ANALISIS *VOLATILITY SPILLOVER* PADA *CRYPTOCURRENCY* MENGGUNAKAN *EGARCH MODEL*
(Studi Pada Bitcoin Dan *Altcoin*: Ethereum, XRP, Tether, Litecoin)

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Abstrak

Penelitian ini bertujuan untuk menguji secara empiris volatilitas pengaruh harga Bitcoin terhadap harga *altcoin* atau adanya efek menular (*spillover*) dari volatilitas harga Bitcoin terhadap harga *altcoin*. Penelitian ini menggunakan variabel *independent* yaitu Bitcoin. Variabel dependen adalah Ethereum, XRP, Tether dan Litecoin. Sampel yang digunakan dalam penelitian ini merupakan *the most popular cryptocurrency* yang menduduki *market capitalization* teratas yaitu Bitcoin dan *altcoin* Ethereum, XRP, Tether, dan Litecoin. Data yang digunakan adalah data *time series* berupa data harian dari harga penutupan Bitcoin dan *altcoin* Ethereum, XRP, Tether, Litecoin dengan periode sampel 31 Agustus 2015 sampai dengan 31 Oktober 2019. Model yang digunakan dalam penelitian ini adalah uji Augmented Dickey-Fuller, uji White, dan pemodelan EGARCH. Hasil uji Augmented Dickey Fuller *level* mengharuskan merubah data harga penutupan variabel Bitcoin, Ethereum, dan Litecoin menjadi data *return* harian pada uji Augmented Dickey Fuller *first difference*. Hasil uji White menunjukkan variabel yang memenuhi kriteria adanya heteroskedastisitas untuk dapat dilanjutkan dengan pemodelan EGARCH adalah Bitcoin dan Ethereum, Bitcoin dan XRP, serta Bitcoin dan Litecoin. Hasil analisis menggunakan model EGARCH menunjukkan bahwa terjadi volatilitas *spillover* antara variabel Bitcoin dan Ethereum adanya *shock negative* berpengaruh lebih banyak daripada *shock positive* dengan persentase sebesar 30,6%, variabel Bitcoin dan XRP adanya *shock positive* berpengaruh lebih banyak daripada *shock negative* dengan persentase sebesar 35,8%, serta Bitcoin dan Litecoin dengan *shock negative* berpengaruh lebih banyak daripada *shock positive* dengan persentase sebesar 34,7%. Hasil penelitian ini bermakna bahwa volatilitas Bitcoin dapat memiliki pengaruh atau efek menular (*spillover*) secara *positive* maupun *negative* terhadap *altcoin,* artinya bahwa volatilitas harga Bitcoin naik maupun turun berpengaruh pada harga *altcoin*.

Kata Kunci*: Volatilitas, Spillover, Bitcoin, Altcoin, EGARCH*

VOLATILITY SPILLOVER ANALYSIS ON CRYPTOCURRENCY USING EGARCH MODEL
(A Study of Bitcoin and Altcoin: Ethereum, XRP, Tether, Litecoin)

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Abstract

Bitcoin is the first cryptocurrency that has succeeded in a new era of investment. The success of Bitcoin triggered the emergence of an altcoin. As a pioneer of cryptocurrency, there is a possibility that Bitcoin spillover volatility affects altcoin prices. This study aimed to empirically examine the effect of Bitcoin price volatility on altcoin prices or the presence of a spillover of Bitcoin price volatility on altcoin prices. This analysis uses the independent variable, Bitcoin. The dependent variables are Ethereum, XRP, Tether, and Litecoin. The sample used in this study was the most popular cryptocurrency that occupied the top market capitalization, namely Bitcoin and Altcoin Ethereum, XRP, Tether, and Litecoin. The data used were time-series data in the form of daily data from the closing price of Bitcoin and Altcoin Ethereum, XRP, Tether, Litecoin with a sample period of 31st August 2015 to 31st October 2019. The model used in this study was the Augmented Dickey-Fuller test, the White test, and EGARCH modeling. Augmented Dickey-Fuller level test results required changing the Bitcoin, Ethereum, and Litecoin variable data into daily return data on the first difference Augmented Dickey-Fuller test. White test results showed that variables with heteroscedasticity criteria to be continued with EGARCH modeling were Bitcoin and Ethereum, Bitcoin and XRP, and Bitcoin and Litecoin. The result of the analysis using the EGARCH model showed that spillover volatility occurred between the Bitcoin and Ethereum variables. The presence of negative shock affects more than the positive shock with a percentage of 30.6%, the Bitcoin, and XRP variables. The presence of a positive shock affected more than the negative shock, with a rate of 35.8%. Bitcoin and Litecoin with negative shock had more effect than shock positive with a percentage of 34.7%. The results of this study meant that the volatility of Bitcoin had an influence or spillover positively and negatively on altcoin, it meant that the volatility of the rate of Bitcoin rising or falling affects the price of the altcoin.

Keywords: *Volatility, Spillover, Bitcoin, Altcoin, EGARCH*