Cryptocurrency Market Anomaly: The Day-of-the-Week-Effect

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Abstract
Cryptocurrency has emerged as a fad amongst investors, academicians and policy-makers as a financial asset, making it important to empirically test the price behaviour of this emerging market. This paper is designed to investigate the presence of a well-known day-of-the-week effect in the young and emerging cryptocurrency market returns from August 2015 to March 2019. Using varied statistical techniques, this anomaly is examined for six cryptocurrencies (Bitcoin, Ethereum, Ripple, Litecoin, Stellar and Tether). The study applies both parametric and non-parametric statistical tests, i.e., Bar Graph, Heat map, Student’s t-test, Analysis of Variance (ANOVA), regression analysis with dummy variables and the Kruskal Wallis Test. The study’s findings show that no sample cryptocurrency returns exhibit the day-of-the-week effect phenomenon. The statistically insignificant result of the day-of-the-week effect in the cryptocurrency returns showcases the evidence of market efficiency in the cryptocurrency market.

JEL Code: C12; G14
Keywords: Cryptocurrency; Day-of-the-week Effect; Anomaly; Market efficiency; India

I. Introduction
THE EFFICIENT MARKET hypothesis demands that prices of a security, commodity or currency in the market should fully reflect any given and readily available set of information about their intrinsic value (Kaushik, 2017), leading to impossible abnormal returns. However, many studies have focused on exploring and analysing varied trading strategies to plough above normal returns questioning the market efficiency. In the set of such research, several scientific findings demonstrate Calendar influences like

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1 Presented at IIF International Research Conference & Award Summit, August 2020
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Submitted August 2020; Accepted April 2022
the day of the week effect and find the statistically significant evidence of the anomaly, both parametric (Average analysis, Heatmaps, Student's t-test, ANOVA, Regression with dummy variables) and non-parametric methods (Kruskal – Wallis and Mann – Whitney) are applied.

The primary technique applied is a pictorial presentation of Bar graph, and Heatmaps (through the average of the returns) indicates the absence of any day effect anomaly. Further, parametric tests of the Student’s t-test and ANOVA showcased no variation or higher returns on any day of the week. Similar results were observed for the non-parametric test of Kruskal-Wallis and Mann-Whitney. Finally, the robustness of the examination of the result is affirmed through the dummy regression analysis followed by a majority of the research to evaluate the time-specific anomalies.

The empirical results observe no persistent and significant variation (higher returns) or anomaly in the cryptocurrency returns for day-of-the-week effect for any day of the week. The conclusion of the present study is consistent with the findings reported in Baur, Cahill, Godfrey and Liu (2019) and Yaya and Ogbonna (2019). To summarise, the study provides no evidence against the efficiency of the cryptocurrency market. This is important from an investor’s point of view as it is clear that this young market quickly absorbs any information available, giving no large arbitrage profits to any investor. A further study can be carried out using other cryptocurrencies such as Monroe, Dash, Binance and many more, studying other calendar anomalies such as the March effect, December effect, time of the day effect, holiday effect, which have been carried out previously in the traditional markets.

References


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