

Analyzing Bitcoin Data

Sandhya

University of Vermont

sandhya@uvm.edu

December 14, 2017

Introduction

What is the need?

- We rely on authorities to confirm the truth of our actions
- But authorities are self-interested. So, we cannot trust them.

What is Bitcoin?

- Digital cryptocurrency and payment system
- Entirely decentralized with peer-peer transaction
- A system with public ledger that records transactions in a verifiable permanent manner.

Motivation

- Why sudden surge in price?
- Is it a bubble or it is real?
- Can data help me answer the questions?

Datasets

- Bitcoin historical dataset for last 5 years
 - bitcoin_price file: 1655 observation, 6 features
 - bitcoin_dataset: 2920 observations, 24 features
- US Stock Market Data
- Tokyo Stock Market Data

Data joining preprocessing

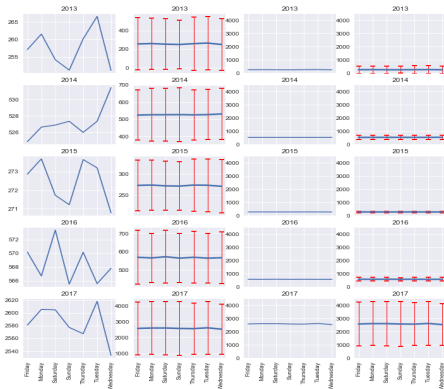
- Inconsistent date format
- joined multiple files based on Date

Seasonal Trends - day-of-week Analysis

Day of Week Analysis



Day of Week Analysis



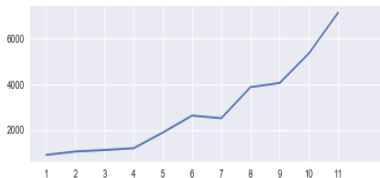
Seasonal Trends - Month-of-year Analysis

Month of year Analysis

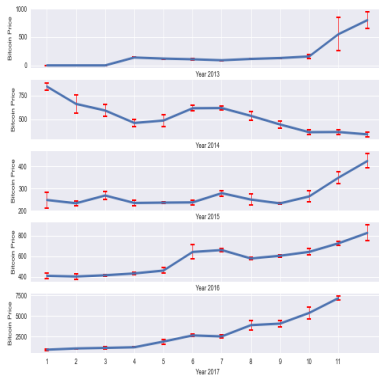
For 2013-2017



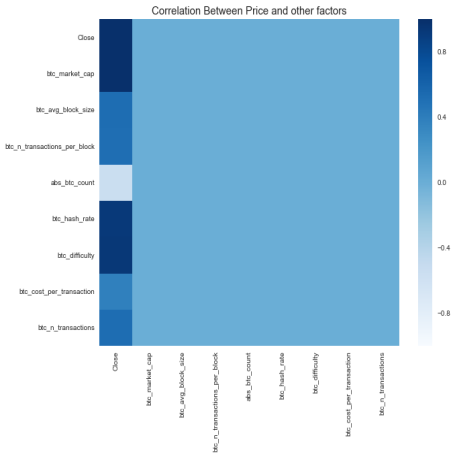
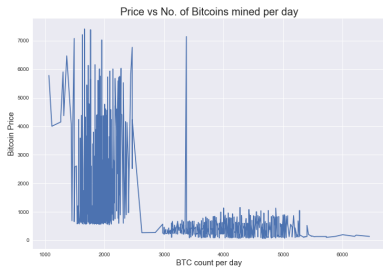
For 2017



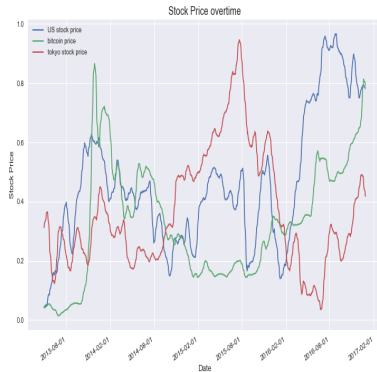
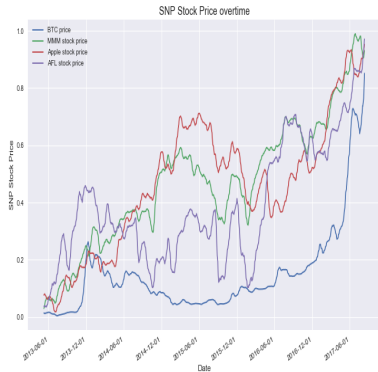
Month of year Analysis



Bitcoin Price and optimal features



Bitcoin Price and stock data



- Bitcoin price seems to follow a seasonal pattern
- Bitcoin Price decreases with increased number of bitcoins mined.
 - supply and demand rule.
- high number of transactions results in higher price
- no apparent relationship between stock price and bitcoin price
- The price is volatile and more data is needed to predict it accurately