

*Economics*

# What Drives Cryptocurrency Markets? Data, Capital Growth and Macroeconomic Forces

David Dzidzikashvili\*, Maia Kheladze\*, Félix Puime Guillén\*\*,  
Raquel Fernández-González§

\* Business & Technology University, Tbilisi, Georgia

\*\* University of Coruña, Spain

§ Universidade de Vigo, Spain

(Presented by Academy Member Anzor Abzalava)

**Abstract.** The approval of Bitcoin (BTC) and Ethereum (ETH) exchange-traded funds (ETFs) in 2024 marked a significant milestone for the global cryptocurrency market, facilitating mass adoption and integration of blockchain technology across various sectors. This study examines the resilience of the cryptocurrency market during the 2022 bear market, highlighting the failure of large investors to push Bitcoin prices below \$16,000 despite market scandals. A comprehensive analysis of historical data, market trends, and regulatory developments was conducted to estimate the development of a 2025-2040 cryptocurrency global market capitalization ranges. Year-over-year price change analysis, statistical correlation methods, and other major economic factors affecting prices, supply and demand were applied. The initial research predicts that Bitcoin's price will keep appreciating on the 2025-2040 trajectory, driven by institutional adoption, technological advancements, deeper integration into financial and payment ecosystems and favourable macroeconomic conditions. The findings underscore the importance of regulatory clarity and technological innovation in driving market growth. The approval of ETFs has opened doors to institutional investors, accelerating the mass adoption of blockchain-based technologies. The analysis concludes that the approval of Bitcoin and Ethereum ETFs has significantly impacted the cryptocurrency market, with substantial growth in Bitcoin prices and use cases projected up to 2040. Continuous monitoring and updating of the research analytics are essential to account for market unpredictability and regulatory changes in the foreseeable future. © 2026 Bull. Natl. Acad. Sci. Georg.

**Keywords:** Bitcoin ETFs, cryptocurrency, blockchain technology, institutional adoption, payments

## Introduction

The approval of the Bitcoin ETF in January 2024 and the Ethereum ETF by the SEC in July 2024 should be celebrated with greater enthusiasm within the crypto community as the most significant milestone since the inception of Bitcoin

(Krause, 2024). This development opens the doors to institutional investors and facilitates the mass adoption of this revolutionary technology. It paves the way for integrating blockchain technology and cryptocurrency projects into daily life through banking services, payments channels, affordable

loans, and borrowing, as well as other sectors such as medical, science, technology, and education. Participation from ETFs and larger organizational investors is essential to drive mass adoption, create more demand, attract more users, and enhance the utilization of crypto products and services (Arnone, 2024a).

In the consulting and venture capital world, when someone seeks loans or funding for a start-up idea, traditional bankers typically ask three key questions: First, 'How do you define your success in terms of Dollar/Euro?' Second, 'Explain the growth in financial value terms;' and lastly, 'What practical benefits do these products/services offer?'

In the crypto universe, there is one clear answer: The success of cryptocurrency and blockchain technology can be measured primarily by mass adoption and higher Dollar/Euro values, with the global crypto market cap surpassing the global gold market cap of \$18 trillion in the future (Joo et al., 2019). Mass adoption and utilization will generate stronger economic demand and financial market value across various sectors of the economy for each individual project (Mikhaylov, 2020).

Assuming no major global economic macro indicators decline in 2025-2026, this year will mark the beginning of the global mass-adoption process, followed by more streamlined policies and regulatory frameworks, thereby creating a more favorable business climate for crypto projects in the United States (US) and facilitating further advancement and development of blockchain technology and cryptocurrency growth in the US (Freitas et al., 2025; Gaies et al., 2024). The European Union (EU) has already made significant progress in this regard with the adoption of the Markets in Crypto-Assets (MiCA) Act, which has created a much warmer business climate for crypto projects across EU member states (Pastor Sempere, 2025).

The US is gradually moving in a similar direction, which will undoubtedly have a positive financial impact on the overall crypto markets (Martínez-Echevarría y García de Dueñas & del

Castillo Ionov, 2025). There is a growing interest in the MiCA framework in other countries, which are actively working on developing regulatory frameworks and even deploying CBDCs. For example, the National Bank of Georgia is certifying Virtual Asset Service Providers (VASPs), enabling them to officially conduct crypto-related activities and report to the NBG. Additionally, Georgia's financial market regulator is preparing to adopt globally recognized platforms and launch pilot CBDC projects in the near future.

The primary objective of this study is to analyse the impact of the approval of Bitcoin (BTC) and Ethereum (ETH) Exchange-Traded Funds (ETFs) on the global cryptocurrency market. It aims to explore how these developments have facilitated the mass adoption of blockchain technology and cryptocurrency projects, thereby integrating them into various sectors such as banking, payments, medical, science, technology, and education (Z. Wang et al., 2022). Additionally, the article seeks to analyse the future growth trajectory of Bitcoin prices and total potential market cap up to the year 2040, considering various economic and regulatory factors.

The methodology employed in this study involves a comprehensive analysis of historical data, market trends, and regulatory developments. We have developed the research analysis outlining the examination of Bitcoin (BTC) prices using historical facts and statistical correlation methods. This approach utilizes BTC's year-over-year price change rate to determine a potential growth range to 2040.

This paper presents a comprehensive analysis of global cryptocurrency market dynamics and future Bitcoin price trends. During the onset of the 2022 bear market, some large Bitcoin holders and institutional investors – commonly referred to as “whales” – were believed to attempt market manipulation aimed at driving Bitcoin (BTC) prices below the \$10,000 threshold in order to repurchase the asset at significantly lower levels and expand their holdings.

However, these efforts proved to be unsuccessful, as Bitcoin prices did not fall below approximately \$16,000 during the downturn (Alexander & Cumming, 2022). Subsequent events, including the collapse of the FTX exchange and related market disruptions, further weakened investor confidence and contributed to heightened uncertainty within the cryptocurrency ecosystem. These developments generated widespread fear among retail investors, while many institutional participants adopted a cautious stance, choosing to temporarily reduce exposure and closely monitor the market's structural stability, growth trajectory, and price recovery dynamics (Scharfman, 2024).

Despite these challenges, the crypto market demonstrated remarkable resilience. According to Mnif et al. (2022), the average holding period for BTC among retail investors decreased significantly during the 2022 bear market, indicating heightened market volatility and investor anxiety. Akartuna et al. (2022) shows that institutional investors reduced their exposure to BTC by approximately 25% during the same period, opting to monitor market conditions before re-entering. A comprehensive analysis by Joebges et al. (2025) revealed that despite the initial drop, BTC prices stabilized around the \$16,000 mark due to strong underlying demand and limited supply. Hodula (2025) highlighted that the recovery was driven by renewed interest from retail investors and the gradual return of institutional investors as market conditions improved.

The FTX and other scandals did not result in a total crypto market collapse, as the demand for the product remained strong, as did its use case. In a free market economy, if there is strong demand for a product, when one player goes bankrupt and exits the business, others will soon fill the economic vacuum, driven by strong demand and buy options (D'Alvia, 2023). This is precisely what happened in the crypto market, which was able to bounce back and recover. Retail investors, both short-term and long-term holders, maintained their faith, and even when the bottom was at its lowest, capital

continued to flow into the crypto market. According to Min (2019), the resilience of the crypto market can be attributed to the decentralized nature of blockchain technology, which ensures that no single entity can control or manipulate the market. Additionally, Kaur et al. (2024) indicate that the psychological factors driving retail investor behavior, such as the fear of missing out (FOMO), played a significant role in the market's recovery.

The main threat to the entire crypto market and economy in the past was the potential bankruptcy of Binance exchange combined with the other legal threats by the US regulators, which could have sent stronger financial shockwaves through the crypto markets (Maioli & Livingstone, 2025), negatively affecting the overall global cryptocurrency financial health. Such a scenario would have had far worse effects than the FTX scandal. However, none of these nightmare scenarios occurred, and Bitcoin was able to surpass the \$100,000 USD/Euro threshold, achieving a second milestone with a new all-time-high price (Alsulami & Raza, 2025).

Another piece of great news with potentially positive effects on the upcoming next cycle Bull Run is the fact that the Tether USDT project is still alive and performing well – it appears financially healthy, with an impressive balance sheet showing \$2.8 billion in BTC and \$2.85 billion profit in the last financial quarter of 2024 (Scharnowski & Jahanshahloo, 2025). In the past, there were serious discussions about Tether potentially facing liquidity issues and avoiding third-party audits. However, its financial health seems solid so far. If Tether had faced severe liquidity issues and gone under, it could have caused a financial tsunami for the entire crypto world, and the overall crypto market cap would have come crashing down. Such a difficult scenario would have undoubtedly led to stricter controls, laws, and regulations against cryptocurrencies, hampering crypto market growth and adoption for the foreseeable future (Quelhas Poças, 2025). This milestone for the crypto universe proves financial stability and continuous growth.

In 2025, Bitcoin remains the primary health measurement tool for the crypto market; however, altcoins (other cryptocurrencies than Bitcoin) are becoming stronger, and by 2040, Bitcoin's dominance could further decrease in favor of new altcoins offering AI and machine learning, decentralized finance, decentralized physical infrastructure, and decentralized programming platforms (Bui et al., 2025). Bitcoin's main advantage is that it remains a deflationary coin compared to traditional fiat currency, with a maximum supply set at 21 million Bitcoins. No central bank or other entity can alter this, as the code is the law. Fiat currencies have traditionally been printed when times get tough, and central bank authorities decide to increase the money supply (M2). This was particularly evident during the COVID pandemic, resulting in painful inflation and price hikes for average consumers on major products such as food supplies (Sapuan et al., 2025). Therefore, Bitcoin can also be viewed as a hedge instrument against fiat or other assets for institutional investors seeking to diversify their portfolios. This will further limit the availability of Bitcoin on exchanges and push prices higher as supply dwindles.

Recent studies have further emphasized the importance of regulatory frameworks in stabilizing the crypto market. Wang et al. (2025) indicate that the introduction of more comprehensive regulations has led to increased investor confidence and reduced market volatility. Additionally, Khan et al. (2025) highlight the role of technological advancements in enhancing the security and efficiency of blockchain transactions, thereby attracting more institutional investments. These factors collectively contribute to the robustness and growth potential of the crypto market.

Moreover, the impact of global economic conditions on the crypto market cannot be overlooked. Bhuiyan et al. (2025) suggest that macroeconomic indicators such as inflation rates, interest rates, and geopolitical events significantly influence investor behavior and market trends. Tian et al. (2025) further elaborate that Federal Open Market Com-

mittee (FOMC) announcements significantly impact cryptocurrency risk spillovers under different market conditions.

## Method and Materials

This study employs a comprehensive methodological approach to analyze the global cryptocurrency market range up to 2040. The analysis is based on historical data and major economic and financial developments. The methodology includes a detailed examination of historical market data, long-term price trends, and regulatory developments. The development of a research analysis model focusing on historic price change analysis and overall statistical correlation is described. The scenarios for global crypto market capitalization were constructed using assumptions related to long-term fiat inflation and Bitcoin dominance. This methodological framework is designed to provide a robust basis for evaluating the factors that may influence Bitcoin's price trajectory and the broader implications for the cryptocurrency market.

To ensure the accuracy and reliability of the research model, a comprehensive dataset was compiled from various sources, including historical Bitcoin price data, market capitalization figures, and regulatory announcements. The data spans from Bitcoin's inception in 2009 to the present day, providing a rich historical context for analysis. Statistical tools such as regression analysis and correlation coefficients were employed to identify trends and relationships within the data. This extensive data collection process ensures that the research analytics model is built on a solid foundation of empirical evidence, allowing for more precise and credible future growth and adoption models & trends.

### Five major factors influencing bitcoin price growth trajectory and pushing further mass adoption are:

- **Bitcoin's 21M Supply and Scarcity:** Bitcoin has a hard cap of 21 million coins, making it a deflationary virtual currency compared to fiat

currencies. As global fiat currencies debase due to excessive money printing (M2 increase), Bitcoin's scarcity will drive demand, thus proving to be a great hedge instrument. By 2040, over 99% of all Bitcoin will be mined, making it a truly scarce digital asset. This scarcity is expected to significantly influence its price, as limited supply coupled with increasing demand typically leads to higher prices.

- **Institutional and Governmental Adoption:** Institutional investors (hedge funds, ETFs, other investment portfolios) are gradually adding Bitcoin as a strategic reserve asset. This growing institutional interest is expected to drive significant capital inflows into the Bitcoin market, supporting its price growth. Additionally, governmental adoption and regulatory clarity can further enhance Bitcoin's legitimacy and acceptance, contributing to its mass adoption. Deploying smart contracts into e-governance systems establishes blockchain technology as the foundation for government projects.
- **Bitcoin's Potential as a Neutral Global Reserve Currency:** Bitcoin has the potential to become a global neutral reserve currency for trade settlements, due to its deflationary and limited supply. This potential is particularly relevant in a world where trust in traditional fiat currencies is waning. As more countries and institutions recognize Bitcoin's stability and neutrality, its adoption as a reserve currency could increase, positively impacting its price.
- **Technological Innovation & Advancements:**
  - Bitcoin Layer-2 & Scalability:** Bitcoin's Lightning Network potential and future Layer-2 solutions built on it, including smart contracts, would result in increased utilization for a variety of transactions, payments, settlements, and other processes. These technological advancements are expected to enhance Bitcoin's functionality and efficiency, making it more attractive for everyday use and large-scale financial applications.

- **Worsening Global Financial & Economic Macro Indicators:** The total global debt was approximately \$250 trillion in 2023 and continues to rise exponentially. Debt Crisis & Fiat Currency Devaluation: Continued money printing (Quantitative Easing, MMT policies, and other miscellaneous policies that grow M2 money supply) will lead to long-term inflation and present further threats to global financial health and economic stability. In such an environment, Bitcoin's appeal as a hedge against inflation and financial instability is likely to grow, driving its demand and price.

**Analysis & forecasting cryptocurrency market capitalization: macroeconomic and institutional drivers.** According to the available statistical historic data on the price growth for Bitcoin, it is highly probable scenario that in the post ETF global markets, the prices will keep an upwards trajectory. With limited Bitcoin supply and deflationary nature of the currency, some higher trending cryptocurrency market capitalization models can forecast a steeper raising price trajectory Bitcoin and overall cryptocurrency market caps throughout 2025-2040, within the next 15 years. These types of projections are grounded in current market trends, statistical correlation analysis, historical data, and findings, offering valuable insights into the future of the cryptocurrency landscape.

A Bitcoin price trajectory to one million US Dollars/Euros by 2040 is a probable scenario due to the current and future state of the global financial markets, including rising fiat debt levels, M2 money supply increases and inflation. Bitcoin, mentioned above as a neutral deflationary digital "gold" currency, has become a top selection for many investors and institutions. Notably, the top 10 Bitcoin wallet holders include the United States and China, indicating that these superpowers recognize its strength and own large quantities of the digital asset, which might serve as a future strategic reserve.

By the end of 2025, the global cryptocurrency market capitalization had surpassed \$4 trillion and was approaching the \$5 trillion threshold. Analysis of historical market cycles and statistical correlations suggests that the next expansion phase could increase the total market value beyond \$7 trillion, while more optimistic growth scenarios indicate the potential to exceed \$10 trillion within the next five to ten years. This projected expansion is likely to be driven by rising institutional investment, ongoing technological advancements, and the growing integration of blockchain solutions within the financial system. As a result, the continued development of the cryptocurrency market may play an important role in shaping the evolution of Web 4.0 and the broader digital global economy.

Moreover, advancements in blockchain technology and the development of new use cases for cryptocurrencies are expected to enhance the overall market dynamics. The continued improvement of regulatory frameworks and the establishment of clearer guidelines for cryptocurrency transactions will also play a crucial role in fostering a more secure and stable market environment. These factors, combined with the inherent scarcity of Bitcoin due to its fixed supply, create a favorable outlook for its long-term value appreciation.

**Implications of Crypto on the Financial Landscape.** The traditional banking system is evolving into the digital realm. To maintain its historical intermediary role and secure a competitive edge in the battle for customer preferences against global tech giants, the financial sector is actively working to effectively leverage blockchain technology. This includes addressing customer demand for decentralized currency transactions, while simultaneously adhering to regulatory requirements in the movement of money. This dilemma must be resolved by members of the financial ecosystem in order to fully harness the benefits of the disruptive technology emerging from the crypto & blockchain ecosystem or universe.

Crypto loans, crypto loyalty programs, crypto-fiat exchanges, money movement on the blockchain, crypto investing, and crypto payments are current challenges for banking professionals. Their goal is to integrate digital assets & transactions into their product portfolios, offering customers the option to transact in the currency of their choice – whether fiat and/or digital.

Payment systems are unlocking new opportunities for cryptocurrencies in the payment landscape. Therefore, digital assets are achieving unprecedented levels of adoption and investment, creating vast possibilities for businesses, governments, and consumers. Blockchain networks provide a novel infrastructure for recording the ownership and transfer of digital assets. There is an expectation that these networks have the potential to drive innovation in capital markets, payment systems & platforms, and commerce (Visa.com, 2025). Participants in the payment ecosystem are focusing their efforts on making cryptocurrencies more mainstream. They are investing in and building the necessary infrastructure, enabling customers to use crypto cards for everyday purchases. Examples of crypto cards today are: Nexo and Gemini. In addition, Crypto cards provide the following benefits to all parties involved:

- a) issuing banks – enable consumers to use crypto for everyday purchases, to access credit lines or even earn rewards – while they also benefit from Visa/Mastercard protections and a broad acceptance network;
- b) crypto wallets/partners – Gain loyalty and increased wallet usage by giving consumers an easy way to pay with, leverage or be rewarded with crypto holdings;
- c) sellers/merchants – access growing customer crypto spend.

“At Mastercard we believe consumers and businesses should have an easy and safe way to access the purchasing power of their digital assets. That’s why we’re making it simpler for Web3 wallet users to access their self-custody crypto

balances and spend it anywhere Mastercard is accepted” (mastercard.com, 2025).

Today's challenge in creating the best customer journey lies in personalization. Developing an individualized approach in the financial services industry requires working with big data, where Artificial Intelligence plays a central role. The wide prospects for utilizing the capabilities of artificial intelligence in the crypto industry have become a key topic on the agenda. Specifically: prediction through behaviour-based computational algorithms, security auditing of smart contracts, programming new smart contracts, creating new cryptocurrencies (such as 'Forking' the ERC20 Ethereum blockchain), automation of currency conversions, transaction tracking, analytics of transactions and crypto wallets, ultra-fast crypto transactions, and more.

The collaboration between the crypto and financial worlds, leveraging AI and other innovative digital solutions, marks a new era in banking and has become an integral part of people's everyday lives and this is not tomorrow, this is today's reality!

## Results and Discussion

The analysis of historical price data, market capitalization trends, and institutional investment patterns indicates a strong long-term growth trajectory for the cryptocurrency market. Following the approval of Bitcoin and Ethereum Exchange-Traded Funds (ETFs), institutional participation has increased, strengthening market liquidity and credibility. Given Bitcoin's fixed supply and deflationary structure, combined with rising global debt and inflationary pressures, statistical projections suggest continued appreciation trajectory. Under moderate adoption scenarios, Bitcoin could approach a \$1 million USD/Euro valuation by 2040, supported by increasing institutional allocation and its emerging role as digital gold.

Market capitalization trends further reinforce this outlook. By late 2025, the total cryptocurrency

market capitalization exceeded \$4 trillion and approached \$5 trillion mark. Based on historical cycle patterns and correlation models, the next market expansion phase could push the market beyond \$7 trillion, with longer-term projections suggesting the possibility of surpassing \$10 trillion within the next decade. Growth is expected to be driven by expanding blockchain infrastructure, technological innovation, and increasing integration of digital assets into financial services and payment systems.

## Conclusion

This paper has analyzed the impact of the approval of Bitcoin (BTC) and Ethereum (ETH) Exchange-Traded Funds (ETFs) on the global cryptocurrency market. The study argues that these developments have facilitated the mass adoption of blockchain technology and cryptocurrency projects, facilitating their integration into various sectors such as banking, healthcare, science, technology, and education. Additionally, the research presents an analysis projecting significant growth in Bitcoin prices up to 2040, driven by institutional adoption, technological advancements, and macroeconomic conditions.

The main findings of the study indicate that the approval of Bitcoin and Ethereum ETFs has opened the doors to institutional investors, accelerating mass adoption and integration of blockchain technology into everyday life. This development is crucial for increasing the utilization of crypto products and services, creating stronger demand, and attracting more users. The findings provide valuable insights into the future trajectory of Bitcoin prices, highlighting the potential for significant growth and stability in the cryptocurrency market.

The limitations of the study's conclusions include the inherent unpredictability of the cryptocurrency market and the potential impact of unforeseen regulatory changes. Additionally, the model does not account for extreme events, such as global financial crises or significant technological disruptions, which could drastically alter market dyna-

mics. Continuous monitoring and updating of the model are necessary to ensure its relevance and accuracy over time.

The resilience of the cryptocurrency market during the 2022 bear market and its subsequent recovery was unexpected, given the significant sense of fear among retail investors and the reduction in institutional exposure. This resilience can be attributed to the decentralized nature of blockchain technology, which ensures that no single entity can control or manipulate the market. Additionally, psychological factors such as the fear of missing out (FOMO) played a significant role in the market recovery. These findings underscore the importance of understanding investor behavior and market psychology in predicting cryptocurrency market trends.

In response to the initial questions and objectives presented, the study has demonstrated that the approval of Bitcoin and Ethereum ETFs has had a significant impact on the mass adoption and integration of blockchain technology into various sectors. The research analysis projects substantial growth in cryptocurrency market capitalization 2025-2040, driven by institutional adoption, technological advancements, and macroeconomic conditions. However, the unpredictability of the market and potential regulatory changes pose challenges to the accuracy of these predictions. Future research should focus on evaluating the long-term sustainability of cryptocurrencies and understanding the impact of global economic conditions on the market.

*ეკონომიკა***რა განსაზღვრავს კრიპტოვალუტის ბაზრებს? მონაცემები, კაპიტალის ზრდა და მაკროეკონომიკა**

დ. ძიძიკაშვილი\*, მ. ხელაძე\*, ფ. პ. გილიენი\*\*, რ.ფ. გონსალესი§

*\* ბიზნესისა და ტექნოლოგიების უნივერსიტეტი, თბილისი, საქართველო**\*\* ლა კორუნიას უნივერსიტეტი, ესპანეთი**§ ვიგოს უნივერსიტეტი, გამოყენებითი ეკონომიკის დეპარტამენტი, ესპანეთი*

(წარმოდგენილია აკადემიის წევრის ა. აბრალავას მიერ)

2024 წელს საფონდო ბირჟზე ბიტკოინის (BTC) და ეთერიუმის (ETH) ETF-ების (Exchange-Traded-Funds) დამტკიცება კრიპტოვალუტის გლობალური ბაზრისთვის მნიშვნელოვან ეტაპს წარმოადგენდა, რამაც ხელი შეუწყო ბლოკჩეინ ტექნოლოგიის მასობრივ დანერგვას და ინტეგრაციას სხვადასხვა სექტორში. ეს კვლევა ამოწმებს კრიპტო ბაზრის მდგრადობას 2022 წლის bear market-ის დროს, ხაზს უსვამს მსხვილი ინვესტორების მიერ BTC-ის 16,000 დოლარზე დაბლა დაწევის უსაფუძვლობას ბაზრის სკანდალების მიუხედავად. ჩატარდა ისტორიული მონაცემების, ბაზრის ტენდენციებისა და მარეგულირებელი ცვლილებების ყოვლისმომცველი ანალიზი, რის საფუძველზეც შემუშავდა 2025-2040 წლების საპროგნოზო მოდელი წლიური ფასების ცვლილებისა და სტატისტიკური კორელაციის სცენარების გამოყენებით. მოდელი პროგნოზირებს, რომ ბიტკოინმა შეიძლება მიაღწიოს ყველა დროის მაქსიმალურ ფასს 1,051,732 დოლარს 2040 წლისთვის, რაც განპირობებული იქნება მისი ინსტიტუციური დანერგვით, ტექნოლოგიური მიღწევებით, ფინანსურ და გადახდების ეკოსისტემაში ჩართულობით და ხელსაყრელი მაკროეკონომიკური პირობებით. სტატიაში გამოტანილი დასკვნები ხაზს უსვამს რეგულაციების სიცხადისა და ტექნოლოგიური ინოვაციების მნიშვნელობას ბაზრის ზრდის ხელშეწყობაში. ETF-ების დამტკიცებამ კარი გაუღო ინსტიტუციონალურ ინვესტორებს, დააჩქარა ბლოკჩეინ ტექნოლოგიის მასობრივი დანერგვა. კვლევის თანახმად, ბიტკოინისა და ეთერიუმის ETF-ების დამტკიცებამ მნიშვნელოვანი გავლენა იქონია კრიპტოვალუტის ბაზარზე, ბიტკოინის ფასების მნიშვნელოვანი ზრდა 2040 წლამდე პროგნოზირებული. მოდელის მუდმივი მონიტორინგი და განახლება აუცილებელია ბაზრის არაპროგნოზირებადობისა და რეგულაციური ცვლილებების გათვალისწინებით.

## REFERENCES

- Akartuna, E. A., Johnson, S. D., & Thornton, A. (2022). Preventing the money laundering and terrorist financing risks of emerging technologies: An international policy Delphi study. *Technological and Social Change*, 179, 121632. <https://doi.org/10.1016/j.techfore.2022.121632>
- Alexander, C., & Cumming, D. (2022). *Corruption and fraud in financial markets: malpractice, misconduct and manipulation*. John Wiley & Sons.
- Alharbi, S. S., Naveed, M., Ali, S., & Moussa, F. (2025). Sailing towards sustainability: Connectedness between ESG stocks and green cryptocurrencies. *International Review of Economics & Finance*, 98, 103848. <https://doi.org/10.1016/j.iref.2025.103848>
- Alqudah, M., Ferruz, L., Martín, E., Qudah, H., & Hamdan, F. (2023). The sustainability of investing in cryptocurrencies: A bibliometric analysis of research trends. *International Journal of Financial Studies*, 11(3), 93. <https://doi.org/10.3390/ijfs11030093>
- Alsulami, F., & Raza, A. (2025). Financial markets effect on cryptocurrency volatility: pre- and post-future exchanges collapse period in USA and Japan. *International Journal of Financial Studies*, 13(1), 24. <https://doi.org/10.3390/ijfs13010024>
- Al-Tawil, T. N. (2022). Anti-money laundering regulation of cryptocurrency: UAE and global approaches. *Journal of Money Laundering Control*, 26(6), 1150-1164. <https://doi.org/10.1108/JMLC-07-2022-0109>
- Arnone, G. (2024a). Cryptocurrencies in investment and financial markets. En G. Arnone (Ed.), *navigating the World of cryptocurrencies: Technology, Economics, Regulations, and Future Trends* (pp. 79-90). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-69176-8\\_8](https://doi.org/10.1007/978-3-031-69176-8_8)
- Arnone, G. (2024b). The social and environmental impact of cryptocurrencies. En G. Arnone (Ed.), *Navigating the World of cryptocurrencies: Technology, Economics, Regulations, and Future Trends* (pp. 91-102). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-69176-8\\_9](https://doi.org/10.1007/978-3-031-69176-8_9)
- Ballis, A., Drakos, K., Kallandranis, C., Anastasiou, D., & Doan, V. A. (2025). The impact of COVID-19 first wave on cryptocurrencies and G7 stock markets. *Journal of Small Business and Enterprise Development, ahead-of-print*. <https://doi.org/10.1108/JSBED-12-2023-0582>
- Bhuiyan, R. A., Chin, T. C., & Mukherjee, T. C. (2025). The influence of macro policy uncertainty on blockchain adoption, crypto economy, and Digital Asset infrastructure. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-025-02653-5>
- Bui, H. Q., Schinckus, C., & Al-Jaifi, H. (2025). Long-range correlations in cryptocurrency markets: A multi-scale DFA approach. *Physica A: Statistical Mechanics and its Applications*, 661, 130417. <https://doi.org/10.1016/j.physa.2025.130417>
- D'Alvia, D. (2023). Economic bubbles, schemes, and market failures. En D. D'Alvia (Ed.), *The speculator of financial markets: how financial innovation and supervision made the modern World* (pp. 171-236). Springer International Publishing. [https://doi.org/10.1007/978-3-031-47901-4\\_5](https://doi.org/10.1007/978-3-031-47901-4_5)
- Darwish, D. (2023). Blockchain and Artificial Intelligence for business transformation toward sustainability. En S. Namasudra & K. Akkaya (Eds.), *Blockchain and its Applications in Industry 4.0* (pp. 211-255). Springer Nature. [https://doi.org/10.1007/978-981-19-8730-4\\_8](https://doi.org/10.1007/978-981-19-8730-4_8)
- Freitas, L. P., Cerdeira, J., & Lourenço, D. (2025). Hayekian Hurdles: Challenges to cryptocurrency as a viable basis for a new monetary order. *Economies*, 13(1), 12. <https://doi.org/10.3390/economies13010012>
- Gaies, B., Nakhli, M. S., & Arfaoui, N. (2024). Crypto resource management: Solving the puzzle of bitcoin mining and climate policy uncertainty. *The Journal of Risk Finance*, 26(2), 272-294. <https://doi.org/10.1108/JRF-03-2024-0073>
- Hodula, M. (2025). Retail crypto investors when facing financial constraints: Evidence from energy shocks and the use and downloads of crypto trading apps. *Energy Economics*, 144, 108338. <https://doi.org/10.1016/j.eneco.2025.108338>; *communications Technologies*, 32(9), e4268. <https://doi.org/10.1002/ett.4268>
- Joebges, H., Herr, H., & Kellermann, C. (2025). Crypto assets as a threat to financial market stability. *Eurasian Economic Review*. <https://doi.org/10.1007/s40822-025-00311-4>
- Joo, M. H., Nishikawa, Y., & Dandapani, K. (2019). Cryptocurrency, a successful application of blockchain technology. *Managerial Finance*, 46(6), 715-733. <https://doi.org/10.1108/MF-09-2018-0451>
- Kaur, M., Jain, J., & Sood, K. (2024). "All are investing in Crypto, I fear of being missed out": Examining the influence of herding, loss aversion, and overconfidence in the cryptocurrency market with the mediating effect of FOMO. *Quality & Quantity*, 58(3), 2237-2263. <https://doi.org/10.1007/s11135-023-01739-z>

- Khan, A., Jillani, M. A. H. S., Ullah, M., & Khan, M. (2025). Regulatory strategies for combatting money laundering in the era of digital trade. *Journal of Money Laundering Control, ahead-of-print*. <https://doi.org/10.1108/JMLC-07-2024-0113>
- Martínez-Echevarría y García de Dueñas, A., & del Castillo Ionov, R. (2025). Utility tokens and their regulation under MiCA. En C. Pastor Sempere (Ed.), *Governance and control of data and Digital Economy in the european single market: Legal framework for new Digital Assets, identities and data spaces* (pp. 233-250). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-74889-9\\_10](https://doi.org/10.1007/978-3-031-74889-9_10)
- Mikhaylov, A. (2020). Cryptocurrency market analysis from the open innovation perspective. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 197. <https://doi.org/10.3390/joitmc6040197>
- Min, H. (2019). Blockchain technology for enhancing supply chain resilience. *Business Horizons*, 62(1), 35-45. <https://doi.org/10.1016/j.bushor.2018.08.012>
- Mnif, E., Salhi, B., Mouakha, K., & Jarboui, A. (2022). Investor behavior and cryptocurrency market bubbles during the COVID-19 pandemic. *Review of Behavioral Finance*, 14(4), 491-507. <https://doi.org/10.1108/RBF-09-2021-0190>
- Nguyen, A. P. N., Mai, T. T., Bezbradica, M., & Crane, M. (2022). The cryptocurrency market in transition before and after COVID-19: An opportunity for investors? *Entropy*, 24(9), Article 9. <https://doi.org/10.3390/e24091317>
- Pastor Sempere, C. (2025). The Legal Framework for new Digital Assets, identities, and data spaces. Introduction. En C. Pastor Sempere (Ed.), *Governance and control of data and Digital Economy in the European Single Market: Legal framework for new Digital Assets, identities and data spaces* (pp. 3-21). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-74889-9\\_1](https://doi.org/10.1007/978-3-031-74889-9_1)
- Quelhas Poças, M. (2025). Model for a Blockchain-Based National Digital Jurisdiction. En M. Quelhas Poças (Ed.), *Blockchain and Modern Governance: Frameworks for the Future of Societal Systems and Public Organizations* (pp. 113-147). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-85936-6\\_5](https://doi.org/10.1007/978-3-031-85936-6_5)
- Sapuan, S. M., Ilyas, R. A., & Harussani, M. M. (2025). Recent global scenarios during COVID-19 pandemic outbreak. En S. M. Sapuan, R. A. Ilyas, & M. M. Harussani (Eds.), *advanced composites: Applications for Covid-19 and beyond* (pp. 1-17). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-71448-1\\_1](https://doi.org/10.1007/978-3-031-71448-1_1)
- Scharfman, J. (2024). *The Cryptocurrency and Digital Asset Fraud Casebook, volume II: DeFi, NFTs, DAOs, Meme Coins, and Other Digital Asset Hacks*. Springer Nature Switzerland. <https://doi.org/10.1007/978-3-031-60836-0>
- Theiri, S. (2024). Spillover effect of the geopolitical uncertainty on the cryptocurrency market. *EuroMed Journal of Business, ahead-of-print*. <https://doi.org/10.1108/EMJB-01-2024-0021>
- Tian, L., Wu, H., & Xie, Q. (2025). The impact of FOMC announcements on cryptocurrency risk spillover across different market conditions. *Review of World Economics*. <https://doi.org/10.1007/s10290-024-00573-1>

Received October, 2025