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The Impact of Central Bank Communication on Stock Market Volatility: An AI-Based Analysis

Communication Info

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Abstract

This study examines the impact of central bank communication on stock market volatility using artificial intelligence (AI)–based text analysis. Policy statements from the Federal Reserve (FOMC) and the European Central Bank (ECB) are analyzed to quantify communication complexity and uncertainty. AI techniques extract clarity and ambiguity measures, which are linked to market reactions around announcement dates. Results show that higher complexity or uncertainty increases post-announcement volatility, particularly during periods of elevated economic uncertainty [1,2]. AI-based metrics capture nuances beyond traditional readability scores [3], providing a robust tool for understanding market responses. Volatility, denoted as σ_t, is measured as the standard deviation of returns around announcements [4]. These findings highlight the importance of clear communication and the usefulness of AI in financial analysis [5].

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