

Abstract

Cryptocurrency is the ‘Wild West’ of investing, with no regulatory oversight and little insight into the future of widely-owned cryptocurrency. Current analysis techniques are unable to make sense of price trends in the cryptocurrency market. This thesis proposes that determining the causal impact of events on cryptocurrencies will allow analysts to more easily predict prices and trajectories based on their knowledge of similar situations. Inferences on the causal impacts of events on cryptocurrencies were analyzed using a Bayesian structural time series (BSTS) model. A BSTS model utilizes prior knowledge of trends from the variable it analyzes, and multiple control markets to determine the impact of treatment (an action at a point in time) on the variable’s value. Different analyses are conducted in this thesis using a Python implementation of Google’s Causal Impact R library. This paper uses a BSTS model to run various causal inference analyses. The benefits and limitations of this approach are explored through the lens of cryptocurrencies. Additionally, this thesis examines the potential impact of social media on the prices of cryptocurrency. After running through several experiments this thesis demonstrates the viability of using a BSTS model on volatile data such as cryptocurrency. The results show the model is able to reveal what effects a treatment has on price data and the conclusion suggests avenues for improvement.