

Methods

This study uses Fractal Chaos Analysis using the Fractal Chaos Oscillator parameters provided by Yahoo Finance. Then Paired t-Test against historical data of potential cryptocurrencies to measure cryptocurrencies that have the closest characteristics to the Rupiah currency. Pros and cons analysis supports the elaboration of measurement results to produce conclusions.

This study uses data series Bitcoin, Ethereum, USDT, and USDC from Yahoo Finance for the period 19 October 2021 - 19 October 2022.

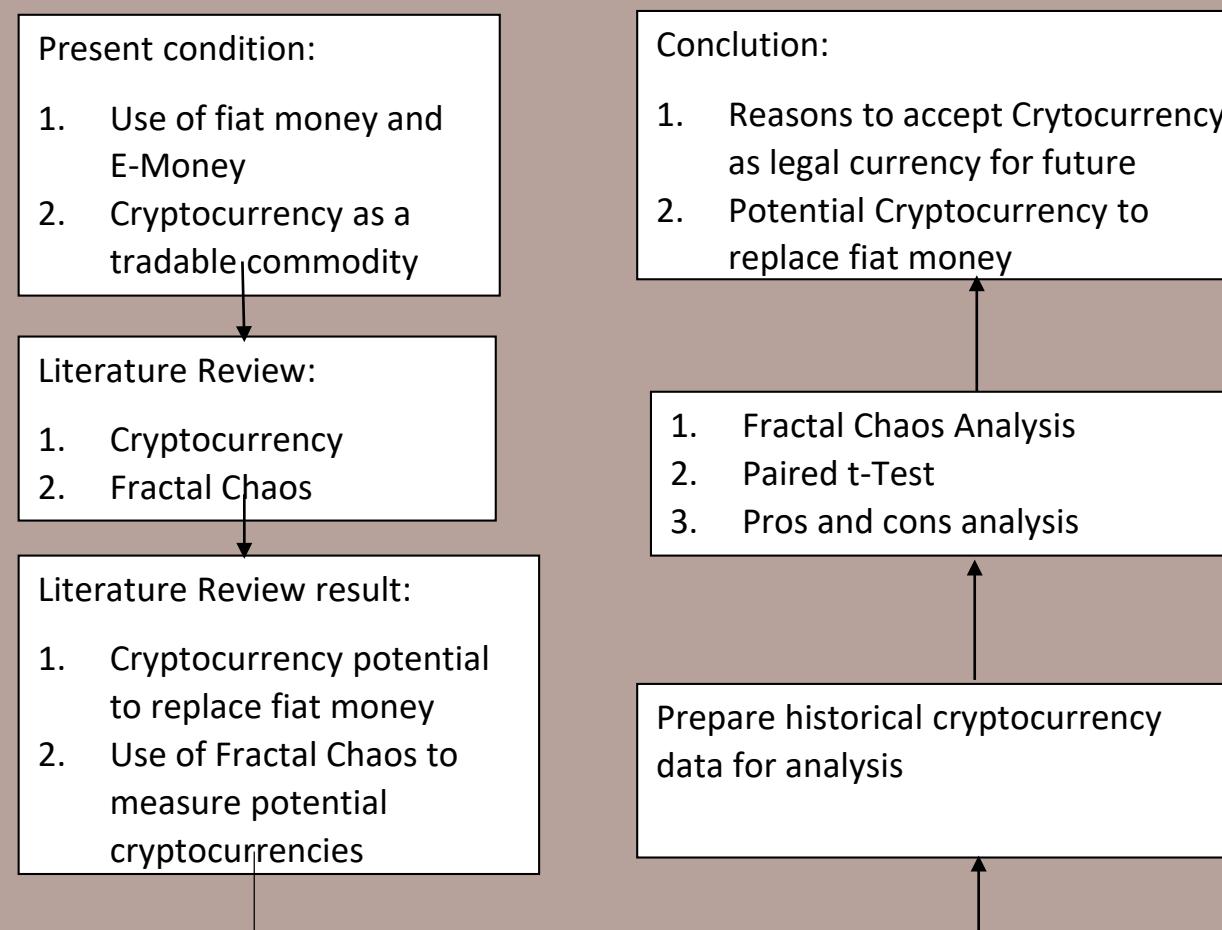


Figure 1.1 Research Framework

Results

Fractal Chaos Analysis:

1. Fractal Chaos Oscillator can be an indicator of a bearish trend or a bullish trend in cryptocurrencies. This is illustrated in Figure 1.2(a). In mid-March, Fractal appeared which became an indicator of a bullish trend. Then in early April, Fractal appeared which became an indicator of a bearish trend.



2. Based on FCO, Rupiah shows more consolidation phase than Crypto Coin or Crypto Token. Although the Crypto Token's bullish and bearing phase is very dynamic, it is in a limited price range, around \$1.

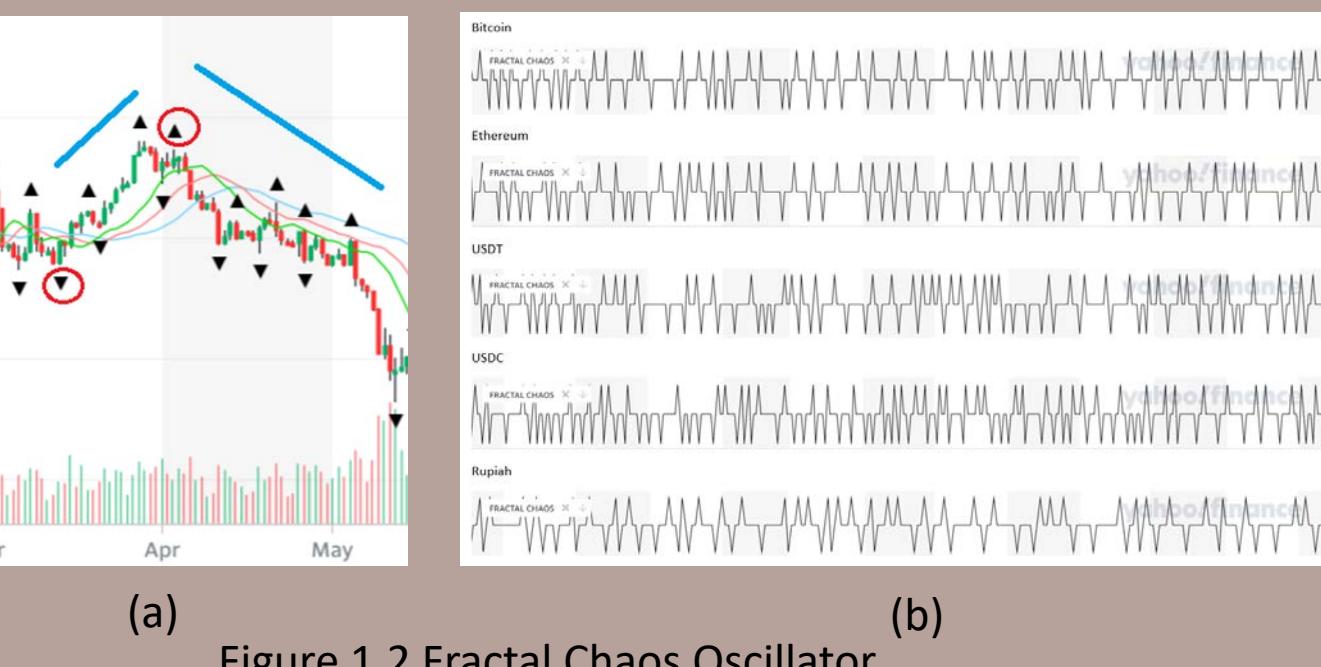


Figure 1.2 Fractal Chaos Oscillator

Paired t-Test:

- Only the population volatility variance between Bitcoin and Rupiah is different.
- USDT has the closest characteristics to Rupiah

| | Bitcoin | Ethereum | USDT | USDC | Rupiah |
|------------------------------|----------|----------|----------|----------|----------|
| Bearish Fractal | 48 | 49 | 51 | 67 | 40 |
| Bullish Fractal | 39 | 44 | 52 | 63 | 36 |
| Mean | -0,00286 | -0,00221 | 9,5E-06 | -2,6E-06 | 8,69E-05 |
| Variance | 0,001129 | 0,001933 | 1,78E-07 | 2,25E-07 | 1,7E-06 |
| Observations | 366 | 366 | 366 | 366 | 366 |
| Pooled Variance | 0,000566 | 0,000967 | 9,41E-07 | 9,64E-07 | |
| Hypothesized Mean Difference | 0 | 0 | 0 | 0 | |
| df | 730 | 730 | 730 | 730 | |
| t Stat | -1,67476 | -0,99723 | -1,07909 | -1,23226 | |
| P(T<=t) one-tail | 0,047205 | 0,159493 | 0,140453 | 0,109124 | |
| t Critical one-tail | 1,646944 | 1,646944 | 1,646944 | 1,646944 | |
| H0 | No | Yes | Yes | Yes | |
| H1 | Yes | No | No | No | |

Table 1.1 t-Test: Two-Sample Assuming Equal Variances

| Pros | Cons |
|--|--|
| Economic | Goverment |
| a. Economic disruption b. Decentralization, freedom and trust | a. Regulator lost power in economic b. Uncertainties in accounting and taxation. |
| Value | Government Disruption |
| a. Cost reduction b. Income opportunities | a. Volatility b. Lack of clear legislative approaches c. Cyber-Security Fraud |
| IT | Crime |
| a. Global usage and opportunities for integration. b. Blockchain technology | a. Money laundering b. Terrorist Financing c. Used in the criminal environment |

Table 1.2 Pros and Cons Analysis

Potential Cryptocurrency Acceptance with Fractal Chaos Analysis

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Introduction

In the last decade, the financial industry has transformed towards a digital economy. These developments trigger us to redefine the form of money used, especially since the introduction of Bitcoin using Blockchain technology in 2008. Blockchain technology was further developed into various cryptocurrencies, such as Bitcoin, Ethereum, USD Theter, and USD Coin. Cryptocurrencies carry financial decentralization which is contrary to the current financial system. The issue of accepting cryptocurrencies into legal currency continues. We will discuss this issue using the Fractal Chaos parameter to measure the characteristics of cryptocurrencies that can be proposed to replace fiat money that has been used so far.

Objective

- To find out potential acceptance of cryptocurrencies.
- To find out which cryptocurrencies have similarities with fiat money, use the Fractal Chaos Oscillator parameter.

Conclusions

- Legality is an important point when accepting cryptocurrency instead of fiat money.
- USDT is the most potential cryptocurrency to replace fiat money

References

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