

TECHNICAL ANALYSIS OF STOCHASTIC INDICATORS AND CANDLESTICK IN PROFIT TRADER CRYPTOCURRENCY 2021 PERIOD

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ABSTRACT

This research aims to determine the effect of technical analysis on stochastic and candlestick indicators on cryptocurrency traders' profits during the 2021 period. : type of research and how data is collected. This research belongs to the type of descriptive quantitative research. One hundred seventy coins listed on the Indodax exchange, which are viewed with daily time frames, and their price movement data can be accessed via the charting website tradingview.com are the population in the study. This. As for the research sample, the researchers used a non-probability sampling technique with a purposive sampling method with criteria, namely five cryptocurrency coins that have the largest capitalization as of December 2021, cryptocurrency coins that are actively transacted during 2021 which experience bullish and bearish markets, and cryptocurrency coins whose data movement the price can be accessed on the indodax application, and the tradingview.com website, from the sample criteria, obtained data as much as 1,825 daily price movements. The tests carried out in this study include descriptive statistical tests, normality tests using the Shapiro Wilk test, hypothesis testing using non-parametric statistical tests with Wilcoxon tests, and comparative analysis. The research results prove that the stochastic and candlestick indicators can provide sell signals and buy signals that affect the amount of profit received by cryptocurrency traders during the 2021 period.

Keywords : Technical Analysis, Stochastic, Candlestick, Profit, Trader, and Cryptocurrency

INTRODUCTION

According to Kurniawan (2021), humans in ancient times did not have a definite medium of exchange of values, so they exchanged or bartered food for food, clothes for food, or something else. In the years 618 - 917 AD, traders from China innovated by making paper money whose value was based on gold. This paper money is printed as much as the amount of gold owned, called fiat money or fiat currency. In this period, the Song dynasty was conquered by the Mongols, who then rigged this system by printing paper money as much as possible and not relying on its value in gold and silver. This caused the financial crisis in China; at another time, the country that dominated World War I and II, America, managed to collect up to 2/3 of the world's gold reserves. This motivated them to agree with the Bretton Woods system, a system where the dollar

was based on gold, then the currencies of other world elite countries were based on the dollar; the dollar here is considered as good as gold. In 1971 for fear of dominating a country that had 1/3 other gold reserves that could endanger the dollar, finally, in 1971, through President Nixon, the United States announced that the dollar was no longer based on gold. This resulted in several financial and inflation crises such as in 1998 and 2008

In 2009 a person named Satoshi Nakamoto made a digital payment instrument with limited availability called bitcoin, which has become the forerunner of cryptocurrency today. Price volatility in cryptocurrencies is very high compared to other investment instruments such as stocks, mutual funds, forex, and gold. Many people take advantage of this high volatility for trading. To run a trade, we need an analytical tool that can predict prices to

maximize profits. According to Ong (2016), technical analysis is an analytical method for predicting price movements based on past market data, primarily price, and volume. In this study, the technical analysis used is the stochastic and candlestick indicators; this is used to determine when is the right time to buy, hold and sell cryptocurrencies which will affect the number of profit traders will receive.

Huda (2020) states that if the type of cryptocurrency investment has a significant return, in line with that, the investment risk is also relatively high; the risk and return of investment have a linear relationship. Cahyadi (2012) states that candlestick chart patterns provide many clues about changing price trends; although they do not always appear every day, these patterns often provide the proper signal. Ubaidillah (2019) states that the buy and sell signals generated from the two stochastic and MACD indicators are significantly different.

THEORETICAL BASIS

Technical Analysis

Ong (2016: 272) argues that technical analysis is a method of valuing stocks, cryptocurrencies, commodities, and others by analyzing statistical data generated by a market activity that has occurred in the past to predict future price movements.

Sholeh (2020) conducted a study entitled "The Influence of Technical Analysis on Investment Decision Making in Consumption Sector Companies on the IDX," with known results that the stochastic oscillator and moving average indicators are accurate and have an effect on investment decision making in consumption sector companies on the IDX.

Stochastic Indicator

Ong (2021:315) mentions that in the stochastic indicator, there are two lines in the oscillator: the %K and %D lines. These two lines are between the vertical scale of 0-100. The %K line is the primary and most

important line called the signal line. If it is above level 80, it is called the overbought zone; if it is below level 20, it is called the oversold zone. In contrast, the %D line is called the trigger line, also the moving average of the %K line. The intersection of these two lines will produce a sell signal or a buy signal. A sell signal occurs when the %K line crosses below the %D line in the overbought zone, while a buy signal occurs when the %K line crosses above the %D line in the oversold zone.

Ubaidillah (2019) conducted a study on "Comparative Analysis of the Stochastic Oscillator and Moving Average Convergence Divergence Methods in Determining Sell Signals and Buy Signals (Case Study on Stocks Incorporated in the DJIA Index for the 2015-2017 Period)". The results of the two indicators are significantly different.

Candlestick

May (2011:39) explains that candlesticks can provide signals that radiate from certain formations formed in them. This formation is categorized into one candle pattern up to five candle patterns, each of which can provide a sell signal or a buy signal, called reversal candle patterns and continuation candle patterns.

Cahyadi (2012) conducted a study on "Analysis of Candlestick Patterns on the Movement of EUR / USD," which found results that candlestick chart patterns did provide many clues regarding changes in price trends, although they did not always appear every day, often these patterns gave the correct signal.

Cryptocurrency

Kurniawan (2021:13) mentions that cryptocurrency is just another type of currency, and currently, cryptocurrency is considered more as a digital asset than a medium of exchange; besides that, cryptocurrency has limited availability.

Huda (2020) conducted a study entitled "Risks and Profits of Cryptocurrency Investments." Investing in cryptocurrencies has a high enough risk due to very high

price volatility, changes in the value of cryptocurrencies are only enthusiasm that occurs from time to time, lack of regulation still leaves legality issues, becomes the target of cybercrime, and has a dependence on technology.

Profit

Kurniawan (2021) states that profit is a person's profit in carrying out his work. The profit of a cryptocurrency trader is obtained from the difference between the selling price and the purchase price of the cryptocurrency coins they buy, minus other costs such as selling fees and buying fees, depending on each exchange they use.

Laurensia (2019) conducted research entitled "Analysis of Cryptocurrency Volatility, Gold, Dollar, and Composite Stock Price Index" it is known that the price volatility of cryptocurrencies, especially Bitcoin (BTC) and Ethereum (ETH), is not influenced by other variables, but is influenced by the price of each coin itself at past prices. If they can be appropriately used, the bullish and bearish trends will benefit traders; the bearish trend is the time to buy cryptocurrencies at relatively low prices, while the bullish trend is the time to sell cryptocurrencies at a higher price to realize profits.

Trader

According to May (2011:167), a trader is someone who in his work trades investment instruments such as stocks, forex, commodities, and cryptocurrencies within a daily to monthly timeframe, buys them at a low price, and sells them at a higher price in a relatively short time span to earn money. Profit quickly.

Setiawan (2020) conducted a study entitled "Analysis of the Potential and Risks of Cryptocurrency Investments," showing that investing in most cryptocurrencies yields higher returns than investing in foreign currencies and the stock market. On the other hand, cryptocurrencies have high volatility clustering or price changes, and traders take advantage of this price fluctuation range to

make trades that vary in time, from scalping, day trading, and swing trading, to position trading

HYPOTHESES

Based on previous research and a review of the theories that have been described, the hypothesis of this study can be made as follows:

H1: There is a significant effect of using technical analysis of stochastic and candlestick indicators on cryptocurrency traders' profits

H1a: There is an effect of using the stochastic indicator technical analysis on the profit of cryptocurrency traders

H1b: There is an effect of using candlestick indicator technical analysis on cryptocurrency trader profits

METHOD

In this research, the researchers used secondary data obtained by looking at graphs of price movement data for five cryptocurrency coins over a certain period through the tradingview.com website and the indodax application. The data collection method is carried out with documentation techniques by observing daily price movements for the five cryptocurrency coins that have the largest capitalization by collecting sell signals and buy signals from the intersection of the charts in the stochastic indicator and the patterns formed in the candlesticks generated during the 2021 period through the indodax application and online charting website tradingview.com.

In this research, researchers used descriptive statistical tests to determine the highest price, lowest price, average price, and standard deviation of the two indicators used, normality test using the Shapiro Wilk test to determine whether the data is normal or not normally distributed, hypothesis testing using statistical tests nonparametric by using the Wilcoxon test to find out whether the hypothesis in this study can be accepted or rejected and comparative analysis to compare which is better of the

two indicators used in providing sell signals and buy signals to cryptocurrency traders.

RESULTS AND DISCUSSION

Descriptive Statistics Test

No	Nama Koin	Market Cap
1	BTC (Bitcoin)	\$798,271,038,646
2	ETH (Ethereum)	\$346,238,674,943
3	USDT (Tether)	\$78,472,226,452
4	BNB (Binance)	\$65,972,458,425
5	USDC (USD Coin)	\$52,274,777,852

	N	Min	Max	Mean	Std. Deviation
Stochastic	116	13.802	95.800.000	183.500.000	307.016.000
Valid N (listwise)	116				

Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
Candlestick	272	13.930	958.000.000	163.000.000	288.411.000
Valid N (listwise)	272				

Based the results of the descriptive analysis test can be explained as follows:

The stochastic indicator is an independent variable (X1). The result is obtained if the minimum value is Rp. 13,802; the maximum value is Rp.95.800.000; the mean value is Rp.183.500.000, and the standard deviation is 307.016.000

The stochastic indicator is an independent variable (X2) if the minimum value is Rp. 13,930; the maximum value is Rp. 958.000.000; the average value is Rp. 163.000.000, and the standard deviation is Rp. 288.411.000

Based on the results of the Shapiro Wilk normality test above, it is known that the stochastic variable with 116 data and the candlestick with 272 data has a significance value of 0.000, which is less than 0.05, so it can be concluded that the data in this study is not normally distributed.

Comparative Analysis

The Number of Sell Signals and Buy Signals That Can Be Generated from Stochastic and Candlestick Indicators in the Price Movement of 5 Cryptocurrency Coins with the Largest Capitalization during 2021.

Buy and sell signals generated from the stochastic and candlestick indicators in the price movement of 5 cryptocurrency coins are undoubtedly different. Stochastic generates buy and sell signals of 116 data, where the minimum value generated by this method is obtained from cryptocurrency coins with USDT code of 13,802 and the maximum value obtained from cryptocurrency coins with BTC code of 958,497,000, while for candlestick indicators, the minimum value of coins is obtained. Cryptocurrency with USDC code is 13,930, and the maximum value obtained from cryptocurrency coins with BTC code is 958,497,000.

2. The Amount of Accuracy of Stochastic and Candlestick Methods in Price Movements of 5 Cryptocurrency Coins with the Largest Capitalization During 2021

The accuracy for the stochastic indicator in the price movement of cryptocurrency coins is 79.3% for BTC coins, 80.8% for ETH coins, 89.5% for USDT coins, 84.6% for BNB coins and for USDC coins by 100%. While the accuracy for candlestick indicators in cryptocurrency coin price movements is 72.6% for BTC coins, 71.7% for ETH coins, 85.4% for USDT coins, 69.4% for BNB coins and for coins USDC by 80%

1. The Size of the Difference between True and False Signals generated from the Stochastic and Candlestick methods in Price Movements of 5 Cryptocurrency Coins with the Largest Capitalization During 2021
2. The big difference between true and false signals that the stochastic indicator gets from cryptocurrencies with BTC codes is 29, where 23 are true signals and 6 are false signals; coins with ETH codes have 26 signals, of which 21 are true signals, and 5 are false signals, coins with code USDT has 19 signals of which 17 are true signals and 2 are false signals, coins with code BNB generate 26 signals of which 22 are true signals and 4 are false signals, then USDC

coins generate 16 signals, all of which are true signals. The following is a table of true and false signals obtained from the stochastic indicator.

While the difference between true and false signals obtained from candlesticks from cryptocurrency coins with BTC codes is 62 signals of which 45 are true signals and 17 are false signals, coins with ETH code produce 53 signals of which 38 are true signals and 15 are false signals. with USDT code generating 48 signals of which 41 are true signals and 7 false signals, coins with BNB code generate 49 signals of which 34 are true signals and 15 are false signals, coins with USDC code generate 60 signals of which 48 are true signals and 12 are true signals. false signals. The following is a table of true and false signals from the candlestick indicator.

Better Method of Providing Sell Signals and Buy Signals on Price Movements of 5 Cryptocurrency Coins with the Largest Capitalization in 2021

Based on the tests that have been carried out by researchers, the results show that the stochastic indicator is better than the candlestick indicator in providing sell signals and buy signals. Although the signals obtained are less than the signals generated from candlesticks, the accuracy level is higher than candlesticks. Fewer stochastic signals also serve to prevent traders from false signals that may occur. In addition, the average true signal generated from the stochastic indicator is 86.8%, which is greater than the average true signal candlestick, which is only 75.8%. This means that if a trader uses technical analysis with the stochastic indicator, the profit that will be obtained will be greater when compared to using a candlestick indicator.

CONCLUSION

Based on the results of the tests that have been carried out, it is proven that the two independent variables can provide sell signals and buy signals that will affect the profit gain of cryptocurrency traders, based on the results of the analysis from 2021

from January to December on five cryptocurrency coins that have the largest capitalization using the Wilcoxon test. Produces a value of 0.000 which means the value is less than 0.05. Because the gain is less than 0.05, the hypothesis can be accepted, and each indicator can provide a sell signal or a buy signal. The signal obtained from the stochastic indicator was 116 signals, consisting of 99 true signals and 17 false signals. As for the candlestick indicator, it produces 272 signals consisting of 206 true signals and 66 false signals.

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