

## **CRYPTO ASSET REGULATION IN THE POST-REFORM ERA: A LITERATURE REVIEW ON THE HARMONISATION OF DIGITAL ECONOMY LAW, INVESTOR PROTECTION, AND THE TRANSFORMATION OF SHARIA FINTECH IN THE CONTEXT OF THE IMPLEMENTATION OF THE NEW CRIMINAL CODE AND THE PERSONAL DATA PROTECTION ACT FOR A SUSTAINABLE INDONESIAN CRYPTO MARKET**

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### **Abstract**

The development of crypto assets in Indonesia in the post-reform era presents complex regulatory challenges regarding the harmonisation of digital economy law, investor protection, and the transformation of Sharia fintech. This study aims to comprehensively examine crypto asset regulation within the framework of the implementation of the new Criminal Code and the Personal Data Protection Act (PDPA) to create a sustainable Indonesian crypto market. The method employed is a literature review (library research) using a qualitative-descriptive analytical approach. The research findings indicate that regulatory fragmentation between Bappebti, OJK, and Bank Indonesia creates legal uncertainty that is detrimental to investors, whilst the implementation of the new Criminal Code and the Personal Data Protection Act presents an opportunity to strengthen protection through more comprehensive regulations on digital crime and personal data protection. The transformation of Sharia fintech offers a regulatory alternative that integrates Sharia principles with blockchain technology to create a fair, transparent, and inclusive crypto ecosystem. This study recommends integrated, adaptive, and value-based crypto regulations with synergy among stakeholders, effective oversight mechanisms, robust law enforcement, extensive investor education, and the integration of ESG principles for a sustainable Indonesian crypto market.

**Keywords:** crypto assets, legal harmonisation, digital economy, investor protection, Sharia fintech, new Criminal Code, Personal Data Protection Act, sustainability

### **Introduction**

The development of digital technology over the past two decades has driven significant transformation in the global economic system, including in Indonesia. One of the main manifestations of this transformation is the emergence of crypto assets as a new economic instrument based on blockchain technology. Crypto assets not only offer an investment alternative but also create a new paradigm in financial transactions that is more decentralised, transparent, and efficient. In Indonesia, this phenomenon has grown rapidly alongside a significant increase in the number of crypto investors, even surpassing the number of conventional capital market investors in recent years (Bappebti, 2024); (Bernstein & Schwabe, 2012).

In a legal context, the development of crypto-assets presents a major challenge to the national regulatory system, which was not originally designed to accommodate disruptive technologies. Existing regulations are often sector-specific and not fully integrated, thereby creating potential legal uncertainty. This has become increasingly complex in the post-reform era, where Indonesia's legal system is undergoing rapid changes, including through the revision of the Criminal Code and the enactment of various new laws in the fields of technology and information (Tomalili, 2019).

Indonesia itself has taken an initial step by classifying crypto-assets as commodities that can be traded on futures exchanges under the supervision of the Commodity Futures Trading Supervisory Agency (Bappebti). However, this approach remains contentious, particularly regarding the status of crypto-assets, which possess hybrid characteristics spanning commodities, digital assets, and financial instruments. This ambiguity implies weak legal protection for investors and market participants (Colombo & Yarovaya, 2024). Furthermore, the increasing number of users on crypto platforms also raises new risks regarding the security of personal data. In the digital ecosystem, data is a highly valuable asset, and data breaches or misuse can have serious consequences for users. Consequently, the introduction of the Personal Data Protection Act (PDPA) is highly relevant in this context. The PDPA provides a stronger legal framework for protecting individuals' rights over their personal data, including in crypto-based transactions (Yudha et al., 2025).

On the other hand, the implementation of the new Criminal Code also has implications for digital economic activities, including crypto transactions. Several provisions in the new Criminal Code have the potential to regulate or even restrict certain activities in the digital world, particularly those related to fraud, money laundering, and cybercrime. This necessitates harmonisation between criminal regulations and digital economy regulations to prevent over-criminalisation, which could hinder innovation (Tomalili, 2019).

Investor protection is a crucial issue in the crypto market, which is known for its high volatility and speculative risks. Numerous cases of fraud, Ponzi schemes, and market manipulation involving crypto-assets demonstrate that existing regulations are not yet sufficiently effective in protecting investors. Therefore, a regulatory approach is required that is not only repressive but also preventive, through education, transparency, and strict oversight (Moore et al., 2012).

From a global perspective, various countries have developed more comprehensive regulatory frameworks to govern crypto-assets. The European Union, for example, has adopted the Markets in Crypto-Assets (MiCA) Regulation as an effort to create legal certainty and investor protection. Meanwhile, the United States continues to employ an agency-based approach with the dominant roles of the SEC and CFTC. This comparison highlights the importance of harmonising national regulations with international standards (Moore et al., 2012). Beyond positive law, discourse on crypto-assets is also evolving within the framework of Islamic economics. Sharia

fintech has emerged as an alternative that seeks to integrate Sharia principles into financial technology innovations. However, the status of crypto-assets from a Sharia perspective remains a subject of debate, particularly regarding the elements of gharar (uncertainty), maisir (speculation), and the absence of a clear underlying asset (DSN-MUI, 2021).

Nevertheless, the blockchain technology underpinning cryptocurrencies holds great potential for development within the Sharia economic ecosystem. This technology can be used to enhance transparency and efficiency in the management of zakat, waqf, and other Sharia-compliant financing. Therefore, an adaptive and values-based regulatory approach is crucial in driving an inclusive and sustainable Sharia fintech transformation (Yulianti et al., 2024).

The concept of sustainability is also a key aspect in the development of the crypto market. Environmental issues, such as energy consumption in the mining process, as well as the social impact of speculative activities, are a global concern. Therefore, the integration of Environmental, Social, and Governance (ESG) principles into crypto regulations is a strategic step to ensure that the development of this technology does not undermine long-term interests (Illes et al., 2025).

In the Indonesian context, efforts towards a sustainable crypto market require synergy between various stakeholders, including the government, regulators, industry players, and the public. Regulatory harmonisation is key to creating a safe, fair, and innovative ecosystem. This encompasses the integration of digital economy regulations, criminal law, data protection, and Sharia principles (Yasin et al., 2024).

Based on the above, this study aims to comprehensively examine the harmonisation of cryptocurrency regulations in Indonesia in the post-reform era.

## **Research Methodology**

This study employs a literature review methodology, focusing on the collection, examination, and analysis of various sources of literature relevant to the topic of cryptocurrency regulation in Indonesia. The data used consists of secondary data obtained from books, national journals, international journals, legislation, and other documents. The analysis was conducted qualitatively using a descriptive-analytical approach, namely by identifying, comparing, and synthesising various concepts, theories, and regulations that have emerged to gain a comprehensive understanding of the harmonisation of digital economy laws, investor protection, and the transformation of Sharia fintech within Indonesia's crypto ecosystem (Eliyah & Aslan, 2025); (Snyder, 2019)

## Results and Discussion

### Harmonisation of Digital Economy Law and Investor Protection in Crypto Asset Regulation

The evolution of digital economy law in Indonesia currently faces a fundamental challenge in integrating the regulation of crypto assets, which are growing exponentially. Crypto assets, which were initially not accommodated within the conventional legal framework, are now treated as tradable commodities on futures exchanges under the supervision of Bappebti (Bappebti Regulation No. 8 of 2021). However, this classification creates legal ambiguity as cryptocurrencies possess hybrid characteristics that do not fully align with the definition of traditional commodities. Bank Indonesia has also banned the use of cryptocurrency as a means of payment, creating a regulatory dualism that confuses businesses and the general public (Wintara & Fitriani, 2025).

This regulatory fragmentation is a manifestation of the absence of a unified legal framework that comprehensively governs the digital economy ecosystem. Various regulatory bodies, including the OJK, Bappebti, and Bank Indonesia, have overlapping jurisdictions without effective coordination mechanisms. This situation creates a regulatory gap that can be exploited by parties intending to engage in fraudulent or manipulative practices, thereby harming investors (Sulubara & Iskandar, 2025). A fragmented understanding of the legal status of crypto assets also hinders innovation and investment in this sector.

The implications of regulatory uncertainty for investor protection are significant. Investors, particularly retail investors who lack a full understanding of the risks, are vulnerable to various fraudulent schemes, illegal platforms, and market manipulation, which are rife in the crypto sector. Without clear regulations and integrated oversight, investors find it difficult to obtain legal certainty when they suffer losses. Research indicates that legal protection for investors in crypto-asset transactions remains suboptimal due to the absence of specific regulations that comprehensively govern (Wintara & Fitriani, 2025).

The Personal Data Protection Act (PDP Act), enacted in 2022, provides a new legal framework for protecting users' personal data within the digital ecosystem. In the context of the crypto market, the PDP Act is highly relevant as crypto platforms collect and process users' sensitive data, including identity information, transaction details, and digital wallet data. Compliance with the PDP Act is a mandatory requirement for crypto platforms to ensure data security and prevent misuse that could harm investors (Yudha et al., 2025). However, the implementation of the PDP Act within the context of crypto assets still faces technical and regulatory challenges. Many crypto platforms, particularly those based overseas, do not comply with the data protection standards set by Indonesia's Personal Data Protection Act (PDP Act). This necessitates harmonisation between data protection regulations and financial sector regulations to ensure that investors' rights are fully protected (Tumanggor & Sazali, 2025).

The implementation of the new Criminal Code in 2024 also carries significant implications for crypto-asset regulation and investor protection. Several provisions in the new Criminal Code have the potential to regulate digital activities previously not covered, including electronic fraud, money laundering via crypto assets, and other cybercrimes. However, the Criminal Code's overly general provisions without specific explanations for the crypto context could lead to over-criminalisation, which would actually hinder innovation and the development of this sector (Tomalili, 2019).

Effective investor protection requires a comprehensive approach, covering both preventive and repressive aspects. Preventive protection includes investor education, platform transparency, registration requirements, and strict market supervision. Meanwhile, repressive protection includes strict legal sanctions for violations, dispute resolution mechanisms, and compensation for aggrieved investors. Currently, Indonesia remains limited in terms of repressive protection, particularly regarding law enforcement against illegal platforms (Halevi, 2009).

Bappebti has issued regulations requiring all crypto assets traded in Indonesia to be registered with and supervised by the agency. Bappebti Regulation No. 8 of 2021 on Guidelines for the Operation of Physical Crypto Asset Markets is an effort to create legal certainty and protect both domestic and foreign investors. However, this regulation only governs trading aspects and does not yet cover data protection, cybersecurity, and comprehensive compensation mechanisms (Colombo & Yarovaya, 2024).

Another challenge in regulatory harmonisation is the lack of effective coordination mechanisms between regulatory bodies. The OJK, as the supervisor of the financial services sector, has not yet been fully involved in the regulation of crypto-assets, although oversight will ultimately be transferred to the OJK. The transition from Bappebti to the OJK requires thorough regulatory harmonisation to avoid a legal vacuum that could harm investors. Research indicates that the current regulation of crypto-assets remains scattered across various sectoral regulations that are not optimally integrated (Feliks, 2022).

From an international perspective, various countries have developed more comprehensive regulatory frameworks to protect crypto investors. The European Union, through its MiCA Regulation, sets high standards for investor protection, transparency, and market oversight. The United States adopts an agency-based approach, with the SEC overseeing crypto assets as securities and the CFTC overseeing them as commodities. Lessons from these countries highlight the importance of integrated and adaptive regulation in response to technological developments (Amaliyah, 2025).

Investor protection must also take into account aspects of digital financial education and literacy. Many investors enter the crypto market without a sufficient understanding of the risks of high volatility, digital wallet security, and the potential for fraud. Large-scale educational programmes and collaboration between regulators and

registered platforms are vital for improving investor literacy. Without adequate education, even strict regulations will not be effective in protecting investors from losses (Tumanggor & Sazali, 2025).

Enforcement is key to effective investor protection. Without robust enforcement against illegal platforms, fraudsters and market manipulators, existing regulations are merely symbolic. The government needs to enhance the capacity of law enforcement agencies to understand blockchain technology and crypto-assets so that they can effectively address violations. International collaboration is also necessary as many crypto-platforms operate across national borders (Illes et al., 2025).

Regulatory harmonisation must also take into account the ever-evolving nature of the technology. Blockchain technology, smart contracts and decentralised finance (DeFi) are constantly evolving, so regulations must be adaptive and not overly rigid. A regulatory sandbox approach, which allows for innovation under strict supervision, could be a solution to balance investor protection with technological innovation. The OJK and Bappebti need to develop a framework that is flexible yet still provides legal certainty (Feliks, 2022).

Overall, harmonising digital economy laws and investor protection within crypto-asset regulations requires a comprehensive approach involving various stakeholders. Integrated regulation, effective supervision, strict law enforcement, extensive investor education, and adaptation to technological developments are key elements in creating a safe and sustainable crypto ecosystem. Without this harmonisation, Indonesia's crypto market will continue to face legal uncertainty that could hinder long-term growth and harm investors.

### **The Transformation of Sharia Fintech and the Direction of Sustainable Crypto Regulation in Indonesia**

Sharia fintech emerged in response to the Muslim community's need for financial services aligned with Islamic principles, which emphasise justice, transparency, and the prohibition of *gharar* (uncertainty), *maisir* (speculation), and *riba* (interest). In the context of a rapidly developing digital economy, Sharia fintech offers an inclusive alternative for those wishing to participate in financial innovation without compromising their religious values. In Indonesia, as the country with the world's largest Muslim population, the potential for Sharia fintech development is immense and strategic in driving Sharia financial inclusion (Yulianti et al., 2024).

Cryptocurrencies, on the other hand, present a dilemma from an Islamic legal perspective due to their volatile nature and the fact that they often lack a clear underlying asset. The National Sharia Council of the Indonesian Ulema Council (DSN-MUI), in Fatwa No. 116/DSN-MUI/IX/2017, ruled that cryptocurrencies cannot be used as a means of payment as they violate the principles of money under Sharia. However, this fatwa does not explicitly regulate the status of cryptocurrency as an investment

asset, thereby creating a wide scope for interpretation among scholars and academics (DSN-MUI, 2021).

The debate regarding the permissibility of cryptocurrency continues, with a variety of differing opinions. Some scholars argue that cryptocurrency can be considered permissible if it has clear utility, an active community, and is not used for excessive speculation. Meanwhile, other scholars argue that high volatility and the absence of an intrinsic underlying asset mean that cryptocurrency involves excessive *gharar*, rendering it impermissible. This divergence of views reflects the complexity of adapting Sharia principles to rapidly evolving technology (Amaliyah, 2025).

Nevertheless, the blockchain technology underpinning cryptocurrency assets holds great potential for development within the Sharia economic ecosystem. Blockchain offers transparency, immutability, and decentralisation, which align with the principles of justice and accountability in Islam. This technology can be used to enhance efficiency and transparency in the management of *zakat*, *waqf*, *infaq*, and *sadaqah*, thereby reducing leakage and increasing public trust in Sharia institutions (Yuan & Xu, 2020).

Smart contracts, which are one of the key features of blockchain, also have broad potential applications in Islamic finance. Smart contracts can be implemented for Sharia contracts such as *mudharabah*, *musyarakah*, and *ijarah* with automated mechanisms that reduce the risk of disputes and improve transaction efficiency. The implementation of smart contracts must ensure that all conditions and pillars of the contract are fulfilled in accordance with Sharia principles, including clarity regarding the subject matter of the contract, price, and timing of execution (Arslanian, 2022).

The transformation of Sharia fintech within the crypto ecosystem requires adaptive and values-based regulation. Regulations must not only protect investors and prevent fraudulent practices, but also ensure that the development of this technology is in line with Sharia principles. The DSN-MUI and OJK need to work together to develop comprehensive fatwas and regulations regarding Sharia-compliant crypto assets, including criteria for crypto assets that meet Sharia principles and effective oversight mechanisms (Halevi, 2009).

The concept of sustainable finance is becoming increasingly important in the development of the global crypto market. Environmental issues related to high energy consumption in the cryptocurrency mining process, particularly those using the Proof-of-Work mechanism, are a serious concern for the global community. Indonesia, which is committed to net-zero emission targets, needs to consider environmental aspects in crypto regulations and encourage the development of more environmentally friendly cryptocurrencies, such as those using the Proof-of-Stake mechanism (Illes et al., 2025).

The integration of Environmental, Social, and Governance (ESG) principles into Indonesia's crypto regulations is a strategic step to ensure sustainable development. The Environmental aspect covers the environmental impact of mining activities and energy consumption. The Social aspect covers financial inclusion, investor protection,

and the social impact of speculative activities. The Governance aspect covers transparency, accountability, and good governance of crypto platforms. Regulations that integrate ESG can encourage responsible and sustainable investment (Illes et al., 2025).

Sustainable crypto regulation must also consider aspects of financial inclusion and the empowerment of marginalised communities. Sharia-compliant fintech, with its focus on economic justice and the prohibition of exploitation, has the potential to provide financial access to communities underserved by the conventional financial system. Sharia crypto platforms can serve communities in remote areas, farmers, SMEs, and other vulnerable groups with low transaction costs and easier access (Sulubara & Iskandar, 2025).

In the long term, the direction of Indonesia's crypto regulation must be towards an inclusive, secure, and sustainable ecosystem. This requires synergy between the government, regulators, industry players, academics, and civil society. Regulations must be adaptive to technological developments whilst still providing legal certainty for all stakeholders. A collaborative and participatory approach is crucial to ensure that regulations do not hinder innovation whilst still protecting the public interest (Yasin et al., 2024).

International collaboration is also key to the development of sustainable crypto regulations. Crypto assets are cross-border in nature, so national regulations must align with international standards to facilitate cooperation in supervision, law enforcement, and information exchange. Indonesia can learn from the experiences of other countries in developing a regulatory framework that strikes a balance between investor protection and technological innovation. Participation in international forums such as the G20, FATF, and IOSCO is also important to strengthen Indonesia's position in the global discourse on crypto regulation (Amaliyah, 2025).

Overall, the transformation of Sharia fintech and the direction of sustainable crypto regulation in Indonesia require a comprehensive approach that integrates Sharia principles, environmental sustainability, investor protection and technological innovation. With a large Muslim population and a commitment to sustainable development, Indonesia has the potential to become a global leader in the development of sustainable Sharia crypto. Appropriate regulation will drive the growth of this sector whilst ensuring that religious values, economic justice, and environmental sustainability are upheld.

## **Conclusion**

The harmonisation of digital economy laws and investor protection within Indonesia's crypto asset regulations still faces fundamental challenges related to regulatory fragmentation and the absence of a unified legal framework. The dual classification of crypto assets as commodities (Bappebti) and their prohibition as a means of payment (Bank Indonesia) creates legal uncertainty that harms investors and

hinders innovation. The implementation of the new Criminal Code and the Personal Data Protection Act presents a strategic opportunity to strengthen investor protection through more comprehensive regulations regarding digital crime, money laundering, and personal data protection; however, this requires strict harmonisation to avoid over-criminalisation and regulatory gaps that could trigger fraudulent practices in the crypto sector.

The transformation of Sharia fintech offers a regulatory alternative that integrates Sharia principles with blockchain technology innovation to create a fairer, more transparent, and more inclusive crypto ecosystem. Although there are still differing views among Islamic scholars regarding the permissibility of crypto assets, blockchain technology and smart contracts hold great potential for application in the management of zakat, waqf, and Sharia financing, as well as for enhancing the accountability and efficiency of transactions. The integration of ESG (Environmental, Social, and Governance) principles and a sustainable finance approach is key to developing a sustainable, environmentally friendly crypto market that aligns with religious values and Indonesia's commitment to net-zero emissions.

As a recommendation, integrated, adaptive, and values-based crypto regulations are required, involving synergy between Bappebti, OJK, DSN-MUI, and relevant institutions to create legal certainty, protect investors, and encourage sustainable innovation. Regulations must include effective oversight mechanisms, strict enforcement against illegal platforms, extensive investor education and literacy, and clear standardisation of criteria for Sharia-compliant crypto assets. International collaboration and learning from global regulations such as the EU's MiCA Regulation are also crucial to strengthening Indonesia's position within the global crypto ecosystem whilst ensuring that the Indonesian crypto market develops sustainably, whilst upholding religious values, economic justice, and environmental sustainability.

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