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## **Cryptocurrencies Investment Properties against Economic Policy Uncertainty: A Wavelet Analysis before, during and post COVID-19**

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### **Introdução**

To date, existing literature provides quite different conclusions regarding how cryptocurrencies act in the face of economic policy uncertainty. Some studies indicate that cryptocurrencies inability to act as safe-havens, others point the opposite; others still, show that there is no influence of economic policy uncertainty on the cryptocurrency market. Fewer show COVID-19 impact. Haq et al. (2021), calls to investigate multiple cryptocurrencies and EPUs, using wavelets Similarly, Jalal et al. (2021) calls for additional research on diversification using cryptocurrencies as financial assets.

### **Problema de Pesquisa e Objetivo**

We answer those calls (Haq et al. 2021; Jalal et al. 2021). Accordingly, the objective of this study is threefold: assess the relationship between the major cryptocurrencies (Bitcoin and Ethereum) and seven economic policy uncertainty indices (Global, USA, China, Europe, Germany, UK and France) in a monthly basis; characterize cryptocurrencies as hedging, safe-haven or diversifier instruments of portfolio investment; and classify them over pre-COVID, COVID and post-COVID periods.

### **Fundamentação Teórica**

During extreme market conditions EPU improves the prediction of Bitcoin returns in the most countries. In US and Japan, a significant rise in uncertainty results in a decrease in Bitcoin volatility, confirming hedging in 2011-19. Similar for Bitcoin and Litecoin against the China's EPU (2014-19). Bitcoin can also act as a safe-haven against Chinas' uncertainty and for US and Japan's. Finally, literature also argues Bitcoin has no significant relationship with US EPU (2010-18), evidencing Bitcoin as a diversifier. Thus, USEPU relationship with Bitcoin reveals mixed effect, in extant literature.

### **Metodologia**

To investigate the relationship between cryptocurrencies and the different economic policy uncertainty indices, we used the wavelet functions methodology. Wavelet functions consist of an analysis performed through wave functions, where time series are transformed into frequency and time components. The graphical analysis of these functions focuses on wave oscillations that, at first, have an amplitude equal to zero and vary over time, always returning to zero amplitude at the end of the considered time interval (Phillips & Gorse, 2018).

### **Análise dos Resultados**

Our results reveal that both Bitcoin and Ethereum are in many cases characterized as a diversifier across all periods. Nonetheless, they also highlight that, in general over the post-COVID period there were mostly positive correlations, suggesting the ability of both Bitcoin and Ethereum to act as hedgers or safe-haven instruments against uncertainty. However, over the pre-COVID and COVID periods, there were mostly negative correlations, suggesting the inability of both cryptocurrencies to act as hedgers or safe-haven instruments against uncertainty.

### **Conclusão**

A study with these macroeconomic implications, is of great interest to investors, managers, governors, market regulators, and academics. Our findings present valuable insights for investors who consider cryptocurrencies into their portfolios and help them minimizing risks and maximizing returns against uncertainty. In addition, the EPU's effects provide insights for policymakers and

regulators to adequately regulate these digital assets, regulations that are urgently needed.

### **Referências Bibliográficas**

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