

ABSTRACT

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Implementation of Decision Support System and Business Intelligence Tools for Comparative Analysis of Bitcoin and BBCA Stock Investment Instruments Using the TOPSIS Method

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This research aims to implement Business Intelligence and a Decision Support System (DSS) to compare the performance of Bitcoin and BBCA stock as investment instruments using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. The dataset consists of historical price and trading volume data covering five years, from June 1, 2020, to June 1, 2025. The evaluation is based on five main criteria: Return on Investment (ROI), Risk (Standard Deviation), Liquidity (Average Trading Volume), Cost (Transaction Fee), and Growth Potential (CAGR). The research methodology includes system requirements analysis, dataset collection, data preprocessing, determination of evaluation weights, application of the TOPSIS method, and dashboard visualization design using Power BI. TOPSIS was selected for its capability to rank alternatives by measuring their relative closeness to both positive and negative ideal solutions. The findings indicate that Bitcoin demonstrates higher ROI, liquidity, and growth potential compared to BBCA stock, but with significantly greater risk. Conversely, BBCA stock provides lower volatility and more stable performance, though with moderate growth potential. The DSS implementation results in an interactive dashboard that comprehensively presents the comparison of both investment instruments. Therefore, this study successfully develops a data-driven evaluation system that supports investors in making informed decisions according to their risk preferences and financial objectives.

Bibliography: (2019–2025)