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Notice for the PhD Viva Voce Examination

Mr Chavan Rajkumar Dhaku (Registration Number: 2070102), PhD scholar at the School of Commerce, Finance and Accountancy, CHRIST (Deemed to be University), Bangalore will defend his PhD thesis at the public viva-voce examination on Tuesday, 09 January 2024 at 10.30 am in Room No. 044, Ground Floor, R & D Block, CHRIST (Deemed to be University), Bengaluru - 560029.

Title of the Thesis	:	**Volatility Spillover Effects in Cryptocurrencies**
Discipline	:	**Commerce**
External Examiner (Outside Karnataka)	:	**Dr Arindam Banerjee** Associate Professor School of Commerce and Management Shiv Nadar University, Rajiv Gandhi Salai Kalavakkam, Chennai – 603 110 Tamil Nadu
External Examiner (Within Karnataka)	:	**Dr Sathyanarayana S** Professor M P Birla Institute of Management Bharatiya Vidya Bhavan #43, Race Course Road Bengaluru, Karnataka
Supervisor	:	**Dr Senthil Kumar A** Associate Professor Department of Professional Studies School of Commerce, Finance and Accountancy CHRIST (Deemed to be University) Bengaluru – 560029 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Registrar

Place: Bengaluru
Date: 03 January 2024

ABSTRACT

Cryptocurrencies' growing use has increased investors and decision-makers' interest. Cryptocurrencies' volatility and how it impacts others is most intriguing. Arguments include speculative pressures, valuation uncertainty, and lack of regulation. These traits cannot fully explain cryptocurrency volatility and volatility spillovers, suggesting other relevant factors. In this study, currency volatility and spillovers, as well as their relationship with the sentiment of global investors, were investigated. The study analysed 22 cryptocurrencies from 01/01/2018 to 31/12/2022. The study used FIGARCH and FIEGARCH, a GARCH family model to analyse the long-memory and leverage effects on cryptocurrency volatility, the ADCC-GARCH framework, and the Diebold-Yilmaz spillover index to analyse cryptocurrency volatility spillovers. The long-memory and leverage impacts on bitcoin volatility were analysed using the FIGARCH and FIEGARCH models from the GARCH family. Both the Chow-test and the Pai-Berron Test found structural breaks in the cryptocurrencies. Cryptocurrencies such as Adacordono, Aertinity, ARK, BAT, BCH, BNT, BTC, Dogecoin, Ethereum, Funtoken, ICON, KMD, KNC, NEO, PIVX, QTUM, SNT, TRX, ZCASH, have positive (difference) FIGARCH coefficient values. It indicates a long memory in currencies, and volatility shocks affect future volatility. On the other hand, the FIGARCH coefficient of BTG cryptocurrency (difference) is negative (-0.035), which suggests that the individual has a short memory. In this scenario, the effects of volatility shocks are only temporary. When extreme volatility is promptly followed by low volatility or vice versa, this indicates anti-persistence.

The study also found that both positive and negative news has a significant impact on the volatility of specific cryptocurrencies such as BCH (0.015), BNT (0.0016), BTG (0.01972), DOGE (0.2296), EOS (0.0112), KNC (0.0366), PIVX (0.0021), TRX (0.0013), Adacordono (-0.027), Aertinity (-0.0393), ARK (-0.0377), BAT (-0.028058), and BTC (-0.0665). Ethereum has the largest spillover (4.09), followed by QTUM (4.06), EOS (4.05), Adacordono (4.05), and Dogecoin (2.4). All cryptocurrencies show fundamental instabilities (P-values less than 0.05). Hence the alternative hypothesis is accepted, and the null hypothesis is rejected. The hill estimator tail index value is $\xi > 0$, fat tail or heavy tail; high chance of catastrophic event which is observed in all the 22 cryptocurrencies. Both investors and speculators can use sentiment analysis to forecast market volatility and generate gains. Policymakers can also utilize this information to establish laws that reduce market volatility. As a result, the study contributes to the ongoing discussion on the factors that cause bitcoin's volatility.

Keywords: Cryptocurrency; Volatility Spillovers; FIGARCH; Hill estimator; Structural Breaks.

Publications:

1. **Dhaku, C.R.**, Arumugam, S.K. (2023). Forecasting Bitcoin Price During Covid-19 Pandemic Using Prophet and ARIMA: An Empirical Research. In: Abraham, A., Pllana, S., Casalino, G., Ma, K., Bajaj, A. (eds) Intelligent Systems Design and Applications. ISDA 2022. Lecture Notes in Networks and Systems, vol 717. Springer, Cham. https://doi.org/10.1007/978-3-031-35510-3_46
2. Arumugam, S. K., **Dhaku, C.R.**, Toms, B. (2023). Cryptocurrencies: An Epitome of Technological Populism. In: Abraham, A., Pllana, S., Casalino, G., Ma, K., Bajaj, A. (eds) Intelligent Systems Design and Applications. ISDA 2022. Lecture Notes in Networks and Systems, vol 717. Springer, Cham. https://doi.org/10.1007/978-3-031-35510-3_45