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Empirical Validation on Excess Volatility Puzzle

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Abstract

We study the excess volatility puzzle observed in the market by comparing the volatility of S&P 500 and 10-year Treasury yield over the sample period of 2013 to 2019. To estimate the volatility of stock and bond returns, we apply three different methods to check the puzzle: (1) historical volatility; (2) volatility indices and (3) econometrics models. Under normal and independent assumptions for returns of stocks and bonds, we derive a variation measure to check the puzzle. The results of the three models show the variance of the excess return of stock and bond is time changing. The time-varying of the variance of excess return demonstrates the inefficiency of markets due to predictably of excess return over time.

Keywords: Excess volatility puzzle, market efficiency, econometrics model, volatility index, rolling window estimation.

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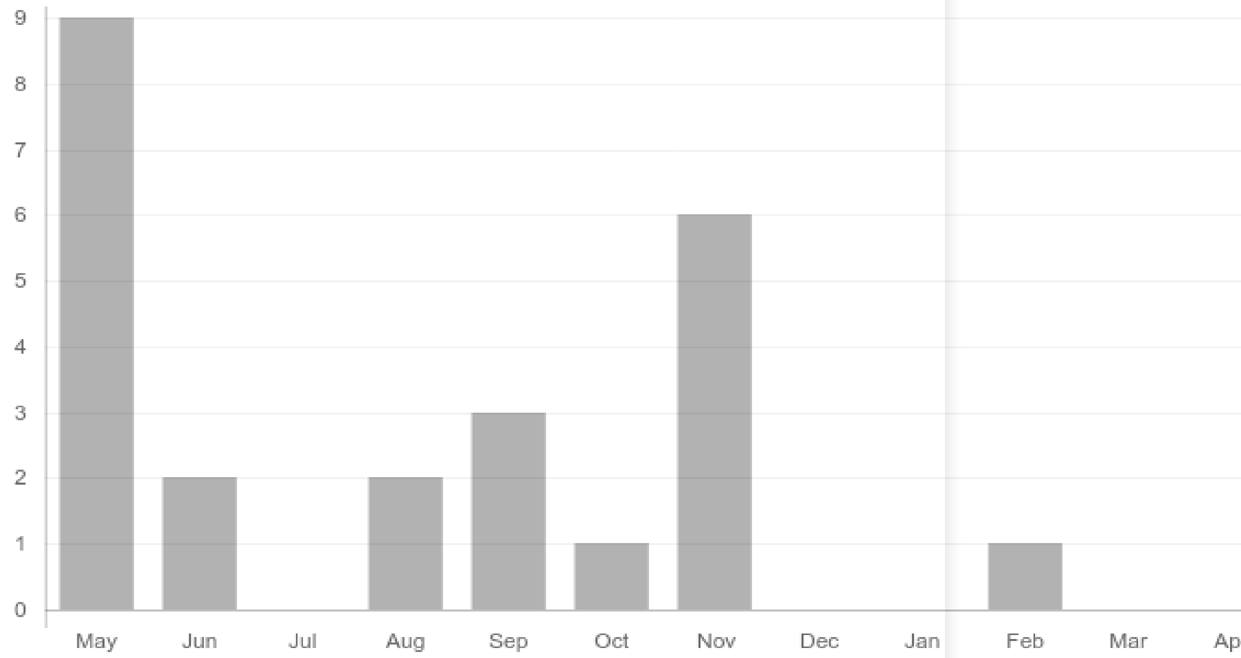

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