

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.

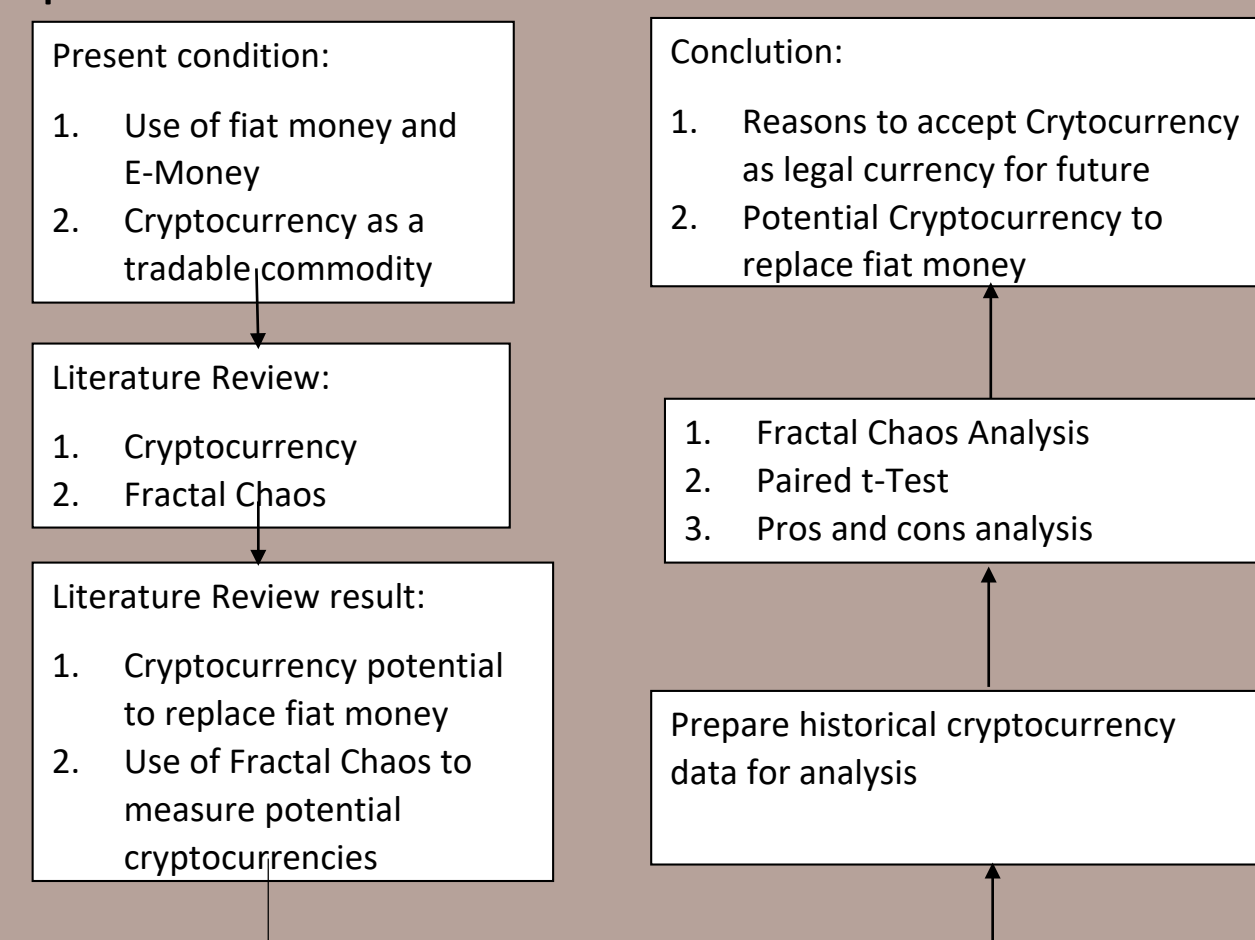


Figure 1.1 Research Framework

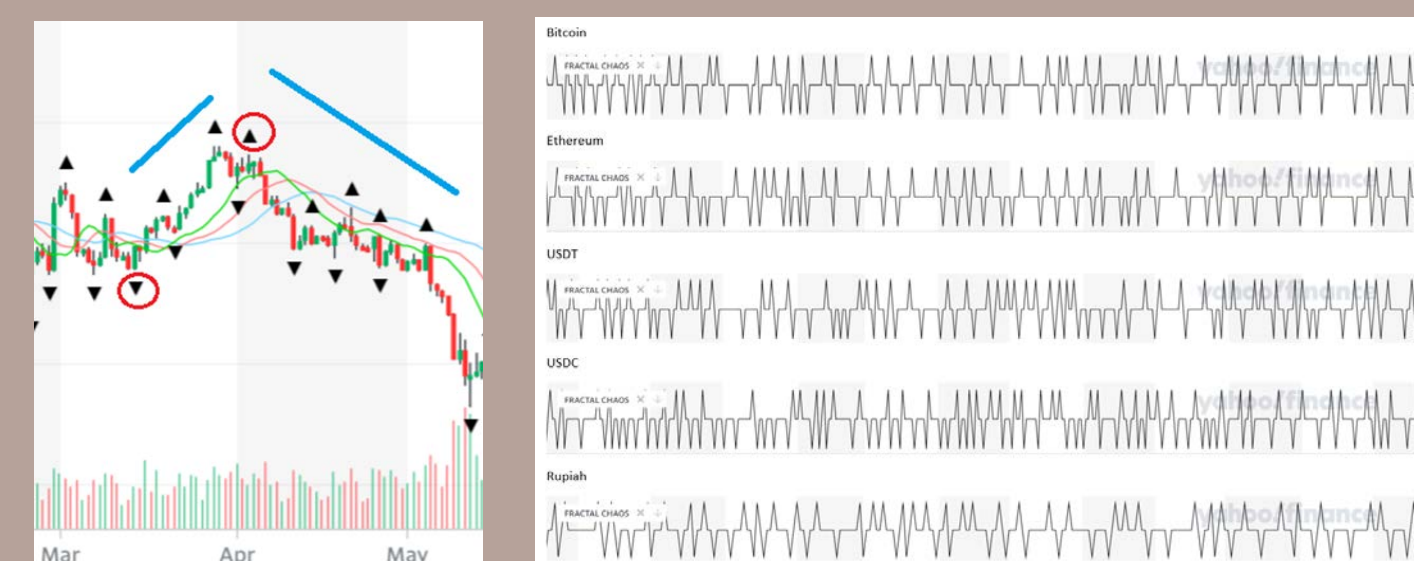
Results

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.



(a) (b)
Figure 1.2 Fractal Chaos Oscillator

Paired t-Test:

1. Only the population volatility variance between Bitcoin and Rupiah is different.
2. 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 and cons analysis:

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

Table 1.2 Pros and Cons Analysis

INTERNATIONAL COMMUNITY FORUM (ICF)

Potential Cryptocurrency Acceptance with Fractal Chaos Analysis

Isnen Hadi Al Ghozali,

2111601163@student.budiluhur.ac.id

Magister Ilmu Komputer

Universitas Budi Luhur

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

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

Conclusions

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

References

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