriptive Result

Descriptives		
	Invest	*Mean*
Return (During)	LQ45	0.047575
	Gold	0.051331
	Manulife Saham Andalan Mutual Fund	0.062200

(Source: data processed, 2023)

Table 17. One Way ANOVA Test

ANOVA		
	F	Sig.
Between Groups	4.412	0.014

(Source: data processed, 2023)

After looking at the test results in table 16 above, it can be seen in the descriptives section that the average return of the three types of investment shows during Covid-19 is as follows:

1. The average stock return during Covid-19 was 0.047575
2. The average gold return during Covid-19 was 0.051331
3. The average mutual fund return during Covid-19 was 0.062200

Thus, it can be seen descriptively that of the three different types of investment, the highest average return during Covid-19 was found in mutual funds, namely 0.062200, then gold 0.051331 and finally, LQ45 0.047575. In

general, these three types of investment have different returns. However, to test whether these three samples have different returns, it can be seen in Table 17 One Way ANOVA Different Test, the results show a significance of 0.014 <0.05, so Ha is accepted, and Ho is rejected, which means there are differences in returns on investment in stocks, gold and mutual funds. during Covid-19. To find out how much the difference in returns between the three types of investment is, the researcher conducted a turkey follow-up test in table 18 as follows:

Table 18. Tukey HSD Return Continuation Test During Covid-19

Invest (I)	Invest (J)	*Mean Difference* (I-J)	Sig.
Manulife Saham Andalan	LQ45	0.0146250	0.014
Manulife Saham Andalan	Gold	0.0108686	0.092
Gold	LQ45	0.0037564	0.746

(Source: data processed, 2023)

Table 18 Tukey HSD's follow-up test shows that the mean or margin difference between mutual funds and LQ45 is 0.0146250 with a significance value of 0.014 < 0.05, meaning there is a significant difference in returns between mutual funds and LQ45 during Covid-19. Meanwhile, the mean or margin difference between mutual funds and gold is 0.0108686 with a significance value of 0.092 > 0.05, which means there is no significant difference in returns between mutual funds and gold during Covid-19. It can also be seen that the mean or margin difference between gold and LQ45 is 0.0037564 with a significance value of 0.746 > 0.05, which means there is no significant difference in return between gold and LQ45.

Test results of different risks in stocks, gold and mutual funds during Covid-19

The fourth hypothesis or fourth alternative hypothesis proposed in this study is "there are differences in risk in investing in stocks, gold and mutual funds during Covid-19". The fourth hypothesis test uses the One Way ANOVA test, and the results are shown in the tables below.

Table 19. Descriptive Result

Descriptives		
	Invest	*Mean*
Risk (During)	LQ45	0.010093
	Gold	0.006734
	Manulife Saham Andalan Mutual Fund	0.010610

(Source: data processed, 2023)

Table 20. One Way ANOVA Test

ANOVA		
	F	Sig.
Between Groups	26.268	0.000

(Source: data processed, 2023)

After looking at the test results in table 19 above, it can be seen in the descriptives section that the average risk of the three types of investment shows during Covid-19 is as follows:

1. The average stock risk during Covid-19 was 0.010093
2. The average gold risk during Covid-19 was 0.006734
3. The average risk of mutual funds during Covid-19 was 0.010610

Thus, it can be seen descriptively that of the three different types of investment, the highest average risk during Covid-19 was found in mutual funds, which was 0.010610, then LQ45 was 0.010093, and lastly was gold, which was 0.006734. . In general, it can be seen that the three types of investment have different risks. However, to test whether these three samples have different risks, it can be seen in table 20 One Way ANOVA different test that the results show a significance of 0.000 < 0.05, so Ha is accepted, and Ho is rejected, which means there are differences in risk in stock, gold and mutual fund investments before Covid-19. To find out how big the difference in risk is between the three types of investment, the researcher conducted a turkey follow-up test, which can be seen in table 21 as follows.

Table 21. Turkey HSD Risk Continuation Test During Covid-19

Invest (I)	Invest (J)	*Mean Difference* (I-J)	Sig.
Manulife Saham Andalan Mutual Fund	Gold	0.0038756	0.000
LQ45	Gold	0.0033587	0.000
Manulife Saham Andalan Mutual Fund	LQ45	0.0005169	0.663

(Source: data processed, 2023)

In table 21, the Tukey HSD follow-up test shows that the mean or margin difference between mutual funds and gold is 0.0038756 with a significance value of 0.000 <0.05, meaning a significant risk difference between mutual funds and gold. It can also be seen that the mean or margin difference between LQ45 and gold is 0.0033587, with a significance value of 0.000 <0.05, which means that there is a significant difference in risk between LQ45 and gold. Meanwhile, the mean or margin difference between mutual funds and LQ45 is 0.0005169 with a significance value of 0.663 > 0.05, which means there is no significant risk difference between LQ45 and mutual funds.

Discussion

Before Covid-19

The first alternative hypothesis in this study is that there were differences in returns on investment in stocks, gold, and mutual funds before Covid-19. Based on the results of the One Way ANOVA test seen in table 11, the One Way ANOVA different test obtained a significance value of 0.000 <0.05, which means that Ha1 or the first alternative hypothesis is accepted because the provisions in the Ha test are declared accepted if the significance value is <0.05, in other words, that there is a difference in risk in investing in stocks, gold, and mutual funds before the crisis due to the Covid-19 pandemic. After the researchers processed the data, it was obtained that stocks had the highest rate of return compared to gold and mutual funds. Then after stocks, the second highest is the Manulife Saham Andalan mutual funds, and the last for the lowest rate of return is gold.

The second alternative hypothesis in this study is that there are differences in risk in investing in stocks, gold and mutual funds before Covid-19. Based on the One Way ANOVA test results seen in table 14. One Way ANOVA different test obtained a significance value of 0.000 <0.05, which means that Ha2 or the second alternative hypothesis is accepted because the provisions in the Ha test are declared born if the significance value is <0.05; in other words that there is a difference in risk in investing in stocks, gold, and mutual funds before the crisis due to the Covid-19 pandemic. After the researchers processed the data, it was found that stocks have the highest risk level compared to gold and manulife saham andalan mutual funds. Then the second highest risk is in the Manulife Saham Andalan mutual funds, and the lowest is in gold. This shows that return and risk have a positive relationship in investment, especially stocks and mutual funds. The higher the risk in investing, the higher the rate of return or return that can be obtained—in other words, high-risk, high return. According to (Hartono, 2017) states that in a high-risk investment that can occur, the higher the return obtained, in other words, high-risk high return, so this shows a positive relationship between risk and return.

From the results of the analysis, which states that the first alternative hypothesis or ha1 in this study is accepted, the research conducted by this researcher is in line with the research conducted by Radianto & Ayuningtyas (2010), which states that there are differences in returns on investment in stocks, gold, and mutual funds and those carried out by Lim & Wijaya (2013) in their research stated that there were differences in returns on investment in stocks and gold during the global financial crisis and after the global financial crisis. The hypothesis in this study also supports Mahessara & Kartawonata's research (2018) which states that there are differences in returns on stocks and gold. The analysis results also stated that ha2 in this study was accepted, so this finding is in line with that carried out by Radianto & Ayuningtyas (2010) in their research, which stated that there are differences in risk between stocks, gold and mutual funds. Meanwhile, research by Singh & Nadda (2013) in India stated that stock investment has a higher risk than gold. Ichsani & Pamungkas's (2022) research states that investing in stocks has a higher risk than gold. Research conducted by Mahessara & Kartawonata (2018) shows that the results of his research show differences in risk in stocks and gold.

During Covid-19

The third alternative hypothesis in this study is that there are differences in returns on investment in stocks, gold, and mutual funds during the Covid-19 pandemic. Based on the results of the One Way ANOVA test seen in table 17, the One Way ANOVA different test obtained a significance value of 0.014 < 0.05, which means that Ha3 is accepted or the third alternative hypothesis is accepted that there are differences in risk in investing in stocks, gold and mutual funds during the crisis due to the Covid-19 pandemic 19. the results have shown differences in return and risk between the three types of investment. During the Covid-19 pandemic, stocks had a return rate of 0.0475 with a chance of 0.0100, and the manulife saham andalan mutual funds had a return rate of 0.0622 with a risk of 0.0106. Then gold has a return rate of 0.0513 with a chance of 0.0067. This can be seen during the Covid-19 period, from three types of investments, namely stocks, gold, and mutual funds. The Manulife Saham Andalan mutual fund has the highest return of 0.0622. The second highest return after that is gold with a return of 0.0513 and the lowest is stocks with a return of 0.0475

The fourth alternative hypothesis in this study is that there are differences in risk in investing in stocks, gold and mutual funds during Covid-19. Based on the results of the One Way ANOVA test seen in table 20, a significance value of 0.000 <0.05 is obtained, which means that Ha2 or the second alternative hypothesis is accepted that there is a difference in risk in investing in stocks, gold and mutual funds before the crisis due to the Covid-19 pandemic. For risk during the Covid-19 pandemic, of the three types of investment, namely stocks, gold and mutual funds, there is a difference where the highest risk during the Covid-19 pandemic is Manulife Saham Andalan mutual fund of 0.0106 and the second highest risk is in stocks with a chance of 0.0100. Then gold has the lowest risk level during Covid-19 of 0.0067.

The number of policies that have changed since the emergence of this contagious virus outbreak ultimately also prompted the government to take preventive measures such as social distancing, which encourages people to start working, studying, and worshipping from home, reducing mobility outside the home, and postponing activities that involve many participants. as well as prohibiting and avoiding crowds by implementing Large-Scale Social Restrictions (PSBB) in 2020 and Imposing Restrictions on Community Activities (PPKM) starting in 2021–2022. In the end, it significantly impacts the Indonesian economy's condition as an external factor that influences return and risk in investment. According to bps.go.id, economic growth in 2020 has decreased to -2.07% due to the COVID-19 pandemic. With this, minus economic growth, Indonesia experienced a recession. Then, it is known from the annual reports of LQ45 companies that the decline in company performance in 2020 is marked by a lower average ratio of return on assets, or ROA, compared to the previous year. Namely, in 2020 the average ROA of LQ45 companies was 5.78, which made stock prices experience massive corrections and finally impacted the return of LQ45 company stocks. The unavoidable turmoil in 2020 due to the outbreak made the company try to maintain itself amidst economic uncertainty.

Based on the discussion described above, this research aligns with the research produced by Lim & Wijaya (2013), which states that there is a difference between gold and stocks. During the 2008 global financial crisis, it was found that gold is an investment with a better return rate than stocks and research. This aligns with research conducted by Radianto & Ayuningtyas (2010), which states that there are differences in returns and risks in investing in stocks, gold and mutual funds. Research conducted by Miyazaki (2019) shows that gold returns will increase if stock returns decrease, which means there is a difference in returns between stocks and gold. Research conducted by Yuliana & Robiyanto (2021) showed that gold is better and can become a hedge for mining stocks in Indonesia. This study also supports research conducted by Jonatan K. et al. (2022), which states that the return variable produces a significance value of 0.018 <0.05, which means that Ho is rejected and Ha is accepted, which means that there is a difference between returns on gold and stocks during the pandemic. Research conducted by Aprilianti et al. (2022) stated that there were differences in stock mutual fund returns before and during Covid-19, where during the pandemic, stock mutual fund returns were higher than before Covid-19. Research conducted by Jonatan K et al. (2022) also tested the risk variable. It produced a significance value of 0.000 <0.05, which means that H0 is rejected and Ha is accepted, which means that there is a difference between risk in gold, stocks, swiss -francs, and bitcoins.

Conclusion

Stocks, gold, and mutual funds were all evaluated for their potential yields and levels of risk prior to the introduction of COVID-19, and it was determined that the three offered distinct advantages and disadvantages for investors. Before COVID-19, a one-way analysis of variance (ANOVA) was used to evaluate the rates of return on these three investment categories and found that equities provided the greatest rate of return, followed by gold and mutual funds. After that, mutual fund investments can generate a second type of profit. When compared to other types of investments like equities and mutual funds, gold investment yields the lowest possible rate of return. In addition, the risk involved in each of these three options varies widely, with equity investments carrying the greatest risk compared to both gold and mutual funds. After that, mutual funds add a second layer of risk, with gold representing the safest financial option. This demonstrates that gold is a secure investment with a low level of risk, while equities are a high-risk, high-return investment option.

Stocks, gold, and mutual funds each offered unique opportunities for profit and danger during COVID-19. Using one-way ANOVA during COVID-19, we find that the rate of return on these three investments is distinct; mutual funds outperform both gold and equities over the 2020-2022 time frame. There is also a secondary profit from buying metal. Compared to gold and mutual funds, investing in stocks offers the lowest yield. Additional evidence demonstrates that mutual funds and equities carry more risk than gold does when it comes to financial risk. In times of disaster, such as those brought on by pandemics, gold investments continue to be among the safest options available.

Of the three investment types with different returns and risks, investment in stocks and mutual funds is classified as high-risk high return, which can provide higher returns compared to gold. When conditions are not good, gold can be used as a safe gold investment option because it can protect assets when the world is in economic uncertainty. The limitation of this study is to only test three types of investment instruments, namely stocks, gold, and mutual funds where for mutual funds using stock mutual fund data, namely Manulife Saham Andalan, in the future it is hoped that further research can add other investment instruments and the focus of this research is when a crisis occurs due to the Covid-19 pandemic.

Acknowledgements

I would like to thank all the parties involved in this research.

Funding

"This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors."

References

Akhtaruzzaman, M., Boubaker, S., Lucey, B. M., & Sensoy, A. (2021). Is gold a hedge or a safe-haven asset in the COVID–19 crisis? *Economic Modelling*, *102*. https://doi.org/10.1016/j.econmod.2021.105588

Aprilianti, I., Rahman Nidar, S., & Saefullah, D. K. (2022). Kinerja Reksa Dana Saham di Indonesia Pada Masa Pandemi Covid-19. *MATRIKS Jurnal Sosial Dan Sains*, *3*(2), 100–110. http://matriks.greenvest.co.id

Brigham, E. F., & Houston, J. F. (2019). *Dasar-Dasar Manajemen Keuangan* (14th ed.). Salemba Empat.

Hartono, J. (2017). *Teori Portofolio dan Analisis Investasi* (11th ed.). BPFE-Yogyakarta.

Ichsani, S., & Pamungkas, A. (2022). *Analisis Perbandingan Kinerja Aset Kripto, IHSG dan Emas sebagai Alternatif Investasi Periode 2017-2021* (Vol. 5, Issue 6). http://Jiip.stkipyapisdompu.ac.id

Jonatan K, W. S., P, D. S., Jonatan Krisan-tana, W., Ekonomi dan Bisnis, F., Jonatan Satwika Krisantana Ekonomi, W., Brawijaya, U., & Devanto Pratomo, I. S. (2022). The Comparative Analysis of Gold, Stocks, Swiss-franc, and Bitcoin As Portfolio Performance During Covid-19 Pandemic. *CONTEMPORARY STUDIES IN ECONOMIC*, *1*. https://doi.org/10.21776/csefb.2022.01.2.15

Lim, E. D., & Wijaya, L. I. (2013). Better Investment Choice in Crisis and After Crisis: Stock Versus Gold. *Ubaya International Annual Symposium On Management*, 373–381.

Mahessara, R. D., & Kartawonata, B. R. (2018). Comparative Analysis of Cryptocurrency in Forms of Bitcoin, Stock, and Gold as Alternative Investment Portfolio in 2014-2017. *Jurnal Sekretaris & Administrasi Bisnis*, *II*(2), 38–51.

Maldini, A., & Patrisia, D. (2022). Comparative Analysis Cryptocurrency of Bitcoin, Stock, and Gold Return and Risks as Alternative Investments (2015-2020). Financial Management Studies, 2(2). https://doi.org/10.24036/j

Mankiw, N. G. (2007). *Makroekonomi* (6th ed.). Penerbit Erlangga.

Miyazaki, T. (2019). Clarifying the Response of Gold Return to Financial Indicators: An Empirical Comparative Analysis Using Ordinary Least Squares, Robust and Quantile Regressions. *Journal of Risk and Financial Management*, *12*(1), 33. https://doi.org/10.3390/jrfm12010033

Priyatno, D. (2017). *Panduan Praktis Olah Data Menggunakan SPSS* (1st ed.). ANDI.

Radianto, W. E., & Ayuningtyas, C. (2010). Perbandingan Risk dan Return Investasi Pada Emas, Saham, dan Reksadana Dalam Menentukan Keputusan Investasi. *AKRUAL*, *1*(2), 105–117.

Salkind, N. J. (2018). *Exploring research* (Ninth Edition). Pearson.

Savitri, A. (2020). *Investment For Millenials* (1st ed.). Penerbit Genesis.

Singh, B., & Nadda, J. B. (2013). Gold VS Stock Market: A Comparative Study of Risk and Return. *International Journal of Business Management & Research* , *3*(2), 103–110.

Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. ALFABETA.

Suputra, G. A. (2021). Analisis Perbandingan Risiko Saham Sebelum dan Saat Krisis Pandemic Covid-19 Pada Tahun 2020 (Studi Kasus: Harga Penutupan Saham Perbankan yang Tergabung Dalam Indeks LQ45). *JUIMA : Jurnal Ilmu Manajemen*, *11*(1). http://www.bni.co.id

Tandelilin, E. (2010). *Manajemen Investasi* (1st ed.). Universitas Terbuka.

Yuliana, A. F., & Robiyanto, R. (2021). Peran Emas Sebagai Safe Haven Bagi Saham Pertambangan di Indonesia pada Periode Pandemi Covid-19. *Jurnal Ilmiah Bisnis Dan Ekonomi Asia*, *15*(1), 1–11. https://doi.org/10.32815/jibeka.v15i1.217