Research Article

Crypto Regulation and Anti Money Laundering in Indonesia: A Comparative European Union and Switzerland

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ABSTRACT

The rapid expansion of cryptocurrency assets has intensified the risks related to money laundering. In Indonesia, the regulatory framework governing crypto assets remains fragmented, largely depending on anti-money laundering laws and sector-specific regulations that are not designed for decentralized, cross-border digital assets. This lack of regulatory cohesion is apparent through the overlapping jurisdictions of the Commodity Futures Trading Regulatory Agency (Bappebti), the Financial Services Authority (OJK), and Bank Indonesia, resulting in inconsistencies in licensing, oversight, and enforcement practices. The purpose of this study is to analyse normative weaknesses within Indonesia's crypto asset regulatory framework and to examine comparative regulatory models. The method used is normative legal research employing statutory, conceptual, and comparative approaches based on secondary legal materials. The results show that the absence of a lex specialis for crypto assets undermines regulatory coherence, weakens institutional coordination, and reduces the effectiveness of preventive and repressive measures at the placement, layering, and integration stages. Comparative analysis demonstrates that the European Union, through the Markets in Crypto Assets Regulation MiCA, applies a prescriptive harmonised framework with centralised supervision. At the same time, Switzerland adopts a functional integrative approach within existing legal regimes. The conclusion is that Indonesia should pursue selective regulatory adaptation combining normative certainty, institutional strengthening, and a supportive legal culture to ensure effective crypto asset regulation.

Keywords: Crypto Assets Regulation; Anti Money Laundering; Cryptocurrency; Comparative Legal Analysis

A. INTRODUCTION

The phenomenon of cryptocurrency is a result of the amalgamation of cryptographic methodologies and digital networks, leading to the invention of blockchain technology, which operates as a decentralized ledger system distinguished by its security, transparency, and resilience against manipulation (Gudima et al., 2025). This technological progression emerged from rudimentary cryptographic timekeeping mechanisms (Romano & Schmid, 2021). It was subsequently realized through Bitcoin, which serves as a decentralized electronic transaction mechanism enabling peer-to-peer exchanges (Aysan, Demirtaş, & Saraç, 2021). The triumphant dissemination of Bitcoin catalyzed the swift expansion of diverse crypto assets within the global digital economy (Gowda & Chakravorty, 2021).

The principal characteristics of blockchain and cryptocurrency encompass decentralization, pseudonymity (concealing identity through cryptographic addresses), and the capacity for expedited cross-border transactions (Weinberg, Petratos, & Faccia, 2025). However, these characteristics are accompanied by legal and financial vulnerabilities, particularly in relation to money laundering, terrorism financing, and cybercrime (Fletcher, Larkin, & Corbet, 2021). Such attributes pose significant challenges to the formulation of anti-money laundering frameworks, which have historically been based on centralized intermediaries and geographically restricted financial systems (Bongini et al., 2025). Since the start of 2021, there has been a marked increase in the use of cryptocurrencies for malicious purposes (Fang, Chen, & Jiang, 2025). Analysis of blockchain data suggests that in 2021, approximately USD 8.6 billion in cryptocurrency assets were laundered, reflecting a 30% increase from the prior year (Kerr et al., 2023). This illicit capital is derived from a diverse array of criminal enterprises, ranging from narcotics trafficking to corruption, prompting numerous nations to implement proactive regulatory frameworks (Ferreira & Sandner, 2021).

The phenomenon of cryptocurrency abuse is now an empirical reality in Indonesia. Indonesian Financial Transaction Reports and Analysis Center (PPATK) reported a surge in suspicious crypto transactions worth more than IDR 800 billion in the 2022–2024 period (Nugroho, 2024). Currently, crypto regulations in Indonesia remain general, fragmented, and reactive, relying primarily on conventional anti-money laundering provisions without a dedicated regulatory framework for crypto assets (Hardiago et al., 2025). Oversight only refers to Law No. 8 of 2010 concerning the Prevention and Eradication of Money Laundering and the Electronic Information and Transactions Law, without specific rules regarding virtual assets. This situation creates a legal gap between das Sollen (normative ideal) and das Sein (empirical reality). Das Sollen demands strict regulations to prevent the misuse of cryptocurrency (Juanda & Juanda, 2023), while das Sein shows that law enforcement still relies on general regulations that are inadequate (Rahayu et al., 2020).

The accelerated advancement of blockchain technology and the proliferation of cryptocurrencies have created significant legal conundrums for Indonesia (Manullang, Fernando, & Nur, 2025). Although crypto assets offer significant opportunities for digital economic growth and financial inclusion, they also have the potential to be misused, particularly for money laundering and regulatory avoidance, creating a regulatory dilemma that requires a more tailored legal respons (Wang & Zhu, 2021). Meanwhile, the national legal framework remains limited to general rules and has not yet established a comprehensive lex specialis. This disparity emphasizes the crucial nature of scientific investigations aimed at developing an appropriate regulatory framework for cryptocurrencies that can align legal protection, commercial predictability, and exploitation of opportunities in the digital economy (Rahayu et al., 2024).

The regulatory gap described above has two main implications: financial technology innovations based on blockchain are developing without legal certainty. At the same time, law enforcement agencies are forced to use general provisions that are not always appropriate for the unique nature of crypto crimes (Pambudi & Fakrulloh, 2025). This surge underscores the urgency of specialized regulations. Indonesia has indeed enacted Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (UU PPSK), which transfers oversight of cryptocurrency assets to the OJK. However, the technical regulations are still being prepared. This condition demonstrates the weakness of legal protection as described in Philipus M. Hadjon's Theory of Legal Protection,, because the absence *of lex specialis* hinders the functioning of preventive and repressive protection for the community and investors (Hadjon, 2007).

The primary focus of this study is to examine the absence and normative weaknesses of Indonesia's regulatory framework in addressing crypto-based money laundering practices. However, these regulations are not entirely adequate to address the technical complexities of cryptocurrency, such as user anonymity, cross-border layering mechanisms, and the difficulty of proving the origin of funds. The absence of lex specialis regarding digital assets as objects of seizure, VASP supervision mechanisms, and the integration of international standards (such as the FATF Travel Rule) further highlights the serious legal problems in Indonesia's crypto regulatory framework. Accordingly, this study seeks to answer the following research question: 1) how does the absence of a lex specialis in Indonesia's cryptocurrency regulation affect the effectiveness of anti-money laundering enforcement, and 2) how does this condition compare with the regulatory models adopted by the European Union and Switzerland?.

Kharisma and Uwais (2023) conducted research titled "Studi Komparasi Regulasi Perdagangan Aset Kripto di Indonesia, Amerika Serikat, dan Jepang," which compares the regulatory frameworks governing cryptocurrency trading in Indonesia, the United States, and Japan. The study shows that the US uses a multi-authority regulatory model, which means that crypto assets can be classified as commodities, securities, or virtual financial instruments. Japan, on the other hand, regulates crypto trading under the Payment Services Act and the Financial Instruments and Exchange Act. These laws have strict rules about registration, consumer protection, and taxes. The Financial Services Authority took over as the main regulator of crypto assets in Indonesia under Law Number 4 of 2023. But rules about stablecoins, non-fungible tokens, and mining are still not very good. The study underscores the significance of asset classification and thorough regulatory development to enhance legal certainty and consumer protection. Still, its analysis remains focused on crypto assets as objects of trade within capital and commodity markets (Kharisma & Uwais, 2023). As a result, the analysis does not examine how the technical characteristics of cryptocurrencies, such as anonymity, decentralization, and cross-border transactions, influence the effectiveness of anti-money laundering enforcement or interact with specific money laundering mechanisms. This study employs an alternative analytical framework by investigating the impact of the technical attributes of crypto assets on money laundering methodologies, specifically during the placement, layering, and integration phases. This article further illustrates that the lack of a distinct regulatory framework or lex specialis in Indonesia undermines both preventive and punitive anti-money laundering measures within administrative, criminal, constitutional, and financial regulatory systems, as evidenced by a comparative analysis of the European Union's Markets in Crypto-Assets Regulation and the regulatory framework for distributed ledger technology in Switzerland.

The research conducted by Bakhitabiyya Ridya Payuwaha, entitled: "Urgensi Pengaturan Crypto Asset Sebagai Objek Jaminan di Indonesia". This study discusses the legal status of crypto assets under Indonesian law, particularly their potential use as collateral. The study finds that although crypto assets are recognised as commodity futures and digital assets, Indonesian positive law has not yet provided a clear legal basis for their use as collateral, especially under the Civil Code, thereby preventing holders from leveraging crypto assets for financing without liquidation. The analysis is therefore primarily oriented toward the need for regulatory reform to enable crypto assets to function as collateral through more explicit legal recognition and supporting institutional mechanisms (Payuwaha, 2025). By concentrating on collateralization, the study does not address the broader regulatory implications arising from the technical characteristics of crypto assets, such as anonymity, decentralisation, and cross-border transactions, nor their relevance to anti-money laundering enforcement. In contrast, the present research adopts a different analytical focus by examining how these technical features facilitate money laundering practices and expose normative weaknesses in Indonesia's anti-money laundering framework, particularly in the absence of a specific regulatory regime or lex specialis, as demonstrated through a comparative analysis of regulatory approaches in the European Union and Switzerland.

The study by Oktobriari Sunu Wicaksono and Siti Mahmudah was called "Analisis Hukum Cryptocurrency Sebagai Alat Pembayaran di Indonesia: Perspektif Yuridis." This study investigates the legal status of cryptocurrency as a payment method within the framework of Indonesian law. The study concludes that the use of cryptocurrency as a means of payment is prohibited, as the Rupiah remains the sole legal tender in Indonesia, according to Law Number 7 of 2011 concerning Currency and regulations issued by Bank Indonesia. The authors, however, recognise that cryptocurrency is still evolving as a digital asset and investment tool, with the potential for misuse, such as money laundering and financing terrorism. The study further provides a comparative overview of differing international approaches, ranging from jurisdictions that prohibit cryptocurrency outright, such as China, Bangladesh, and Bolivia, to those that allow limited adoption, including the United States and El Salvador (Wicaksono & Mahmudah, 2023). It does not examine how the technical characteristics of cryptocurrency, such as anonymity, decentralization, and cross-border transaction capabilities, affect anti-money laundering enforcement or facilitate specific money laundering mechanisms within the Indonesian legal system.

The research, entitled “Legal Construction of Crypto Assets as Objects of Fiduciary Collateral” and conducted by Sri Mulyani, Siti Mariyam and Hieu Hong Trung Le, examines the legal framework surrounding the categorisation of crypto assets as fiduciary collateral within the context of Indonesian jurisprudence. The study reveals that, although cryptocurrency is recognised as a digital commodity traded on futures exchanges, it is not considered a legitimate medium of exchange. While crypto assets may be deemed suitable as fiduciary objects in theory, the lack of explicit regulatory guidelines creates practical and legal impediments, including difficulties in establishing ownership, susceptibility to market fluctuations and exposure to cybercriminal activities. Through a comparative analysis of the situation in Vietnam, the authors emphasise the urgent need for comprehensive regulatory measures to ensure legal certainty, strengthen creditor protection and promote the growth of the digital economy (Mulyani, Mariyam & Le, 2023). This research predominantly considers the parameters within private and commercial law, particularly regarding the viability of crypto assets functioning as fiduciary collateral. Consequently, the research does not explore how the intrinsic characteristics of cryptocurrencies, such as pseudonymity, decentralisation and cross-border transferability, influence the enforcement of anti-money laundering measures or aid the obfuscation of illicit financial transactions. The present study departs from this focus by examining how the inherent technical features of crypto assets facilitate money laundering and reveal normative and institutional weaknesses in Indonesia's anti-money laundering regime, particularly in the absence of a specific legal framework (lex specialis). This analysis is undertaken through a comparative assessment of regulatory approaches developed in the European Union and Switzerland.

Research conducted by Lana Stern, entitled: "Regulating Cryptocurrencies in a Post-Pandemic Global Economy: A Comparative Legal Analysis of the EU, the US, and Russia", analyses the role of Central Bank Digital Currencies as regulatory instruments for mitigating crypto-related money laundering through a comparative study of legal approaches in Russia, the European Union, the United States, and Malta. The study demonstrates that the design features of Central Bank Digital Currencies, including transaction transparency, quantitative limits, sanctions screening, and privacy arrangements, significantly affect the effectiveness of anti-money laundering controls. It highlights Russia's strong enforcement capacity under its centralised model, contrasts it with the European Union's attempt to balance anti-money laundering objectives and privacy protection through the Digital Euro, and notes the United States' cautious approach due to constitutional privacy concerns. At the same time, Malta relies on adaptive regulation in the absence of a fully developed Central Bank Digital Currency framework (Stern, 2025). Despite its comprehensive institutional analysis, the study remains focused on state-issued digital currencies and their preventive regulatory functions. It does not address the challenges posed by decentralised cryptocurrencies or the implications of operating without a specific anti-money laundering legal framework. Departing from this perspective, the present research examines decentralised crypto assets by analysing how their technical characteristics facilitate money laundering and reveal structural weaknesses in Indonesia's anti-money laundering regime, drawing comparative insights from regulatory developments in the European Union and Switzerland.

The novelty of this study lies in its analysis, which places the technical characteristics of crypto assets, such as anonymity, decentralization, and cross-border transaction capabilities, as factors that are actively exploited in money laundering practices and directly tested against the Indonesian legal framework. Unlike previous studies that tended to view cryptocurrency separately as a trading commodity, collateral, or simply a prohibited means of payment, this study links the use of crypto asset technological features to the three classic stages of money laundering, namely placement, layering, and integration, while showing how these stages are difficult to reach by national legal regulations that are still general in nature. The results of the analysis show normative weaknesses across legal regimes, ranging from the absence of registration and supervision mechanisms in state administrative law, the risk of misuse of crypto transactions to disguise illegal funds in business and financial law, fragmentation of authority between institutions from a constitutional perspective, to the limitations of criminal law and Law Number 8 of 2010, which does not explicitly accommodate crypto assets as objects of seizure and confiscation. This novelty is reinforced through a comparative approach to European Union regulations, including the Markets in Crypto-Assets Regulation, and Swiss practices that integrate technological innovation with anti-money laundering compliance, thereby providing a normative basis for Indonesia to formulate crypto asset regulations that are preventive, comprehensive, and progressive without hindering digital economic development.

B. RESEARCH METHODS

This study uses a normative legal research methodology. The methodology used includes legislative, conceptual, and comparative approaches. The legislative approach is used to examine the positive legal framework governing crypto in Indonesia, specifically the Anti-Money Laundering Law, the Electronic Information and Transactions Law, and the Payment System Security Law, as well as Bappebti regulations, which are then compared with crypto regulations in the European Union through the Markets in Crypto-Assets (MiCA) Regulation and the regulatory model in Switzerland through the DLT Act 2021. The conceptual framework is employed to scrutinize legal constructs pertinent to the evolution of cryptocurrency assets, encompassing fundamental tenets of civil, administrative, and criminal law in connection with the digitization of the financial system. The comparative methodology is utilized to evaluate cryptocurrency policies enacted across various jurisdictions, particularly within the European Union and Switzerland, in order to determine the feasibility for integration or modification within the Indonesian legal and cultural context.

The empirical data employed in this scholarly inquiry comprises secondary data, incorporating both primary and secondary legal materials acquired through bibliographic research methodologies. Primary legal materials include Indonesian statutes and regulations that are relevant to the governance of cryptocurrency assets and the prevention of money laundering, specifically Law Number 8 of 2010 concerning the Prevention and Eradication of Money Laundering, Law Number 4 of 2023 addressing the Development and Strengthening of the Financial Sector, as well as directives promulgated by the Financial Services Authority, Bank Indonesia, and the Financial Transaction Reports and Analysis Center, in conjunction with pertinent international legal instruments and regulatory frameworks that regulate cryptocurrency assets and the prevention of money laundering, which encompass the European Union’s Crypto Asset Market Regulation and the regulatory paradigm instituted in Switzerland. Secondary legal materials consist of legal textbooks, both national and international scholarly journals, legal doctrines, policy reports, official publications, and previous studies related to the regulation of cryptocurrency, the prevention of money laundering, and comparative legal analysis. Data were amassed through systematic bibliographic research, which involved the identification, classification, and analysis of legislation, scholarly articles, and other authoritative legal resources pertinent to the research inquiry. This study is characterized as descriptive-analytical in nature, with the objective of impartially delineating the legal framework governing cryptocurrency assets in Indonesia and evaluating its efficacy in mitigating money laundering risks through a normative and comparative legal lens, thereby formulating normative arguments and recommendations to enhance the regulatory framework for cryptocurrency assets in Indonesia by drawing insights from the regulatory models adopted in the European Union and Switzerland.

C. RESULTS & DISCUSSION

1. Anonymous, Decentralized, and Cross-Border Characteristics of Crypto Assets in Money Laundering Practices in Indonesia

a. Inherent Characteristics of Crypto Assets and Cross-Sectoral Legal Challenges

Cryptoassets represent a form of digital value or rights that utilize cryptographic techniques and distributed networks to ensure the security, integrity, and traceability of transactional activities (Parrondo, 2023). Unlike traditional financial systems, crypto transactions occur on a peer-to-peer network without intermediaries or central authorities (Sarode et al., 2021). This technological configuration gives rise to three key characteristics: user anonymity, decentralization of authority, and global transactions (Susilo et al., 2020). These elements also represent functional advantages and potential sources of legal risk (Utikar et al., 2024). Within the paradigm of Philipus M. Hadjon's Legal Protection Theory, these attributes necessitate the establishment of preventive protective instruments (such as explicit regulations, transparency among business participants, and risk-oriented oversight) and repressive instruments (including effective law enforcement, restoration of losses, and equitable sanctions) (Rachmat, Riyanto, & Fh, 2024). Nevertheless, in the Indonesian legal framework, the prerequisites for both preventive and repressive protection have not yet been comprehensively actualized through distinct legal norms governing cryptocurrency assets, thereby signifying a persistent dependence on general regulations as opposed to a specialized lex specialis (Wilona, Latifah, & Purwadi, 2021).

The characteristic of anonymity or pseudonymity is manifested in the reality that cryptocurrency transactions are recorded publicly on the blockchain (De Haro, Varela-Vaca, & Álvarez-Bermejo, 2020). At the same time, user identities are exclusively manifested through cryptographic addresses that lack a direct association with civil identities (Ishmaev, 2021). This structural dichotomy between transactional transparency and individual identification reveals a normative inadequacy in Indonesian legislation, specifically the absence of explicit legal definitions of digital assets and the unequivocal allocation of compliance responsibilities to Virtual Asset Service Providers (VASPs) (Latuihamallo, Pujiyono & Cahyaningtyas, 2024). Such anonymity enables the creation of an unlimited number of wallets, allowing criminals to obscure transaction paths by using multiple addresses (Linoy, Stakhanova & Ray, 2021). Although blockchain ledgers exhibit transparency, correlating addresses with identifiable individuals necessitates sophisticated digital forensic expertise and collaboration across jurisdictions (Djati & Dewi, 2024). From the vantage point of Legal Protection Theory, this situation mandates preventive protection via obligatory Know Your Customer (KYC) protocols, enhanced customer due diligence practices, and the enforcement of the Travel Rule for VASPs (Takei & Shudo, 2024). Simultaneously, repressive protection demands procedural standards for digital evidence and asset recovery that align with the unique technical characteristics inherent in cryptocurrency transactions (Hijriani et al., 2025).

The decentralized nature of blockchain technology exacerbates the complexities faced by law enforcement agencies (Abdul, 2024). Blockchains operate through a distributed consensus mechanism without a central authority, meaning no single entity has the capacity to intercept transactions or disable balances (Lavaur, Lacan, & Chanel, 2022). This condition makes the execution of seizure orders particularly difficult, especially when control over private keys rests solely with perpetrators (Martin, 2025). Normatively, this reveals a structural incompatibility between conventional seizure mechanisms under Indonesian criminal procedure law and the decentralized architecture of crypto assets. In accordance with Legal Protection Theory, the state must ensure legal certainty by imposing proportional restrictions on the use of crypto as a means of payment, while simultaneously providing clear legal channels for crypto trading as investment or commodity instruments (Simanjuntak, Saraswati, & Sinaga, 2020). In line with Progressive Law, a gradual and risk-based regulatory approach, including regulatory sandboxes and limited safe harbors, is required to balance innovation with public protection.

Furthermore, the inherently global nature of cryptocurrency transactions facilitates expedited cross-border value transfers, thereby circumventing the traditional banking system (Renduchintala et al., 2022). While these advances increase the effectiveness of remittances, they simultaneously increase the potential for cross-border money laundering. Illicit financial resources can be transferred through self-managed wallets and foreign exchange mechanisms, substantially reducing the jurisdictional reach of domestic law enforcement agencies (Subashi, 2024). This difficulty is exacerbated by the lack of clear cross-border compliance mandates and information-sharing provisions for Virtual Asset Service Providers (VASPs) under Indonesian law (Simanjuntak, Naili, & Samekto, 2019). Analyzing this issue through the lens of Legal Protection Theory, it becomes clear that effective legal safeguards require harmonization of regulatory standards, the establishment of a mutual legal assistance framework, and the promotion of cross-border supervisory collaboration. Furthermore, Progressive Law advocates anticipatory and cooperative regulatory methodologies that enhance supervisory interoperability, promote accountable data exchange, and enhance digital forensic capabilities.

Given the foregoing analysis, the interplay between anonymity, decentralization, and the capacity for cross-border transactions creates a marked normative divergence between das Sollen and das Sein in Indonesia's existing regulatory framework governing cryptocurrencies. This disparity cannot be adequately addressed solely through the general provisions contained in the Anti-Money Laundering Law or isolated sectoral regulations. Consequently, it is crucial to establish a lex specialis relating to crypto assets to delineate digital assets as entities deserving of legal protection, to ensure the legal status and compliance obligations of VASPs, to mandate the implementation of the Travel Rule, and to establish explicit criteria for the tracking, seizure, and management of digital forensic assets. Such a framework would effectively actualize the preventive and repressive legal protections envisioned by Hadjon, while simultaneously reflecting the adaptive and progressive essence of law envisioned by Satjipto Rahardjo.

b. Modus Operandi of Crypto-Based Money Laundering in Indonesia

Conceptually, money laundering schemes that utilize cryptocurrency adhere to the established stages of placement, layering, and integration (Chuah, 2023). Nevertheless, the inherent technological framework of blockchain significantly modifies the implementation of each phase, thereby diminishing the efficacy of conventional anti-money laundering detection and enforcement strategies. The characteristics of transaction speed, decentralization, and pseudonymity enable perpetrators to compress laundering stages, fragment transaction trails, and reduce traceability, thereby creating new and more complex challenges for law enforcement agencies (Wiratama et al., 2024).

The following is a conventional sequence of three cryptocurrency-based money laundering schemes as empirically observed in the Indonesian context:

1) Placement

In the initial stage, perpetrators convert the proceeds of crime, originating from either cash-based or banking transactions, into crypto assets in order to introduce these illicit funds into the decentralised crypto ecosystem (Rotty et al., 2022). In Indonesia, this stage poses the greatest legal vulnerability, as the conversion of fiat currency into crypto assets often takes place through domestic or foreign exchanges that have inconsistent compliance standards. Standard methods include purchasing cryptocurrency through centralised exchanges using third-party or nominee accounts, structuring transactions below reporting thresholds ('smurfing'), and using peer-to-peer (P2P) trading platforms that operate with minimal identity verification. The vulnerability is further exacerbated by over-the-counter (OTC) brokers with limited regulatory oversight, highlighting weaknesses in preventive legal protection at the entry point of the crypto ecosystem.

2) Layering

Once illicit financial resources are transformed into cryptocurrency assets, offenders endeavor to conceal their provenance through a series of intricate on-chain and off-chain transactions (Habsari & Maharani, 2025). Common methodologies encompass the transfer of assets via mixers or tumblers, conversion into privacy-centric cryptocurrencies such as Monero or Zcash, and the recurrent execution of chain-hopping across various blockchains and exchanges. These activities capitalize on the lack of definitive legal restrictions and technical standards pertaining to transaction obfuscation mechanisms in Indonesian legislation, while simultaneously surpassing the current capabilities of domestic blockchain forensic technology. Furthermore, assets are often disseminated across a multitude of newly established wallets to further complicate the audit trail.

3) Integration

The integration stage aims to reintroduce 'cleaned' assets into the formal economy. Common methods include selling crypto assets on exchanges with weak AML oversight and transferring the proceeds to overseas bank accounts. Another method is to acquire high-value assets such as real estate or luxury vehicles (Perkasa, 2025). Crypto-linked debit cards issued by foreign providers can also be used for daily expenditure and cash withdrawals, disguising illicit proceeds as ordinary consumer transactions and bypassing conventional banking scrutiny.

This modus operandi has been observed in several high-profile cases in Indonesia. The 2022–2024 PPATK reports identified suspicious crypto-related transactions totalling over IDR 800 billion via Virtual Asset Service Providers (VASPs). This demonstrates both the growing scale of crypto-based money laundering and the limitations of the current mechanisms for its detection (Agarwal et al., 2024). The Rafael Alun Trisambodo case is an example of the placement stage, in which corruption proceeds were converted into Bitcoin to hide their origin. Although the PPATK succeeded in tracing certain transaction flows via e-wallets, the case exposed regulatory gaps where nominees, foreign exchanges or privacy-enhancing tools were used. Similarly, the PT Asabri corruption scandal revealed the use of domestic crypto exchanges, prompting investigations into exchange operators to trace asset flows.

Empirical data consistently indicates that the most significant weaknesses in enforcement emerge during the placement and integration phases, wherein the cryptocurrency ecosystem interacts with the established financial system. Notwithstanding the technical complexity of on-chain layering, offenders continue to rely on Virtual Asset Service Providers (VASPs) for their entry points, rendering these entities the primary target for regulatory action. Consequently, instead of endeavoring to regulate decentralized blockchain networks directly, the most efficacious legal approach involves enhancing the normative duties, transparency standards, and Anti-Money Laundering/Counter Financing of Terrorism (AML/CFT) enforcement on VASPs, which serve as regulated conduits. This operationalizes both preventive and punitive legal safeguards in accordance with Hadjon's theoretical framework and a progressive, risk-oriented regulatory paradigm.

c. Legal Weaknesses and Legal Loopholes in Crypto Regulation in Indonesia in Anticipating Money Laundering in Crypto Transactions

The anti-money laundering (AML/CFT) regulatory framework in Indonesia is not yet fully responsive to crypto-asset-based money laundering methods (Natsir, Suparji, & Machmud, 2025). From an administrative perspective, crypto assets are still categorized as commodities under the supervision of the Ministry of Trade based on Bappebti Regulation No. 5 of 2019, so that regulations emphasize aspects of trade and consumer protection rather than the prevention of financial crimes. This regulatory orientation causes AML supervision to focus on market orderliness rather than on disrupting illicit financial flows. The oversight mechanism for peer-to-peer transactions has not been regulated in detail. At the same time, the implementation of Know Your Customer (KYC) and Anti-Money Laundering (AML) among exchange operators still varies, with customer due diligence standards that are more lenient than those in the banking sector. From the standpoint of Philipus M. Hadjon's Preventive Legal Protection framework, this circumstance signifies a deficiency in legal certainty attributable to the lack of standardized compliance mechanisms and the implementation of a risk-based supervision paradigm. In contrast, Satjipto Rahardjo's Progressive Law advocates for regulations that are responsive to technological advancements, exemplified by the enhancement of licenses for Virtual Asset Service Providers (VASP), the establishment of risk-based oversight, and the creation of regulatory sandboxes that foster innovation while prioritizing public safety.

From a criminal law perspective, Law No. 8 of 2010 on Money Laundering provides scope for the enforcement of crypto-related crimes, as the definition of "property" includes both tangible and intangible objects. Articles 3–5 provide a legal basis for prosecuting perpetrators who disguise the origin of criminal proceeds through digital assets. However, its application is hampered by the difficulty of proving the origin of funds, maintaining a digital chain of custody, and tracing cross-jurisdictional layering patterns. This ambiguity creates prosecutorial uncertainty in cases involving private keys, decentralized custody, and anonymization tools. Other technical obstacles arise from the use of the darknet, encryption, and the lack of regulation on criminal aggravation for technology abuse or obstruction of digital justice. From Hadjon's perspective, these weaknesses indicate a lack of repressive protection because the enforcement system is not yet compatible with the nature of electronic evidence. According to Satjipto, a lex specialis is needed to regulate digital evidence standards, aggravated penalties for technology-based concealment, and guidelines for the operational seizure and management of crypto assets (Saputra et al., 2025).

The main weakness in the enforcement of digital asset laws lies in institutional aspects. Although PPATK has issued typologies and early warnings, the National Police and the Attorney General's Office do not yet have adequate blockchain forensic capabilities (Hutahaean & Indarti, 2020). Simultaneously, the coordination among regulatory bodies remains sporadic, characterized by the absence of standardized operating procedures (SOPs) for the confiscation and management of cryptocurrency assets (Putra, Sudjiarto, & Panggabean, 2025). This fragmentation within institutional structures leads to overlapping responsibilities, protracted investigative processes, and regulatory vacuums in which no single entity assumes comprehensive accountability for anti-money laundering (AML) enforcement in the context of cryptocurrency. In judicial proceedings, inadequate levels of digital literacy frequently culminate in legal interpretations that rely on conventional analogies. In cases involving multiple jurisdictions, the lack of a singular coordinating authority undermines jurisdictional assertions and hampers efforts for asset recovery. International cooperation through the Egmont Group and ASEANAPOL has not been optimal in the exchange of wallet data. Hadjon emphasized that legal protection requires procedural certainty and strong institutional capacity. At the same time, Satjipto encouraged the establishment of a progressive mutual legal assistance mechanism that is coordinated across borders and based on substantive justice.

Compliance in the crypto industry to date has also been uneven, with only about 25 exchanges licensed by Bappebti out of more than a hundred players. In contrast, many others operate without a license or are based overseas (Muhammad, 2022). Large exchanges tend to comply with LTKM reporting to PPATK, but small operators often ignore AML/KYC obligations. The implementation of the FATF Travel Rule is also not yet optimal, so cross-platform transaction tracking is still limited. This uneven compliance demonstrates the failure of general regulatory instruments to ensure consistent AML enforcement across the crypto sector. In comparison, the European Union has implemented MiCA 2023 and strict Travel Rules, while Switzerland, through the DLT Act 2021, has expanded the scope of AMLA to non-custodial providers. These frameworks have proven effective in reducing regulatory arbitrage and strengthening enforceability through clear licensing, asset segregation, and travel rule obligations.

The integration of Hadjon and Satjipto's theories reinforces the direction of national reform. Preventive protection requires the structuring of VASP licenses, risk-based supervision, the implementation of the Travel Rule, and auditable beneficial ownership, as well as standardized reporting of suspicious transactions. Repressive protection requires strengthening digital evidence, asset seizure and management procedures, heavier penalties for the use of cloaking technology, and practical cross-border cooperation. Within this framework, the establishment of a crypto lex specialis is not merely policy-oriented but a normative necessity to ensure effective AML enforcement and substantive justice for victims through asset recovery and restitution.

2. Comparison of Crypto Regulation Laws between Indonesia, the European Union, and Switzerland

a. Crypto Regulation in Indonesia

The legal framework for crypto assets in Indonesia is still transitional and fragmented (Purnama, 2022). Currently, crypto assets are categorized as digital commodities under the authority of the Commodity Futures Trading Regulatory Agency (Bappebti) based on Bappebti Regulation No. 5 of 2019 concerning Technical Provisions for the Implementation of Physical Crypto Asset Markets on Futures Exchanges (Setiawan, Idayanti, & Wildan, 2023). This regulation focuses on trading and consumer protection aspects, such as licensing of crypto asset traders, system security, and KYC/AML mechanisms. This commodity-based regulatory approach reflects Indonesia's initial policy choice to accommodate crypto assets within an existing trade law framework rather than developing a dedicated financial or digital asset regime. However, this approach does not comprehensively address prudential, monetary, or cross-border dimensions of crypto-related risks.

The transfer of supervisory authority through Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector (P2SK Law) marks a transition toward digital financial governance under the Financial Services Authority (OJK) (Anggunsuri & Zahara, 2024). The OJK now has a mandate to integrate crypto assets into the formal financial system in coordination with Bank Indonesia (BI) regarding monetary stability and with the Financial Transaction Reports and Analysis Center (PPATK) regarding AML-CFT enforcement (Susanto & Afifah, 2024). Nevertheless, this institutional shift has not yet been followed by comprehensive implementing regulations, resulting in a regulatory gap between formal authority and operational enforcement. In practice, supervisory readiness remains uneven, particularly in relation to blockchain forensic capacity, cross-platform transaction monitoring, and inter-agency coordination.

Substantively, Indonesia does not yet have a lex specialis governing the legal status, classification, and risk-based governance of crypto assets as adopted in the European Union or Switzerland. Contractual relations involving crypto transactions continue to rely on the Civil Code and the Electronic Information and Transactions Law for the validity of electronic agreements (Krisnawangsa et al., 2021). At the same time, data protection aspects refer to the 2022 Personal Data Protection Law (Maridjan, Mamengko, & Gerungan, 2025). This reliance on general private law instruments reflects Indonesia's broader civil law tradition, but it also limits the precision and enforceability of obligations tailored to crypto-specific risks. There is no legal recognition of DLT securities, tokenized financial instruments, or blockchain-based capital market products.

Consumer protection mechanisms also remain limited. Current regulations do not mandate the segregation of client assets, prohibit rehypothecation, or establish custody standards equivalent to those applied to traditional financial institutions. In the AML-CFT domain, PPATK has designated Virtual Asset Service Providers (VASPs) as reporting entities through PPATK Regulation No. 13 of 2021. However, its application remains confined to custodial service providers and does not extend to decentralized finance (DeFi) platforms or self-hosted wallets. This regulatory limitation reflects enforcement capacity constraints and political caution in extending supervision to decentralized actors. Still, it simultaneously creates regulatory blind spots that can be exploited for illicit finansial activities.

Overall, Indonesia's crypto regulatory framework demonstrates a gradual, cautious approach. Rather than signaling regulatory failure, this incremental approach reflects concerns about institutional capacity, enforcement readiness, and adaptation of legal culture in a complex, rapidly evolving technological domain. However, without the development of a coherent lex specialis supported by institutional strengthening, Indonesia's current framework risks perpetuating fragmented supervision, inconsistent enforcement, and limited deterrence against crypto-based financial crimes. Consequently, while the transition to OJK supervision constitutes an important institutional milestone, its effectiveness ultimately depends on Indonesia's ability to align regulatory ambition with realistic assessments of supervisory capacity, inter-agency coordination, and legal infrastructure readiness.

b. Crypto Regulation in the European Union

The European Union, through Regulation (EU) 2023/1114 on Markets in Crypto-Assets (MiCA), has established the first supranational framework that comprehensively regulates crypto assets (Xiao, 2025). Enacted in May 2023 and fully effective in stages until 2024, MiCA is designed to address fragmentation, regulatory arbitrage, and legal uncertainty among member states, while strengthening the integration of digital financial markets (Ferrari, 2020). Its approach is risk-based with a focus on consumer protection, market integrity, and monetary stability (Ferreira & Sandner, 2021).

MiCA divides crypto assets into three categories, namely e-money tokens (EMT), asset-referenced tokens (ART), and other crypto-assets. EMT and ART are subject to strict requirements because they have an impact on monetary policy (Zetzsche et al., 2020). Each issuer is required to prepare a crypto-asset white paper containing technical information, governance, holder rights, and risk profiles (Ferrari, 2020). For significant stablecoins, MiCA stipulates licensing requirements, capital adequacy, redeemability mechanisms, and prudential governance under the supervision of the European Central Bank (ECB) (Xiao, 2025).

Crypto-asset industry regulation in the European Union stipulates that Crypto-Asset Service Providers (CASP), which include custodians, exchanges, and investment advisors, must be licensed, implement internal governance and auditing, segregate client funds, and provide transparent and effective complaint mechanisms (Linden & Shirazi, 2023). MiCA introduces the principles of single licensing and passporting rights, which allow licensed entities to operate throughout the European Union without additional licenses, thereby achieving compliance efficiency and market integration (Hardana, Siregar, & Utami, 2025). In the context of AML-CFT, MiCA runs parallel to Regulation (EU) 2023/1113 on Transfer of Funds, which requires the implementation of travel rules and due diligence for self-hosted wallets. This approach directly limits transaction anonymity and strengthens cross-border tracking in accordance with FATF standards. Furthermore, MiCA establishes proportionate administrative sanctions, a realistic compliance transition period, and synergistic supervisory coordination between the EBA, ESMA, and ECB.

From an evaluative perspective, MiCA's regulatory effectiveness is strongly supported by the European Union's supranational institutional structure, which enables centralized standard-setting, coordinated supervision, and consistent cross-border enforcement through bodies such as ESMA, EBA, and the ECB. This institutional configuration significantly reduces regulatory arbitrage and compliance disparities among member states, a condition that cannot be replicated directly in jurisdictions without supranational authority.

MiCA offers a risk-based lex specialis model that integrates VASP licensing, white paper requirements, and investor protection through fund segregation and rehypothecation prohibition, which can be adopted in Indonesia (William & Urbanisasi, 2025). However, the direct transplantation of this model into Indonesia faces contextual feasibility barriers related to institutional capacity, supervisory readiness, and enforcement consistency. Indonesia's regulatory architecture remains fragmented among OJK, PPATK, Bank Indonesia, and sectoral authorities, limiting the immediate applicability of passporting mechanisms and consolidated supervision.

This approach can be adapted to create an integrated supervisory framework under the OJK with the principles of prudence and PPATK reporting interoperability. Accordingly, MiCA should be treated as a normative reference for selective and phased adaptation rather than as a blueprint for wholesale adoption, requiring alignment with Indonesia's legal culture, administrative capacity, and political-regulatory context. Through the MiCA model, Indonesia can strengthen market integrity, legal certainty, and digital financial innovation simultaneously.

c. Crypto Regulation in Switzerland

Switzerland is known as a progressive jurisdiction that has successfully accommodated blockchain technology and crypto assets without compromising the integrity of its financial system (Zehnder, 2024). The Federal Act on the Adaptation of Federal Law to Developments in Distributed Ledger Technology (DLT Act), which has been fully effective since August 2021, represents a cross-sectoral reform that amends multiple existing statutes rather than introducing a single standalone crypto law. This approach integrates distributed ledger technology into the established framework of financial markets, civil law, and insolvency law, ensuring legal certainty and compliance with anti-money laundering principles (Zhuk, 2025).

One of the key innovations of the DLT Act is the recognition of ledger-based securities (DLT securities) under Article 973d of the Swiss Code of Obligations, granting them legal equivalence to traditional certificated securities. This mechanism allows for the issuance and transfer of securities through distributed ledgers without physical documentation, thereby facilitating tokenization and efficient ownership transfer (Güntert & Schnyder, 2021). The revision also establishes a legal basis for digital asset custody and transfer within a clear civil law framework.

The Financial Market Infrastructure Act (FinMIA) was amended to introduce the DLT Trading Facility license, enabling an integrated trading venue that combines trading, custody, clearing, and settlement under the supervision of the Swiss Financial Market Supervisory Authority (FINMA). This structure supports atomic settlement and reduces operational fragmentation. Investor protection is further strengthened through amendments to the Debt Enforcement and Bankruptcy Act (DEBA), which require the segregation of client assets from the custodian's bankruptcy estate, thereby ensuring creditor priority and legal certainty in insolvency proceedings (Rodriguez & Ulli, 2023). In the AML-CFT context, the Anti-Money Laundering Act (AMLA) has been extended to cover non-custodial service providers and decentralized finance (DeFi) activities, including the application of the Travel Rule and restrictions on anonymous transactions (Manninen, 2023).

Swiss private law places strong emphasis on contractual autonomy, predictable judicial enforcement, and technical expertise in commercial and financial disputes, allowing DLT-based legal constructs to operate effectively in practice. The recognition of DLT securities functions not merely as a formal legal innovation, but as an enforceable mechanism that supports asset recovery, insolvency resolution, and judicial certainty. However, the direct applicability of the Swiss model to Indonesia is constrained by significant contextual differences. Indonesia's civil law practice continues to face challenges related to judicial consistency, limited technical familiarity with digital assets, and uneven enforcement capacity across jurisdictions. Without parallel reforms in judicial training, digital forensic expertise, and insolvency enforcement mechanisms, the functional advantages of DLT securities recognition may not be fully realized within Indonesia's legal system.

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Accordingly, while the Swiss DLT Act provides a valuable reference for integrating digital assets into classical legal categories, its relevance for Indonesia lies in selective adaptation rather than direct transplantation. Elements such as asset segregation in insolvency, legal recognition of digital ownership, and clear custody obligations may be adopted incrementally, provided they are supported by institutional capacity building and adjustments to Indonesia's legal culture and enforcement practices.

d. Results of the Comparison of Crypto Regulations between Indonesia and the European Union and Switzerland

The comparison results show that Indonesia remains in a transitional stage with general and reactive crypto regulations, in which crypto assets have historically been treated as futures commodities before the transfer of supervisory authority to the Financial Services Authority under the P2SK Law. As a consequence, key regulatory pillars, such as money laundering prevention, VASP licensing, travel rule standards, customer asset segregation, and custody governance, have not yet been consolidated into a comprehensive lex specialis. This condition results in uneven compliance, persistent peer-to-peer transaction loopholes, and fragmented institutional coordination among PPATK, OJK, Bank Indonesia, and Bappebti, which collectively reduce supervisory effectiveness. From a normative perspective, this fragmentation reflects not merely a policy gap, but a legal gap arising from the absence of a clear ratio legis governing crypto assets as objects of financial regulation and criminal enforcement. General reliance on the Anti-Money Laundering Law and sectoral regulations has proven insufficient to address the technological specifics of crypto transactions, particularly with respect to anonymity, cross-border execution, and digital asset custody.

The European Union, through MiCA (Regulation (EU) 2023/1114) and the Transfer of Funds Regulation (EU) 2023/1113, adopts a prescriptive supranational regulatory model characterized by risk-based asset classification, mandatory white paper disclosure, centralized licensing and passporting of Crypto-Asset Service Providers, and robust investor protection mechanisms, including asset segregation, governance requirements, and market abuse prohibitions. The mandatory implementation of the Travel Rule, including enhanced scrutiny of high-risk self-hosted wallets, establishes a harmonized compliance baseline across all member states, thereby reducing regulatory arbitrage and strengthening cross-border enforcement. The relative success of the EU model is closely linked to its institutional structure, which supports centralized rulemaking, strong supervisory coordination, and uniform enforcement capacity across member states. This supranational context enables MiCA to function effectively as a lex specialis, a condition that cannot be replicated directly within Indonesia's decentralized regulatory architecture without significant institutional consolidation.

Switzerland, by contrast, adopts an integrative and functional-adaptive approach through the DLT Act, which embeds crypto regulation within existing civil law, financial market, insolvency, and anti-money laundering frameworks. Legal recognition of DLT securities, the introduction of DLT Trading Facilities under FINMA supervision, segregation of client assets in insolvency, and expansion of AML obligations to non-custodial and DeFi actors collectively ensure legal certainty without overregulation. This model prioritizes legal coherence and enforceability over prescriptive uniformity. Strong institutional capacity, a mature civil law tradition, and high levels of judicial and supervisory expertise in financial and commercial disputes support the effectiveness of the Swiss model. These contextual conditions enable innovative legal constructs, such as DLT securities and atomic settlement mechanisms, to operate effectively in practice.

From a typological perspective, the EU model emphasises centralised harmonisation and market integration, while the Swiss model prioritises legal continuity and functional adaptation within established legal categories. Indonesia, however, remains positioned between these models, relying on generalist regulations that lack both prescriptive clarity and integrative coherence. Accordingly, the comparative findings suggest that Indonesia should not directly transplant either the EU or Swiss regulatory models, but instead selectively adapt their core elements to domestic legal culture, institutional capacity, and enforcement readiness. Based on the EU model, Indonesia may adopt centralised asset classification, unified VASP licensing under the OJK, mandatory Travel Rule implementation, and standardised investor protection norms. From the Swiss model, Indonesia may draw lessons on integrating digital assets into civil law, insolvency protection through asset segregation, and functional recognition of digital ownership rights. Such selective adaptation must be accompanied by institutional strengthening, including consolidating supervision, enhancing digital forensic capacity, and training judges in digital asset disputes. Without these supporting conditions, the formation of a crypto lex specialis risks remaining a formal regulatory instrument rather than an effective mechanism of legal protection.

D. CONCLUSION

The regulation of crypto assets in Indonesia is still not fully capable of addressing the risks of money laundering arising from the technical characteristics of crypto technology, such as anonymity, decentralisation, and cross-border transactions. The absence of lex specialis means that the applicable legal regime, particularly Law No. 8 of 2010 on the Prevention and Eradication of Money Laundering, is not yet compatible with the needs of digital asset-based law enforcement, particularly in terms of evidence, seizure, and confiscation of crypto assets at the placement, layering, and integration stages. This problem is exacerbated by institutional readiness limitations, reflected in the fragmentation of authority between PPATK, the Financial Services Authority, Bank Indonesia, and Bappebti, as well as suboptimal technical capacity and inter-agency coordination. Within the framework of Lawrence M. Friedman's legal system, this situation shows that the effectiveness of crypto asset regulation in Indonesia is influenced not only by legal substance but also by institutional structures and legal culture that are not yet fully adapted to the complexity of technology-based financial crimes.

A comparative approach to the European Union and Switzerland reveals two distinct models of crypto asset regulation, each offering essential lessons. The European Union, through the Markets in Crypto-Assets Regulation, emphasises normative certainty through the establishment of harmonised lex specialis, centralised supervision of crypto asset service providers, the application of the Travel Rule, and the systematic integration of anti-money laundering compliance. On the other hand, Switzerland has developed a functional and adaptive approach by integrating crypto asset regulation into the existing legal regime, while strengthening institutional capacity and internalising a culture of compliance without hindering innovation. This comparison confirms that crypto asset regulation in Indonesia requires selective adaptation, combining normative certainty as applied in the European Union with institutional flexibility as developed in Switzerland. Therefore, the direction of regulatory reform in Indonesia should include the establishment of a clear lex specialis, the strengthening of supervisory and law enforcement institutions, and the development of a legal culture that supports compliance, so that crypto asset regulation does not stop at the normative level but is practical and operational.

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