Zero Theorem Literature Review

"Price Manipulation in the Bitcoin Ecosystem, N. Gandal, J. T. Hamrick, T. Moore, T. Oberman, 2018"

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Highlights

- Suggesting an effective technique that focus on user data to analyze Bitcoin Ecosystem.

Background

Due to the potential increase in cryptocurrency, bitcoin promoters disrupt the existing payment system leading to suspicious trading activities. Normally bitcoin and other cryptocurrencies never had any authenticated platform for transaction verification but now bitcoin has been a continuous object of assault by criminals. Whenever suspicious activity is recorded price grows exponentially up to 80% for that day while on normal days it keeps on decreasing. With no law enforcement, crypto has become a major threat. To understand mistrustful ventures, some past techniques have been applied using daily transaction data to combat threats but achieved no promising results. However, there is a need to focus on user id to link trades that illustrate suspected activity associated with the bitcoin price change.

Introduction

In this context, Gandal et al. (2018) examine and break down the effect of uncertain trading movement on the Mt.Gox bitcoin. For this purpose, it holds on a distinctive and detailed dataset to analyze suspicious trading activities that took place in the tenth month of 2013 on Mt.Gox which was the prime currency exchange for that specific time. To perform regression analysis, Gandal et al. (2018) first measure the degree of suspicious trading activities and then analyze the impact of trading activity on Mt.Gox and the Bitcoin ecosystem.

Proposed Methodology

This framework used regression analysis to provide strong evidence on Mt.Gox that limits the distributed denial of service attacks which cause changes in price rate.In this regard, following regressions are applied: RateChange $_t = \beta_0 + \beta_1$ Markus $_t + \beta_2$ Willy $_t + \beta_3 DDoS_t + \beta_4$ DayAfterDDoS $_t + \beta_5$ Other $_t + \epsilon_t$ and Returns $_t = \beta_0 + \beta_1$ Markus $_t + \beta_2$ Willy $_t + \beta_3 DDoS_t + \beta_4$ DayAfterDDoS $_t + \beta_5$ Other $_t + \epsilon_t$ respectively.

Details of Proposed Methodology

Hence, *RateChange* and *Returns* are two dependent variables that show the difference in the exchange rate on daily basis. ϵ_t is the noise and t refers to the time. However, an independent variable such as $Markus$ refers to an active buyer. From a working perspective, distributed denial of service attack $DDoS$ takes the value on the day of DDoS attack on Mt.Gox and one value after DDoS attack that shows the effect of daily rate change and daily returns. From a total of 365 observations, it shows that the coefficient of $Willy's$ activity is significant and it has a strong association with Mt.Gox exchange.

Results and Discussion

To evaluate the suspected activities associated with bitcoin price change, a technique called regression analysis is performed on two different datasets. The first group comprises bitcoins whose trading volume is expanded by at least 150% of the daily average trading for that month. However, the second group is obvious with a 200% jump. In group one when trading volume arise, the average coins USD exchange rate grows by 26.8% while on normal days it increases by 8.6%. In the second group when trading volume spikes, the average price increase by 30.5% compare to an average price increase of 8.8% on normal days. From the evaluated data it is clear that the jumping in trading volume and prices produced harmful situations which result in fraudulent activities in an opaque manner.

Conclusion

This leads to the conclusion that suspicious trading activity on the Mt.Gox exchange has a powerful connection with the rise in the price of Bitcoin during the period studied. With the rise in bitcoin price, it becomes the responsibility of the exchange to guarantee that no harmful trading takes place.

References

Gandal, N., Hamrick, J., Moore, T., and Oberman, T. (2018). Price manipulation in the bitcoin ecosystem. *Journal of Monetary Economics*, 95:86–96.