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Bitcoin on Economic Growth (Case of 8 Asia Countries)

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ABSTRACT

In recent years, the price of Bitcoin has risen sharply on balance, despite some fluctuations. The latest price surge of the largest cryptocurrency prompted talk about Bitcoin's future. This research was conducted to confirm the impact of cryptocurrency which is Bitcoin on economic growth in Asian countries. Many studies have talked about cryptocurrencies on the technological side, but there are still few references to research that analyzes cryptocurrencies with economic growth. Using panel data regression, this study correlates cryptocurrencies, in this case, Bitcoin, as a type of cryptocurrency that is best known with GDP as a variable that represents economic growth. This study also has 4 other variables as control variables which will ensure the results are not biased. Namely the Internet (I), Capital (K), Labor (L), and Technology (T), as in Solow's growth theory which reviews growth through its supply side, the function of production inputs. This study took samples from 8 Asian countries with the most Bitcoin transactions (Japan, China, India, Singapore, Indonesia, Malaysia, Thailand, and Hongkong) from 2014 to 2020.

Keywords: Bitcoin; Cryptocurrency; Economic; Growth; Technology

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INTRODUCTION

Cryptocurrency has long been argued, but it is just now emerging as an accessible and effective financial tool, such as an exchange rate. Cryptocurrencies have the potential to drive global social and economic growth, even in underdeveloped nations, by facilitating access to capital and financial services. The advancement of technology supports local area and exercises in different areas (Satoto & Putra, 2022). As digital currencies and cryptocurrencies emerged, bitcoin was viewed as a direct challenge to central banks' currency control. Following the initial resistance and animosity towards cryptocurrencies, central banks came to acknowledge and embrace blockchain as the foundation of bitcoin's highly creative technology. Blockchain technology comprises configurable parameters and algorithms, as well as numerous asset tracking methods. Along with the rapid development of blockchain technology, these cryptocurrencies have gained popularity and attention (Wu et al., 2021). This technology provides unparalleled capabilities for managing money issuance.

Bitcoin is a cryptocurrency (or digital currency) designed around the concept of a "peer-to-peer" (P2P) network (Nakamoto 2008). This invention is attributed to a software developer named "Satoshi Nakamoto". Its purpose is to develop a transaction system that is devoid of intervention from central or monetary authorities, relying on mathematical algorithms rather than third parties. Payment trust can be established electronically in a secure, verifiable, and unmistakable way. The implementation of this concept entails a payment system in which all transactions take place directly between the owner and recipient and are carried out over the P2P network. Although the information is public, the user's identity remains anonymous. The Proof-of-Work principle verifies all transactions recorded in the block. It is nearly hard to modify the Bitcoin program unless most participants agree to do so. To modify these settings, a hacker or user with criminal intent would need massive processing power.

So yet, economic research has yielded little insight into cryptocurrency's economic relevance. Most existing cryptocurrency models are created by computer scientists, who are primarily concerned with the systems' viability and security. Important issues such as players' incentives to cheat and the endogenous nature of some essential variables, such as the genuine value of cryptocurrencies on exchanges, have been largely overlooked. Such issues are critical for understanding the ideal design and, as a result, the economic worth of cryptocurrencies as a form of payment.

Bitcoin's rules were created by engineers with no input from attorneys or authorities. Rather of storing transactions on a single server or group of servers, Bitcoin is based on transaction logs spread over a network of participant computers. These include measures that encourage honest engagement, accept early adopters' bootstrapping, and prevent power consolidation. Bitcoin's design enables irreversible transactions, a predetermined path of money generation over time, and a public transaction history.

Bitcoin appeals to economists as a virtual money with the potential to disrupt established payment and monetary systems. Even in their early phases, virtual currencies offer valuable insights about market design and buyer and seller behavior. However, it is obvious that the ease of transaction makes it easier to trade or invest. Money thrives in an era of rapid technological advancement. Money has become more diverse as a result of the internet, and the evolution of money is unavoidable. Money is also easier to obtain, which means it is easier to transact, thanks to technological advancements that simplify and accelerate processes.

Growth in the commerce, finance, investment, and banking sectors is inextricably linked to economic expansion. Economic growth indicates the success of economic development (Runtunuwu & Kotib, 2021). For example, Pradhan et al. (2015) found that ICT (technology, information, and communication) and financial development had a significant impact on a country's economic growth. The study investigates if cryptocurrencies, as a financial technology innovation, have a negative or positive impact on a country's economic growth. The study will look at cryptocurrencies in eight Asia Pacific countries, based on the ranking of Bitcoin trading volume and the availability of data.

Nowadays, people are even more amazed at how much money can be made. Beginning in 2009, the globe was introduced to a new sort of e-Gold or e-Money. These are known as cryptocurrencies. Cryptocurrency is a digital money that can be used in the same way that other currencies can, with the exception that it employs cryptography, which comes from the Greek words krypto, meaning hidden or secret, and graphing, meaning writing. It concludes that cryptography is the use of technology to protect information from third parties while also securing transactions and controlling their value.

Bitcoin's price has climbed dramatically in recent years, despite occasional swings. The most recent price increase in the world's largest cryptocurrency has sparked speculation about its future. The pressing question will be whether Bitcoin is money or not. Why do Bitcoins have a price? And what about Bitcoin's future? This study was done to confirm the impact of cryptocurrencies, specifically Bitcoin, on economic growth in Asian countries. The scholarly findings of this study are likely to help future policymakers examine cryptocurrency (Bitcoin) policy in the country's economy. This study is also significant for adding to the literature on cryptocurrency.

LITERATURE REVIEW

The theory popularized by John Maynard Keynes was later referred to as the demand-side theory that focuses on economic changes in the short term. To measure economic growth with Keynessian theory, governments need a reliable indicator, GDP. GDP is equal to the total of net exports, government expenditure, investment, and consumption (GDP=C+I+G+NX). Numerous hypotheses have been put up on the connection between different factors and economic expansion. Both the supply and demand sides can be used to approach economic growth, a strategy known as the aggregate supply and demand approach. According to Keynesian theory, expenditure has a major influence on economic growth. It is dependent upon measures of income and cost growth. Keynes passed a resolution to encourage public investment and consumption by reducing taxes and raising spending by the government. In this manner, the nation can effectively emerge from the worldwide economic downturn.

The neo-classical growth model, made popular by Solow in the 1960s, is an alternative growth model theory. The so-called Solow growth model, also known as the exogenous growth model, is another well-known application of this theory. It discusses the potential for GDP per capita to expand continuously. In classical growth models, populations are endogenous, whereas in neo-classical growth models, they are exogenous. The importance of capital accumulation was highlighted in early neo-classical growth models. Both labor and capital are used to produce the output in the Solow-Swan model. Economic growth and labor are correlated; as technology advances, there is an apparent rise in labor supply. Per capita output and labor productivity increase over time at an

exogenously determined rate of technological advancement. Since these theories completely attribute technological advancement to external factors, economic growth remains mysterious.

A class of models that first appeared in the 1980s provided an endogenous explanation for long-term economic growth by incorporating endogenous technical advancements and relaxing the assumption of diminishing returns on capital. Growth in output and productivity is independent of external technological advancement. Second, rather than solely emphasizing investments in R&D and human capital, growth theory ought to be grounded in a more grounded corporate theory that highlights businesses' (strategic) capacities in a broader sense. Thirdly, it should include institutional frameworks, which could have a significant role in explaining variations in economic growth between nations.

Other economic sectors, such as finance and banking, have an impact on growth as well. In his book, Keynes maintained that money had a considerable influence on economic growth, both in the monetary and real sectors. Technology also contributes significantly to economic progress. In today's increasingly modern society, technology advances and money grow. The types of money are now diverse; they are all internet-based, and this is true for the types of money. This makes money easier to obtain, and hence easier to trade, because it is a bit further away from your hand.

In many situations, people no longer need to visit a bank to transfer money. They can choose to use electronic money (e-money), credit cards, and internet banking. Technological development in information and communication field effects on a new innovation in electronic transaction (Ramadhani & Nugroho, 2021). Money development is unavoidable since technology simplifies and speeds up processes. This can also be considered financial development. Such advancements have a variety of implications for economic growth. The most important issue is that the more individuals have access to the financial sector, the easier it will be to amass savings and mobilize them to promote the circulation of borrowed money.

Previous research, such as Jarchow (1990), has established that money plays a significant role in economic growth, with its primary functions being unit of account, standard of postponed payments, and store of value. He also argued that the medium of exchange is the most important and fundamental function of money, because economic units share the ability to generate additional commerce. GDP is calculated using the amounts of consumption, investment, government spending, and net exports that correlate with money. Money plays an essential part in the economy since the amount of consumption, investment, government spending, and net exports determines how easily transactions may be completed (Pierson, 1972). The financial industry will also contribute to a country's economic progress (Pradhan et al. (2015); Batuo et al. (2017); Dibrova (2016)).

Due to cryptocurrencies not being physically real and lacking a central repository, digital coin balances can be erased by a computer if a backup copy of ownership is not available. Because prices are determined by supply and demand, the exchange rate for cryptocurrency can vary greatly. People also utilize it as a speculative instrument rather than for its intended purpose of currency. This would lead to higher prices and fewer investment, threatening economic development. Cryptocurrency is not the future of money; rather, it is a vital technology that may make it easier for us to begin building the economy of the future. Solow (1956) growth hypothesis suggests that technology influences economic growth. According to Berg (2001), Solow's development theory is

based on three key assumptions: labor (L), capital (K), and technology. Assuming cryptocurrencies represent a technological advance in the financial industry, this implies they may have an impact on economic growth.

RESEARCH METHOD

This study included both panel and secondary data, with a time series spanning 2016 to 2020. Asia's Bitcoin-using countries include Japan, China, India, Singapore, Indonesia, Malaysia, Thailand, and Hong Kong. GDP (Economic Growth) for the eight countries, as well as data on the global number of bitcoin transactions. The Bitcoin variable represents the average annual Bitcoin transaction volume in eight Asian countries from 2016 to 2020. These Bitcoin data are sourced from the totalcrypto.io website. The eight countries are ranked among the 46 countries that trade bitcoin.

The goal of this study is to prove whether cryptocurrencies can affect economic growth in Asian countries over time. A simple tool that can help explain the relationship is Panel Data Regression, which involves cross-section and time series data from each country. To control bias in this study, control variables will be placed, namely Internet (I), labor (L), capital (K), and technology (T), so that the equation eventually becomes:

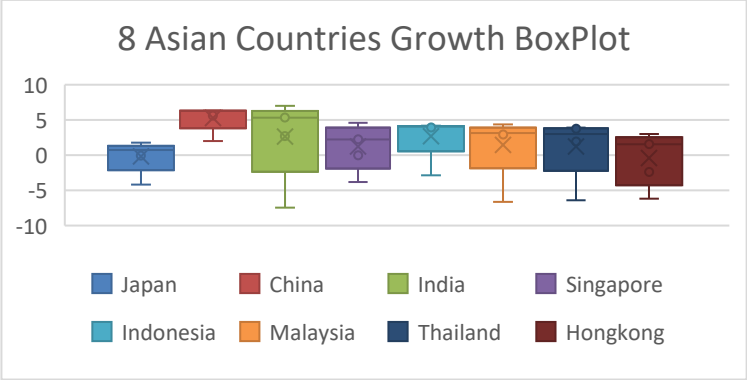
$$EG_{it} = b_0 + b_1\,[BTC] + b_2\,[I] + b_3\,[L] + b_4\,[K] + b_5\,[T] \quad (1)$$

The analysis used in this study is descriptive analysis and inferential analysis. In inference analysis, panel data regression analysis methods will be used. The steps that must be taken in analyzing data are as follows (Gujarati & Porter, 2009). First, conduct a descriptive analysis of the data to be used in this study. Second, transforms data based on characteristics data distribution. Third, use panel data regression to estimate a regression model between the economic growth and several estimating variables that influence it. Where in this analysis, the regression model estimation uses the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches. Fourth, perform a Chow test to select the best model between CEM and FEM. If H0 is rejected, then then perform step (4). Fifth, perform the Hausman test to select the best model between FEM and REM. If H0 is rejected, then perform step (5). Sixth, perform a Lagrange Multiplier (LM) test to select the best model between CEM and REM. Seventh, perform a significance test of panel data regression parameters which include concurrent tests (Test F) and partial tests (Test T) from the model with the best approach. Last, panel data regression model interpretation of the selected model.

RESULTS

The distribution of economic growth from some Asian countries through 2016-2020 can be seen in Figure 1. Quartile calculations use the exclusive median method. This graph shows that the whisker tends to extend downwards, which indicates that the average value of economic growth for each country is smaller than the median value. This is because each country experienced a very large slowdown or contraction. With this BoxPlot we can also conclude that the economic growth data for each country has the same distribution characteristics, namely the moderate negative skewness type.

Figure 1. The Difference of 8 Asians Countries Growth Boxplot



Based on each standard deviation, we can interpret their Growth Elasticity. The elasticity of economic growth shows the country's ability to maintain the stability of its economic growth. The lower of the growth elasticity indicates stable economic growth. Elasticity is obtained from the standard deviation value of economic growth data. China's economic growth elasticity (1.66) is the lowest compared to other countries. Visually, it can be concluded from China's boxplot that it is narrower than the boxplots of other countries. Japan (2.09) and Indonesia (2.77) respectively are the second and third-ranked countries with low elasticity. Meanwhile, India has the highest elasticity (5.23), followed by Malaysia (4.07), Thailand (3.88), and finally Hong Kong (3.43).

Table 1. Descriptive Statistics Example

Indicator	BTC	L	K	T	I	EG
Mean	23.269.884,93	191.687.635	1.066.946.351.045,76	31,28	67,24	1,72
Maximum	838.940.296,25	792.758.868	6.410.859.610.479,94	69,65	93,18	6,98
Minimum	0,0001	3.472.519	65.682.076.006,81	7,36	16,5	-7,48
Standard Deviation	132.736.014,49	274.016.492	1.853.153.221.621,35	20,08	24,66	3,88
Kurtosis	39,4	0,43	3,51	-1,3	-0,83	0,23
Skewness	6,26	1,4	2,2	0,4	-0,69	-1,04
Obs.	40	40	40	40	40	40

Source: Author's calculation, 2022

Based on summary statistics, it can be seen that each variable has different distribution characteristics. Bitcoin has a minimum value of 0.0001 with a maximum value of 838,940,296.25 which causes Bitcoin's variable standard deviation to be very large. Bitcoin has a positive skewness of 6.26 with a mean value of 23,269,884.93. This shows that the distribution of Bitcoin is likely to be left-leaning. By looking at the same indicators on Labor and Capital, it will be found that the distribution characteristics of both variables are like Bitcoin's distribution characteristics. Unlike the case with the variables Technology, Internet and Growth which type of data is a percentage. The mean value of the three variables is not as big as Bitcoin, Labor, and Capital. The value of Internet Skewness and Growth is negative which indicates that the variable will tend to have a

right-looking distribution. This summary statistics shows the different types of data distribution of each variable. The smallest value of the data is -7.48 from the EG variable. Modelling the relationship between Bitcoin and Economic Growth using regression panel data and several control variables. This modelling begins with the stages of estimating coefficient in CEM, FEM, and REM. Then, comparisons are made to select the best model through the Chow Test, Hausman Test, and Lagrange Multiplier Test. After obtaining the best model, classical assumptions are carried out. If there is a violation of classical assumptions, it will be followed up by handling violations of assumptions. The significance of the parameter will be tested. Based on the exploration of summary statistics, researchers choose Log(x+10) as a function of transformation in modelling. This function can overcome data scale differences that are too large in BTC, K, and L. Adding a constant value of 10 to the data to overcome numeracy errors when transforming data that is less than 0.

Table 2. Model Parameter Estimation Results

	CEM	FEM	REM
Constant	1.663357 **	-49.46473 **	-20.95295*
LBTC	0.059858***	0.040495**	0.043926***
LI	-1.08246***	-2.274171***	-2.116974***
LK	0.102273	2.4775***	2.444085***
LL	-0.105689	3.418234	-0.279671
LT	0.499861**	-0.124451	-0.143803***
R-Sq	0.446817	0.78694	0.733017
F Stat(Prob.)	5.953 (0.000467)	8.31 (0.0000)	5.953 (0.000467)

Sources**:** Author's calculation
Notes: The values in parentheses represent the t-test results, with ***, **, and * denoting significance at the 1%, 5%, and 10% levels, respectively

The CEM model or Common Effect Model treats each individual (in this case the state) as if it were the same. This model will combine time and individual observations and ignore differences in characteristics between countries. Based on this assumption, the constant will be applied equally to every country. Parameter estimation in the CEM model will use the OLS (Ordinary Least Square) method (Gujarati, 2003). As a result of ignoring the characteristics between countries, the uniqueness or heterogeneity of each country will be covered by errors in the model. The R-squared value of the CEM model which is only 0.446817 shows that independent variables are only able to explain 44.68% of economic growth variables. Large errors involving small ones in the CEM model indicate that the heterogeneity of each country is high. Based on the estimation of the CEM model, it was found that the variables LBTC, LI, and LT had a significant effect on the formation of Economic Growth. These results show that despite ignoring individual heterogeneity or characteristics between countries and which is not large, Bitcoin has proven to significantly contribute positively to Economic Growth data. The CEM model obtained is

$$LEG = 1.663357 + 0.0598LBTC - 1.08246LI + 0.102273LK - 0.105689LL + 0.499861LT \quad (2)$$

The assumptions in the FEM Model have accommodated differences in characteristics between individuals (in this case countries) which are problematic in the constant coefficient (CEM) model. The constant in FEM is an intercept that does not change over time even though intercepts between countries vary. If each country has its own intercepts, heterogeneity between countries is involved in modelling, consequently low

causes in CEM can be reduced to FEM R^2. This increase through FEM also indicates that the characteristics of each country are not homogeneous This model estimation is done using the Least Square Dummy Variables (LSDV) method. The value in the FEM model of 0.7869 shows that the independent variable can explain the Economic Growth variable of 78.69%. Based on this FEM, the variables LBTC, LI, LK, have a significant effect on the formation of Economic Growth. The results of this FEM modeling show that, despite using different assumptions on CEM, Bitcoin has proven to still make a significant positive contribution to Economic Growth. The FEM model obtained is by interstate intercept

$$LEG_i = -49.46473 + \mu_i + 0.040495LBTC - 2.274172LI + 2.4775LK + 3.418234LL - 0.124451LT \quad (3)$$

The REM Model and the FEM Model are assumed to both overcome heterogeneity between countries. If FEM can overcome heterogeneity between countries through its intercept, then REM is assumed to be able to overcome heterogeneity between countries through its error term. The estimation method used in REM is generalized least square (GLS). The most important assumption in REM is that there is no correlation between individual errors and independent variables in the model (Gujarati, 2003). The variables LBTC, LI, LK, and LT are significant in the model. Significantly more variables from the FEM model indicate a correction in the correlation of individual errors with independent variables. Once again, it was found that Bitcoin proved to make a significant positive contribution to Economic Growth albeit on a scale no larger than Capital. Bitcoin being a significant variable contributes positively to Economic Growth modelling with different modelling assumptions. The value on the REM model was obtained at 0.733. In other words, independent R^2 variables can explain 73.3% of economic growth and another 26.7% come from variables outside the study. The REM equation obtained is with is the i-th individual error.

$$LEG_i = -20.95295 + 0.043926LBTC - 2.116974LI + 2.444085LK - 0.279671LL - 0.143803LT + \gamma_i \quad (4)$$

Table 3. Model Comparison Results

Test	Statistics (Prob.)	Comparison Results
Chow Test	5.7953 (0,000)	FEM is better than CEM
Hausman Test	3.006852 (0,000)	REM is better than FEM
Lagrange Multiplier Test	18.91623 (0,000)	REM is better than CEM

After estimating CEM, FEM and REM parameters, the best model will be determined using the Chow test, Hausman test and Lagrange Multiplier. Table 4.4 confirms that the REM model is the best model based on the Hausman Test and the Lagrange Multiplier Test. After obtaining the best model, it will proceed with the assumption test. According to Gujarati 2003, if the REM model is chosen then the classic assumptions that need to be tested are multicollinearity and normality. Testing the normality assumption can use the Jarque-Bera Test (Greene, 2003). The results of the normality test show that the Jarque-Bera p-value is 0.137923 or greater than the significance level used (α=0,05). It can be concluded that there is no problem of normality. From Table 4.5 which is a correlation matrix between variables, could be seen that LBTC has a weak positive relationship with LL and LI, then has a moderate positive relationship with LK and LEG. In addition, LBTC has a weak negative correlation with LT.

The correlation matrix leads us to see which variables have too high a correlation (exceeding 0.85) and shows the problem of multicollinearity. The highest correlation of 0.863476 is in the relationship between LK and LL. A high correlation between Capital and Labor is natural. To deal with this problem, any of the variables between LK and LL can be eliminated or ignored on modeling. Because these two factors are control variables, so the problem of multicollinearity between these variables will not affect the results of the study. The researchers also chose to retain LK in the model because the LK variable was significant in REM while the LL variable was not significant together with the LT control variable.

Table 4. Correlation Matrix Between Variables

	LBTC	*LI*	*LK*	*LL*	*LT*	*LEG*
LBTC	1					
LI	0.017975	1				
LK	0.401117	-0.31878	1			
LL	0.218775	-0.66711	0.863476	1		
LT	-0.28838	0.724555	-0.46701	-0.68144	1	
LEG	0.459882	-0.32458	0.23495	0.223612	-0.15128	1

With significant variables, the REM equation can be written into with is an error term between individuals.

$$LEG_i = -20.95295 + 0.043926LBTC - 2.116974LI + 2.444085LK + \gamma_i \quad (5)$$

Table 5. Correlation Matrix Between Variables

i	Country	γ_i	Intercept
1	Japan	-1.301661	19,651289
2	China	-2.644226	18,308724
3	India	-1.360997	19,591953
4	Singapore	1.390317	22,343267
5	Indonesia	-0.367704	20,585246
6	Malaysia	1.648528	22,601478
7	Thailand	1.060653	22,013603
8	Hongkong	1.575090	22,52804

The constants in the valued model will be added with random individual effects in each country and generate an intercept in each country. The intercept can be seen in Table 4.5. This intercept means that if there is no influence from Bitcoin, the Internet, and Capital or all independent variables -20.95295 are 0, then Economic Growth will experience a slowdown of each intercept.

The LI coefficient indicates that LI has a negative influence on Economic Growth. Every 1 per cent increase in LI will decrease LEG by. This finding shows that, in the eight countries observed, Internet use has not been productive and has not been able to make a positive contribution to Economic Growth.- 2.116974

DISCUSSION

In this study it was also found that the coefficient of Capital and Bitcoin are equally positive with the value of the Capital coefficient greater than Bitcoin. This shows that the increase in Bitcoin and Capital will increase Economic Growth. Every 1 per cent increase in LBTC will increase 0.043926 in LEG. For every 1 per cent increase in LK will increase 2.444085 in LEG. This model also shows the huge role of Capital in the Economic Growth of each country. This shows that, in the eight countries observed, the use of Bitcoin and Capital can make a positive contribution to Economic Growth. This research also proves that Bitcoin can contribute to Economic Growth although not yet on the same scale as Capital.

Cryptocurrency refers to digital currency, often decentralized, specifically created for online use. Over the past decade, cryptocurrencies have emerged as a digital substitute for traditional government-issued money. Typically, individuals engage in the trading of these currencies on platforms such as Binance, one of the largest in the cryptocurrency market. The variety of cryptocurrencies that can be mined from the internet is extensive and continues to grow rapidly. Recently, there has been significant discussion about Libra, a novel virtual currency associated with the prominent social media giant Facebook, led by Mark Zuckerberg. This development is anticipated to further impact the economic significance of cryptocurrencies.

Currently, the most prevalent and widely recognized digital currency is undoubtedly Bitcoin. Established in 2009, it has progressively gained prominence across various sectors within the online realm. Its value has experienced growth over the years, culminating in a record-breaking $20,000 milestone for Bitcoin in 2017. This cryptocurrency facilitates a range of transactions, including purchasing goods, making investments, participating in the stock market, and unfortunately, engaging in illicit transactions on the Dark web, where it can be used to acquire unauthorized products and services.

In 2021, the global Bitcoin market reached a valuation of USD 17.05 billion, and it is anticipated to witness a compound annual growth rate (CAGR) of 26.2% from 2022 to 2030. This expansion is attributed to various advantages associated with Bitcoin, including cost-effective and swift payments, reduced volatility, and the provision of secure transactions. Consequently, Bitcoin has evolved not only as a medium of exchange for goods and services worldwide but also as a reliable store of value. Furthermore, the introduction of Bitcoin has eliminated the need for central authorization in financial transactions, enabling immediate completion of transactions.

Bitcoin exchanges operate without intermediaries, resulting in accelerated transaction speeds. The absence of intermediaries also contributes to lower transaction fees, fostering efficiency in exchanges and prompting an increase in transaction volume. The decentralized nature of Bitcoin transactions reduces the need for physical structures where people traditionally conduct transactions, leading to lower fixed costs without expenses related to wages, rent, or utilities. Additionally, some traders operate without imposing a minimum deposit requirement.

Moreover, Bitcoin cryptocurrency is not bound by geographical limitations, eliminating the need for centralized institutions to oversee transactions. This feature promotes swift and straightforward trading for individuals and companies alike. In November 2021, the value of one bitcoin reached $59,150, making it challenging for many individuals to afford

a whole bitcoin. However, the divisibility of bitcoins allows for the purchase of fractions, enhancing transaction volume and feasibility. For instance, someone in India can start with an investment as low as Rs. 100. This flexibility in denominations positions cryptocurrencies to potentially become widely accepted as common currencies across different economies, fostering increased trade.

The cryptocurrency blockchain system is upheld by a peer-to-peer network, ensuring decentralized transactions in contrast to the centralized nature of traditional financial systems. Cryptocurrency users advocate for complete control over their funds, prioritizing autonomy over-reliance on traditional banking systems. Additionally, multinational entities typically acquire loans in both domestic and foreign currencies. The incorporation of cryptocurrency options in this scenario serves to diversify exposure, offering access to a broader and more varied loan portfolio.

Cryptocurrencies exhibit a connection with various sectors of the economy, albeit with a relatively modest impact. One sector experiencing a notable surge in the potential application of cryptocurrency technology is education. Recently, several universities across Cyprus, Switzerland, the United States, and Germany have embraced cryptocurrencies, accepting them as payment for tuition fees through their websites. Additionally, certain online educational institutions now facilitate payments using Bitcoin. The travel industry is also incorporating these digital currencies, with businesses allowing the use of cryptocurrencies for purchasing airline tickets, hotel reservations, car rentals, and cruises. This integration is contributing to the rapid expansion of the cryptocurrency system within the travel sector.

The residential and real estate sector is emerging as a prominent domain for the widespread adoption of cryptocurrencies. The growing acceptance of digital currencies as a valid form of payment by an increasing number of companies is anticipated to drive investments in this sector. Retail is another significant industry expressing keen interest in cryptocurrency technology. The initial instance of this adoption was observed on the Overstock.com website, specializing in furniture services, which started accepting Bitcoin. Subsequently, numerous retail platforms, including major players like Crate and Barrel, Nordstrom, and Whole Foods, have followed suit, providing customers with the option to make purchases using cryptocurrencies.

Cryptocurrencies have opened up new avenues for game publishers and developers, with various online games incorporating the trading of digital currencies. Project Big ORB stands out as a notable example, enabling players to convert in-game currency into other assets, including cryptocurrencies, which can then be exchanged for real money.

The economic ramifications of Bitcoin and other cryptocurrencies cannot be overlooked. In just a few years, these digital alternatives to the global financial system have gained considerable traction. However, the broader impact on the entire financial system remains uncertain, and it is yet to be determined whether these external influences will benefit or disrupt the delicate balance among the world's different economic powers. The evolving relationship between traditional financial systems and cryptocurrencies raises questions about potential consequences and effects on the global economic landscape.

The academic examination of Bitcoin and Blockchain encompasses various perspectives, including cultural, legal, and economic dimensions. Research from these perspectives generally supports the development of Bitcoin and Blockchain, citing opportunities for positive change in the economic system without relying on third parties.

Scholars emphasize the constructive impacts and the potential for economic development and poverty alleviation, particularly in countries with governance challenges.

However, it is essential to acknowledge the negative influences associated with cryptocurrencies, especially Bitcoin. Firstly, the energy-intensive process of mining cryptocurrencies contributes to pollution and massive energy consumption, raising concerns about environmental sustainability.

Secondly, the rise of cryptocurrencies has become a haven for criminal activities, serving as a platform for money laundering and enabling cybercriminals to conduct transactions anonymously. The security features of blockchain technology make it challenging for intelligence organizations to track and apprehend criminals involved in hacking and illicit activities.

Thirdly, the use of cryptocurrencies on the deep net or dark web poses ethical challenges, as it facilitates illegal transactions, including drugs, human trafficking, and weapons trading. Cryptocurrencies, due to their anonymity, make it easier for criminals to operate in these underground markets.

On the economic front, cryptocurrencies challenge traditional financial and monetary structures. Critics argue that cryptocurrencies lack intrinsic value and do not have corresponding responsibilities, as there is no central authority, such as a central bank, overseeing their value. This lack of oversight raises concerns about financial stability and the potential for a cryptocurrency bubble.

However, proponents see the potential for cryptocurrencies to disrupt traditional economic models, much like the internet and mobile phones did in previous years. Cryptocurrencies, such as Bitcoin, operate on unique principles, including decentralization, cryptographic security, and the absence of intermediaries. This disruption may extend to central banks, as some countries explore the creation of Central Bank Digital Currencies (CBDCs) incorporating cryptocurrency elements.

In summary, the academic discourse surrounding Bitcoin and Blockchain reflects a complex interplay of positive and negative impacts, underscoring the need for careful consideration of regulatory frameworks and ethical standards in their development and usage.

CONCLUSION

The study incorporates control variables based on the Solow growth theory and includes internet-related variables, aiming to avoid biased results by considering a broader economic context beyond Bitcoin alone. Utilizing panel econometrics regression with Eviews, the research reveals that Bitcoin has a significant influence on economic growth in eight Asian countries (Japan, China, India, Singapore, Indonesia, Malaysia, Thailand, and Hong Kong).

The regression results highlight a positive relationship between Bitcoin (BTC) and GDP, indicating that cryptocurrencies have a favorable impact on economic growth. While the impact of Bitcoin on economic growth is not yet comparable to that of capital, the study suggests that it does contribute positively to overall economic development.

Additionally, the study advocates for greater openness to technological innovation across all economic actors, including households, companies, and governments. The emphasis is particularly on fostering innovation in the financial sector. The research also underscores the importance of establishing clear regulations governing the use of any form of cryptocurrency. Such regulations are seen as crucial for providing better protection against various forms of fraud that can adversely affect individuals and countries. The recommendations highlight the need for a balanced approach that encourages innovation while ensuring a secure and regulated environment for the responsible utilization of cryptocurrencies in various economic sectors.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflict of interest.

REFERENCES

Batuo, M., Mlambo, K., & Asongu, S. (2018). Linkages between financial development, financial instability, financial liberalisation and economic growth in Africa. *Research in International Business and Finance*, *45*, 168-179. https://doi.org/10.1016/j.ribaf.2017.07.148

Berg, H. V. D. (2001). *Economic Growth and Development.* Mc-Grawhill.

Dibrova, A. (2016). Virtual currency: new step in monetary development. *Procedia-Social and Behavioral Sciences*, *229*, 42-49. https://doi.org/10.1016/j.sbspro.2016.07.112

Greene, W. H. (2003). *Econometric Analysis*. Pearson Education India.

Gujarati, D. (2003). *Basic Economics (4th ed.).* McGraw-Hill.

Gujarati, D., & Porter, D. C. (2009). *Basic Econometrics (5th ed.).* McGraw-Hill.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271.

Jarchow, H. J. (1990). Fiskalpolitik, Angebotsbedingungen und Wechselkursdynamik. *Journal of Contextual Economics–Schmollers Jahrbuch*, (1), 21-35.

Nakamoto, S. (2008) *Bitcoin: a peer-to-peer electronic cash system.* http://bitcoin.org/bitcoin.pdf

Pierson, G. (1972). The role of money in economic growth. *The Quarterly Journal of Economics, 82*(3), 383-395. https://doi.org/10.2307/1880799

Pradhan, R. P., Arvin, M. B., & Norman, N. R. (2015). The dynamics of information and communications technologies infrastructure, economic growth, and financial development: Evidence from Asian countries. *Technology in Society*, *42*, 135-149. https://doi.org/10.1016/j.techsoc.2015.04.002

Ramadhani, R., & Nugroho, W. (2019). Analysis of the effect of exchange rates, e-money and interest rates on the amount of money supply and its implications on the inflation level in Indonesia 2012-2017 period. *International Journal of Accounting & Finance in Asia Pasific*, *2*(1). https://doi.org/10.32535/ijafap.v2i1.364

Runtunuwu, P. C. H., & Kotib, M. (2021). Analysis of the effect construction costs, human development index and investment: Does it have an impact on economic development?. *International Journal of Accounting & Finance in Asia Pasific*, *4*(3), 100-113. https://doi.org/10.32535/ijafap.v4i3.1210

Satoto, S. H., & Putra, H. N. K. (2021). The effect of financial literacy and other determinants on the intention to use electronic money: Consumer behavior as a variable mediation. *International Journal of Applied Business and International Management*, *6*(3), 23-34. https://doi.org/10.32535/ijabim.v6i3.1326

Solow, R. M. (1956). A contribution to the theory of economic growth. *The quarterly journal of economics*, *70*(1), 65-94. https://doi.org/10.2307/1884513

Wu, J., Liu, J., Zhao, Y., & Zheng, Z. (2021). Analysis of cryptocurrency transactions from a network perspective: An overview. *Journal of Network and Computer Applications*, *190*, 103139. https://doi.org/10.1016/j.jnca.2021.103139