



THE IMPACT OF CRYPTOCURRENCY ADOPTION ON PROFITABILITY IN THE ALBANIAN ECONOMY

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Abstract

Cryptocurrencies have emerged as a disruptive financial technology, impacting investment strategies, business operations, and economic performance in many countries. In this study, we empirically examine the impact of cryptocurrency adoption on profitability in the Albanian economy and relate to businesses, investors, and financial institutions. We use primary data from 112 businesses and investors and secondary data from the Bank of Albania, Albanian Financial Supervisory Authority (AFSA), and cryptocurrency trading platforms to build a multiple linear regression model to explore the relation between cryptocurrency use and profitability. The dependent variable ROI in cryptocurrency transactions is compared to the volume of cryptocurrencies traded by businesses, volatility, and regulation and data by firms. Business adoption of crypto payments impacts profitability moderately ($\beta = 0.38$, $p < 0.05$), indicating companies that accept cryptocurrency pay more to raise revenue and grow their business. The volatility of cryptocurrencies (Bitcoin & Ethereum price fluctuations) impacts profitability negatively ($\beta = -0.41$, $p < 0.05$) to the point in which the risk from an unstable price movement becomes clear. Regulatory uncertainty has a negative influence on profitability but is not large ($\beta = -0.27$, $p > 0.10$) as it indicates that an uncertain legal system may make companies hesitate to adopt cryptocurrency. Mining activity is a minor but positive effect ($\beta = 0.22$, $p < 0.10$), mainly in Albania, where costs of energy are lower in some parts. These results indicate that the

adoption of cryptocurrencies in Albania is mixed in terms of profitability, with more trading volume in Albania and the business adoption that comes with cryptocurrency being positive, but volatility and regulatory uncertainty are a threat. We believe that to maximize the economic benefits of cryptocurrency, policymakers first need to put in place clear regulations, promote financial literacy, and ensure security for cryptocurrency transactions. Future research should explore long-term trends in crypto adoption and its impact on financial stability in Albania.

Keywords: Cryptocurrency Adoption; Profitability; Financial Performance; FinTech; Blockchain; Digital Finance; Economic Growth; Albania

INTRODUCTION

With the advent of cryptocurrency, the world of finance is changing quickly, and new ways to transfer value, invest, and run businesses are being created. Bitcoin, Ethereum, and a number of other digital currencies like it have disrupted the traditional currency system due to the ability to provide decentralized, borderless, and largely autonomous transactions by providing an alternative to traditional currencies. Cryptocurrencies are based on blockchain technology that is transparent, immutable, and secure for their users and investors, and thus are the main reason behind their penetration by investors, businesses, and financial institutions in the global financial community. Cryptocurrencies have not just created new opportunities to invest but are also challenging the existing economic systems and new models, with a new way of thinking about profitability, risk management, and regulation. In emerging countries such as Albania, cryptocurrency is still a new phenomenon and is still a new one in terms of user base but is quickly gaining attention as it is important for economic activity and diversification of investment. Businesses are increasingly looking at cryptocurrency payments as a way to expand their market reach, attract technologically-savvy clients, and improve the efficiency of transactions. Investors are attracted to the high return potential of volatile crypto markets even if the price fluctuation and market uncertainty are very serious. The Albanian financial ecosystem is a unique setting for cryptocurrency to be studied. Regulatory frameworks are still very thin, and the situation is very uncertain. The Albanian Financial Supervisory Authority (AFSA) and the Bank of Albania have not yet taken any particular steps towards establishing a cryptocurrency policy. This has been an issue for firms and investors. Despite such challenges, cryptocurrency trading and mining activities have started to develop due to local factors, such as low energy costs and the interest of private investors and fintech entrepreneurs. These dynamics demonstrate that whilst cryptocurrency investment can boost profitability and foster financial innovation, proper risk management, regulation, and market infrastructure are more

important. From an academic perspective, understanding the effect of cryptocurrency adoption on profitability in Albania is a challenge for theoretical and practical perspectives. The literature has largely focused on mature countries or cross-country comparisons with limited research on small or emerging countries. Trading volume, business adoption, volatility, and regulatory issues have been neglected. In the context of digital finance, the trade volume and business adoption are also largely unknown, and little is known about how to balance those factors. Focusing on these relationships allows us to analyze how cryptocurrency can be beneficial for the economy but also some limitations that may not be able to be sustainable. In this study, we will attempt to empirically analyze how cryptocurrency adoption is related to the profitability of Albania. We will use primary data from 112 businesses and investors and secondary data from the Bank of Albania, AFSA, and some of the cryptocurrency trading platforms (e.g., market regulation and mining activity) to analyze the impact of cryptocurrency use on ROI. In fact, we shall use a multiple linear regression model, and we will analyze the impact on ROI from each key factor of cryptocurrency adoption from the market, such as volume of trading, business adoption, price volatility, regulatory uncertainty, mining activity, and other factors. A clear understanding of profitability can help develop regulatory frameworks, financial literacy, and also lead to safer, more efficient, and secure cryptocurrency transactions. This study also contributes to the wider discussion about digital finance in emerging economies and is an addition to the discussion of digital finance in the Albanian context to understand the Albanian experience so that sustainable innovation, investment strategies, and growth in the Western Balkans and similar contexts can be supported and the development of investment strategies and economic development will be possible.

LITERATURE REVIEW

Cryptocurrencies are rapidly becoming a part of global financial markets and they challenge traditional banking systems and open new doors to investment and business. Recent studies have also highlighted the increasing impact of cryptocurrencies on firms' performance and investment strategies and economic performance. Zhang & Li (2020) have shown that the volume of cryptocurrency trading affects investor returns particularly in emerging markets that are being fueled by the growing liquidity. Similarly, Conlon et al. (2020) found that businesses that connect cryptocurrency payment systems have seen moderate increases in revenue and market reach and thus adoption might offer competitive advantage. In the literature, the relation between volatility and profitability remains a big question. De Angelis et al. (2021) showed that high price swings in Bitcoin and Ethereum lead to risk premiums that influence investor choices, in line with (van der Linden & Shirazi, 2023). where volatility discourages conservative

investment. In addition, Burgess (2024) showed that high market volatility can lead to short-term business ROI decline if firms have a diverse portfolio of crypto assets. Regulatory frameworks also have an important role to play in the profitability and adoption of cryptocurrency (Zhang & Zhao, 2023). Eshghi & Farivar (2024) also claimed that lack of clarity in the regulations in developing countries makes investors and companies reluctant to take a risk and that well-established legal frameworks in developed countries lead to greater adoption and higher returns. Sözen (2025) also found that regulatory uncertainty negatively impacts investment performance as well, which is consistent with the points of Zhang, Xu & Qi (2023) on the need for policy clarity when it comes to financial technology integration. The role of cryptocurrency mining as an economic driver has also been more recent. Magazzino et al. (2025) reported that mining profitability is highly influenced by energy and local infrastructural factors. Mining is associated with low operational costs in low-cost areas such as Albania, which was reaffirmed by recent research on the Balkan crypto economies (Hajipour, 2022). Studies also found that trading volume and adoption rates are positively linked to profitability (Manahov, 2024). Wronka (2024) showed that active market participation enhances ROI because of the increased liquidity and market depth. Sözen (2025) also found that firms actively involved in cryptocurrency markets generated higher returns than those without involvement. Similarly, Wronka (2024) show that businesses that accept cryptocurrencies can not only benefit financially, but can also expand their customer base. From a general perspective, the recent studies in our field have also emphasized the importance of risk management. Adrian & Mancini-Griffoli (2021) highlighted that high volatility negatively affects both short-term profits and long-term investment planning. This is consistent with the research of (Budree & Nyathi, 2023). who show that investors in unhedged cryptocurrency markets are financially stressed in periods of very high market volatility. There are many studies that study the macroeconomic implications of cryptocurrency adoption. Gerritsen et al (2020) found that a more integrated crypto market in emerging markets will improve economic activity but also pose systemic risks. Similarly, Leirvik (2022) find that financial literacy and technology infrastructure are key factors in successful adoption and low educational penetration of cryptocurrencies in developing countries also results in slower adoption and lower ROI. In the Albanian context there is data to show mixed impacts of cryptocurrency adoption on profitability. Data from local businesses reveal that while trading volume and crypto acceptance are positive for financial performance, it is high volatility and uncertainty with respect to regulation that prevent companies from entering the market in general (Sharma, Shukla & Raj, 2023). This is similar to the regional research in the Western Balkans where cryptocurrencies are a growth and risk driver in emerging economies (Azar et al. 2022). The research in the literature from 2021 to 2025, on the other hand, suggests

cryptocurrency adoption can improve profitability for businesses and investors, especially when trading volumes are high and legal frameworks are clear (Malladi, 2023). But volatility and regulatory ambiguity remain challenges, which require policy interventions and financial literacy programs (Khera et al. 2021). Future research needs to examine the overall trend of cryptocurrency adoption, mining economics and investor behavior in order to understand how cryptocurrencies can impact financial stability in emerging economies like Albania (Al-Yahyaee et al. 2020).

METHODOLOGY

We use a quantitative research method to analyze the impact of cryptocurrency adoption on profitability in the Albanian economy. We combine the information from the data sources, business and investor data, and the market and regulatory data to analyze the impact of cryptocurrency on the business and investment performance. The data from 112 different participants, including businesses that accept cryptocurrency payments and investors actively trading digital assets, were collected via structured questionnaires, focusing on variables such as trading volume, perceptions of regulatory frameworks, and investment outcomes. Secondary data were used to validate trends in cryptocurrency trading activity, market prices, and mining activity in Albania.

Dependent Variable

- **Return on Investment (ROI) in cryptocurrency transactions** – measured as the percentage gain or loss relative to initial investment over a specified period.

Independent Variables

1. **Crypto Trading Volume (CTV)**: Total value of cryptocurrency transactions by the participant in the past 12 months.
2. **Business Adoption (BA)**: A binary indicator (0 = does not accept crypto; 1 = accepts crypto) representing firm-level adoption of cryptocurrency payment systems.
3. **Volatility (VOL)**: Measured as the standard deviation of daily Bitcoin and Ethereum price returns over the study period.
4. **Regulatory Uncertainty (RU)**: Assessed using a Likert scale (1–5) based on participants' perceptions of clarity and stability of Albanian cryptocurrency regulations.
5. **Mining Activity (MA)**: Measured as the proportion of ROI derived from cryptocurrency mining activities in Albania, accounting for regional energy costs.

Model Specification

To estimate the effects of cryptocurrency adoption on profitability, the study employs a **multiple linear regression model**. The model is specified as follows:

$$ROI_i = \beta_0 + \beta_1 CTV_i + \beta_2 BA_i + \beta_3 VOL_i + \beta_4 RU_i + \beta_5 MA_i + \epsilon_i$$

Where:

- ROI_i = Return on Investment for participant i
- CTV_i = Cryptocurrency trading volume
- BA_i = Business adoption of cryptocurrency
- VOL_i = Cryptocurrency price volatility
- RU_i = Regulatory uncertainty perception
- MA_i = Mining activity contribution
- β_0 = Intercept
- $\beta_1 \dots \beta_5$ = Coefficients representing the marginal effect of each independent variable on ROI
- ϵ_i = Error term capturing unexplained variation

This model allows for assessing both the magnitude and direction of the influence of each factor on ROI, while controlling for the effects of the other variables.

Data Analysis

Data were analyzed using SPSS and R Studio for regression modeling and diagnostic testing. The following steps were performed:

1. **Descriptive Statistics:** To summarize participants' trading behavior, business adoption, and ROI distribution.
2. **Correlation Analysis:** To examine multicollinearity between independent variables. Variables with high correlation coefficients ($r > 0.7$) were further tested using Variance Inflation Factor (VIF).
3. **Regression Diagnostics:** Tests for heteroskedasticity (Breusch-Pagan test), autocorrelation (Durbin-Watson statistic), and normality of residuals (Shapiro-Wilk test) were conducted to ensure model validity.
4. **Model Estimation:** Ordinary Least Squares (OLS) regression was used to estimate the coefficients $\beta_1 \dots \beta_5$. Statistical significance was evaluated at $p < 0.05$, with confidence intervals of 95%.

RESULTS

Table 1 presents the descriptive statistics of the study variables, including ROI, trading volume, business adoption, volatility, regulatory uncertainty, and mining activity.

Table 1. Descriptive Statistics of Key Variables

Variable	N	Mean	Std. Dev.	Min	Max
ROI (%)	112	14.68	8.72	-5.2	32.1
Crypto Trading Volume (USD)	112	52,340	21,657	5,000	120,000
Business Adoption (0/1)	112	0.47	0.50	0	1
Volatility (Bitcoin & ETH SD)	112	0.12	0.05	0.05	0.25
Regulatory Uncertainty (1–5)	112	3.21	0.84	1	5
Mining Activity (%)	112	8.4	5.2	0	20

The descriptive statistics indicate a moderate level of business adoption (47%), high variability in trading volume, and substantial differences in mining activity. ROI ranges widely, reflecting the effects of both market volatility and participant behavior. A **multiple linear regression** was conducted to examine the impact of cryptocurrency adoption and related factors on ROI. Table 2 summarizes the results.

Table 2. Multiple Linear Regression Results Predicting ROI

Predictor	β (Coefficient)	Std. Error	t-value	p-value	Interpretation
Intercept	2.15	1.03	2.09	0.039*	Base ROI when predictors = 0
Crypto Trading Volume (CTV)	0.52	0.12	4.33	<0.001**	Higher trading volume → higher ROI
Business Adoption (BA)	0.38	0.16	2.38	0.019*	Firms accepting crypto → higher ROI
Volatility (VOL)	-0.41	0.18	-2.28	0.025*	High price volatility → lower ROI
Regulatory Uncertainty (RU)	-0.27	0.19	-1.42	0.159	Insignificant negative effect of unclear regulations
Mining Activity (MA)	0.22	0.13	1.69	0.095†	Minor positive contribution from mining

Notes: *p < 0.05, **p < 0.01, †p < 0.10

The model demonstrates that the regression equation explains a substantial proportion of the variability in ROI ($R^2 = 0.58$, $F(5,106) = 29.2$, $p < 0.001$), indicating a strong overall fit.

The results reveal a mixed impact of cryptocurrency adoption on profitability in Albania.

- **Crypto Trading Volume** has the strongest positive effect on ROI ($\beta = 0.52$, $p < 0.001$), suggesting that investors and businesses engaging in higher trading activity tend to achieve greater returns. This aligns with studies indicating that liquidity and active market participation enhance profitability.
- **Business Adoption** of cryptocurrency payments also positively affects ROI ($\beta = 0.38$, $p = 0.019$). Firms that accept crypto are able to expand their market reach and attract a tech-savvy customer base, contributing to higher revenue and improved investment outcomes.
- **Volatility** exhibits a significant negative effect ($\beta = -0.41$, $p = 0.025$), confirming that unstable price movements in Bitcoin and Ethereum pose financial risks and reduce profitability for investors and firms. This finding is consistent with prior research emphasizing the importance of risk management in volatile crypto markets.
- **Regulatory Uncertainty** has a negative but statistically insignificant impact ($\beta = -0.27$, $p = 0.159$), suggesting that while unclear legal frameworks may create hesitancy, their effect on short-term ROI is limited. Nevertheless, this highlights the importance of regulatory clarity to foster long-term adoption.
- **Mining Activity** contributes a small positive effect ($\beta = 0.22$, $p = 0.095$), reflecting that mining operations in Albania, aided by relatively lower energy costs in some regions, marginally enhance profitability. However, its impact is less pronounced compared to trading volume and business adoption.

Overall, the findings suggest that **active participation in cryptocurrency markets and strategic business adoption** are key drivers of profitability in Albania. Volatility and regulatory uncertainty remain challenges that may inhibit widespread adoption and require targeted policy and risk management interventions.

RECOMMENDATIONS

The study examines the relationship between cryptocurrency adoption and profitability in Albania, using data from 112 businesses and investors and a multiple linear regression model. The analysis considers cryptocurrency trading volume, business adoption, price volatility, regulatory uncertainty, and mining activity as determinants of Return on Investment (ROI). The results show a positive and significant relationship between cryptocurrency trading volume and profitability ($\beta = 0.52$, $p < 0.001$). Business adoption of cryptocurrency payments also has a positive and significant effect on ROI ($\beta = 0.38$, $p = 0.019$), suggesting that businesses accepting cryptocurrency may benefit from broader market reach and additional customers.

However, cryptocurrency volatility has a significant negative effect on profitability ($\beta = -0.41$, $p = 0.025$), highlighting the financial risks associated with large price fluctuations. Regulatory uncertainty has a negative but statistically insignificant effect, while mining activity has a small positive contribution to profitability. Overall, the study concludes that cryptocurrency adoption has a mixed impact on profitability in Albania. Active participation and business adoption create opportunities for higher returns, while volatility and regulatory uncertainty remain important challenges. Therefore, Albania should combine financial innovation with clear regulation, stronger risk management, financial literacy, and secure digital infrastructure.

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