Liquidity Risks of Crypto Asset Investments

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Abstract. *This study examines the liquidity risk of cryptocurrency investments and the factors influencing it. The data used includes the cryptocurrency market, encompassing more than 400 exchanges, and over 13,000 types of cryptocurrencies in Indonesia. The method employed is descriptive analysis with a normative approach, utilizing secondary data collection as well as direct and indirect interviews with sources from Aspakrindo (Indonesian Crypto Asset Traders Association), official Bappebti-registered exchanges such as PINTU and Tokocrypto, as well as cryptocurrency trader and investor communities in Indonesia. The findings indicate that liquidity risk is significantly influenced by trading volume and the supporting community of a particular market or cryptocurrency asset.*

Keywords: *Cryptocurrency, liquidity risk, investor, market or exchange.*

1. INTRODUCTION

The emergence of financial technology in the global market over the past decade has led to the creation of a new asset class known as cryptocurrencies. According to a journal written by Joey Conway titled *Beginner's Guide to Cryptocurrency*, in 1982, David Chaum from the University of California first introduced the idea of an encryption-based payment method through a product called DigiCash, which aimed to protect ownership data confidentiality (Chaum, 1982). Cryptocurrencies emerged as a response to the limitations of traditional payment systems, which heavily rely on third parties such as Visa, Mastercard, and PayPal for managing digital transactions (Vol-Abakah, 2020). Investors typically purchase cryptocurrencies not as a means of payment but as an investment, hoping to generate high returns. The high price volatility of cryptocurrencies indicates significant

risk. This risk is not only due to price fluctuations but also liquidity risk, which affects an investor's ability to buy or sell assets at the desired time without causing substantial price changes (Wang, 2021). Therefore, it is crucial for investors to understand the dynamics of the crypto market and implement effective risk management strategies to minimize potential losses while maximizing investment opportunities.

Liquidity risk in the cryptocurrency market refers to the potential difficulty of selling or exchanging digital assets without significantly impacting their price. Key factors affecting liquidity risk include high price volatility, dependence on market sentiment, regulatory instability, and fragmented market structures (Wang, 2021). Studies indicate that liquidity volatility can alter the perception of cryptocurrencies as safe-haven assets, especially during periods of global economic uncertainty. Research has also found that cryptocurrencies with higher liquidity risk tend to yield greater weekly returns than those with lower liquidity risk, suggesting that investors demand compensation for liquidity instability (Han, 2021). Additionally, liquidity risk is more pronounced in assets with small market capitalization and low trading volume, increasing the likelihood of adverse selection and widening bid-ask spreads (Bianchi et al., 2022). In terms of risk management strategies, some studies recommend monitoring market liquidity and employing volatility management strategies to prevent sharp market crashes (Tang & Wang, 2022). Liquidity risk is also influenced by external factors such as the COVID-19 pandemic, which disrupted crypto market stability and heightened regulatory and market efficiency uncertainty (Arsi et al., 2021). Understanding these factors enables investors to manage liquidity risk through diversification, choosing exchanges with high trading volumes, and adopting Automated Market Makers (AMM) to enhance liquidity. These strategies help mitigate the impact of extreme price fluctuations and facilitate better access to digital assets, fostering a more stable and efficient trading environment. Consequently, implementing the right risk management strategies is crucial for maintaining portfolio integrity and ensuring sustainability in this increasingly complex market (Maia, 2020).

A deep understanding of crypto market dynamics also encourages investors to stay updated with the latest technological and regulatory developments, allowing them to adapt quickly to changing market conditions. Continuous education and research serve as essential foundations for investors to make more informed and strategic decisions in navigating the ever-evolving market. Smart investment in digital assets not only relies on technical analysis but also requires an understanding of macroeconomic factors and market psychology, which can significantly influence prices (Latipovna, 2022).

This descriptive study will analyze cryptocurrency liquidity risk using trading data from Indonesia's crypto asset market. The analysis aims to provide deeper insights into liquidity risk dynamics and assist investors in making informed decisions amid unpredictable market fluctuations. This study will also consider macroeconomic factors influencing liquidity, such as monetary policy changes and global market sentiment, to offer a broader context for understanding cryptocurrency market dynamics.

2. LITERATURE REVIEW

Cryptocurrency is a digital/virtual currency that has no physical form and is not issued by a central bank. It is used for digital payments in business activities or investments. The term "cryptocurrency" originates from cryptographic systems that ensure secure, unique, and confidential data management within a blockchain, as illustrated in Figure 1 below (Kochergin, 2022). This system enables transparent and secure transactions while reducing the risk of fraud and data manipulation. Additionally, blockchain technology supports innovation across various sectors, including finance, logistics, and healthcare, by providing efficient solutions for data and transaction management.
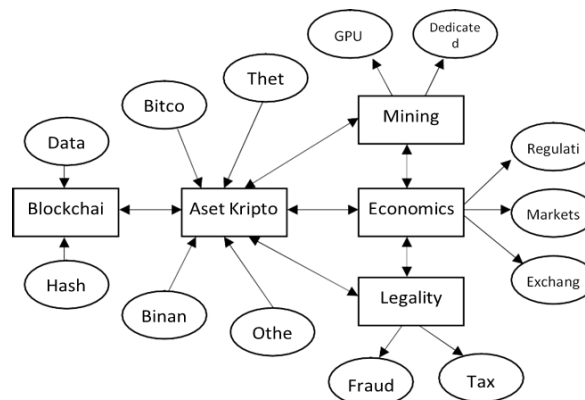

Figure 1: Flowchart Aset Kripto

Blockchain consists of transactions and blocks containing cryptographic hashes that form the network. The hash function retrieves data from the original block and converts it into a compact string for verification. Cryptocurrencies operate on blockchain technology and their value is influenced by factors such as mining, economic conditions, and legal frameworks. However, blockchain itself is distinct from cryptocurrencies like Bitcoin or other digital currencies. The rapid development of blockchain technology has driven the adoption of cryptocurrencies among institutional and retail investors, creating a dynamic and challenging ecosystem. As cryptocurrency popularity rises, clear and comprehensive regulations are increasingly necessary to protect investors and ensure market stability (Li,

2020). Proper regulations can address security and transparency concerns while fostering user trust in the evolving crypto market. Effective regulatory frameworks also promote innovation by providing structured guidelines that support technological advancements while maintaining market integrity. Meanwhile, collaboration between governments, industries, and financial institutions will be crucial in establishing a secure and conducive environment for cryptocurrency growth.

Blockchain technology provides the foundation for cryptocurrency operations by ensuring transparency and security in transactions (Zhao & Duncan, 2018). This technology also enables innovation across various sectors, including finance, logistics, and governance. By creating decentralized systems, blockchain allows users to interact directly without intermediaries, reducing costs and increasing transaction efficiency (Cumming et al., 2019). It also has the potential to revolutionize data storage and management, giving individuals greater control over their personal information. One of the most promising applications of blockchain is in smart contracts, which automate business processes and reduce fraud risks through self-executing code. Smart contracts not only enhance operational efficiency but also create a more transparent and reliable ecosystem for all parties involved. As more companies adopt blockchain technology, we can expect significant transformations across industries, from supply chain management to secure voting systems (McCorry, 2018). Additionally, blockchain can facilitate better collaboration between entities, enabling faster and more accurate information exchange while strengthening trust among stakeholders.

Under current legal regulations, cryptocurrencies are classified as commodity products, considering the following factors:

a. Legal clarity regarding the status and tax treatment of cryptocurrency transactions, which provides certainty for investors and market participants operating in this digital space.

b. Adequate consumer protection to prevent fraud and misuse, creating a safer environment for all parties involved in cryptocurrency trading.

c. The provision of robust infrastructure to support cryptocurrency transactions and storage, including advanced security systems to safeguard user data and funds from cyber threats (Kochergin, 2022).

With these measures in place, the cryptocurrency industry is expected to develop in a healthy and sustainable manner, attracting greater participation from both domestic and international investors. A well-defined regulatory framework and adequate infrastructure

will drive the growth of the cryptocurrency industry, fostering new opportunities in financial and technological innovation while enhancing a country's digital economy competitiveness (Xie, 2022). The importance of collaboration between governments, financial institutions, and industry players cannot be overlooked, as this synergy will strengthen the overall crypto ecosystem.

3. RESEARCH METHOD

According to the guidelines from the International Monetary Fund (IMF), there are four primary methods for measuring the liquidity of financial assets: transaction cost analysis, trading volume, equilibrium price, and market impact (Laneve, 2023). Among these, transaction cost analysis is the most commonly used approach. In highly liquid markets, there is a large number of buyers and sellers actively interested in trading cryptocurrencies (Dong et al., 2022). As a result, cryptocurrencies can be easily and quickly traded at prices agreed upon by both parties. This condition leads to relatively low bid-ask spreads and reduced transaction costs. Consequently, high liquidity not only enhances market efficiency but also attracts more investors to participate in cryptocurrency trading (Moreno et al., 2022). The liquidity formula based on the calculation of transaction fees is as follows:

$S = PA - PB$

$S (\%) = (PA-PB)/((PA+PB)/2)$

Where:

S   : is the spread

PA: is ask price

PB : is the bid price

4. RESULTS AND DISCUSSION

Results of the calculation of bitcoin crypto asset transaction data in the order book on the Tokocypto Platform as of March 1, 2022, at 00:20 WIB.

S $= PA - PB$

S (%) $= (PA-PB)/((PA+PB)/2)$

S (%) $= (588.340.397 - 587.757.997) / ((588.340.397+587.757.997)/2)$

            $= 0,099\%$ (low spreads signify high liquidity).

Figure 2 Buying and Selling Transaction Data on the Tokocrypto Platform

Based on testing using cryptocurrency transaction data from the Tokocrypto platform, the results indicate a low spread rate, signifying high liquidity, as illustrated in Figure 2 below. According to cryptocurrency experts, liquidity is primarily influenced by trading volume, which is often driven by community-driven "pump" activities, large-scale demand from major asset holders (whales), and psychological factors such as fear and greed, which frequently impact both the market and individual cryptocurrencies. Liquidity provides a clear measure of how quickly a specific cryptocurrency can be bought or sold on a given platform without significantly affecting its price. Market capitalization volume is a key determinant of whether a market is highly liquid. The higher the trading volume in a given market, the greater its liquidity—characterized by minimal slippage in asset prices, immediate order execution even during high volatility, active trading of popular cryptocurrencies, and seamless fiat currency conversions.

5. CONCLUSION

This study aims to test liquidity theory in cryptocurrency markets and assets, providing empirical evidence that market and asset liquidity significantly impact cryptocurrency investment optimization. It also builds upon previous research by considering new developments that influence liquidity risk, particularly the role of community-driven trading volume increases, which drive buy and sell actions on exchanges. Based on the findings, this study concludes:

a. Liquidity is highly influenced by trading volume and the supporting community of a particular market or cryptocurrency asset. Communities act as market influencers, persuading investors to buy or sell assets, sometimes through manipulative and

speculative tactics. "Pump and dump" schemes and information manipulation via news, social media, or influencers are used to encourage mass purchases, either to drastically increase or decrease asset prices.

b. Liquidity risk can be minimized by adhering to regulations and educational guidance provided by regulatory authorities such as Bappebti and centralized exchanges in Indonesia. This includes selecting regulated markets/exchanges and trading only the 11 officially approved exchanges and 229 authorized cryptocurrencies for trading in Indonesia.

c. The study also addresses the phenomenon of cryptocurrency investment hype among young investors, often driven by social media and peer influence. Investing in crypto is perceived as trendy and fashionable. Data collected during the research suggests that cryptocurrency investments should be made using idle funds, with thorough market and asset research, a diversified strategy, and without emotional decision-making. Investors should not buy assets solely because they are cheap but should consider market capitalization. Lastly, ensuring online security is crucial to prevent wallet hacks and financial losses.

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