

“Horizon of cryptocurrency before vs during COVID-19”

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HORIZON OF CRYPTOCURRENCY BEFORE VS DURING COVID-19

Abstract

Investment cannot be separated from the level of return and risk inherent in assets. Today, investment instruments are not only stocks, currencies, bonds, deposits, savings and others. The beginning of Bitcoin's emergence as a pioneer of Cryptocurrency was in 2009. Crypto assets are emerging rapidly and are accompanied by an increase in the number of transactions each period. The growth in the market capitalization value of crypto assets has also grown significantly. During COVID-19, many investments, such as stocks, experienced a decline due to market uncertainty. The results of this study prove that with the existence of COVID-19, the crypto market is not affected. Crypto is an attraction characterized by a high degree of fluctuation, and there is no limit to transactions in the open market 24 hours to trade. The Cryptocurrency market is currently a market that can provide short-term benefits to risk-taking investors, while the market in other investment instruments is declining. 78% of the value capitalization of the top 200 cryptocurrencies is represented by the top 9 cryptos used as samples in this study. So that if there is a decrease in these 9 cryptos, it will also have an impact on the overall capitalization value of crypto in the market. The future development of Cryptocurrencies will no longer be digital assets traded with many speculators who can control prices, it can even be digital money that can be used worldwide without any transaction fees and is controlled on a blockchain system.

Keywords cryptocurrency, Sharpe, return, risk, volume, variance

JEL Classification G11, G12, G14

INTRODUCTION

Technology has grown rapidly in the past 10 years, marked by the emergence of Bitcoin in early 2009, which made its own market and was not affected by other investment instruments. Bitcoin is one of the Cryptocurrencies. Cryptocurrency is a medium of exchange or digital money intended as a means of digital payment. Thousands of Cryptos are also traded in the market. Based on price movements, Crypto movements are classified as high volatility. High volatility price movements signal that Crypto assets are experiencing significant price changes over a period of time, so the risks that investors will get will be high. Crypto investment is a special attraction for the millennial generation, because Crypto has high price fluctuations so that from there you can get high profits in a short time. High price fluctuation conditions are not necessarily bad, but good literacy is needed for investors to recognize the characteristics of crypto investments. Digital financial transactions are widely criticized by researchers who argue that cryptocurrencies are currently used by traders as speculative investments because prices are highly volatile (Grinberg, 2012). Brière et al. (2015) state that crypto prices are highly volatile. This makes crypto assets classified as speculative assets, and has high risks and will affect the behavior of crypto users and traders. The high level of fluctuations of many countries has not legalized crypto asset transactions. The vol-

atility of this crypto asset is also reflected in Corbet et al. (2018) and Bouri et al. (2017). The occurrence of a high price increase was caused by positive news on the crypto asset.

Regulatory uncertainty in regulating crypto raises doubts for some countries to legalize the process of buying and selling or transacting crypto (Bouri et al., 2017; Wang et al., 2019). Every investment asset certainly has a fundamental value on which the asset is based, but this is not the case in crypto. Crypto assets do not have clear fundamentals so that crypto prices have high volatility, so in the future it will create a huge bubble in crypto prices. According to Corbet et al. (2018) and Bouri et al. (2017), the bubble occurred due to a major and positive event that made the bitcoin market more vibrant and made the price of bitcoin rise significantly. Enoksen et al. (2020) added that the occurrence of bubbles is also seen in Google Trends, with a positive relationship between bubbles and transaction volume. Xiao et al. (2021) explained that during COVID-19, Bitcoin experienced a significant price increase. However, cryptocurrency strategies are very different from strategies for foreign exchange markets, portfolio diversification, and macroeconomic policy. The negative information caused by COVID-19 has made investment uncertain. Therefore, this study will test whether the occurrence of COVID-19 will have an impact on the Cryptocurrency market, or with the presence of COVID-19 the Cryptocurrency market has experienced a significant increase.

1. LITERATURE REVIEW AND HYPOTHESES

Cryptocurrencies are the result of technological developments, therefore the cryptocurrency asset (Bitcoin) is a new investment asset for investors where Nakamoto first started in 2009. In the early days of Bitcoin's emergence, its price stagnated because not many investors saw bitcoin as an asset that was biased towards investing and had value in the future, this was documented by Tran and Leirvik (2020) and Kristoufek and Vosvrda (2019). In 2015 and until now, bitcoin and other crypto assets have emerged and experienced a high increase in transaction volume on each crypto asset. The cryptocurrency market has grown very rapidly over the last 10 years (Xi et al., 2020). In 2017, the price of Bitcoin has risen by 1,300% (Lammer et al., 2020).

Bitcoin's significant growth is characterized by such a high rate of return that many individual investors invest in this asset, and cryptocurrency assets are classified as assets that have extreme volatility (Ji et al., 2019). Transaction Volume is one of the benchmarks for many investors in buying and selling at a certain time. Corbet et al. (2019) argue that assets consider cryptocurrencies to be new financial assets since 2019. The sustainability of cryptocurrencies largely depends on the regulation and continuous development of blockchain technology (Seetharaman et al., 2017). The in-

crease in the price of bitcoin is also influenced by the factor of high demand increase, which accompanies the price of crypto assets to increase along with increasing demand from the market (Ciaian et al., 2015).

The fame of crypto depends a lot on the role of social media, the more people who discuss the development and use of crypto assets on social media, the more people will increase their interest in using crypto assets. The effect of such a state of affairs will increase the demand for crypto (Mai, 2018). Social media and technological developments have an important role for the sustainability of crypto assets rather than the influence of macroeconomic factors on the profitability of bitcoin (Corbet et al., 2020). Corbet et al. (2020) continue that the linkage of cryptocurrencies between investment instruments such as gold, bonds, and other finances has nothing to do (isolated).

However, the level of volatility of cryptos is higher than that of other financial assets. It is this level of volatility that speculators take advantage of to earn short-term profits that make the price of crypto rise. The relationship between the types of cryptocurrencies is carried out by Lahajnar and Rožanec (2020) where there is no significant difference in the daily and weekly rate of return of cryptocurrencies. According to Akhtaruzzaman et al. (2020), Bitcoin can be used as a diversified asset with other assets, which can be an option to

be included in the portfolio during the COVID-19 era. Bitcoin's classification of volatility levels as a new asset is classified as a type of high volatility between currencies and commodities. Even Bitcoin's risk level over volatility shocks exceeds the risk level of stocks, commodities, bonds, and currencies in a given period (Dyhrberg, 2016; Zhang et al., 2021). Similar tests were also carried out by Erdas and Caglar (2018). Variance is an investment benchmark to find out how much the level of investment risk is from each price change in a certain period.

The greater the value of the variance asset, the greater the level of risk that will be obtained. When viewed on Crypto Assets, these are assets with high price changes. Cryptocurrency investments have the same characteristics as stocks, bonds, and investable commodities (Baur et al., 2018). Cryptocurrencies are currently reaching the highest point of popularity, but there are also many questions about the fundamental foundations of these cryptocurrencies, so this makes these assets potentially face increased risks (Yilmaz & Hazar, 2018). Investors who understand the risks will incorporate cryptocurrencies into their portfolios. The price movement of cryptocurrencies fluctuates significantly when compared to other assets (Li et al., 2020). The statement of Li et al. (2020) is also supported by Ante et al. (2020) by pointing out that the volatility of cryptocurrencies is highly volatile and carries high risks.

During COVID, Phuong (2021) documented a decline in traditional investment in the region. And it was added by Ozturk and Cavdar (2021) that during COVID-19 there was a systemic shock of volatility in the bitcoin, currency, and oil markets. These results prove that the cryptocurrency market at the time of COVID was still transacted by investors to invest and profit from price volatility. Schwenkler and Zheng's (2020) price increase in the cryptocurrency market is also inseparable from the competition between different types of crypto. This result is reinforced by Qarni and Gulzar (2021) where Bitcoin is the benchmark in the cryptocurrency market. The strategy of putting crypto into a portfolio is one of the attempts to increase revenue for a return portfolio. The enthusiasm of investors in investing in cryptocurrencies is based on important factors in cryptocurrencies.

An increase in Transaction Volume will have an impact on returns. Most researchers disagree with crypto as the value of digital currencies, and some believe that crypto has value as an investment (Ciaian et al., 2016). In addition, Crypto is useful as an option in portfolio diversification (Bouri et al., 2017). Krische (2019) and Munnukka et al. (2017) state that financial literacy and experience investing in risky assets are essential for making individual investment decisions. Based on the debate that has been presented, this study will conduct testing to compare variables that can describe the state of the cryptocurrency market before and during COVID-19, here are the hypotheses that will be raised:

- H1: *There was a significant difference in crypto risk before COVID-19 and during COVID-19.*
- H2: *There was a significant difference in Crypto Transaction Volume before COVID-19 and during COVID-19.*
- H3: *There was a significant difference in Crypto Returns before COVID-19 and during COVID-19.*
- H4: *There was a significant difference in Sharpe Crypto Ratios before COVID-19 and during COVID-19.*

2. METHODOLOGY

This study compares a number of variables consisting of Risk calculated by variance, daily Crypto transaction volume, Crypto daily return, and daily Sharpe Ratio performance. Paired t-tests were carried out on the Top 9 Crypto on the market. Top 9 Crypto is the 9th largest market capitalization in the crypto market. Different tests were carried out by comparing 4 variables before COVID-19 and during COVID-19. This test is carried out to find out whether the COVID-19 outbreak will make Crypto investments go down, up, or not have an impact on these investments. The reason to conduct this study was because the world stock investment experienced a significant decline, this happened because the majority of investors panicked due to the new situation in the world.

As a result, investors immediately divert their investment funds to investment instruments that are safer and have relatively less risk. Therefore, this study will test whether there is a difference between before COVID-19 and during COVID-19 in phenomenal crypto investments. Each variable used in this study has its own advantages. First, the individual risk in each crypto is calculated using variance. Variance can measure fluctuations in crypto price movements that occur at a certain time. The higher variance of Crypto value is a sign that there is an up or down price movement that occurs, then from there arises a risk that is difficult to predict its movement. The high price movement for irrational investors creates attractiveness despite the risk of loss.

Second, the Transaction Volume variable is the amount of buying or selling crypto at a certain time. The bigger the transaction at a certain time, the greater the enthusiasm of crypto investors to make transactions. Transactions with large amounts will make crypto prices go up and down because of the supply and demand process that is carried out at a certain time.

Third, return is the difference in price when buying and selling at a certain time. Positive return is the expectation of every investor who invests in a period. Crypto investment is a new investment that belongs to high-risk investments, so that the returns obtained will be even higher.

Fourth, Sharpe Ratio performance is a calculation to measure the level of performance of the investments made. The higher the Sharpe Ratio of an investment, the more successful investors are in managing their investment funds to generate profits. The four variables that have been described are useful for measuring investment conditions.

In this study, the calculations will be carried out through the following formulas:

Cryptocurrency Return,

$$R_i = \frac{P_t - P_0}{P_0} \quad (1)$$

Variance,

$$\sigma^2 = \sum_{i=1}^n \frac{(R_{it} - E(R_i))^2}{n} \quad (2)$$

$$\text{Sharpe Ratio} = \frac{R_i - R_f}{\sigma_i} \quad (3)$$

$$\text{Risk Free The Fed 2018} - 2022 = \frac{R_f}{n} \quad (4)$$

3. RESULTS

This study conducted tests with a sample of nine crypto assets. These nine Crypto Assets have the largest capitalization value in the Crypto market, consisting of Bitcoin (BTC), Ethereum (ETH), Tether (USDT), BNB, XRP, Cardano (ADA), Dogecoin (DEGO), TRON (TRX), Litecoin (LTC). The selected data of Crypto asset are daily data from January 2018 to May 2022. Furthermore, risk is assessed using Variance, Return, and Performance with the Sharpe method on a weekly period. Crypto Transaction Volume is seen from daily transaction data in each sample, and weekly transaction average calculations are carried out (see Table 1).

Table 1 shows that crypto assets experienced an increase before COVID-19 until now. If we look at Bitcoin (BTC), the results show that the variance value before COVID-19 was 0.0011692 and during COVID-19 it was 0.0013997. These values mean that there was an increase in the level of risk during that period. Likewise, Transaction Volume has also increased three times compared to before the COVID-19 pandemic. These results show that during COVID-19 there were enthusiastic fluctuations from investors to make buying and selling Crypto transactions so that the COVID-19 pandemic did not become a strong issue for investors to be afraid to invest in Crypto assets. Crypto returns have increased four times compared to before COVID-19, the increase in returns was also supported by the performance of the Sharpe Ratio which also increased five times compared to before COVID-19. These conditions encourage investors to make portfolios of returns on Crypto assets as an investment in the Crypto market which is inevitable.

The testing of this study was carried out using the Kruskal-Wallis test. This is because the data from Crypto are not normally distributed; a similar situation was experienced by Szczygielski et al. (2019).

Table 1. Descriptive sample

Source: Data processed.

Name	Status	Variance	Vol	Return	Sharpe
Bitcoin (BTC)	Before COVID-19	0.0011692	12,362,354,787	0.0007064	0.018601
	COVID-19	0.0013997	39,576,625,044	0.0029234	0.106541
Ethereum (ETH)	Before COVID-19	0.0018625	5,020,992,799	-0.0008138	-0.025051
	COVID-19	0.0023974	20,788,898,210	0.0047457	0.132072
Tether (USDT)	Before COVID-19	0.0000181	12,053,991,515	0.0000261	-0.1423
	COVID-19	0.0000151	70,072,419,143	0.0000067	-0.294117
BNB	Before COVID-19	0.0022130	152,228,817	0.0024226	0.036297
	COVID-19	0.0035176	1,741,620,482	0.0059581	0.118872
XRP	Before COVID-19	0.0020660	1,013,664,959	-0.0006033	-0.065094
	COVID-19	0.0042656	4,680,937,783	0.0038328	0.020356
Cardano (ADA)	Before COVID-19	0.0025396	98,694,197	-0.0012153	-0.066826
	COVID-19	0.0033946	2,428,521,125	0.0057730	0.079322
Dogecoin (DEGO)	Before COVID-19	0.0021668	35,346,299	0.0003984	-0.062407
	COVID-19	0.0211762	2,173,468,582	0.0116966	-0.018143
TRON (TRX)	Before COVID-19	0.0031146	493,543,554	0.0007028	-0.022783
	COVID-19	0.0030122	1,680,457,195	0.0032342	0.091596
Litecoin (LTC)	Before COVID-19	0.0022443	1,797,277,399	0.0003391	-0.036889
	COVID-19	0.0027394	3,751,381,517	0.0021982	0.076059

Table 2. Kruskal-Wallis, all Crypto

Source: Data processed.

Statistic	Variance	Volume	Return	Sharpe
Chi-Square	634.992	370.263	6.197	4.548
df	1	1	1	1
Asymp. Sig.	.000	.000	.013	.033
Total Data	1908	1908	1908	1908

This is due to the fluctuating movements of Crypto prices that make the data not normally distributed. Therefore, this study turned to the Kruskal-Wallis test, which is included in non-parametric statistics. Different tests on each variable, including variance, are used to measure the risk of Crypto price movements, Transaction Volume, Return, and Sharpe, which are distinguished on each variable with different conditions. The distinguishing condition is the condition before COVID-19 and during COVID-19. The results obtained show that there are significant differences in the variables of variants, Transaction Volume, Return, and Sharpe before COVID-19 and during COVID-19. The result is shown from the significant value of each variable is below the alpha value of 5%.

Table 3 shows the median, Chi-Square, and Sig levels of each Crypto asset. Tests were carried out on each crypto with a total data of 212; the results show there were differences from each

crypto in each variable tested, that is, the variance variable on Bitcoin did not have a significant difference before COVID-19 and during COVID-19, but for Tether, variance had a significant difference over the period studied. The surprising result of the Transaction Volume rate for the 9 crypto assets studied had significant differences before COVID-19 and during COVID-19. These results show that crypto assets are not the same as other investment assets in responding to the crisis caused by COVID-19.

During COVID-19, many negative news caused investors behave irrationally, which led to high volatility in Crypto prices, thus making this asset generate high returns in a short time and leading to significant growth in the volume of Crypto transactions. Then Crypto can be an option as a safe hedging asset such as precious metals. This situation only applies during certain crises such as COVID-19 (Corbet et al., 2020).

Table 3. Kruskal-Wallis, each one Crypto

Crypto	Variable	Median	Chi-Square	Sig.
Bitcoin (BTC)	Variance	0.0008	1.20754717	0.1394402
	Vol	23.89	100.556119	0.0000*
	Return	0.001011	0.30188679	0.2774714
	Sharpe	0.01189	0.0754717	0.3948249
Ethereum (ETH)	Variance	0.001369	1.88679245	0.1636836
	Vol	23.075	152.830189	0.0000*
	Return	0.000854	1.20754717	0.0480164**
	Sharpe	0.039066	1.20754717	0.042032**
Tether (USDT)	Variance	0.000004	59.1908832	0.0000*
	Vol	24.11	159.698113	0.0000*
	Return	0.0000	0.67948718	0.4097634
	Sharpe	-0.2491	6.11320755	0.0134175**
BNB	Variance	0.001286	0.30188679	0.582702
	Vol	19.465	120.754717	0.0000*
	Return	0.00278	0.67924528	0.4098467
	Sharpe	0.059444	0.30188679	0.582702
XRP	Variance	0.001382	1.88679245	0.0353037**
	Vol	21.235	87.245283	0.0000*
	Return	0.0000	0.0754717	0.2814533
	Sharpe	-0.02837	0.67924528	0.2885146
Cardano (ADA)	Variance	0.002003	0.67924528	0.1256162
	Vol	18.985	120.754717	0.0000*
	Return	-0.00095	1.88679245	0.0799351****
	Sharpe	-0.02999	1.88679245	0.1035448
Dogecoin (DEGO)	Variance	0.001164	1.88679245	0.023722**
	Vol	18.155	126.867925	0.0000**
	Return	-0.00236	1.20754717	0.2715708
	Sharpe	-0.07738	0.0754717	0.5940806
TRON (TRX)	Variance	0.001659	3.69811321	0.054474***
	Vol	20.63	74.8934579	0.0000*
	Return	0.000173	1.88679245	0.1695641
	Sharpe	0.016334	1.88679245	0.1695641
Litecoin (LTC)	Variance	0.001568	1.20754717	0.2718184
	Vol	21.62	7.54716981	0.0060104***
	Return	0.001014	0.30188679	0.582702
	Sharpe	0.000115	0.30188679	0.582702
Total of each Data	N		212	

Note: * – significant at 1%, ** – significant at 5%, and * – significant at 10%.

Volatile Crypto price movements will have an impact on high variance values so that the risk is also high. Figure 1 shows a significant increase in transaction volume from the top 9 Crypto before and during COVID-19. As seen in Figure 2, in the variance section there is an increase in risk during the COVID-19 period when compared to before COVID-19. If there is no return on investment, it is impossible for people to be willing to invest in an asset. It can be seen in Figure 3 that there were different movements before COVID-19 and during COVID-19. After getting a return, the performance of an asset can be calculated using

the Sharpe Ratio. This study found that before COVID-19, Crypto performance was at -7 to 0.7, and during COVID-19, Sharpe Ratio performance was at -0.9 to 1.4. This result means that there is an improvement in Crypto performance during the COVID-19 period. A similar situation was also experienced by Vidal-Tomás (2021) from March 12, 2020 to April 1, 2020.

Crypto capitalization from 2018–2022 experienced a significant increase (see Figure 3). The movement of the capitalization value of the top 200 Crypto and 9 Crypto consistently increased

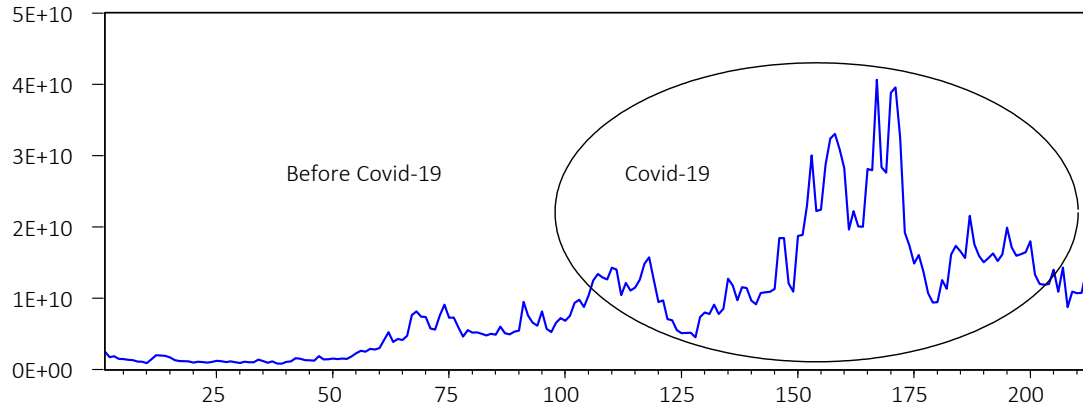


Figure 1. Volume transaction

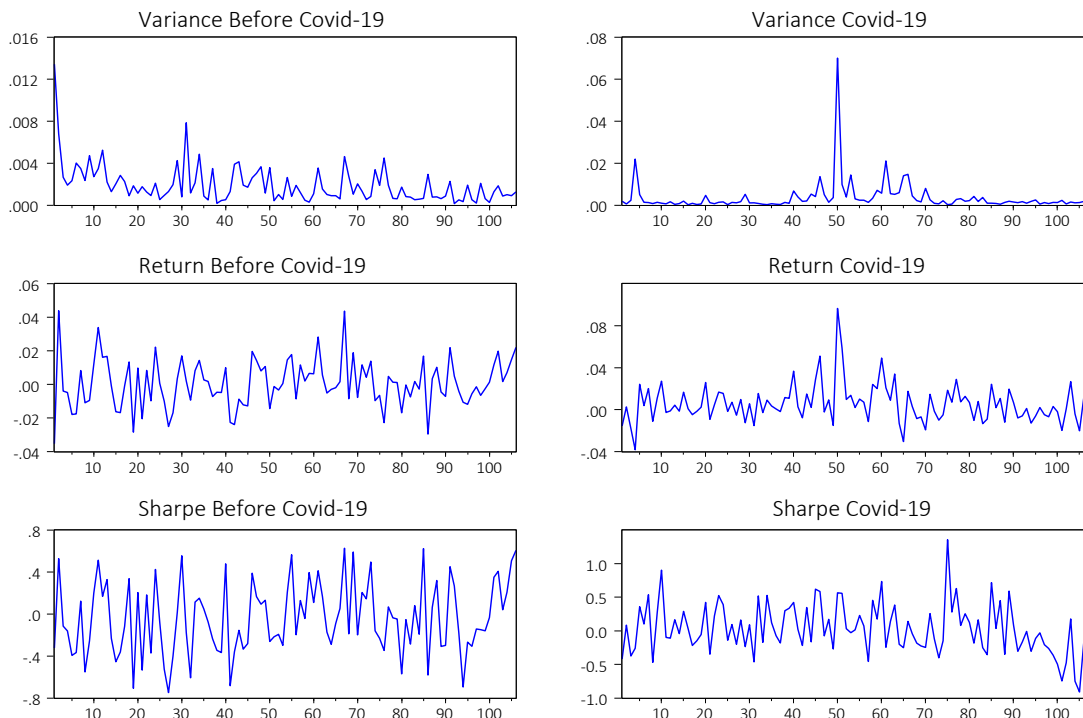


Figure 2. Variance, return and Sharpe

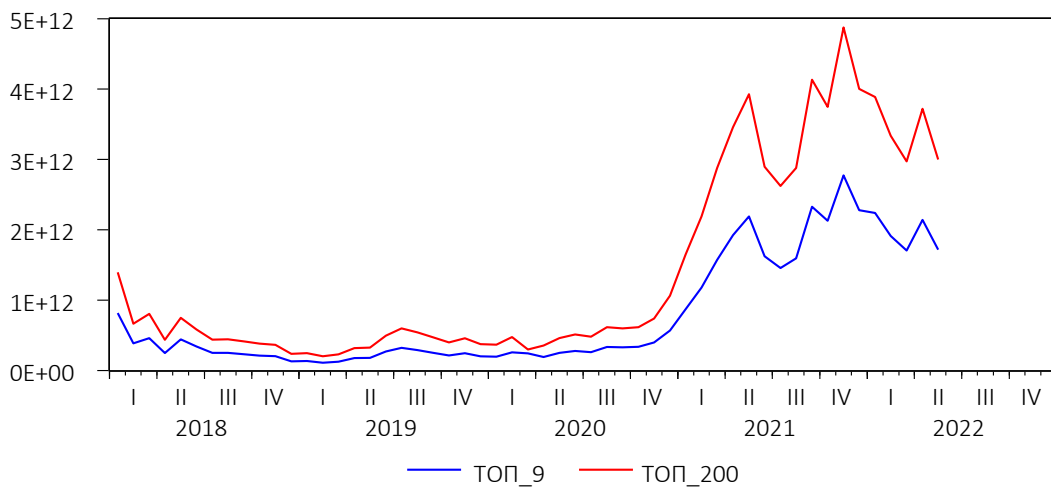


Figure 3. Crypto capitalization value

Table 4. Comparison of crypto capitalization

Source: Data processed.

200 Top Crypto	9 Crypto	9 Crypto/200 Top
USD 41,817,750,558,486.50	Usd 32,533,655,504,425.50	78%

Note: 9 Cryptos: Bitcoin (BTC), Ethereum (ETH), Tether (USDT), BNB, XRP, Cardano (ADA), Dogecoin (DEGO), TRON (TRX), Litecoin (LTC).

from 2018–2022. The peak value of Crypto rose at the fourth period of 2021. This indicates that despite the COVID-19 pandemic, Crypto is still victorious. The market capitalization value of the top 200 Cryptos is USD 41,817,750,558,486.50, and the top 9 Cryptos are USD 32,533,655,504,425.50. From these results, 78% of the value capitalization of the top 200 cryptocurrencies is represented by the top 9 cryptos used as samples in this study. So that if there is a decrease in these 9 cryptos, it will also have an impact on the overall capitalization value of crypto in the market.

4. DISCUSSION

The rapid development of Cryptocurrencies is a threat to the currencies that exist in the world. The threat began to be felt with the increasing number of Crypto transactions per day. The number of Crypto transactions beats the number of transactions in world currencies. The success of the Crypto lies in the efficiency of transactions that break the chain of transactions between seller-bank-customers to become seller-customers. Again, Table 2 of the test results states that there are significant differences in all variables in this study in the situation before COVID-19 and during COVID-19. These results make it clear that the pandemic is not an obstacle to risky investments such as Cryptocurrencies. Because Cryptocurrencies provide a high rate of return in a short period of time, it is evidenced by an increase in the number of transactions, which means that many investors bought Crypto in the pre- COVID-19 period and continued to grow in the COVID-19 period. Crypto's performance did not stop there either, which was due to the increase in the price of Crypto at that time. High returns will be accompanied by high risks; this study proves that the risks measured by options have significant differences and increased risks during the COVID-19 period.

This study has similarities with the that by Gatabazi et al. (2022) which examined the crypto life cycle in the 2013–2017 and 2009–2013 periods. The results show that during the 2013–2017 period crypto has a high risk where many cryptos live and die in that period when compared to the 2009–2013 period. This study has similarities in the form of comparison of the effects of certain events in different periods. So, this result shows that investors need to be vigilant in choosing the type of crypto that is safe from the threat of death. Types of cryptocurrencies that were popular in the period of 2009–2017 according to Gatabazi et al. (2022): Litecoin (2011), Peercoin (2012), Ripple (2012), Alphacoin (2013–2014), and Aircoin (2014–2016). In 2021, new types of crypto began to appear, such as Bogged Finance (2021) and Recharge Finance (2020). Currently in 2022, according to coinmarketcap, over 9,000 cryptos have sprung up like grass in the spring. The high death rate of crypto poses a threat to investors' confidence in crypto.

Due to the large number of cryptos that have died, many countries have banned digital money market transactions. There are several countries that legalize Crypto transactions, such as El Salvador, Panama, Brazil, Paraguay, Mexico, and Argentina (INFOCUS, 2021). Countries that legalize crypto are developing countries. Rising crypto prices marked by a high number of transactions were hindered by COVID-19. It has implications for cryptocurrency trading globally (Youssef et al., 2021). COVID-19 has had an impact on financial markets because there is no certainty over economic policies. It causes cash flow disruption due to stock market depreciation (Azimli, 2020). The results of studies by Youssef et al. (2021) and Azimli (2020) are refuted by this study, because there is no significant difference between return and transaction volume before and during COVID-19; there is even an increase in Crypto market capitalization during COVID-19. Crypto market capitalization, both in the absence of a pandemic and during the

COVID-19 pandemic, can increase investors' confidence in seeking funding sources and increase crypto trading liquidity in limited markets.

The test of differences in returns on the composition of funds on stocks in different portfolios with the same sample was also carried out by Kristanti et al. (2022). The results prove that the same sample will have different returns and different portfolio risks. So, this result can be a reference for further research to combine different types of crypto with the aim of getting the maximum return by adjusting the precise composition of funds. There is a well-known saying in investing, namely "Don't put all your eggs in one basket". Investing in crypto has a high risk, so it is necessary to diversify by combining several assets that have low risk such as investments in gold, deposits, stocks, currency, and assets in the form of land. The process of portfolio diversification can be seen in research that has been carried out in Indonesia such as the one from Hendrawan and Salim (2017) that exam-

ined Tobins'q portfolio on the Kompas 100 index stock in Indonesia.

Other studies were also conducted by Salim (2019) with the object of stock portfolios on the Islamic index in Indonesia, Waspada and Salim (2020) regarding the ASEAN index portfolio, Salim and Rizal (2021) regarding optimal portfolio beta and alpha, and Waspada et al. (2021) regarding the smart beta portfolio model in the Indonesian stock market. Thus, among the many portfolio models studied, investors will have to find out which model is interesting and understandable to them, each model has advantages and disadvantages. So it is appropriate for this law to act like the saying "Where the earth is stepped on, there the sky is upheld" or "Other ponds have different fish". This term means that investors in investment management must first understand what investment to invest, then they must know what level of risk and return they want so they can set a strategy for what will be done.

CONCLUSION

Cryptocurrencies experienced significant market capitalization growth before and during the pandemic. The top nine cryptos explored in this study represent 78% of the capitalization value of the top 200 crypto assets in the market. This study used the Kruskal-Wallis comparison to test the variables of variance, transaction volume, return, and performance of Sharpe ratios. The results of this study show that there are significant differences in variants, transaction volume, returns and Sharpe ratio performance before COVID-19 and during COVID-19. This result proves that the existence of COVID-19 does not affect the performance of Crypto assets, even Crypto assets continue to rise and are evidenced by the increase in the number of Crypto transactions during the COVID-19 period.

In contrast to other investment assets such as stocks, commodities, and currencies, Crypto provides such a high rate of return that many investors are interested in making transactions, and the volume of transactions increases. Then the level of risk and performance of the Sharpe ratio showed a significant difference in the results of this study because crypto assets experienced high price fluctuations on every trade both before and during COVID-19. Sharpe Ratio Performance is Crypto performance that is reduced risk-free, and then divided by the standard deviation of crypto. The results of this study show that Crypto asset activities can maintain the stability of investors' financial stability. The risk-free used in this study is the FED, which is a benchmark of interest of banks around the world, divided by the high standard deviation of crypto reflected in the speed of price exchange at any given time. Accordingly, the higher the standard deviation of an asset, the smaller the performance value of the Sharpe ratio. In addition, the lack of clear underlying assets for crypto assets today makes investors who are already established and have large funds afraid to make crypto investments. Nowadays, many people think crypto transactions are a gamble, not an investment. In the future, crypto is a digital money exchange instrument that will be more transparent, efficient, difficult to duplicate, so it will become an alternative to replace today's conventional exchange instruments.

AUTHOR CONTRIBUTIONS

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