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Indonesian Cryptocurrencies Legislative Readiness: Lessons from the United States

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Article	Abstract
<p>Keywords: Anti-money laundering; Cryptocurrencies; Pseudonymity.</p> <p>Article History: Received: Sep 9, 2022; Reviewed: Jan 18, 2023; Accepted: Jan 30, 2023; Published: Jan 31, 2023.</p> <p>DOI: 10.28946/slrev.Vol7.Iss1.2138.pp150-172</p>	<p>Cryptocurrencies can facilitate cross-border global transfers easily and pseudonymously. It can be converted into fiat currencies, making it suitable for money laundering crimes. This study compared legal regulations in the United States that analysed the readiness of regulations and Indonesia's legal loopholes in responding to the development of the cryptocurrency business. As a result, cryptocurrency in Indonesia is susceptible to being used as a money-laundering tool due to the novelty of the technology, the anonymity it provides its users, and the immaturity of the regulations governing it. Therefore, it is necessary to create a cryptocurrency that can follow the "Travel Rule" and collect and share information about the people who send and receive cryptocurrency, like in the US. The study also argues that passive detection is used to detect the identity of cryptocurrency users through a centralised service. However, several cryptocurrency developers have responded to the increase in pseudonymity tracking methods by developing cryptocurrencies with greater secrecy change.</p>
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INTRODUCTION

The global cryptocurrency business is expected to keep growing exponentially. It is projected that 90 per cent of the global population will adopt cryptocurrency in the next decade. According to CNBC, the cryptocurrency market has grown rapidly from US\$1.44 billion in 2020 to \$1.63 billion in 2021.¹ CoinMarketCap's 2022 also reported that the world's cryptocurrency market capitalisation reached \$2 trillion, with Bitcoin leading the industry, followed by Ethereum and Ether.² Indonesia also gave a positive response to the existence of the bitcoin industry. The Central Statistics Agency (BPS –*Biro Pusat Statistik*) reported that Indonesia is entering a bonus boom for the productive age population. It is predicted to peak

¹ CNBC Indonesia, "Alert! Ada Bahaya Besar Intai Investor Uang Kripto Di 2022," 2022.

² hoerli, "Top Mover 2022," CoinMarketCap, 2022.

in 2025 – 2030.³ The birth of such a massive productive age generation is an opportunity because they can get directly involved in technology-based creative industries, such as cryptocurrencies.

Based on Finder survey data in 27 countries in December 2021, Indonesia occupies the fourth position as the largest cryptocurrency user, reaching 22.4 per cent, following Vietnam (28.6 per cent), India (23.4 per cent), and Australia (22,9 per cent). Crypto ownership is dominated by young people aged between 18-34 years. Indonesia also recorded an increase of six per cent compared to the previous year (16.4 per cent).⁴ However, the potential for unlawful acts and crimes in the cryptocurrency industry is also inevitable along with the use of crypto assets and their value in the market increases.

To guarantee legal certainty, the Indonesian government, through the Commodity Futures Trading Regulatory Agency (Bappebti – *Badan Pengawas Perdagangan Berjangka*), determines that cryptocurrency is a commodity subject that can be traded on the futures trading exchange.⁵ The provisions are stated in the Decree of the Head of the Commodity Futures Trading Supervisory Agency Number 5 of 2019 on Technical Provisions for the Implementation of the Physical Market for Crypto Assets on the Futures Exchange. In Indonesia, cryptocurrency is not recognised as a means of payment because, according to the Law Number 7 of 2011 on Currencies and the Law Number 23 of 1999 on Bank Indonesia (BI), the only legal and recognised payment in Indonesia is Rupiah.

Unlike Indonesia, Japan is the first country to legalise cryptocurrency transactions⁶. Cryptocurrency is also used as an investment instrument and as a virtual currency exchange in the United States, Japan, Russia, South Korea, and Finland.⁷ In addition to the sophistication of cryptocurrencies, their decentralised nature is unique since it does not involve third parties as intermediaries. The transaction process occurs peer to peer. It means that no third party interferes with the transaction between buyers and sellers.⁸ Cryptocurrency as an instrument to facilitate transactions virtually will have a high risk because it is decentralised. It will complicate government control and supervision.⁹ Cryptocurrency is anonymous since it has the advantage of maintaining the privacy and identity of the user. The feature also allows users to register an identity different from their real identity. It can also negatively impact if the user misuses a fake identity. Therefore, cryptocurrencies are often a way to commit crimes like money laundering, illegal trading, and tax evasion.¹⁰

Although their global reach and anonymity have been attractively used for advancement in the financial industry, they have been exploited by criminals in their illegal activities to

³ “BPS,” BPS, 2022.

⁴ Brigitta Raras, “Indonesia Peringkat 4 Pengguna Mata Uang Kripto Terbanyak Di Dunia - GoodStats,” 2022.

⁵ Y Yusra, “Bappebti Tetapkan Cryptocurrency Masuk Kategori Komoditi Perdagangan Berjangka,” *dailysocial*, 2021.

⁶ E Safitri, “Kebijakan Melegalisasi Cryptocurrency Sebagai Upaya Pemerintah Jepang Mengamankan Keamanan Nasional Jepang,” *Journal of International Relations* 5, no. 2 (2019): 272.

⁷ C Prayogo, “Ini 6 Negara Yang Legalkan Mata Uang Bitcoin,” 2017.

⁸ Laurencio, “Transaksi Bitcoin Di Indonesia Tembus Rp 1 T/Hari,” 2018.

⁹ Amboro Y P, “Prospek Pengaturan Cryptocurrency Sebagai Mata Uang Virtual Di Indonesia (Studi Perbandingan Hukum Jepang Dan Singapura),” *Journal of Judicial Review* 21, no. 2 (2019): 14–16.

¹⁰ (Chang SE, 2019)

evade detection by the authorities¹¹. In recent years, Bitcoin, Monero, and Ethereum are just a few of the cryptocurrencies that have offered opportunities to be used in crimes like tax evasion, money laundering, drug trafficking, and terrorism financing.¹² At the same time, investigative intelligence units and law enforcement agencies have difficulty identifying anonymity. It has complicated the implementation of Anti-Money Laundering (AML) measures.¹³

The goal of money laundering is to make it appear as though the illegal activities generated the money rather than conceal the fact that the money came from illegal activities. Secondly illegal, money laundering occurs only after a primary illegal act, known as a predicate crime, has occurred¹⁴. Therefore, money laundering is the process of cleaning dirty money resulting from unlawful acts so that the money can finally be used for legal purposes.¹⁵ The Financial Action Task Force (FATF) has established and promoted international standards to combat money laundering and terrorism financing. Forty recommendations are formed as a framework to combat money laundering and provide a set of countermeasures covering the criminal justice system and law enforcement, the financial system, its regulation, and measures to enhance international cooperation.¹⁶

Choo (2015) explains that the money laundering process involving crypto money generally consists of three stages. First is placement, meaning that the perpetrator places money in non-monetary instruments, such as spending on cryptocurrency. The second is layering. After money enters the financial system and non-monetary instruments, the perpetrators carry out a series of transactions to keep the money from its source. The perpetrator can transfer the money to another cryptocurrency account. The third is integration. It covers all hidden funds. All funds appear to be obtained from legal actions. It is difficult to distinguish between legal and illegal assets at this stage.¹⁷ Anonymous and immutable cryptocurrency raises concerns for financial regulators and governments because anonymity can facilitate money laundering crimes. Anonymity is difficult to control by a central entity

¹¹ Sesha Kethineni and Ying Cao, “The Rise in Popularity of Cryptocurrency and Associated Criminal Activity,” *International Criminal Justice Review* 30, no. 3 (September 2020): 325–44, <https://doi.org/10.1177/1057567719827051>.

¹² Sean Foley, Jonathan R Karlsen, and Tālis J Putniņš, “Sex, Drugs, and Bitcoin: How Much Illegal Activity Is Financed through Cryptocurrencies?,” *The Review of Financial Studies* 32, no. 5 (May 2019): 1798–1853, <https://doi.org/10.1093/rfs/hhz015>.

¹³ Angela S.M. Irwin and George Milad, “The Use of Crypto-Currencies in Funding Violent Jihad,” *Journal of Money Laundering Control* 19, no. 4 (October 2016): 407–25, <https://doi.org/10.1108/JMLC-01-2016-0003/FULL/XML>.

¹⁴ Nicholas J Ajello, “Fitting a Square Peg in a Round Hole: Bitcoin, Money Laundering, and the Fifth Amendment Privilege Against Self-Incrimination,” *Brooklyn Law Review* 80, no. 2 (2015): 435.

¹⁵ Paul Michael Gilmour, “Reexamining the Anti-Money-Laundering Framework: A Legal Critique and New Approach to Combating Money Laundering,” *Journal of Financial Crime* ahead-of-p, no. ahead-of-print (March 2022), <https://doi.org/10.1108/JFC-02-2022-0041>.

¹⁶ Kim Kwang Raymond Choo, “Cryptocurrency and Virtual Currency: Corruption and Money Laundering/Terrorism Financing Risks?,” *Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data*, January 2015, 283–307, <https://doi.org/10.1016/B978-0-12-802117-0.00015-1>.

¹⁷ Choo.

like a central bank.¹⁸ Cryptocurrencies are also important research because global anti-money laundering programs offer new ways to enable near real-time execution, verification, and publication of transactions across national jurisdictional boundaries.¹⁹

This study aims to assess the regulatory readiness in Indonesia to combat money laundering using cryptocurrencies and the challenges of developing legislation in the future related to the implementation of AML regulations in the region. The article consists of four parts. The first part explains the background of using cryptocurrencies to carry out actions, how they are used, and how the analysis is carried out. Part Two explains the potential abuse and challenges of enforcing regulations on money laundering using cryptocurrencies compared to the Crypto Readiness Index in the US and Cyprus and why the Crypto Readiness Index is high in these two countries. The third section describes how Indonesia has responded to the FATF guidance, which aims to measure the availability and suitability of the AML regulatory framework and procedures implemented in the region. The fourth part is the recommendation for the overall adoption of FATF Guidance by Indonesia through regional cooperation, ASEAN, and introducing the concept of Know-Your-Transaction (KYT) as an effort to identify cryptocurrency anonymity.

RESEARCH METHODS

The study employed doctrinal legal research methods by analysing the regulatory readiness of Southeast Asian countries to combat the use of cryptocurrencies as a means of money laundering and the challenges of developing legislation in the future related to the application of AML regulations in the region. Doctrinal legal research is an analytical study of legal instruments in the form of related cases or existing regulations, as well as reliable materials. The methodology is applied by compiling, organising, and systematising legal propositions through in-depth legal reasoning or rational deduction to relevant legal instruments to answer the legal problems in certain contexts. Thus, the analytical approach of the study is qualitative.²⁰ In the legal study, materials are in the form of existing regulations and legal literature from books, journals, and the web. Furthermore, the analysis examines, compares, and contrasts the development of AML responses to cryptocurrencies in Indonesia. The analysis also discusses relevant legal issues and challenges to produce AML measures within the legal framework of each member state as well as regional cooperation.

ANALYSIS AND DISCUSSION

Cryptocurrency for Money Laundering

Historically, the practice of money laundering crimes has long existed. It can be traced in both traditional and modern ways. China, India, and Pakistan have traditionally recognised money

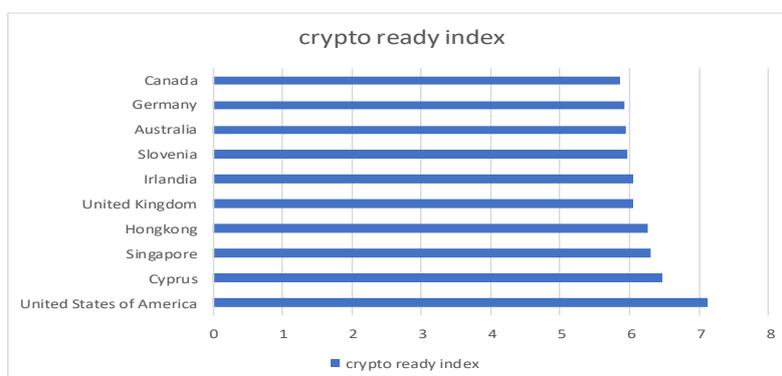
¹⁸ Sagwadi Mabunda, "Cryptocurrency: The New Face of Cyber Money Laundering," *2018 International Conference on Advances in Big Data, Computing and Data Communication Systems, IcABCD 2018*, September 2018, <https://doi.org/10.1109/ICABCD.2018.8465467>.

¹⁹ Malcolm Campbell-Verduyn, "Bitcoin, Crypto-Coins, and Global Anti-Money Laundering Governance," *Crime, Law and Social Change* 2018 69:2 69, no. 2 (January 2018): 283–305, <https://doi.org/10.1007/S10611-017-9756-5>.

²⁰ Terry Hutchinson, "The Doctrinal Method: Incorporating Interdisciplinary Methods in Reforming the Law," *Erasmus Law Review*, February 2016, <https://doi.org/10.5553/ELR.000055>.

laundering. Private banks, called hui (*hoi*) or The Chinese Chip, exist in China. India knows the traditional hawala remittance system. At the same time, there is a hundi in Pakistan. The modern method involves placement, layering, and integration stages.²¹ At first money laundering began to exist in 1830 in the US. The mafia in the US laundered their money by buying companies. The company was the Laundromats company, which has a laundry business. The laundered money comes from crimes such as the proceeds of the liquor trade, gambling, and prostitution.²² The practice of money laundering is also carried out through a modern method in four stages. The first is placement. Money from crime is placed in certain banks that are considered safe. The second is layering. It makes the investigation to be difficult. The third is integration. After going through the placement and layering stages, at this stage, the money that has been laundered will be collected back into a legal process.²³ The relationship between money laundering and cryptocurrency is that the laundering activity has various modes to hide or disguise the origin of these assets. One of which is to enter the proceeds of these crimes into cryptocurrency. Since 2017, money laundering using cryptocurrencies has almost reached USD 8.6 billion. Money laundering that uses crypto is the process of disguising the origins of illegally earned money transferred to legal businesses.²⁴

In 2022, many countries increased crypto adoption. A financial product comparison site Finder.com released that cryptocurrency transactions in 27 European, Asian, and American countries scored 881% of the increase. Figure 1 shows ten countries with the highest Crypto Readiness Index in 2021.



Source: <https://cryptohead.io/research/crypto-ready-index/>²⁵

Figure 1. Crypto Readiness Index in 2021

²¹ Bala Shanmugam, “Hawala and Money Laundering & colon; a Malaysian Perspective,” *Journal of Money Laundering Control* 8, no. 1 (January 2005): 37–47, <https://doi.org/10.1108/13685200510621181/FULL/XML>.

²² Oleh: Edi Waluyo, “Upaya Memerangi Tindakan Pencucian Uang (Money Laundering) Di Indonesia,” *Jurnal Dinamika Hukum* 9, no. 3 (September 2009): 275–84, <https://doi.org/10.20884/1.JDH.2009.9.3.235>.

²³ Georgy Rusanov and Yury Pudovochkin, “Money Laundering in the Modern Crime System,” *Journal of Money Laundering Control* 24, no. 4 (October 2021): 860–68, <https://doi.org/10.1108/JMLC-08-2020-0085/FULL/XML>.

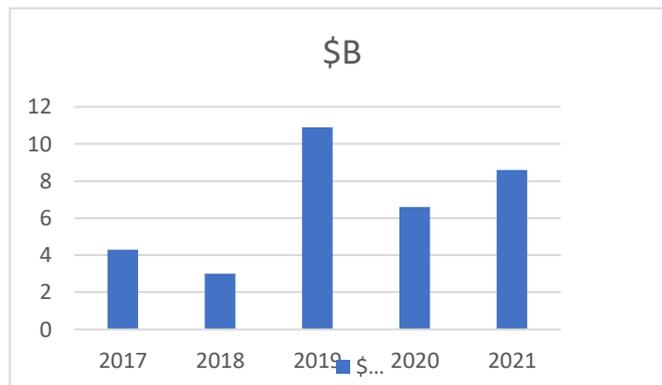
²⁴ Fabian Maximilian Johannes Teichmann and Marie Christin Falker, “Money Laundering via Cryptocurrencies – Potential Solutions from Liechtenstein,” *Journal of Money Laundering Control* 24, no. 1 (2020): 91–101, <https://doi.org/10.1108/JMLC-04-2020-0041/FULL/XML>.

²⁵ “Crypto-Ready Index,” cryptohead, 2021, <https://cryptohead.io/research/crypto-ready-index/>.

Figure 1 illustrates that the US is considered a country ready to adopt cryptocurrency. Based on the Crypto Head report, the US score in the 2021 crypto readiness index is 7.13 on a scale of 0-10 points. The higher the score, the more ready the country is to adopt cryptocurrencies. The US is ready to adopt cryptocurrency because one of them has 17,436 crypto automated teller machines (ATMs). Nineteen thousand twenty-three people use every single crypto ATM. Laws in the US also allow the ownership of cryptocurrencies and their use in banks. Searches for cryptocurrencies have increased by 140% in the past year.

Cyprus followed the US in second place, scoring 6.47. The main element that supports Cyprus' readiness to adopt cryptocurrency is the high interest of its population. About 33,941 per 100 thousand people in Cyprus searched for cryptocurrency last year. Singapore scored 6.3 in the third. Hong Kong and England gained 6.27 and 6.06, respectively. The Crypto Readiness Index was conducted in 200 countries. The data is analysed based on the number of Crypto ATMs in each country, government policies towards ownership of cryptocurrencies, and their use in the banking world.

According to a Chainalysis report (see figure 2), over \$33 billion worth of cryptocurrencies has been laundered by cybercriminals since 2017. They have, for the most part, migrated to consolidated markets. To put that in perspective, the UN Office on Drugs and Crime reports that up to 5% of global GDP is accounted for by laundering \$800 billion and \$2 trillion in fiat currency yearly. In 2022, criminals laundered \$8.6 billion in cryptocurrencies in 2021, a 30% increase from the previous year. The report also reveals that billions of dollars of cryptocurrencies are transferred yearly from illicit addresses. Many of them appear to be tailor-made for money laundering.²⁶



Source: Chainalysis-Total cryptocurrency value laundered by year, 2017-2021

Figure 2. Laundered Cryptocurrencies by Cybercriminals

Figure 2 illustrates a 30% increase in money laundering activity during 2020. The increase is not surprising given that significant growth will come from legal and illicit cryptocurrency activity in 2021. This data only takes into account funds originating from “cryptocurrency-native” crimes. It means cybercriminal activity, such as darknet market sales, where profits almost always come from cryptocurrencies rather than fiat currency.

²⁶ Chainalysis Team, “DeFi Takes on Bigger Role in Money Laundering But Small Group of Centralized Services Still Dominate - Chainalysis,” Blog Chainalysis, 2022.

Cointelegraph, an independent digital media resource covering a wide range of news on blockchain technology, crypto assets, and emerging fintech trends, explains.

“Digital currencies are money used on the internet. Digital money exists only in digital form. It does not have any physical equivalent in the real world. Nevertheless, it has all the characteristics of traditional money. Like classic fiat money, you can obtain, transfer or exchange it for another currency. You can use it to pay for the goods and services, such as mobile and internet communication, online stores and others. Digital currencies do not have geographical or political borders; transactions might be sent from any place and received at any point in the world.”²⁷

There is a connection between digital currency and money laundering.

“One aspect of cryptocurrencies that is of concern is their ability to be used for money laundering and other nefarious purposes. The anonymity associated with cryptocurrency allows it to be used as a medium of exchange for criminal organisations and sanctioned governments. The blockchain underlies cryptocurrencies often does not store personal data, so they offer no way to identify the individual or organisation associated with it.”²⁸

Money laundering vulnerabilities on money cryptocurrency are on anonymity, and it is used to launder money.²⁹ Blandin illustrates various things related to Cryptocurrencies as follows.

“The fundamentally new characteristic of native-digital crypto assets lies in the incentive role that the token plays in a particular network: if the token were to be stripped away, would the network still function properly? Such tokens may require distinct regulation compared to traditional assets.”³⁰

Cryptocurrency is defined as an asset or token that can be used as a means of payment, a medium of exchange, and a token that functions as an investment. Therefore, there must be legal steps in the form of the necessary legislative process. According to Ziegler, the implementation of regulatory frameworks also support countries to go to a higher level for penetration of alternative finance at the national level.³¹ Zhang also explains Regulation Technology (Regtech) as an increasingly important tool for regulators to consider the innovation and promotion of financial inclusion.³²

Malcolm (2018) reveals that, firstly, the implications currently posed by crypto coins for global anti-money laundering efforts stem less from the threat of their illegal use as digital currencies. The opportunities stem more from the underlying blockchain technology. Secondly, despite some shortcomings, the risk-based approach adopted by the FATF strikes an effective balance between the threats and the opportunities of crypto coins. To combat money laundering in an era of rapid technological change, there is a need for ongoing monitoring and investigation of the broader ethical implications raised by Crypto-Coins (CCs).³³

²⁷ CFI Team, “Digital Money - Overview, How It Works, Examples, Risks,” 2020.

²⁸ Andrew Tarpey, “The Money Laundering Risk of Cryptocurrencies - Southpac Group,” 2022.

²⁹ Robby Houben, “Cryptocurrency and Blockchain: Legal Context and Implications for Financial Crime, Money Laundering, and Tax Evasion,” *European Parliament*, 2018.

³⁰ Apolline Blandin, *The Global Crypto Asset Regulatory Landscape Study* (London: The University of Cambridge: Judge Business Law, 2019).

³¹ Tania Ziegler, *Shifting Paradigms: The 4th European Alternative Finance Benchmarking Report* (London: The University of Cambridge: Judge Business Law, 2019).

³² Bryan Zhang, *Early Lessons on Regulatory Innovation to Enable Inclusive Fintech* (London: The University of Cambridge: Judge Business Law, 2019).

³³ Campbell-Verduyn, “Bitcoin, Crypto-Coins, and Global Anti-Money Laundering Governance.”

Anti-Money Laundering (AML) and Its Implementation in Cryptocurrency

The practice of laundering illicit funds affects countries all over the world. It has an impact on both traditional and digital currencies. Strict anti-money laundering (AML) laws have been enacted to prevent the laundering of illicit funds through the trading of cryptocurrencies and the use of custodial services in an effort to combat the financing of criminal activities. Different jurisdictions have taken different approaches to enforcing the AML framework.³⁴ Due to the borderless nature of crypto transactions, crypto companies are now tasked to comply with the AML laws because it is feared that they will experience the complexity and end-user friction. International norms for anti-money-laundering legislation are established by the Financial Action Task Force (FATF). The FATF issued anti-money-laundering guidelines for cryptocurrencies in 2014. Policymakers took rapid action in FATF member states. The European Commission and dozens of other regulatory organisations have legally codified most of the FATF cryptocurrency recommendations made in the AML recommendations.

The responsibility obligation is then placed on cryptocurrency exchanges, stablecoin issuers, and, on an individual basis, some of the DeFi protocols and the NFT marketplace. The Financial Action Task Force (FATF) refers to them as virtual asset service providers (VASPs). Know-your-customer (KYC) checks must be required, and suspicious activity must be monitored regularly by the VASP Compliance Officers to prevent fraudulent transactions that could be linked to money laundering and the financing of terrorist organisations. In addition, the VASPs must report suspicious activity to relevant regulators and agencies, which then analyse the flow of funds and trace the unlawful activity to real-world identifiers using a variety of tools, including blockchain analytics.³⁵

In June 2014, the FATF released a report highlighting some areas of concern about cryptocurrencies³⁶ (1) a high level of anonymity: Using cryptocurrencies, as opposed to more conventional cashless payment methods, can provide users with greater privacy. On the internet, users can engage in currency trading using virtual currencies. They are generally characterised by a customer relationship that does not involve face-to-face interaction, and they may allow anonymous funding. They also permit anonymous transfers if the sender and the recipient cannot be identified sufficiently. (2) Transactions that take place across international borders: Your AML/CTF risk increases when you can conduct business in any jurisdiction in the world. It makes surveillance and enforcement more difficult. (3) The absence of centralised oversight: Although authorities may target individual exchangers for client information that exchangers may collect, law enforcement cannot conduct investigations or seize assets against a single location or central entity (administrator). Therefore, virtual currencies offer anonymity that is not possible with conventional credit and debit cards or with more traditional online payment systems.

³⁴ Ismail Alarab, Simant Prakoonwit, and Mohamed Ikbal Nacer, “Competence of Graph Convolutional Networks for Anti-Money Laundering in Bitcoin Blockchain,” *ACM International Conference Proceeding Series*, June 2020, 23–27, <https://doi.org/10.1145/3409073.3409080>.

³⁵ Financial Crime Academy Editorial, “What Is Anti-Money Laundering?,” Financial Crime Academy, 2020.

³⁶ “Virtual Currencies Key Definitions and Potential AML/CFT Risks,” 2014.

The United States Legal Frameworks on Cryptocurrency

The cryptocurrency phenomenon is still a blurry area of law, even for the United States parliament. In early 2022, the United States House of Representatives Financial Services Commission held a special session to understand how to regulate the rapid growth of this digital asset transaction. The special session brought together the chief executives of six cryptocurrency companies. They were asked to explain the opportunities and challenges of cryptocurrencies. Digital assets generated with blockchain technology do not yet have a comprehensive regulatory framework at the United States federal level.³⁷ This fact should be a serious concern for legal practitioners in Indonesia and countries in Southeast Asia to think about how the legal system is ready to respond to cryptocurrency as the future of the digital ecosystem.³⁸ evaluate the factor of reducing the use of cryptocurrencies in money laundering, stating price fluctuations as the main reason. The volatility of cryptocurrency price fluctuations can be explained by the fact that human factors, such as fluctuations in the international market, fraud, technical maturity, and other reasons leading to unstable developers, cause the instability of the cryptocurrency base system. They are eventually abandoned in the development process or during trading.³⁹ In addition, ⁴⁰ explains that converting cryptocurrency to fiat currency is quite a complicated process. ⁴¹ point out that the internet, which is not available in some geographic areas where terrorist groups are hiding, raises concerns among terrorist group leaders about exercising control over fiat currency entrusted to other militants.

The Internal Revenue Service (IRS) in America officially stipulates virtual currency as property, so any exchange profit or loss will be taxed. The regulation is contained in the United States Treasury Department⁴² as follows:

“The Internal Revenue Service is aware that virtual currency may be used to pay for goods or services or held for investment. Virtual currency is a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value. In some environments, it operates like a real currency – i.e., the coin and paper money of the United States or of any other country that is designated as legal tender, circulates, and is customarily used and accepted as a medium of exchange in the country of issuance – but it does not have legal tender status in any jurisdiction.”

In 2013, the Financial Criminal Enforcement Network (FinCEN) issued a notice requiring every exchange and rejection of virtual currency to comply with the Bank Secrecy Act (BSA).⁴³ It must be registered as a Money Services Business (MSB). This regulation aims to prevent the misuse of virtual currencies as a medium for money laundering, illicit financing activities, and evading taxes. The regulation also states that FinCen recognises bitcoin as a

³⁷ Raphael Auer and David Tercero-Lucas, "Distrust or Speculation? The Socioeconomic Drivers of US Cryptocurrency Investments," *Journal of Financial Stability*, August 2022, 101066, <https://doi.org/10.1016/J.JFS.2022.101066>.

³⁸ Wang & Zhu (2022)

³⁹ (Wang & Zhu, 2022)

⁴⁰ Krishnan (2020)

⁴¹ Carroll & Windle (2018)

⁴² Internal Revenue Service, "Internal Revenue Bulletin: 2014-18 | Internal Revenue Service," 2014.

⁴³ George Iosifidis et al., "Enabling Crowd-Sourced Mobile Internet Access," in *IEEE INFOCOM 2014 - IEEE Conference on Computer Communications* (IEEE, 2014), 451–59, <https://doi.org/10.1109/INFOCOM.2014.6847968>.

medium of exchange that operates like a currency in certain communities, but it does not have all the attributes of an official United States currency.⁴⁴ Despite the obligation to comply with the BSA, virtual currencies are still used for illegal purposes due to their pseudonymity and decentralised system. Therefore, the Government Accountability Office (GAO) notes the need for global cooperation to tackle such unlawful acts.

The Securities and Exchange Commission (SEC) has also proposed a bill to regulate virtual currencies used as securities and prevent illegal activities involving securities through virtual currencies. The bill further stipulates that virtual currency equals money. Therefore, investing money (including virtual currency) in tokens in the hope of profiting from the managerial efforts of others is considered a security issue.

The United States continues to make headway in passing cryptocurrency-related legislation at the federal level, even though finding a uniform legal approach across the states can be challenging. The Financial Crimes Enforcement Network, also known as FinCEN, does not regard cryptocurrencies as legitimate forms of currency. However, since cryptocurrency tokens are "other value that substitutes for currency," it does consider cryptocurrency exchanges to be money transmitters. The Internal Revenue Service (IRS) does not recognise cryptocurrencies as valid forms of currency in any jurisdiction.⁴⁵ Instead, it defines it as "a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value."

Exchanges of cryptocurrencies are legal in the US and are regulated by the Bank Secrecy Act (BSA). In practice, companies that help people exchange cryptocurrency must register with FinCEN, set up an AML/CFT program, keep the right records, and report to the government. The US Securities and Exchange Commission (SEC) has said that it thinks of cryptocurrencies as securities and applies all securities laws to digital wallets and exchanges. On the other hand, the Commodities Futures Trading Commission (CFTC) has taken a friendlier "do no harm" approach by calling Bitcoin a commodity and letting derivatives of cryptocurrencies trade publicly.

In response to the FATF's June 2019 guidelines, FINCEN made it clear that it expects cryptocurrency exchanges to follow the "Travel Rule" and collect and share information about the people who send and receive cryptocurrency. It puts virtual currency exchanges in the same regulatory category as traditional money transmitters and applies all the same rules, including those in the Bank Secrecy Act,⁴⁶ which has its version of the Travel Rule. In October 2020, FINCEN put out a Notice of Proposed Rulemaking (NPRM) about changes to the Travel Rule. This meant that cryptocurrency exchanges would have to follow new rules.⁴⁷

⁴⁴ Asya Passinsky, "Should Bitcoin Be Classified as Money?," *Journal of Social Ontology* 6, no. 2 (May 2021): 281–92, <https://doi.org/10.1515/jso-2020-0022>.

⁴⁵ Rain Xie, "Why China Had to Ban Cryptocurrency, but the US Did Not: A Comparative Analysis of Regulations on Crypto-Markets between the US and China," *Wash. U. Global Stud. L. Rev.* 18 (2019): 457.

⁴⁶ Georgios Pavlidis, "International Regulation of Virtual Assets under FATF's New Standards," *Journal of Investment Compliance*, 2020, 8.

⁴⁷ Salami, Iwa. "Decentralised finance: the case for a holistic approach to regulating the crypto industry." Salami, I.(2020)'Decentralised Finance: The Case for a Holistic Approach to Regulating the Crypto Industry', *Journal of International Banking and Financial Law* 35, no. 7 (2020): 496-497.

The US Treasury has said that crypto regulations are needed immediately to stop international and domestic crime. In December 2020, FinCEN proposed a new rule for cryptocurrency exchanges and wallets requiring them to collect data. The rule is expected to go into effect in the fall of 2022. It would require exchanges to file suspicious activity reports (SAR) for transactions over \$10,000 and wallet owners to identify themselves when sending more than \$3,000 in a single transaction.

The Justice Department is still talking with the SEC and CFTC about how to regulate cryptocurrencies in the future. This ensures that consumers are protected and that regulatory oversight is more efficient. In 2021, the Biden administration focused on stablecoins to deal with the risk that the value of the tokens would rise. Later that year, the President's Working Group on Financial Markets came out with a list of suggestions, one of which was that new laws were needed. Congress also talked about the status of cryptocurrency service providers in 2021. New rules were added to the infrastructure bill passed by the Biden administration. Under the new rules, cryptocurrency exchanges are seen as brokers and must follow the AML/CFT requirements for reporting and keeping records.

How are crypto assets taxed in the US?

The IRS sees cryptocurrency as property; cryptocurrency transactions are taxed like any other property type. Even though it is not the most exciting part of investing in crypto, it needs to be known how taxes work on crypto. Even though cryptocurrencies are new, the IRS is working hard to ensure people pay their taxes. There are many ways to end up owing taxes on crypto, and even trading one cryptocurrency for another can be a taxable event. Taxes must also be purchased if the profit comes from non-fungible tokens or other digital assets (NFTs).⁴⁸ If you keep good records, it can be easier to figure out your gains and losses when it comes time to pay your taxes. Moreover, if you do not pay your crypto taxes, even if it was an honest mistake, you might have to pay many fines.

You must pay taxes when you sell, trade, or get rid of cryptocurrency and make money. For example, if you buy \$1,000 worth of cryptocurrency and then sell it for \$1,500, you need to report and pay taxes on the \$500 profit. You can write that loss off on your taxes if you sell cryptocurrency and lose money. Buying cryptocurrency on its own is not taxable. Even if the value of the cryptocurrency goes up, you do not have to pay taxes if you buy and keep it. First, there needs to be something taxable, like selling the cryptocurrency.

Cryptocurrency Regulations in Indonesia: From BI Regulations, BAPPEBTI, to the Indonesian Ulema Council

Indonesia has different legal conditions. According to the BI. Regulation Number 20/6/PBI/2018, electronic money must fulfil some elements. Firstly, it is issued based on the value of money that was deposited in advance to the issuer. Secondly, the value of money is stored electronically in a media server or chip. Thirdly, the value of electronic money managed by the issuer is not a deposit, as referred to in the law on banking. The three

⁴⁸ Cotler, Brett. "Tokenised and Non-tokenised Assets: Legal Considerations." *The Emerald Handbook on Cryptoassets: Investment Opportunities and Challenges* (2023): 249.

elements are elaborated to answer whether the digital currency can be classified as a currency. Cryptocurrencies with various variants of names still need to be assessed as currencies. The risks believed to have yet to be resolved the potential for exploitation by money launderers and fluctuating values that the state cannot control.

Juridically, Indonesia has regulations on crypto. However, they are still in their normative provisions. They still conflict perspectives on valuing crypto money. Thus far, the Government of Indonesia has relied on the BI. Regulations and Minister of Trade through the Bappebti. The existing BI. Regulations never use the term cryptocurrency, crypto money, or cryptocurrency. In other regulations, such as the Bappebti's, the crypto asset is recognised as a commodity in the digital asset sector (Tables 1 and 2).

Table 1. *BI Regulations on Cryptocurrencies*

Bank Indonesia	Status
The BI Regulation Number 18/40/PBI/2016 on the Implementation of Payment Transaction Processing	Valid until Jul 1, 2022
The BI Regulation Number 19/12/PBI/2017 on the Implementation of Financial Technology	Valid until Jul 1, 2022
The BI Regulation Number 20/6/PBI/2018 on the Electronic Money	Valid until Jul 1, 2022
The BI Regulation Number 23/6/PBI/2021 on the Payment Service Providers	Valid until Jul 1, 2022

Table 2. *Several Regulations of the Minister of Trade/Bappebti on Cryptocurrencies*

Ministry of Trade/Bappebti	Status
The Regulation of the Minister of Trade of the Republic of Indonesia Number 89 of 2018 on the General Policy for the Implementation of Crypto Asset Futures Trading	Applicable
The Regulation of the Commodity Futures Trading Supervisory Agency Number 3 of 2019 on the Commodities That Can Be Subjected to Futures Contracts, Sharia Derivative Contracts, and/or Other Derivative Contracts Traded on the Stock Exchange	Applicable
The Regulation of the Commodity Futures Trading Supervisory Agency Number 5 of 2019 in Conjunction with Number 9 of 2019 Jo. Number 2 of 2020 in Conjunction with Number 3 of 2020 on the Technical Provisions for the Implementation of the Physical Market for Crypto Assets on the Futures Exchange	Revoked
The Regulation of the Commodity Futures Trading Supervisory Agency Number 7 of 2020 on the Stipulation of the List of Crypto Assets that can be traded in the Crypto Asset Physical Market	Applicable
The Regulation of the Commodity Futures Trading Supervisory Agency Number 8 of 2021 on the Guidelines for the Implementation of Trading in the Physical Market of Crypto Assets on the Futures Exchange	Applicable

Analysis of BI Regulations, BAPPEBTI, and Fatwa of the Indonesian Ulema Council

The BI Regulation, Number 18/40/PBI/2016 on the Implementation of Payment Transaction Processing virtual currency payment processing by payment system service providers are forbidden by Article 34. The explanation for Article 34 states that Bitcoin, Blackcoin, Dash, Litecoin, Ripple, and Ven are all examples of virtual currencies. These are digital currencies issued by parties other than the monetary authority and obtained through mining, purchasing, or transferring rewards. Money only available electronically does not qualify as “virtual currency.”

The BI Regulation Number 19/12/PBI/2017 on the Implementation of Financial Technology Article 8, paragraph 2 prohibits Financial Technology operators from conducting payment system activities using virtual currency. The explanation of this article states that

virtual currency is digital money issued by parties other than the monetary authority obtained by mining, purchasing, or transferring gifts (rewards). The payment system uses virtual currency because virtual currency is prohibited. After all, it is not legal tender in Indonesia.

The BI Regulation Number 20/6/PBI/2018 on Electronic Money Article 62 prohibits Electronic Money providers from receiving, using, linking, and/or processing electronic payment transactions using virtual currency. The explanatory section of Article 34 states that virtual currency is digital money issued by parties other than the monetary authority obtained by mining, purchasing, or transferring rewards, including Bitcoin, Blackcoin, Dash, Litecoin, Ripple, and Ven.⁴⁹

The BI Regulation Number 23/6/PBI/2021 on the Payment Service Providers. Articles 202 to 204 state that there are several prohibitions regarding virtual currency. Article 204 stipulates that virtual currency is digital money issued by a party other than the monetary authority with several characteristics: (1) stated in one unit; (2) using cryptography and distributed ledgers or other up-to-date technologies to regulate the creation of new units and their transaction processing mechanisms; (3) used for payment or fulfilment of economic activities; (4) able to be transferred, stored or traded electronically.

Regulations of the Minister of Trade/BAPPEBTI

The Commodity Futures Trading Supervisory Agency Regulation Number 3 of 2019 on the Commodities that Can Be Subject to Futures Contracts, Sharia Derivative Contracts, and/or Other Derivative Contracts Traded in Stock Exchange and the Minister of Trade of the Republic of Indonesia Regulation Number 89 of 2018 on the General Policy for the Implementation of Crypto Asset Futures Trading. The phrase "crypto asset" is not defined. Cryptocurrencies are defined as commodities in Article 1, so they can be the basis of futures contracts on the Futures Exchange. Futures contracts, Sharia derivatives, and other stock exchange-traded derivatives may be issued on a wide variety of commodities under new rules published by the Commodity Futures Trading Supervisory Agency on Jan 3, 2019.⁵⁰

Article 1 number 7 defines crypto assets as digital assets that use cryptography, peer-to-peer networks, and distributed ledgers to control how many units can be issued, verify that they have been spent, and keep their transactions private and immune to third-party interference.

The Regulation of the Commodity Futures Trading Supervisory Agency Number 7 of 2020 on the Stipulation of the List of Crypto Assets that can be traded in the Crypto Asset Physical Market Appendix II of the regulation mentions 229 types of crypto assets that can be traded on the physical crypto asset market. The general principles and criteria for determining crypto assets are listed in appendix 1.

The Regulation of the Commodity Futures Trading Supervisory Agency Number 8 of 2021 on the Guidelines for the Implementation of Trading in the Physical Market of Crypto

⁴⁹ I Gusti Kade Budhi, *Bitcoin: Potensi Tindak Kejahatan Dan Pertanggungjawaban Pidana* (Depok: Rajagrafindo Persada, 2021).

⁵⁰ Taniady et al., "Crypto Asset-Trade Resilience During The Covid-19 Pandemic In Indonesia," *Jurnal Jurisprudence* 11, no. 1 (2022): 31–32.

Assets on the Futures Exchange. This regulation revokes the Regulation of the Commodity Futures Trading Supervisory Agency Number 5 of 2019. Article 1 number 7 explains that crypto assets are intangible commodities in digital form, using cryptography, information technology networks, and distributed ledgers to regulate the creation of new units, verify transactions, and secure transactions without interference from other parties.

Indonesian Ulema Council (MUI)

In addition to being mentioned in the BI Regulations and Bappebti, the legal status of cryptocurrency is also regulated in the *fatwa* of the Indonesian Ulema Council (MUI –*Majelis Ulama Indonesia*). The main partner of the Ministry of Religion stipulates in the Fatwa of Commission B on Contemporary Jurisprudence Issues for the Ijtima' Ulama Material Commission VII of the 2021 All-Indonesian Fatwa Commission. The MUI defines cryptocurrency as virtual currency. The MUI recognises the legality of using cryptocurrencies and the law on their use in business transactions according to Islamic law, which still has pros and cons (*khilafiyah*) among economists and scholars. Three provisions of Islamic law issued by the MUI regarding cryptocurrencies are as follows.⁵¹

First, cryptocurrency functions as a medium of exchange. It has a guarantor asset that applies the law of exchange. Therefore, the law is allowed (*halal*) as long as it fulfils some requirements.⁵² Firstly, it is not for speculation. Secondly, there is a need for transactions or just in case (savings). Thirdly, if the transaction is made against a parallel currency, the value must be the same and in cash. Fourthly, for different types, it must be done at the exchange rate prevailing when the transaction is made and in cash. Fifthly, it obtains permission from an authoritative party.

Second, cryptocurrencies that function as *sil'ah* (commodity assets) must meet two conditions: the value of benefits and the existence of a guarantor asset.

Third, cryptocurrencies that do not meet the requirements in the first and second functions are illegal (*haram*). The MUI even recommends that the government ban speculative cryptocurrencies more directed at *maisir* (gambling) to protect the public.

The official opinion of the BI as the Central Bank to date is consistent with the Law Number 7 of 2011 on the currency. Normatively, the law has limited the legality of currency. Money issued by the State of Indonesia and every transaction that has the purpose of payment, other obligations that must be fulfilled with money, or other financial transactions carried out in the Territory of the Unitary State of the Republic of Indonesia must use rupiah. The BI's official stance has been clear since 2018. the BI explains that cryptocurrency is an innovative payment method.⁵³ Although the BI recognises cryptocurrency as a financial technology product, It prohibits its use in the payment system. For various reasons, virtual currencies that are outside the reach of current authorities appear worrisome to regulators.

⁵¹ Apandi et al., "Legalitas Dan Pandangan Majelis Ulama Indonesia Terhadap Bitcoin Sebagai Alat Transaksi," *Reslaj: Religion Education Social Laa Roiba Journal* 4, no. 2 (2022): 311–12.

⁵² Nafis Alam, Lokesh Gupta, and Abdolhossein Zamani, "Cryptocurrency and Islamic Finance," in *Fintech and Islamic Finance: Digitalization, Development and Disruption*, 2019, 101.

⁵³ Luqman Nurhisam, "Bitcoin Dalam Kacamata Hukum Islam," *Ar-Raniry, International Journal of Islamic Studies* 4, no. 1 (2020): 167.

Nevertheless, Brian Brooks, chairman of the Blockchain technology company Bitfury, states at *the House Committee on Financial Services* session mentions an argument that deserves consideration. The thing that might make people worry about crypto is just because it is something new. Like the fear of the United States Advocates Association when it banned its members from working using e-mail because they thought documents could be spread outside the mysterious computer network.⁵⁴

Use of Cryptocurrencies in International Transactions: Gap of Indonesian Regulations

The Indonesian government requires the use of rupiah as the only means of payment. This provision is contained in Article 21 (1) of the Law Number 7 of 2011 and Article 2 (1) of the BI. Regulation Number 17/3/PBI/2015. Based on the regulations, currencies other than the rupiah, including cryptocurrencies, are not recognised as legal tender for transactions in the territory of Indonesia. However, Article 21 (2) of the Law also mentions that the mandatory use of the rupiah currency does not apply to (1) certain transactions in the context of implementing the state budget of revenues and expenditures; (2) receiving or giving grants from or abroad; (3) international trade transactions; (4) deposits in banks in foreign currency; and (5) international financing transactions;

The non-compulsory use of *rupiah* in international trade transactions (point c) can be a gap for users to use cryptocurrency as a means of payment. A person can buy goods or services from abroad using cryptocurrencies because cryptocurrency transactions do not require a third-party intermediary.⁵⁵ In addition, the use of cryptocurrency as a payment or exchange can also occur if it refers to the meaning of exchange in Article 1541 of the Indonesian Civil Code (*KUHPerdata*). Article 1541 of the Civil Code states that exchange is an agreement in which both parties bind themselves to give each other an item reciprocally in exchange for another item. The article contains the words that *both parties bind themselves to give each other an item*. It means that the exchange of cryptocurrency for goods or services is a legal act. Article 1320 of the Civil Code stipulates that an exchange agreement is valid if it fulfils four conditions: the agreement of both parties, the skills of the parties, a certain matter, and a lawful cause.

There are also other legal loopholes contained in regulations regarding cryptocurrencies. These deficiencies can cause losses not only to crypto-listed companies but also investors. The central bank authority strictly prohibits using cryptocurrency as a means of payment. The Ministry of Trade, through CoFTRA, has approved cryptocurrency as a digital asset included in trading commodities. The BI will issue a Central Bank Digital Currency as a blockchain-based virtual currency whose circulation is directly supervised by the BI.⁵⁶ The existence of

⁵⁴ Ujan Mukhopadhyay et al., “A Brief Survey of Cryptocurrency Systems,” in *2016 14th Annual Conference on Privacy, Security and Trust (PST)* (IEEE, 2016), 745–52, <https://doi.org/10.1109/PST.2016.7906988>.

⁵⁵ Rindia Fanny Kusumaningtyas and Raynaldo Giovanni De Rozari, “Tinjauan Yuridis Kepastian Hukum Penggunaan Virtual Currency Dalam Transaksi Elektronik (Ditinjau Dari Undang-Undang Nomor 7 Tahun 2011 Tentang Mata Uang),” *Jurnal Penelitian Hukum De Jure* 19, no. 3 (September 2019): 339–48, <https://doi.org/10.30641/DEJURE.2019.V19.339-348>.

⁵⁶ Tresnawati Tresnawati and Angelina Marlina Fatmawati, “Blockchain-Based Smart Contract: Advancing Digital Consumer Protection and Preventing Private International Law E-Commerce Cases,” *Yustisia Jurnal Hukum* 10, no. 3 (Dec 23, 2021): 360–61, <https://doi.org/10.20961/yustisia.v10i3.54891>.

CDBC and non-banned cryptocurrency activities will create a dual system in the monetary system in Indonesia.

One of the government's main goals in making regulations related to crypto is to get capital gains tax as one of the state revenues. Consequently, the government must realise that collecting taxes from crypto transactions means that the government acknowledges that crypto asset transactions are legal. The speculative nature of crypto will have a long impact that can cause investors to lose. The state recognises and provides facilities for assets without state control over price increases and decreases. The research also shows that assessing CoFTRA Regulations regarding crypto assets needs to be stronger. According to him, the regulation does not regulate the procedure for withdrawing taxes from crypto assets even though the potential of the crypto asset market in Indonesia is very large.

The Commodity Futures Trading Regulatory Agency (Bappebti) Number 5 of 2019 on The Technical Provisions for Organising the Physical Crypto Asset Market on the Futures Exchange, article 3 paragraph 2 letter e, states that: "*Crypto assets can be traded if they have economic benefits, such as taxation, growing the informatics industry and competence of experts in the field of Informatics*". The regulation does not regulate the procedure for withdrawing crypto asset taxes. There are two drawbacks to this rule. *First*, it needs to be clarified what type of tax is imposed, whether it includes income tax, value-added tax or goods and services tax. *Second*, it needs to be integrated with the General Taxation Provisions.⁵⁷ The basic theory of taxation states that tax laws must be regulated through legislative institutions because if taxes are withdrawn without representation, the tax can be said not to meet the material or formal requirements for withdrawing it.

Third, Law Number 8 of 2010 concerning the Prevention and Eradication of Money Laundering Crimes also does not mention using crypto assets as a means of money laundering. In the context of money laundering, technology with a financial landscape such as crypto can facilitate this action.⁵⁸ The movement of money to online banking and the technology that allows remote desktops has made manoeuvring and transferring funds from account to account much more popular for money launderers. Based on this, crypto is a means of financial technology that can be at risk of crime. In crypto transactions, strong privacy protection is designed well. The cryptosystem will not reveal the identity of the individuals or groups involved. In contrast, crypto users can only be identified by a numeric code that is sometimes substituted with several pseudonyms.

From Know Your Customer (KYC) to Pseudonymity Search

Following the latest FATF guidance, crypto exchanges should adopt a risk-based approach to compliance. In this case, the CDD obligation in the form of KYC is applied as the first step to identifying customers. This step is taken to ensure that each user's identity and documents/data are genuine before transacting. It ensures that the source of the funds is not used in money laundering. In addition, if there are transactions of more than USD 1000 from

⁵⁷ Bakri et al., "PPh Atau PPN: Menakar Kebijakan Perpajakan Terhadap Cryptocurrency Di Indonesia," *Eqien-Jurnal Ekonomi Dan Bisnis* 9, no. 1 (2022): 208, <https://doi.org/10.34308/eqien.v9i1.327>.

⁵⁸ Gayung Utami and Pudji Astuti, "Analisis Yuridis Penggunaan Cryptocurrency (Bitcoin) Sebagai Sarana Tindak Pidana Pencucian Uang," *Novum: Jurnal Hukum* 01, no. 01 (2012): 144–58.

cryptocurrency to fiat currency, then the VASP must check it. However, money laundering actors will be smarter, and perhaps if they wanted to send as much, the amount would be divided by two or three to avoid detection.⁵⁹

The anonymity of cryptocurrencies is damaging in cryptocurrencies because the correct term for cryptocurrencies is pseudonymity.⁶⁰ It is safe to say that most cryptocurrencies are pseudonymous rather than anonymous, as recent research has shown that real identities can be linked to the public address of the cryptocurrency owner to the transaction process that uses it.⁶¹ Pseudonymity in cryptocurrencies is disguising (making a pseudonym) the owner by only displaying the address.⁶² The sender and receiver use that address to transact cryptocurrency. All crypto transactions will be recorded in the blockchain. These transactions are also open and monitored by the public. However, the public cannot find out the information of the address owner who is transacting.⁶³ In particular, law enforcement officials will need more human resources to analyse crypto data and collect evidence. Therefore, law enforcement officials require (1) an understanding of pseudonymity tracking methods that experts continuously develop; and 2) an understanding of any developments in cryptocurrencies.

Passive detection is a method to detect the identity of cryptocurrency users through centralised services, such as exchanges and virtual currency wallets.⁶⁴ Historically, the data in network file-access protocols on local area networks, messages are passed openly. However, these protocols are developing into encrypted forms due to the growing popularity of public cloud services on the internet and the significance of confidentiality in network transactions.⁶⁵ As a result, a traffic monitor today is unable to gather precise information on disk-access activities, and detection systems that rely on such information do not function as intended. According to multiple survey studies, no program can now identify ransomware based on encrypted network file-sharing activity.

Architectures that extract signs from monitoring the actions of any software running at the user's host are replacing static preventive approaches. The most desired feature is early detection with minimal damage because these monitoring indicators enable the discovery of

⁵⁹ Zeynab Malakoutikhah, "Financial Exclusion as a Consequence of Counter-Terrorism Financing," *Journal of Financial Crime* 27, no. 2 (April 2020): 663–82, <https://doi.org/10.1108/JFC-09-2019-0121/FULL/XML>; Maryna Utkina, Roman Samsin, and Maksym Pochtovyi, "Financial Intelligence (Monitoring) of the Transactions with Virtual Assets: New Legislation and Best Practices of Foreign Countries," *Journal of Money Laundering Control* ahead-of-p, no. ahead-of-print (2022), <https://doi.org/10.1108/JMLC-12-2021-0136/FULL/XML>.

⁶⁰ Alex Biryukov and Sergei Tikhomirov, "Deanonymization and Linkability of Cryptocurrency Transactions Based on Network Analysis," in *2019 IEEE European Symposium on Security and Privacy (EuroS&P)* (IEEE, 2019), 172–84, <https://doi.org/10.1109/EuroSP.2019.00022>.

⁶¹ Hulya Boydas Hazar, *Anonymity in Cryptocurrencies*, *Eurasian Economic Perspectives*, 2020, https://doi.org/10.1007/978-3-030-53536-0_12.

⁶² Magizov Rustem et al., "Problems of Criminal Responsibility for Illegal Circulation of Cryptocurrency," in *2019 12th International Conference on Developments in ESystems Engineering (DeSE)* (IEEE, 2019), 996–99, <https://doi.org/10.1109/DeSE.2019.00185>.

⁶³ Grinberg, "Bitcoin: An Innovative Alternative Digital Currency by Reuben Grinberg :: SSRN," *Hastings Science & Technology Law Journal*, 4 (2014): 160.

⁶⁴ Rustem et al., "Problems of Criminal Responsibility for Illegal Circulation of Cryptocurrency."

⁶⁵ Eduardo Berrueta et al., "Crypto-Ransomware Detection Using Machine Learning Models in File-Sharing Network Scenarios with Encrypted Traffic," *Expert Systems with Applications* 209 (December 2022), <https://doi.org/10.1016/J.ESWA.2022.118299>.

crypto activity while it is likely already encrypting files.⁶⁶ Reid and Harrigan are trying to contextualise blockchain with publicly available data.⁶⁷ They managed to detect that information and then used it to map transactions between cryptocurrency addresses and track e-mail addresses linked to specific wallets or addresses.

The method offered by Reid and Harrigan can be applied to cryptocurrencies, such as bitcoin. However, several cryptocurrency developers have responded to the increase in pseudonymity tracking methods by developing cryptocurrencies with higher anonymity, such as Zerocoin.⁶⁸ Zerocoin provides high confidentiality, including hiding user identities, transaction amounts, and balances. The development of cryptocurrencies such as Zerocoin has been criticised for hampering accountability, regulation and oversight.⁶⁹

Other than the passive detection method, direct crypto transactions may be easier to track through endpoint identification. Still, those who need additional protection against being identified can increase anonymity through crypto blends. The crypto mix occurs in the middle of a transaction, so when someone tries to trace the path of a bitcoin transaction, the transaction can be obfuscated. An example of an intermediary providing such a service is “Bitlaundry.”

CONCLUSION

Cryptocurrency regulations in Indonesia are currently being carefully considered in setting regulations. As with other countries, Indonesia also faces challenges related to pseudonymity and the decentralisation of cryptocurrency. Therefore, it is necessary to have the idea of creating a cryptocurrency that is able to cooperate with government authorities as a third party. The United States regulates cryptocurrency through several institutions such as the IRS and FinCen. The IRS says cryptocurrencies are property. Thus, the exchange is taxed. FinCen recognises cryptocurrencies as a means of exchange that is recognised by certain communities only, but it does not have the attributes of an official US currency. In Indonesia, besides facing the problem of pseudonymity, the process of cashing out crypto asset taxes is not governed by the regulation. The rule does have two major flaws. The first issue is that it is unclear what kinds of taxes are being levied. These could be income taxes, sales taxes, or some combination of the three. The next step is to formalise its inclusion in the General Taxation Provisions. Indonesian Anti-Money Laundering Law also does not mention using crypto assets as a means of money laundering. In the context of money laundering, technology with a financial landscape such as crypto can facilitate this action.

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⁶⁶ Berrueta et al.

⁶⁷ Fergal Reid and Martin Harrigan, “An Analysis of Anonymity in the Bitcoin System,” *Security and Privacy in Social Networks*, January 2013, 197–223, https://doi.org/10.1007/978-1-4614-4139-7_10/COVER.

⁶⁸ Rustem et al., “Problems of Criminal Responsibility for Illegal Circulation of Cryptocurrency.”

⁶⁹ Eli Ben Sasson et al., “Zerocash: Decentralised Anonymous Payments from Bitcoin,” in *2014 IEEE Symposium on Security and Privacy* (IEEE, 2014), 459–74, <https://doi.org/10.1109/SP.2014.36>.

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