Cryptocurrency and Macro-Economic Stability: Impacts and Regulations

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Abstract

This research aims to determine the impact of Cryptocurrency on macroeconomics, especially in terms of inflation, exchange rates, and other relevant aspects. This article also analyzes the various regulatory approaches that governments around the world have implemented to address risks and manage the development of cryptocurrencies. The method used in this research is qualitative with a descriptive-analytic approach. The methods used in this research include collecting data from various sources, including historical cryptocurrency data, macroeconomic data, and cryptocurrency regulatory data. The results of the analysis show that cryptocurrencies can have a significant impact on macroeconomic stability, both positive and negative, depending on factors such as widespread use, price volatility, and role in the global financial system. Additionally, the different regulatory approaches reflect the diversity of global views on cryptocurrencies and the challenges of regulating technological innovation. This article summarizes these findings and underscores the importance of a deep understanding of cryptocurrencies in the era of digital finance.

Keywords: *Cryptocurrency, Macro-Economic Stability, Exchange Rate, Regulation, Global Financial System.*

A. INTRODUCTION

Cryptocurrencies are a relevant topic in relation to macro-economic stability because they have the potential to influence various aspects of the macroeconomy, including monetary, fiscal, and financial stability (Lekashvii & Mamaladzem, 2018; Bajaj et al., 2022). Based on data on the Ministry of Finance website, Cryptocurrency has even become very popular among young people recently. It is considered to be more secure because it is guaranteed by Cryptography, which makes it a currency that is impossible to counterfeit and spend multiple times. Wang et al. (2022) provide a logical reason why this has become very popular, namely because Cryptocurrency is not tied to centralized financial institutions such as banks, thus avoiding a centralized financial system, and with this, of course, minimizing very complicated regulatory pathways so that anyone can access it as long as they are connected with computers.

This is very closely related to macroeconomics because, in several countries, Cryptocurrency has been officially used as currency.

The first and very crucial influence is the influence on the exchange rate. Cryptocurrencies, such as Bitcoin, have become a significant global investment alternative. Fluctuations in cryptocurrency values can affect national currency exchange rates, which in turn can affect the competitiveness of a country's exports and imports (Noam, 2019). In the context of the global economy, cryptocurrencies, such as Bitcoin and Ethereum, have become a topic of interest due to their potential impact on national currency exchange rates (Hayes, 2016). This could be caused by a phenomenon in cyberspace called Cryptocurrency. Cryptocurrency is a form of digital currency that operates in a decentralized manner without the involvement of a government or central bank. When cryptocurrencies like Bitcoin or Ethereum make headlines in the media and attract investor interest, their impact can be felt far beyond cyberspace.

Among the effects are speculation and trading; if many parties buy Bitcoin at the same time, then the price will certainly rise in a short time and have an impact on other people who sell national money to buy Bitcoin; the long-term impact of which will affect the exchange rate of the money. experiencing depreciation (Chen, 2018; Matkovskyy et al., 2020). Next is related to security in uncertainty; this happens when there is economic instability in a country, and people who feel worried will look for alternatives that are more-stable and safe. In the long term, this will certainly trigger an outflow of funds and affect the exchange rate. Next is the relationship with the Global Market; this occurs when there is a change in Cryptocurrency, which triggers a wave in the exchange rate and becomes a means of payment that influences the balance of trade within a country as well as other countries that are its economic cooperation partners (Al-Thaqeb et al., 2022).

The second influence is the influence of inflation and deflation. Some cryptocurrencies, such as Bitcoin, have a characteristic called "limited supply." This means that there is a quantitative limit on the number of cryptocurrency units that will ever exist. For example, Bitcoin has a maximum of 21 million Bitcoins that will ever exist. With this limited supply, there is potential for deflation. Deflation occurs when the value of money increases or purchasing power increases over time. In the case of a cryptocurrency with a limited supply, the supply of the Cryptocurrency will not grow quickly along with demand, thus driving an increase in the value or price of the Cryptocurrency. This can produce a deflationary effect, where people are more likely to keep Cryptocurrency rather than spend it because they expect its value to continue to increase. As a result, Cryptocurrency tends to be less widely used as a means of everyday payment because people prefer to keep it as an investment; this is in accordance with the results of research conducted by Asena Deniz (2020) and Abdullah & Nor (2018).

This is like a double coin, as rapid growth in the supply of new cryptocurrencies can result in potential inflation in the cryptocurrency economy. Basile (2022) explains that some other cryptocurrencies, such as some altcoins, have different supply models, where more new cryptocurrency units are generated over time. For example, Ethereum is a cryptocurrency that has an expandable supply. If the number of new cryptocurrency units produced significantly exceeds new demand, this could lead to a decrease in the value or price of the Cryptocurrency. When cryptocurrencies experience inflation, people may be less willing to hold them because they do not want to see their value continue to decrease. This can affect the purchasing power of cryptocurrencies and the impact of their use as a means of payment.

However, keep in mind that inflation and deflation rates in cryptocurrencies can vary greatly depending on the type of Cryptocurrency, supply model, and economic factors that influence it. Additionally, Podder (2023) and Coulter (2022) explain that cryptocurrencies are often highly volatile, which can produce sharp price fluctuations in a short period, regardless of limited supply or possible inflation. Therefore, it is important to understand the specific characteristics of each particular Cryptocurrency when considering its impact on inflation and deflation in the cryptocurrency economy (Cahyadi et al., 2021; Marzo et al., 2022).

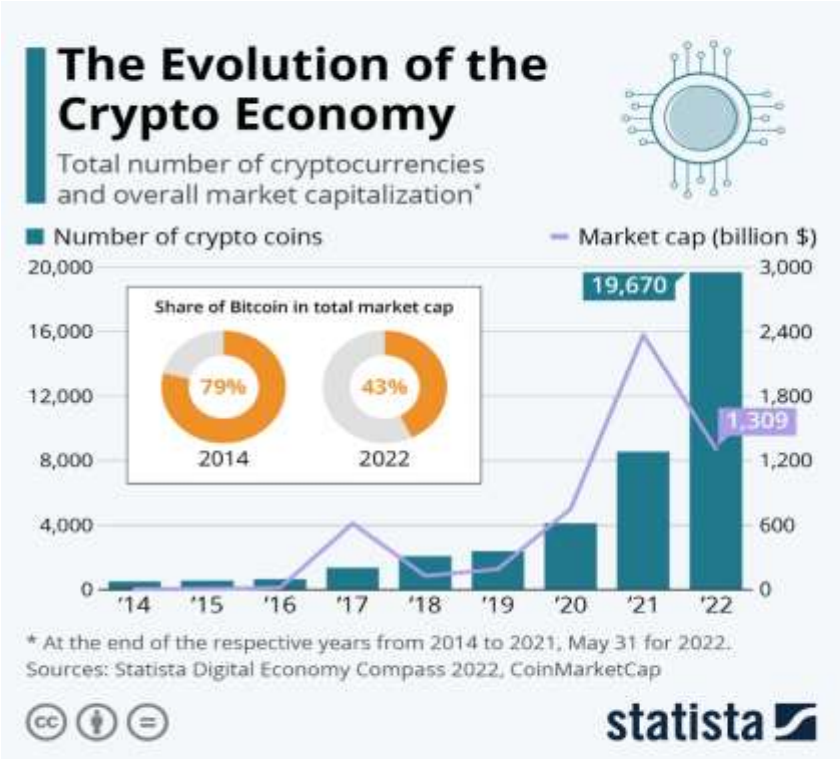

Figure 1. The Evolution of the Crypto Economy

Source: Statista (2022)

Since the inception of Bitcoin in 2009, the cryptocurrency market has experienced a roller-coaster journey characterized by significant ups and downs. Our infographic examines the evolution of the digital currency ecosystem over the last decade, utilizing data sourced from Statista's Digital Economy Compass report. In recent years, growth has been astonishing, surging from just a handful of virtual currencies by the end of 2014 to nearly 20,000 by the end of May this year. This rapid expansion, particularly evident in the last three years, can be partly attributed to the ease of creating new cryptocurrencies, a process that costs virtually nothing and can be accomplished with a few simple steps (Assaf et al., 2023; Maltkovskyy & Jalan, 2019). Nevertheless, the digital assets included in our data source must meet specific criteria, including being listed on an exchange platform, which serves to filter out fraudulent schemes and less reputable contenders.

The next impact is related to the role of Cryptocurrency in global finance. Cryptocurrencies have assumed an increasingly important role in the world of global finance, especially in the context of cross-border money transfers. Let us explain how this role can influence the global financial system and the role of national currencies in international trade in a descriptive narrative (Walther et al., 2019; Hachicha et al., 2022). In the past, to make cross-border money transfers, individuals or businesses had to rely on traditional financial systems such as banks or international money transfer services. This process is often time-consuming, expensive, and requires multiple intermediaries, which can result in additional costs. Additionally, currency fluctuations and time zone differences can slow down cross-border fund transfers.

In connection with the emergence of cryptocurrencies, especially Bitcoin, the process of cross-border money transfer has undergone significant changes. Cryptocurrencies allow users to send and receive funds internationally quickly and at much lower costs compared to traditional methods. Cryptocurrency transactions do not require intermediaries such as banks or other financial institutions. They also work non-stop and without paying attention to time zones. However, this also has negative impacts that need to be paid attention to by all, namely high-value fluctuations in Cryptocurrency, security issues, and regulatory uncertainty are some examples.

Additionally, the use of cryptocurrencies in cross-border transactions has also sparked debate about their role in money laundering and other illegal activities. With that point in mind, cryptocurrencies have changed the global financial landscape by providing a faster, more efficient, and affordable alternative for cross-border money transfers. However, the uncertainty and challenges associated with cryptocurrencies remain an important topic in the global financial debate.

B. METHOD

This research uses a qualitative-descriptive type of research. The methods used in this research include collecting data from various sources, including historical cryptocurrency data, macroeconomic data, and cryptocurrency regulatory data. The theoretical framework used includes macroeconomic and financial theory, as well as literature related to Cryptocurrency and regulation. In its implementation, this research considers limitations, such as high volatility in cryptocurrency data and external factors that cannot be fully measured. With this method, this research can provide a deeper understanding of the impact of cryptocurrencies on macroeconomic stability and the effectiveness of regulations in managing the associated risks.

C. RESULT AND DISCUSSION

1. Impact of Cryptocurrencies on Macro-Economic Stability

In analyzing the impact of cryptocurrencies on macroeconomic stability, we must consider several key aspects, including inflation, exchange rates, and other relevant elements.

First, cryptocurrencies can affect inflation, which is the general growth rate of prices in an economy. If cryptocurrencies are widely used as a means of payment and investment, fluctuations in the value of cryptocurrencies may affect the prices of goods and services. For example, if cryptocurrency prices suddenly spike, people may be more inclined to save them rather than spend them. This can slow down the circulation of money in the economy, which in turn can affect the rate of inflation. On the other hand, if cryptocurrencies experience deflation (a significant increase in value), then people may be more inclined to hold them, which could exacerbate economic deflation.

Second, national currency exchange rates can be influenced by cryptocurrencies. If there is an increase in interest and investment in a particular cryptocurrency, the national currency could weaken as investors turn to digital assets. This can reduce the competitiveness of exports and increase the cost of imports, affecting the country's trade balance. Conversely, if there is concern or nervousness in the cryptocurrency market, investors may return to more stable national currencies, strengthening their exchange rates.

Cryptocurrencies can also impact the financial and banking sectors. The growth of the cryptocurrency market may divert some liquidity from the traditional banking system, which could affect monetary policy and banking stability. Apart from inflation and exchange rates, cryptocurrencies can also influence other elements such as interest rates, investments, and overall financial stability. Therefore, in the analysis of the impact of cryptocurrencies on macroeconomic stability, it is important to consider these various factors carefully and involve appropriate data and analysis methods.

In continuing the analysis of the impact of cryptocurrencies on macro-economic stability, several additional factors need to be considered, including the following:

The first factor, namely the role of Cryptocurrency in cross-border payments and transfers, can influence national and international payment systems. The speed and lower costs associated with cryptocurrency transactions could change the way companies and individuals conduct cross-border business. This may impact payment processing, banks, and other financial institutions, as well as their business models.

The Second Factor is that events such as the development of stablecoins (cryptocurrencies whose value is tied to more stable assets such as fiat currency) have raised questions about the extent to which cryptocurrencies can function as a stable means of payment. The success of stablecoins in achieving value stability can have a significant impact on the use of cryptocurrencies in everyday transactions and value stability.

For the Third Factor related to regulation, government efforts to supervise and regulate cryptocurrencies can influence their level of adoption and use in the economy. Strict regulations can limit the growth of cryptocurrency markets, while loose or unclear regulations can increase financial and stability risks.

Fourth factor, it is important to consider the uncertainty and high volatility in the value of cryptocurrencies. Short-term sharp fluctuations in value can create uncertainty in the economy, and dramatic changes in the value of cryptocurrencies can affect the wealth of individuals and investors.

The final factor related to the impact of cryptocurrencies on the macro-economy can vary from one country to another. Countries with economies that are more open to cryptocurrencies may experience a greater impact compared to countries that adopt a more restrictive approach.

In the overall analysis of the impact of cryptocurrencies on macroeconomic stability, it is important to combine empirical data, theoretical frameworks, and an understanding of cryptocurrency market dynamics. Further research and continued monitoring of cryptocurrency developments will be necessary better to understand their role and impact on the global economy.

2. Cryptocurrency Regulation

An overview of the various regulatory approaches that governments in various countries have implemented regarding cryptocurrencies illustrates the diversity of approaches and challenges faced by various jurisdictions around the world. Several general approaches have been implemented, which are presented in the following table:

Table 1. An overview of various approaches to Cryptocurrency Regulation

Types of Approach	Explanation
Progressive Approach	Some countries, such as Singapore and Malta, have adopted a progressive approach to cryptocurrency regulation. They try to create an environment conducive to the development of blockchain technology and cryptocurrencies while keeping consumer protection and security in mind. This often involves establishing a clear regulatory

	framework and allows cryptocurrency companies to operate with more certainty (Thukral et al., 2018).
Strict Prohibitions or Restrictions	On the other hand, some countries, such as China, have imposed strict bans or restrictions on cryptocurrencies (Chen et al., 2022). These include a ban on cryptocurrency trading, the closure of cryptocurrency exchanges, and a ban on raising funds through initial coin offerings (ICOs). The main goal of this approach is to control excessive speculation and potential financial risks.
Anti-Money Laundering Approach and Countering Terrorism Financing	Many countries have implemented strict regulations regarding AML and CFT for cryptocurrencies. This requires cryptocurrency exchanges and other related companies to verify customer identities and report suspicious transactions to competent authorities (Vo et al., 2022).
Tax Regulations	Beberapa negara mengatasi cryptocurrency melalui regulasi perpajakan, memperlakukan cryptocurrency sebagai aset yang harus dilaporkan dalam perhitungan pajak penghasilan atau keuntungan modal.
International Collaboration	Several countries participate in international collaborations to develop uniform cryptocurrency regulations. An example is the initiative of the Financial Action Task Force (FATF), an international group focused on AML and CFT (Gurrib et al., 2019).
Experiments with National Digital Currency	Several countries, including China, have tested national digital currencies (CBDCs) as alternatives to cryptocurrencies. This is an attempt by governments to control digital currencies within their economies, reducing dependence on existing cryptocurrencies.

Source: Secondary data processed

Based on the data above, these differences in approach reflect the complexities and challenges associated with cryptocurrency regulation, which include differing views on their benefits, risks, and impacts. Therefore, developments in cryptocurrency regulation are an important subject to monitor continuously.

Meanwhile, this is different from the situation in Indonesia. In Indonesia, government regulations and rules regarding Cryptocurrency have experienced a number of developments in recent years. The following is an overview of government regulations and rules regarding cryptocurrencies in Indonesia: Initially, cryptocurrencies such as Bitcoin were introduced in Indonesia without clear regulations. However, in 2017, Bank Indonesia, the country's central bank, issued a regulation prohibiting the use of cryptocurrencies as a means of payment. Bank Indonesia considers that the use of Cryptocurrency in transactions can endanger the stability of the country's financial system and has the potential to be used for money laundering and terrorism financing. As a result, the use of cryptocurrencies as a means of payment was immediately stopped. Even crypto assets that are quite popular have been widely accessed via various platforms, as in the following image:

Figure 2. Crypto Exchange Landscape in Indonesia

Source: Xendit

Although the use of cryptocurrencies as a means of payment is prohibited, the Indonesian government does not expressly prohibit ownership, trading, or investment in cryptocurrencies. However, they encourage activities related to Cryptocurrency to be carried out carefully and in accordance with applicable regulations. To be precise, in 2019, the Indonesian government issued Government Regulation no. 80 of 2019 concerning Procedures for Reporting Financial Transactions. This rule requires crypto asset exchange service providers to register and report their transaction activities to the competent authorities. The goal is to monitor transactions involving cryptocurrencies to prevent illegal activities such as money laundering and terrorism financing.

Indonesia has also planned to launch a national digital currency (CBDC) called "Digital Rupiah." This will be an initiative managed by the central bank, Bank

Indonesia, as a regulated alternative to cryptocurrencies. It is hoped that the Digital Rupiah will facilitate cross-border transactions and increase financial inclusion in Indonesia. In its development, Indonesia continues to monitor cryptocurrency developments and assess its potential impact on the country's economy and finances. Cryptocurrency regulations in Indonesia are still in the process of evolution, and the government is trying to find a balance between encouraging blockchain technology innovation and mitigating financial and security-related risks. As a result, more detailed guidelines and regulations can be expected in the next few years to regulate cryptocurrencies in Indonesia.

In its development, the effectiveness of regulations in overcoming the negative impact of cryptocurrencies on macroeconomic stability depends on various factors, including regulatory precision, enforceability, and adaptability. Below are some aspects to consider:

a. Financial Crime Prevention: Effective regulations must be able to prevent the misuse of cryptocurrencies in money laundering, terrorism financing, and other illegal activities. This can be achieved by implementing strict KYC (Know-Your-Customer) procedures, which allow cryptocurrency exchanges to identify and track their users. Good regulations should also require reporting of suspicious transactions to competent authorities.
b. Consumer Protection: Regulations must provide adequate protection for consumers who use Cryptocurrency. This includes requirements to disclose investment risks, provide easy access to information about digital assets, and ensure that consumers have protection rights in the event of fraud or loss of access to their assets.
c. Financial Stability: Regulations should focus on maintaining financial stability. Extreme fluctuations in cryptocurrency prices can have a negative impact on the economy, so effective regulation must be able to identify and manage these risks. This could include restrictions on leverage or margin trading in cryptocurrency exchanges.
d. Exchange Supervision: Good regulation should provide a strong supervisory framework for cryptocurrency exchanges. This involves necessary licenses and permits, as well as active supervision by financial authorities. Exchanges that do not comply with regulations should be subject to strict sanctions.
e. Taxes and Income: Regulations must address the taxation and reporting of income related to cryptocurrencies. This helps ensure that income from cryptocurrency trading or investing is taxed according to local laws.
f. Education and Awareness: In addition to regulation, it is also important to increase public awareness about the risks and benefits of cryptocurrencies. Effective education programs can help reduce the potential for abuse and errors by consumers.

While good regulation can have a positive impact in addressing Cryptocurrency's negative impact on macro-economic stability, it is important to remember that Cryptocurrency is a rapidly evolving technology. Rigid regulation too quickly could stifle innovation and growth in the sector. Therefore, effective regulations must remain relevant and able to adapt to technological developments and changes in the cryptocurrency ecosystem as stated by Bank Indonesia (2022).

D. CONCLUSION

Based on the results of data analysis and discussion, Cryptocurrency has become an increasingly important subject in the global economy. The rapid growth of the cryptocurrency market and the innovation of blockchain technology have changed the global financial landscape by providing alternatives in the form of digital assets that can be traded and invested. The impact of cryptocurrencies on macroeconomic stability can be complex. On the one hand, cryptocurrencies can improve the efficiency of cross-border fund transfers with lower fees and higher speeds. However, high-value fluctuations in cryptocurrencies and the potential for illegal use may also pose risks to economic stability. Cryptocurrency regulations have varied from country to country. Some countries adopt a progressive approach, while others ban or strictly limit cryptocurrencies. These regulatory approaches reflect differences in views on the benefits, risks, and impacts of cryptocurrencies.

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