



Background

The year after February 2013 saw exceptional growth for Bitcoin—a scheme that permits the transfer of money between parties and, unlike traditional payment systems, has its own metric for value (named bitcoin, with a lowercase letter "b," and abbreviated as BTC3).

The Bitcoin scheme carries attributes of a payment system in that it facilitates the transfer of value between parties. Unlike traditional payment systems, which typically involve the transfer of value denominated in a sovereign currency such as the US dollar, Bitcoin has its own metric for value called a Bitcoin.

Bitcoin is an electronic token that has no underlying commodity or sovereign money and is not a liability on any balance sheet. Having the power to move bitcoins inside the Bitcoin ecosystem is all that it takes to own bitcoins. As such, Bitcoin has no intrinsic value. Rather, a bitcoin's value is derived mainly from its use for making payments in the Bitcoin system, and from the purpose of accruing gains from bitcoins' possible appreciation. To our knowledge, Bitcoin has no legal tender status in any jurisdiction.¹¹ Moreover, some economists have questioned whether bitcoins meet the standard attributes of money.

More than 64, 000 establishments throughout the world were reported to accept bitcoin payments as of October 7, 2014, and the exchange rate was more than US\$300 to the bitcoin, which is more than 50 times greater than it was 24 months before. These examples show that Bitcoin's seemingly attractive potential may be accompanied with risks whose nature and magnitude are poorly known, if at all. Bitcoin, like all cryptocurrencies, is a complicated concept. Cryptography, distributed algorithms, and incentive-driven behavior are used in its implementation. Our aims in this project:

1. Introduce a predictive model for the price of Bitcoin
2. Explore a couple significant underlying features of the model

Question/ need

- **What are the features we are interested in?**
- **We need a predictive model for the bitcoin price rate.**
- **Will the model be analyzed and configured based on time series?**

Model overview:

The model is a multiple linear regression model, which means that it predicts a single dependent variable using more than one explanatory variable. There are three essential features (independent variables) that are highly correlated with Bitcoin's price (dependent variable).

Features considered include

The goal is to find attributes that have a strong association to Bitcoin but are located outside of the Bitcoin universe (an example would be cryptocurrency universe market capitalization, of which Bitcoin comprises 35% according to coinmarketcap.com).

The following features are taken into account:

Bitcoin related

- Cryptocurrency universe market
- capitalization
- Ethereum price
- Volume
- Number of transactions
- Average block size
- Transaction fees
- Unique addresses
- Hash rate

Market related:

- Price of Gold
- Nasdaq Composite Index

Others:

- Google search interest

Tools

- Python (html5,matplotlib, Numpy ,Pandas, sklearn ,seaborn ,etc...)
- CoinMarketCap website.
- Google search engine.

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