The Bitcoin Forecasting

An introduction of bitcoin and prediction models analysis

Introduction

Nov 1st 2008

after the worldwide financial crisis

01

Satoshi Nakamoto

02

- “Bitcoin: A Peer-to-Peer Electronic Cash System"
- Importance and value
- Open source software

Transaction Data

3, 933 rows and 7 columns

Only use closed prices

04

03

Current Price

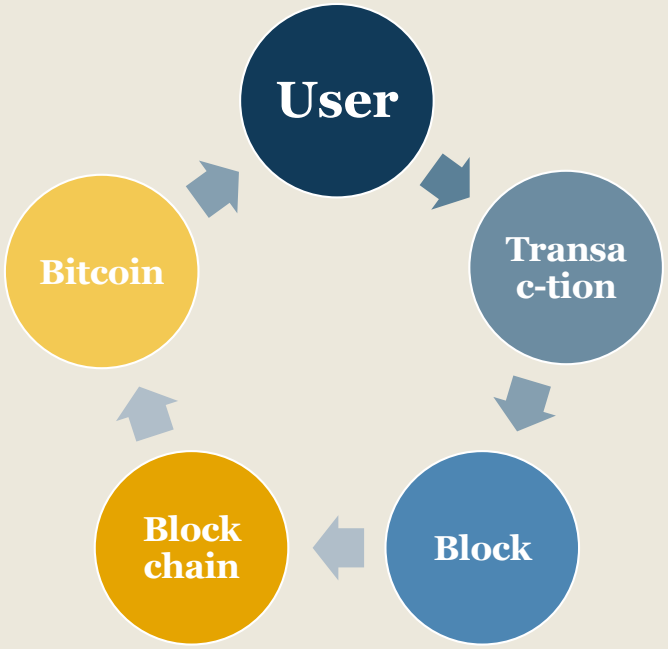
1 bitcoin >= 50,000 dollars

Background

What is Bitcoin?

- A **digital** currency
- Transactions are **verified**
- **Records** are maintained
- By a **Decentralized & Cryptography** system

Structure & Core algorithm

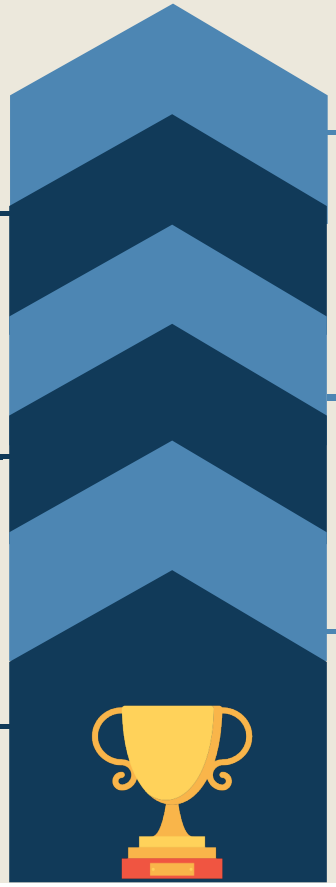


Background

Why is it succesful?

Value

- Durability
- Profitability
- Scarcity & Divisibility



Safety

- Decentralize
- Non-tempered
- Trackable & Anonymous

Background

1.Durability

-Created due to the *Financial crisis*

-Keep alive as *an alternative solution* for Financial crisis

2.Profitability

-PC to calculate the block

-win the prize from both block chain and single recording

-Uncertain time and electricity

-Calculation power needs best hardware (high cost)

1 bitcoin (BTC)

- = 1000 millibitcoins (mBTC)
- = 1,000,000 microbitcoins (μBTC)
- = 100,000,000 satoshis (basic unit)
- =0.1 billion satoshis

3.Scarcity & Divisibility

-Every bitcoin can *be divided* by the system

-Every unit is with *unique code*

Background

1.Decentralize

-Say bye to corruption of politicians and bankers

-Hold the power

2.Non-tempered

-*SHA-2*

-Created by the United States National Security Agency

-Transaction = public key + address key

-Confirmed by private key (user's unique personal code)

3.Trackable

-Every user can track and audit the transaction

-Every bitcoin is creditable

4.Anonymous

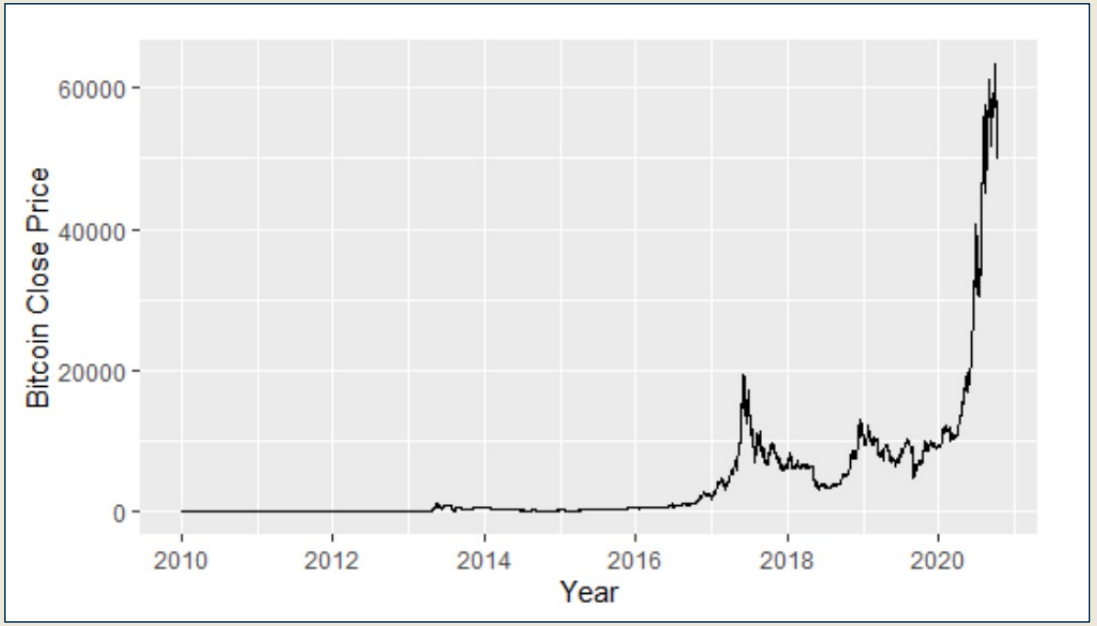
-The track stop at the public key and address

No real ID; user = code

Why sudden fall?

Analysis

Data source: Yahoo Finance
Data time range: 2010.7-2021.4

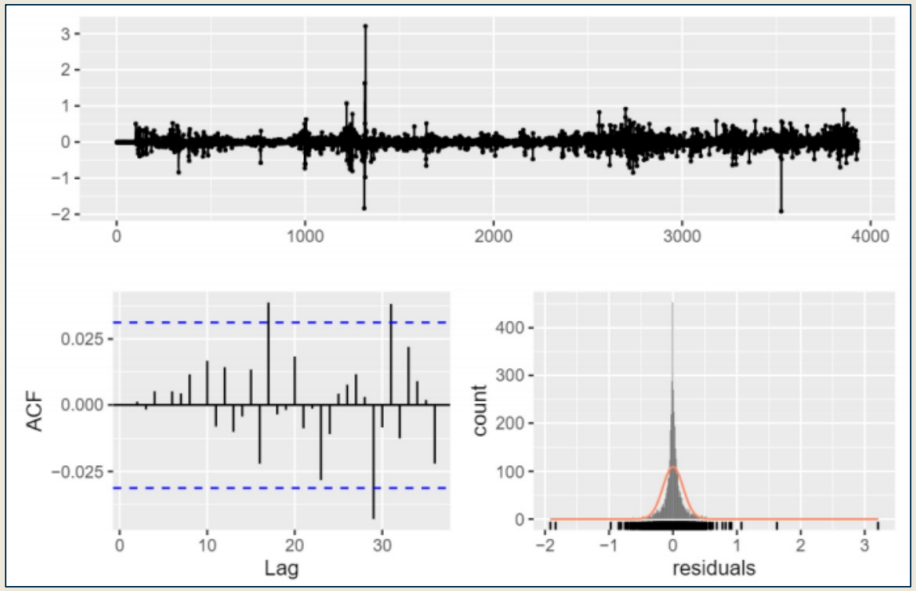


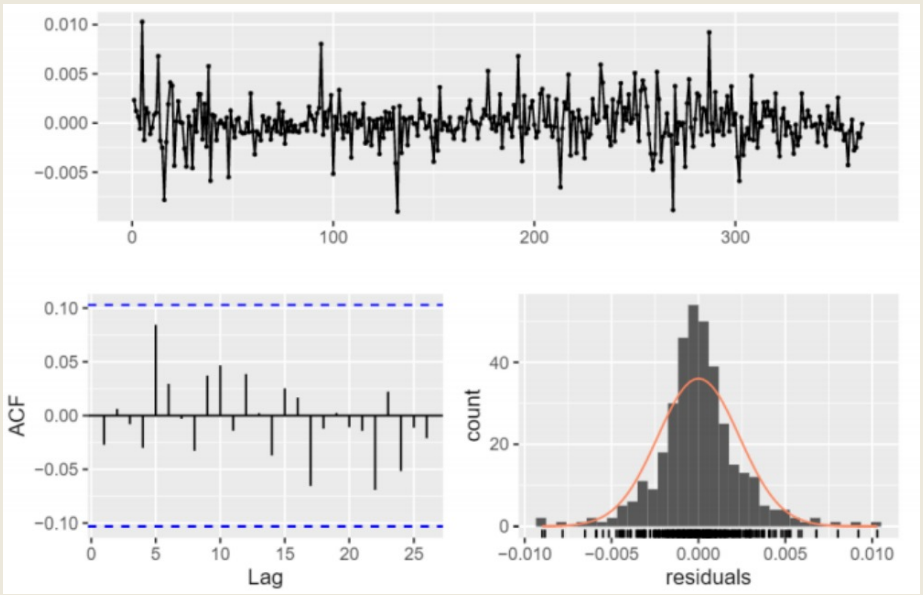
Analysis

I.ARIMA model

Residuals and ACF

ARIMA(5,1,2) Model with drift for whole data



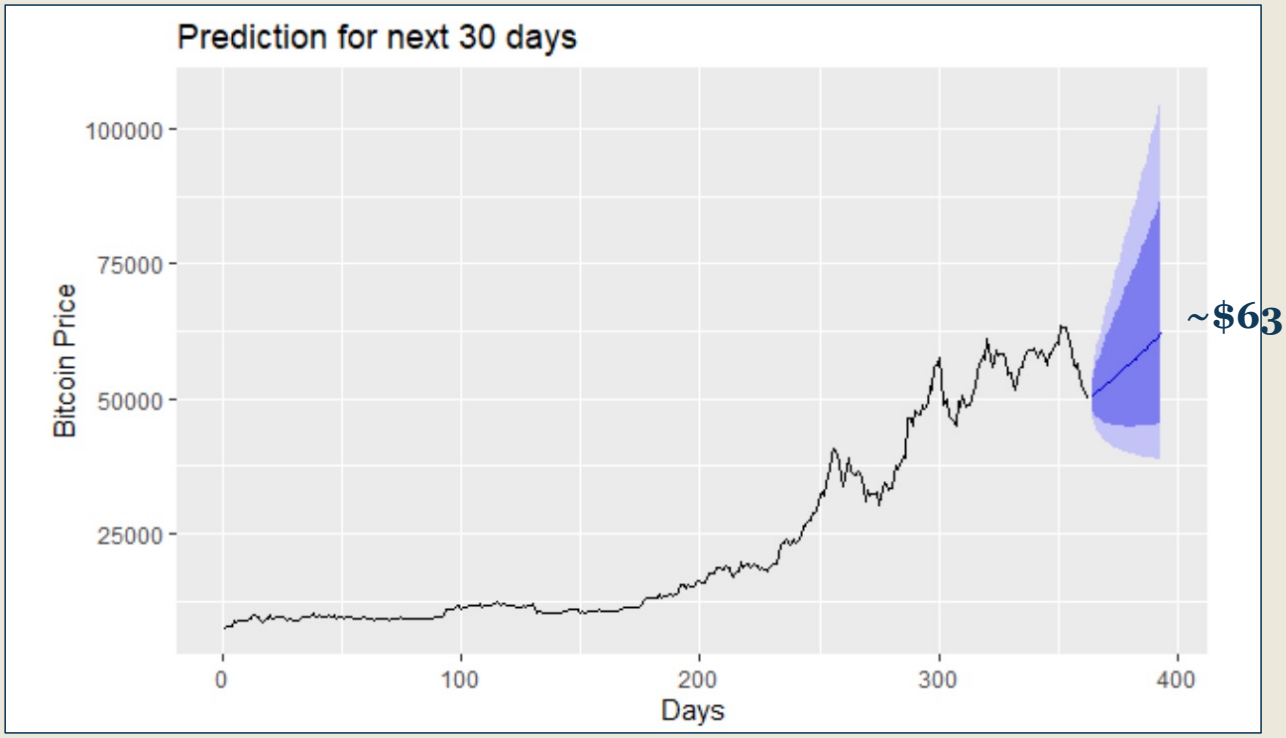


ARIMA(0,1,0) Model with drift for the most recent one-year-data

Analysis

I.ARIMA model

Forecasting a 30-day-period

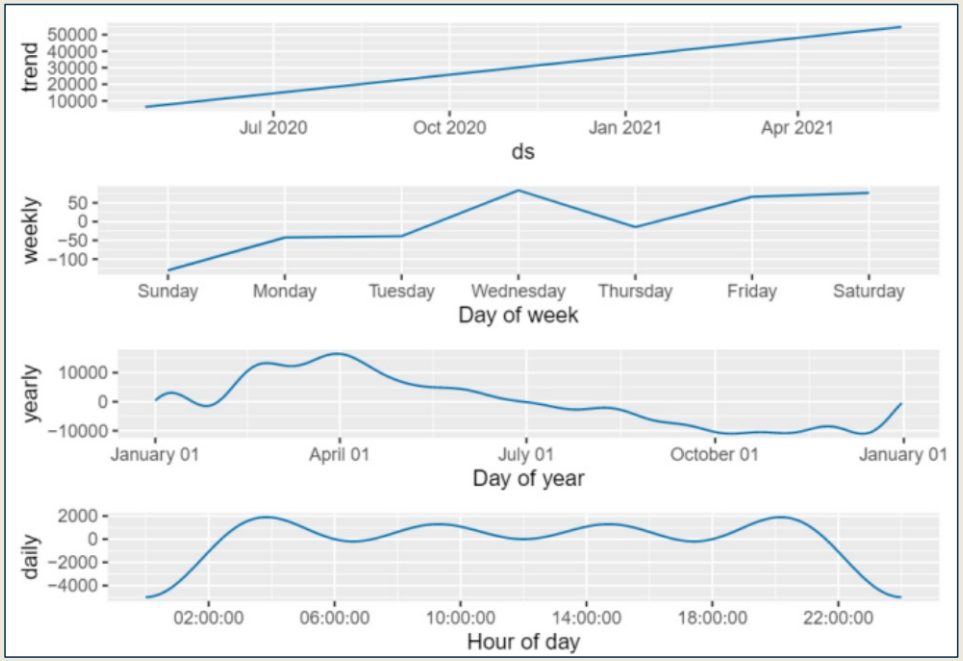


~$63,000

Analysis

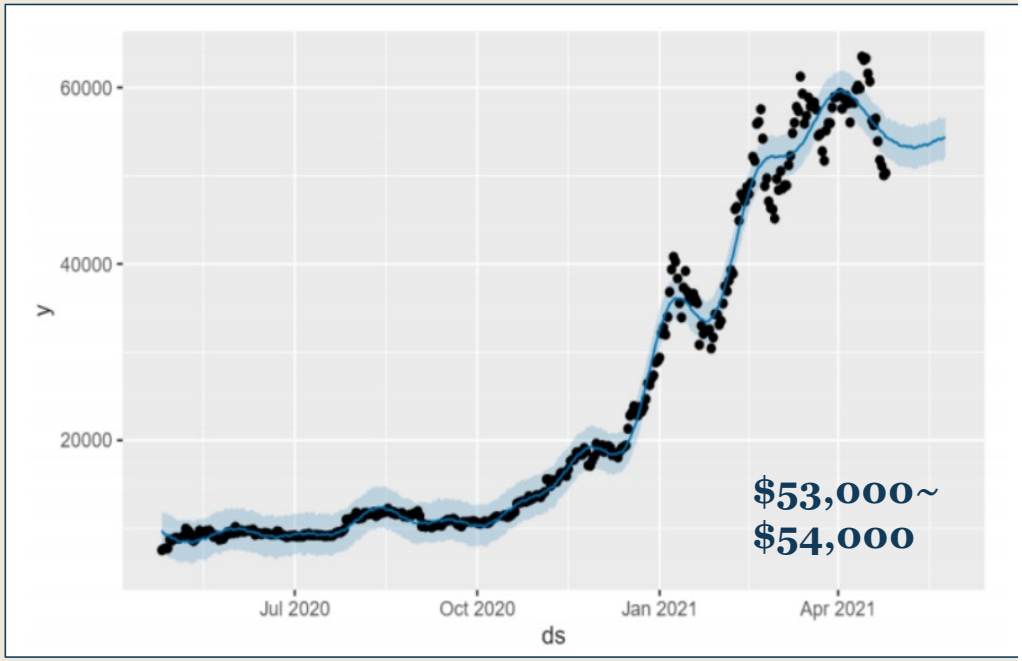
II.Prophet model

A prediction with strong seasonality



Seasonality components from Prophet

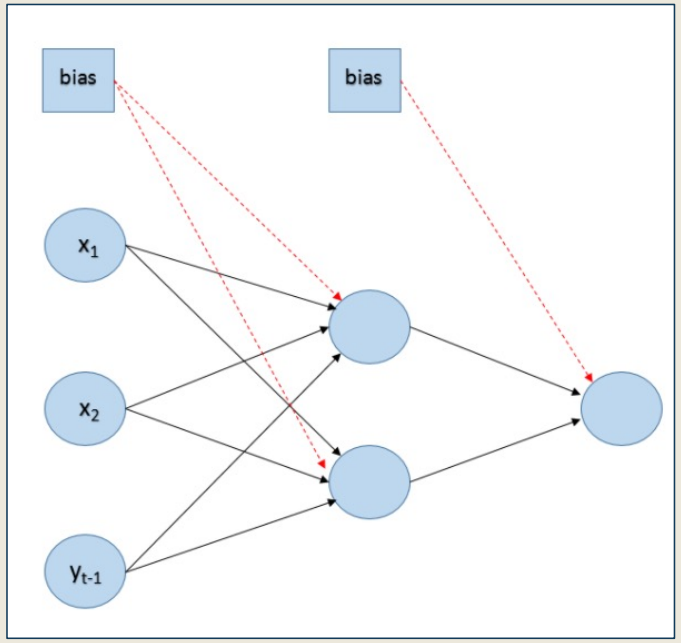
Forecast for the next 30 days

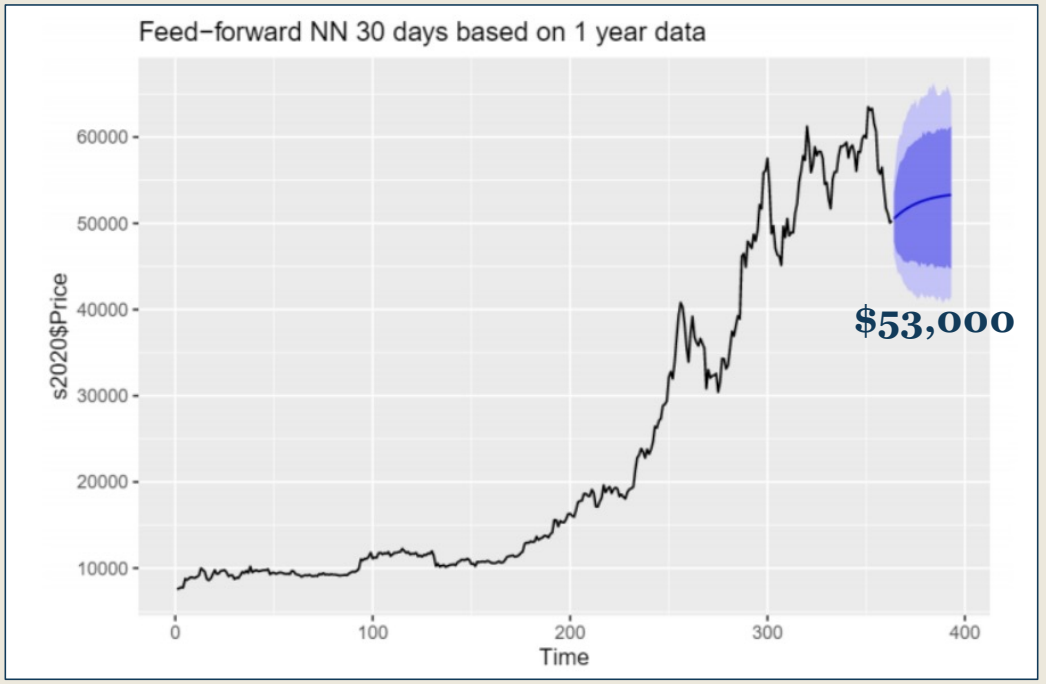


Analysis

III.A Neural Network model

Autoregressive model NNAR(p,k)



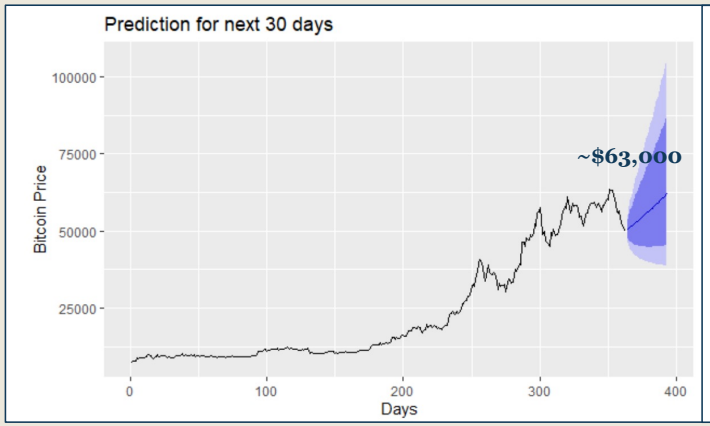


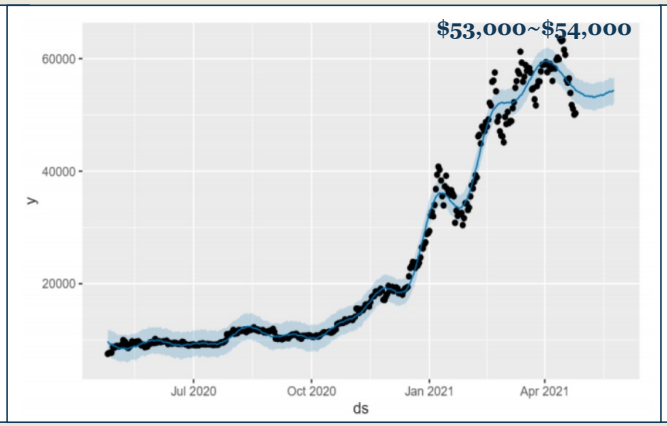
Example:
A nnar(1,2) model for demonstration

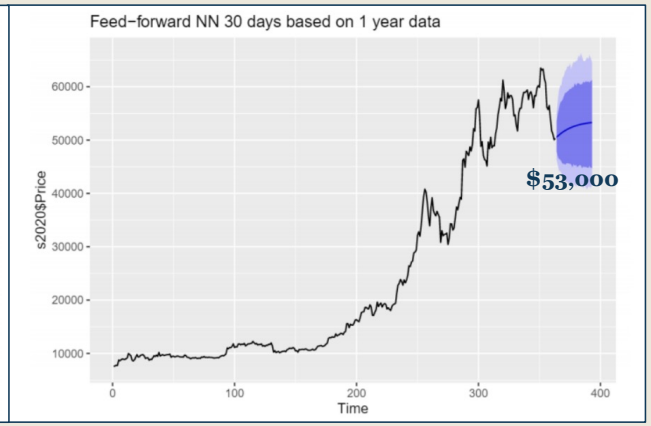
Analysis

IV.Choices

Based on RMSE score







Model(365 days)	*RMSE*
ARIMA(4,1,5)	1176.049
Prophet	1822.706
ANN	1146.885

Conclusion

Technically...

What we consider

Bitcoin indicators

- **MACD**
- **ATR**
- **RSI**

On trading platform

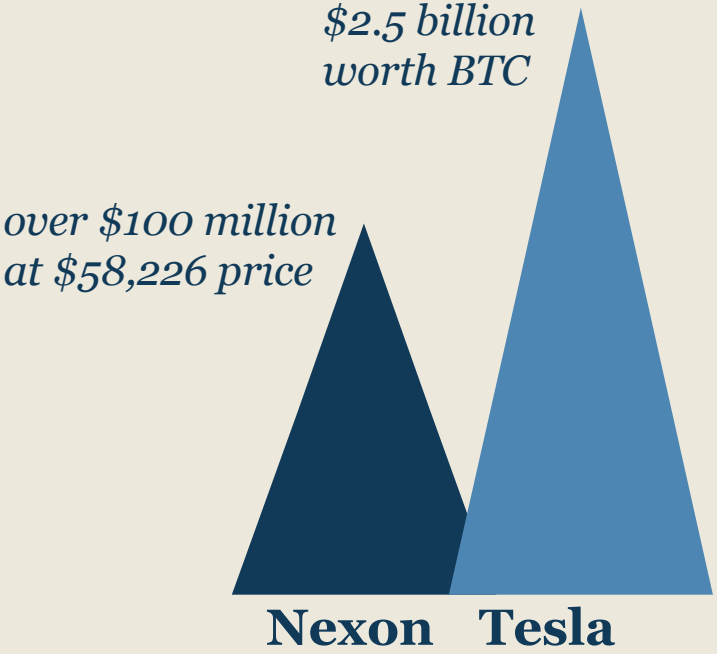
Outeriour reasons

- **Political**
- **Economic**
- **Black swan events**

Also needed

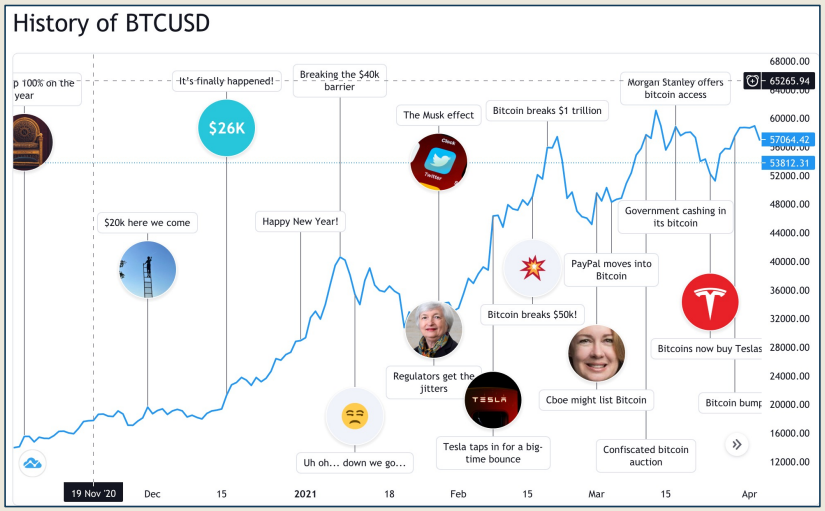
Fundamentally,...

The companies' treasure reserves



Conclusion

Price breakpoints
for the one last year



Covid-19 crashes the markets worldwide and Bitcoin price dives around $6,796 in the pandemic.

March 2020: Coronavirus hits Cryptos

Huge price plug of bitcoin caused.

April 2020: Economic shutdown in the pandemic

July 2020 Bitcoin breaks $10k

Mar 2021: Bitcoin breaks $1 trillion

April 2021: Bitcoin trades on Tesla

Conclusion

Simple but still
should know

1.Bitcoin's value may decrease after you buy your bitcoins.

2.Someone could get access to your private key and take your bitcoins.

3.Bitcoin isn't the only cryptocurrency.

4.Bitcoin trading accounts might not be insured.

5. Diversifying your investments can limit risk.


THANK
YOU