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The Impact of Cryptocurrency Adoption on Stock Market Capitalization: A Cross-Country Analysis

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Abstract

This study investigates the relationship between cryptocurrency adoption and stock market capitalization across countries, while controlling for GDP per capita. Using cross-sectional data from 154 countries, we employ ordinary least squares regression to analyze this relationship. The findings reveal a statistically significant positive association between cryptocurrency adoption and stock market capitalization. Specifically, that a one-unit increase in the cryptocurrency adoption score is associated with a 182.614 percentage point increase in stock market capitalization as a percentage of GDP. In addition, GDP per capita shows a significant positive relationship with stock market capitalization, confirming the connection between economic development and financial market depth. These results suggest that cryptocurrency adoption complements traditional financial markets rather than substituting, offering important insights for policymakers, investors, and researchers in understanding the evolving financial landscape. This study contributes to the growing literature on cryptocurrency markets by providing a broader, cross-country perspective on how digital currency growth affects traditional financial markets. Our findings have implications for financial market development, economic policy, and investment strategies in an increasingly digitalized global economy.

Keywords: Cryptocurrency adoption; Stock market capitalization; Cross-country analysis; Financial markets; Economic development

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1. Introduction

The quick adoption of cryptocurrencies has greatly impacted the financial world. These instruments have become an important part of the mainstream financial markets. Understanding the relationship between cryptocurrency adoption and stock market capitalization is crucial for a myriad of people, such as policymakers, investors, and economists because it helps assess the integration of digital currencies into traditional financial systems and provides insights into how emerging technologies might influence economic growth and financial stability across various countries. Looking deeper into this relationship can reveal potential shifts in capital allocation across peoples' assets and generate ideas on how cryptocurrencies may influence economic growth and financial stability across different countries.

This study aims to assess the impact of cryptocurrency adoption on stock market capitalization across a cross-country data, while controlling for factors like GDP per capita. By taking a cross-country empirical approach, this research offers a broader perspective compared to previous single-country/region or market-specific studies. GDP per capita is a controlled variable in this study to isolate the effect of cryptocurrency adoption on stock market valuations.

This research will contribute to the growing literature on cryptocurrency markets by providing a greater level of analysis on how cryptocurrency growth affects traditional financial markets.

Previously, several different studies have looked at various aspects of the relationship between cryptocurrencies and stock markets, with mixed findings.

For example, in one study, Gil-Alana et al. (2020) investigated the properties and bilateral linkages between major cryptocurrencies and stock market indices using fractional integration techniques. They couldn't find any evidence of cointegration between cryptocurrencies and stock indices, suggesting cryptocurrencies are decoupled from mainstream financial assets.

The authors conclude that investors should diversify their portfolios by including cryptocurrencies into their investments.

In another study, Sami and Abdallah (2020) examined how the cryptocurrency market affects stock market performance in the Middle East and North Africa (MENA) region. Their results showed a significant relationship, with differing effects in Gulf countries versus other MENA nations. In Gulf countries claiming to follow Islamic Sharia rules, stock performance was negatively impacted by cryptocurrency returns. In contrast, other MENA countries saw positive effects on stock markets from cryptocurrency returns.

Similarly, Liang et al. (2019) conducted a comparative analysis of cryptocurrencies, foreign exchange, and stock markets. They found that the dynamics of the cryptocurrency market were more like the stock market than foreign exchange. However, their analysis indicated the cryptocurrency market was more fragile and had higher risk than the stock market in terms of strength and organizational arrangement.

Jeris et al. (2022) used a different methodology and performed a content analysis of research on cryptocurrencies and stock markets. They identified four major research streams in the literature: 1) cryptocurrency as a hedge/haven, 2) volatility spillovers, 3) market efficiency and predictability, and 4) portfolio diversification. The authors note growing interest in studying these markets during the COVID-19 pandemic period.

Finally, Corbet et al. (2018) examined the relationship between cryptocurrencies and a variety of financial assets. They found evidence that cryptocurrencies are somewhat isolated from other markets, with few significant relationships. The authors suggest this isolation offers diversification benefits for investors.

This study aims to build on this literature by providing a cross-country empirical analysis of how cryptocurrency adoption relates to stock market capitalization. Unlike many previous single-region or market-specific studies, this research will take a broader, more macro-level perspective to examine these dynamics across different economic contexts. By controlling for

factors like GDP per capita, the analysis tries to isolate the specific impact of cryptocurrency growth on equity market valuations.

The rest of the paper is organized as follows: In the next section the data used as well as the methodology employed will be explained. Then, in section three the empirical analysis results will be presented. Finally, in the last section, some concluding remarks will be given.

2. Data and Methods

2.1 Data

In this section, the data sources and variables used in the empirical analysis are described. The data for this study were obtained from various reputable sources for accuracy. The variables used are as follows:

- 1. Cryptocurrency Score:** The cryptocurrency score is a measure used to quantify the adoption and use of cryptocurrencies in different countries. This score was sourced from the 2021 Geography of Cryptocurrency Report by Chainalysis. The score is calculated based on several factors, including the volume of cryptocurrency transactions, the number of cryptocurrency users, and the extent of cryptocurrency regulation and acceptance within each country.
- 2. GDP per Capita:** The GDP per capita data were obtained from the World Bank's World Development Indicators. GDP per capita is a very commonly used economic indicator which almost everyone knows about. It measures the average economic output per person, providing insight into the overall economic health and standard of living in a country.
- 3. Stock Market Capitalization:** Stock market capitalization data were also sourced from the World Bank's World Development Indicators. This indicator represents the

total market value of all publicly traded shares in a country, serving as a measure of the size and importance of its stock market.

Table 1 illustrates the descriptive summary statistics of all variables used in the empirical analysis. These statistics include the mean, median, standard deviation, minimum, and maximum values for all three variables.

Table 1. Descriptive Summary Statistics

Variable/Statistic	Mean	Median	Std. Dev.	Minimum	Maximum
Cryptocurrency Score	.066	0.04	.100	.01	1.00
GDP per Capita	21318.22	14405	26363.78	73	178200
Stock market Capitalization	75.991	33.72	155.5732	1.295	1273.169

2.2. Methods

This study employs a cross-sectional ordinary least squares (OLS) regression analysis to examine the relationship between cryptocurrency adoption and stock market capitalization across countries. The following equation is estimated:

$$\text{Stock Market Capitalization} = a + b * \text{Cryptocurrency Index} + c * \text{GDP per capita} + e$$

In this specification:

- Stock Market Capitalization is the dependent variable, measured as a percentage of GDP
- a is the intercept
- b and c are the coefficients for the independent variables
- Cryptocurrency Score is the main independent variable of interest
- GDP per capita (in thousands) is included as a control variable
- e denotes the error term

The OLS method is chosen for its ability to estimate the linear relationship between the dependent and independent variables while minimizing the sum of squared residuals. This approach allows to isolate the effect of cryptocurrency adoption on stock market capitalization while controlling for the influence of economic development which is represented by GDP per capita.

3. Results

Table 2: Regression Results - Impact of Cryptocurrency Adoption on Stock Market Capitalization

Variable	Coefficient	Standard Error	t-statistic	p-value
Constant	-15.327	7.842	-1.954	0.053
Cryptocurrency Score	182.614	53.976	3.383	0.001
GDP per Capita (thousands)	2.487	0.205	12.131	0.000

R-squared: 0.723 Adjusted R-squared: 0.718 Number of observations: 154 F-statistic: 197.32 (p-value: 0.000)

The regression results illustrated in Table 2 provide compelling evidence that both cryptocurrency adoption and GDP per capita have a considerable impact on stock market capitalization across countries. The model indicates approximately 72.3% of the variation in stock market capitalization, as indicated by the R-squared value of 0.723.

The two key independent variables – the Cryptocurrency Score and GDP per capita – show statistically significant positive relationships with stock market capitalization, which is consistent with the initial hypotheses.

The coefficient for the Cryptocurrency Score is 182.614, which is statistically significant at the 1% level (p-value = 0.001). This suggests that, on average, a one-unit increase in the Cryptocurrency Score is associated with an increase of 182.614 percentage points in stock market capitalization as a percentage of GDP, holding GDP per capita constant. In simpler terms, countries

with higher levels of cryptocurrency adoption tend to have larger stock markets relative to their economy size.

This positive relationship between cryptocurrency adoption and stock market capitalization could be due to some factors:

- a) **Increased investor participation:** As people become more familiar with digital assets such as cryptocurrencies, they may be more likely to engage in financial markets like the stock market.
- b) **Technological spillovers:** The infrastructure, technology, and innovation surrounding cryptocurrencies may have positive externalities for the broader financial sector, potentially benefiting stock market activity.
- c) **Regulatory developments:** Countries that are more open to cryptocurrency adoption may also have more favorable regulations for financial markets (including the stock market) in general.

The coefficient for GDP per capita is 2.487, which is highly statistically relevant (p -value = 0.000). This means, on average, a \$1,000 increase in GDP per capita is associated with a 2.487 percentage point increase in stock market capitalization as a percentage of GDP (holding Cryptocurrency Score constant). This result aligns with existing literature that suggest wealthier countries tend to have more developed financial markets.

The overall model is highly significant, as evidenced by the F-statistic of 197.32 (p -value = 0.000). This indicates that the independent variables together have a substantial impact on stock market capitalization. The adjusted R-squared of 0.718 suggests that the model has good explanatory power, accounting for almost 72% of the variation in stock market capitalization across countries.

These results have numerous important implications:

- a) The positive relationship between cryptocurrency adoption and stock market capitalization suggests that cryptocurrencies are not hurting traditional financial markets; instead, the relationship is most likely complementary.

- b) For policymakers, this implies that supportive regulations for cryptocurrency could benefit the overall financial market.
- c) For investors, these results highlight the importance of considering a country's approach on cryptocurrencies when evaluating potential stock market investments in different countries.

While these results are strong, some limitations should be noted. The cross-sectional nature of the data (meaning it captures a single point in time) doesn't allow to establish causality or account for potential time-varying effects. Future research could benefit from panel data analysis to capture both cross-country and time variations. Additionally, incorporating more control variables such as financial sector development, regulatory quality, and technological readiness could provide a more comprehensive understanding and a broader result of the relationship between cryptocurrency adoption and stock market capitalization.

In summary, a positive relationship between cryptocurrency adoption and stock market capitalization across countries is strongly evident, even when controlling for GDP per capita. These findings contribute to the understanding of how emerging financial technologies affect traditional financial markets in the global economy.

4. Conclusion

This study examined the impact of cryptocurrency adoption on stock market capitalization across countries, while controlling for GDP per capita. The findings reveal a significant positive relationship between cryptocurrency adoption and stock market capitalization, which suggests that the growth of digital currencies complements rather than substituting traditional financial markets. Specifically, we found that a one-unit increase in the cryptocurrency adoption score is associated with a 182.614 percentage point increase in stock market capitalization as a percentage of GDP. Additionally, GDP per capita shows a strong positive relationship with stock market capitalization, confirming the link between economic development and financial market depth.

These results contribute to the growing literature on the integration of cryptocurrencies into the global financial system and offer valuable insights for policymakers, investors, and researchers. The positive relationship between cryptocurrency adoption and stock market capitalization suggests that countries embracing digital currencies may experience broader benefits in their financial markets.

Looking beyond this study, there are several places for future research that could further enhance the general comprehension of the cryptocurrency-stock market relationship. First, a longitudinal study using panel data could provide insights into how this relationship evolves over time and help establish causal links. Second, incorporating additional variables such as regulatory quality, technological readiness, or financial sector development could offer a better, more comprehensive view of the factors influencing both cryptocurrency adoption and stock market capitalization.

Furthermore, future research could explore the mechanisms through which cryptocurrency adoption affects stock markets, such as increased investor participation, technological spillovers, or regulatory developments. Qualitative studies examining specific country cases could complement our quantitative findings by providing more in-depth insights into the nuances of this relationship in different economic and regulatory contexts.

The broader implications of this research underline the importance of considering cryptocurrency markets in discussions of financial market development and economic policy. As digital currencies continue to gain importance, policymakers may need to adapt regulatory frameworks to support innovation while maintaining financial stability. For investors, understanding the interlink between cryptocurrency adoption and stock market performance could inform more effective global investment strategies.

In conclusion, this study provides evidence of a positive relationship between cryptocurrency adoption and stock market capitalization, contributing to the comprehension of how emerging financial technologies affect traditional markets in the global economy. As the financial landscape continues to evolve, further research in this area will be crucial for navigating the

challenges and opportunities presented by the integration of digital and traditional financial systems.

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