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Nonlinear nexus between cryptocurrency returns and COVID-19 news sentiment

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A B S T R A C T

The paper examines how various COVID-19 news sentiments differentially impact the behaviour of cryptocurrency returns. We used a nonlinear technique of transfer entropy to investigate the relationship between the top 30 cryptocurrencies by market capitalisation and COVID-19 news sentiment. Results show that COVID-19 news sentiment influences cryptocurrency returns. The nexus is unidirectional from news sentiment to cryptocurrency returns, in contrast to past findings. These results have practical implications for policymakers and market participants in understanding cryptocurrency market dynamics under extremely stressful market conditions.

1. Introduction

Signalling theory documents the importance of news as signals to perceive future market behaviour (Connelly et al., 2011). The framework asserts the role of the signaller and the signal, and whenever the signal contains new or vital information, the markets tend to react accordingly to new signals (Fu et al., 2021; Romer, 1993; Wei and Zhou, 2016). Numerous news signals are available in the public domain and are used to understand asset pricing behaviour (Gan et al., 2020; Sanford, 2020). Extant literature has supported that whenever news is unavailable in the public domain and it is released with a degree of surprise, the vibrancy in the markets is equally visible in prices and trading volume (García et al., 2014; Banerjee et al., 2020; Banerjee and Pradhan, 2020a, 2021a). The most prominent news market participants regularly follow in anticipation that news may have novelty are the economic and financial news (Banerjee and Pradhan, 2020a; Banerjee et al., 2021; Büttner and Hayo, 2010). The impact of such news on various asset classes such as bonds, currencies, stocks and futures markets is well-documented (Banerjee and Padhan, 2017; Banerjee and Pradhan, 2021a; Brenner et al., 2009; Luss and d'Aspremont, 2015).

Signalling theory remains a robust foundation for explaining investment decisions and strategic asset allocation (Alsos and Ljunggren, 2017; Frijns and Huynh, 2018; Griffith et al., 2020; Heston and Sinha, 2017), investor's underreaction or overreaction to news (see Barberis et al., 1998; De Bondt and Thaler, 1985; DeFond and Zhang, 2014; Miwa, 2019; Banerjee and Pradhan, 2020b). Recently studying the credit default markets (CDS), Marsh and Wagner (2016) have asserted that swap dealers exploit the informational advantages against investors. Wei and Zhou (2016) documented the surge in bond trading activity before the release of earning announcements in the expectation of information asymmetry in news signals. Bailey et al. (2014) reported a significant association between changes in the volatility index (VIX) and macroeconomic announcements by studying the high-frequency changes in VIX. Past literature has found a causal impact on financial journalism, media news and aggregate market prices (Banerjee et al., 2021; Dougal et al., 2012) and how management

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