



THE UNIVERSITY OF
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Department of Statistics

MASTER'S THESIS PRESENTATION

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Bitcoin: A Statistical Exploration

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ABSTRACT

Cryptocurrencies have become popular as a speculative asset class over the past five years. Bitcoin, invented by an unidentified programmer, (or possibly a group of programmers), under the pseudonym Satoshi Nakamoto, remains the most popular and liquid cryptocurrency. In this paper, we first apply machine learning techniques to attempt to predict the returns of Bitcoin at both daily and intra-day time-scales. The success of this preliminary work is assessed on the basis of the out-of-sample performance of a simple long-only and long-short strategy that utilizes our models' predictions. We then use live order book data to predict high frequency market behavior, such as taker arrival times, volume traded, and the type of subsequent market orders.