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Editorial

Mathematics, Cryptocurrencies and Blockchain Technology

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This book contains the successful invited submissions [1–9] to a Special Issue of *Mathematics* on the subject area of "Mathematics, Cryptocurrencies and Blockchain Technology".

Blockchain is the innovative database technology that is at the heart of nearly all cryptocurrencies and has already significantly changed the future of money, finance, supply chain management and more. In this Special Issue, we focus on the pricing mathematics underlying mathematical and computational methods that can be useful tools for prediction or for estimating the reasonable value of something.

This Special Issue includes the most important studies of the Cryptocurrencies and Blockchain Technologies, such as the analysis of the Bitcoin price dynamics, the macroeconomic consequences of introducing Central Bank Digital Currencies (CBDC), and concerns about sustainable development or the Blockchain token economy.

Chen and Huang [1] focus on the issue of the fact that cryptocurrencies involve significant jump risks and conduct an in-depth investigation of hedging strategies. They find that the inclusion of jumps in returns and volatilities is significant in the historical time series of Bitcoin prices. In a similar order, considering Blockchain technology's potential to revolutionize stock trading, Cohen [2] proposes a trading system based on second order stochastic dominance to different cryptocurrencies. He finds that the system is able to predict long trends but also to outperform the Buy and Hold strategy in most cases.

The COVID-19 pandemic and its consequences were also discussed in this Special Issue. Boguslavsky et al. [3] state, after performing gallop polls, that one of the main reasons for the significant rise in cryptocurrencies is that they are an "epidemiologically safe" means of transaction.

Pinto-Gutiérrez et al. [4] and Guo et al. [5] focus their studies on Tokens and Non-Fungible Tokens (NFTs), which offer to their holders a medium to purchase various goods, services or privileges. The former show that Bitcoin returns can predict the following week's NFT growth after using different vector autoregressive models, while the latter propose a "dual incentive value-based" paradigm to improve profitability in Blockchain token economy. For that reason, they develop a business study case for improving merchants' environmental states and show that merchants obtain greater profits following the proposed paradigm.

As mentioned above, this Special Issue also pays attention to one of humanity's greatest problems, the development of a sustainable world. Syed et al. [6] focus on the relationship between green bonds and Bitcoin and find that positive shocks of Bitcoins exert a positive influence on green bonds. There is also a space for machine-learning models and their use to discriminate between malicious and non-malicious tokens in different scenarios, such as the paper of Mazorra et al. [7], but also for predicting Bitcoin's prices, as Ye et al. [8] propose.

Finally, we should point out the study of Syarifudding and Bakhtiar [9] who develop a medium-sized dynamic stochastic general equilibrium model to assess the macroeconomic consequences of introducing interest-bearing CBDC, finding that they offer a significant number of macroeconomic benefits.

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The response to our call had the following statistics:
Submissions (12);
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Article types: Research Articles (9);
Authors' geographical distribution (published papers):
China (3);
Spain (2);
Chile (1);
Colombia (1);
India (1);
Indonesia (1);
Israel (1);
Pakistan (1);
Russia (1);
Taiwan (1).

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