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Juridical Analysis of Fiduciary Security over Crypto Assets: Reconstructing Possession, Enforcement Mechanisms, and the Urgency of a Central Custodian in Ensuring Certainty of Collateral Value

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Abstract

The development of crypto assets as part of the digital economic transformation has generated new legal implications within Indonesia's secured transactions framework, particularly concerning their potential use as objects of fiduciary security. This study aims to analyze the mechanisms of possession and execution of fiduciary security over crypto assets under the Indonesian legal system and to examine the urgency of establishing a central custodian to ensure legal certainty and the stability of the collateral value. This research employs a normative juridical method using statutory and conceptual approaches. Legal materials were obtained through library research on legislation, legal literature, and previous studies, which were analyzed qualitatively and prescriptively. The findings indicate that crypto assets juridically satisfy the characteristics of intangible movable property possessing economic value and, therefore, may theoretically serve as objects of fiduciary security. However, the existing fiduciary security regime has not adequately accommodated the decentralized nature of blockchain technology, particularly with regard to digital possession based on private keys, mechanisms for digital seizure, and the execution of security interests over crypto assets. Furthermore, the high volatility of crypto asset values and the absence of a centralized controlling authority create risks to collateral value certainty and creditor protection. Accordingly, legal reconstruction is required through regulatory reform and the establishment of a central custodian as a digital asset custodial institution responsible for ensuring control, supervision, value stability, and the effective execution of fiduciary security involving crypto assets.

KEYWORDS
Fiduciary Security, Crypto Assets, Central Custodian.

Introduction

The rapid advancement of digital technology has given rise to various forms of assets that were previously unknown within the framework of classical property law[1]. One of the most significant developments in this regard is the emergence of crypto assets. In Indonesia, crypto assets have been recognized as commodities that may be traded through futures trading mechanisms, as regulated under various provisions issued by the Commodity Futures Trading Regulatory Agency (Bappebti)[2]. Such recognition demonstrates that crypto assets are no longer perceived merely as speculative instruments but have acquired economic value that can be utilized in a wide range of economic activities, including their potential use as collateral in financing arrangements.

The requirement for collateral possessing economic value constitutes an essential element in ensuring the certainty of debt repayment by debtors to creditors. One of the most commonly utilized security institutions in Indonesian financing practices is fiduciary security, as regulated under Law

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[1] Galang Fauzan Prawinda, Trisadini Prasastinah Usanti, and Ghansham Anand, "Kekosongan Pengaturan Hukum Benda Virtual Dalam Hukum Perdata Indonesia Dan Dampaknya Terhadap Kepastian Hukum Pemegang Hak," *Jurnal Impresi Indonesia (JII)* 5, no. 4 (2026): 1796–1809.
[2] Rivaldo C. A. Tungka, Jemmy Sondakh, and Rudolf S. Mamengko, "Tinjauan Hukum Cryptocurrency Sebagai Alat Pertukaran Di Indonesia," *Lex Privatum* 15, no. 3 (2025).

Number 42 of 1999 concerning Fiduciary Security[3] . The fiduciary security regime is fundamentally built upon the classical assumption that collateral objects possess relatively stable value, a clear structure of possession and control, and an execution mechanism capable of being implemented in a measurable and predictable manner upon the debtor's default. These assumptions serve as a fundamental basis for ensuring effective legal protection for creditors through the principles of droit de suite and droit de préférence[4].

Legal issues arise when crypto assets are positioned as collateral objects within the fiduciary security framework. The primary characteristics of crypto assets include their highly volatile nature, digital control through private keys, and the absence of a tangible physical form[5] . Extreme price fluctuations may result in substantial depreciation of collateral value, thereby creating significant challenges within the legal framework governing security rights over property[6] . Furthermore, the system of control over crypto assets, which depends upon possession of private keys, does not fully correspond with the traditional concept of possession (bezit) in property law, which has historically served as the legal basis for the creation, transfer, and enforcement of rights over secured assets[7] .

On the other hand, the legal regime governing crypto asset trading and the legal framework governing security rights over property operate in

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3 Aura Amelia Nurma, "Analisis Yuridis Pelaksanaan Jaminan Fidusia Dalam Perjanjian Kredit Pada PT Bank Negara Indonesia (Persero) Tbk Dihubungkan Dengan Undang-Undang Nomor 42 Tahun 1999 Tentang Jaminan Fidusia Skripsi"(SekolahTinggiHukumBandung,2020),

4 Stefanus Snak, Kelvin Eka Putra Banu, and Stefanus Don Rade, "Tinjauan Yuridis Terhadap Eksekusi Jaminan Fidusia Dalam Kredit Bermasalah Ditinjau Dari Undang-Undang Fidusia Nomor 42 Tahun 1999," *JURRISH: Jurnal Riset Rumpun Ilmu Sosial, Politik Dan Humaniora* 4, no. 2 (2025).

5 Firdaus Fika Ananda and Irsan, "Pengaruh Perkembangan Cryptocurrency Sebagai Objek Harta Warisan Perspektif Ulama Kontemporer," *USRAH: Jurnal Hukum Keluarga Islam* 6, no. July (2025): 30–51.

6 Fid'a Rosin Muslim, "Kualifikasi Hukum Crypto Asset Sebagai Benda Tidak Berwujud Dalam Sistem Hukum," *Jurnal Multilingual* 5, no. 1 (2025): 494–506.

7 Nadela Ramadhanty et al., "Transformasi Konsep Kebendaan Dalam Era Digital : Dekonstruksi Status Hukum Aset Kripto Sebagai Objek Perdata Modern Di Indonesia" 06, no. 03 (2025): 727–39.

parallel without adequate normative integration. Existing regulations primarily address the trading, custody, and market supervision of crypto assets but do not specifically regulate the mechanisms for the creation, possession, control, and enforcement of crypto assets as collateral under secured transactions law[8] . This regulatory gap has resulted in the absence of clear provisions concerning the transfer of digital access rights, procedures for asset liquidation in the event of significant depreciation in value, and mechanisms for the revaluation of collateral.

Accordingly, the principal issue addressed in this study is no longer merely whether crypto assets may be legally qualified as objects of fiduciary security, but rather whether the existing fiduciary security regime is capable of ensuring legal certainty regarding the value of such collateral and the effective enforcement of security interests over digital asset-based collateral. This issue highlights the necessity of reconstructing the legal framework governing the possession and management of crypto assets as collateral, thereby ensuring that the principle of creditor protection within secured transactions law remains preserved amid the continuing development of digital assets[9] .

The fundamental concern regarding the ability of the fiduciary security regime to provide legal certainty for crypto asset-based collateral gives rise to several derivative issues that reveal the structural limitations of the existing secured transactions framework in responding to the unique characteristics of digital assets[10]. These issues extend beyond the mere classification of crypto assets as collateral objects and encompass broader

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[8] Lisa Angelie Putri, Dwi Desi, and Yayi Tarina, "Kepastian Hukum Jaminan Fidusia Atas Cryptocurrency Sebagai Aset Digital Tidak Berwujud Dalam Perjanjian Kredit Di Indonesia," *Media Hukum Indonesia Published by Yayasan Daarul Huda Krueng Indonesia* 2, no. 4 (2024): 437–44.

[9] Bakhitabiyya Ridya Payuwaha, "Urgensi Pengaturan Crypto Asset Sebagai Objek Jaminan Di Indonesia," *Law Research Review Quarterly* 11, no. 2 (2025): 359–77.

[10] Irham Rahman, Hery Lilik Sudarmanto, and Satriyani Cahyo Widayati, "KAJIAN YURIDIS JAMINAN KEBENDAAN PADA DIGITAL ASET SEBAGAI OBJEK JAMINAN," *Jurnal Transparansi Hukum* 03, no. 02 (2020).

concerns relating to value stability, the legal concept of possession, and the effectiveness of enforcement mechanisms.

The first issue concerns the extreme volatility of crypto assets, which poses substantial risks to the stability of collateral value. The market value of crypto assets may fluctuate dramatically within a relatively short period of time[11]. Such circumstances may result in an undersecured collateral position, whereby the value of the collateral decreases to a level insufficient to secure the debtor's outstanding obligations. This condition may undermine the degree of creditor protection and diminish the effectiveness of the principle of droit de préférence, which grants preferential status to secured creditors.

Furthermore, property law doctrine recognizes the concept of possession (bezit) as a fundamental basis for the creation, transfer, and enforcement of rights over property. In the context of crypto assets, however, control over the asset is entirely dependent upon ownership and possession of the relevant private key[12]. This characteristic presents a legal challenge because the notion of digital control does not fully correspond with the traditional concept of bezit, which has historically formed the foundation of property law regulation.

A further issue concerns the absence of a standardized enforcement mechanism for crypto assets serving as collateral. Unlike conventional collateral objects, for which relatively clear enforcement procedures have been established, there are currently no specific normative provisions governing the transfer of digital access rights to crypto assets, liquidation procedures in the event of a significant market decline (market crash), or mechanisms for the revaluation of collateral during the term of a financing

[11] M Alfarizi and Dinda Lestarini, "Predicting Cryptocurrency Prices Using Machine Learning : A Case Study on Bitcoin," *Journal of Applied Informatics and Computing (JAIC)* 9, no. 6 (2025): 3612–21.
[12] Lucas Clover Alcolea and Jan Mihal, "The Tiptoe to Crypto: An Analysis and Account of Property in Cryptocurrency," *Common Law World Review* 54, no. 1 (2025): 43–69, https://doi.org/https://doi.org/10.1177/14737795241287556.

agreement[13]. Furthermore, there remains a fragmentation between the legal regime governing crypto asset trading and the legal framework governing security rights over property. Regulations concerning crypto assets primarily focus on trading activities, market supervision, and investor protection, whereas the law of secured transactions has not yet systematically integrated the unique characteristics of digital assets as collateral objects[14]. These issues demonstrate that the challenges associated with the use of crypto assets as collateral cannot be adequately resolved through a textual interpretation of existing legal provisions alone. Instead, a legal reconstruction is required to adapt the principles of secured transactions law to the technological characteristics and economic mechanisms inherent in digital assets.

Several previous studies have examined the possibility of utilizing crypto assets as collateral under the Indonesian legal system. Research conducted by L. A. Putri, D. Desi, and Y. Tarina highlighted issues of legal certainty concerning fiduciary security over cryptocurrency by emphasizing the nature of crypto assets as intangible property and the challenges posed by value volatility within the framework of the Fiduciary Security Law[15]. This study made a significant contribution by explaining the formal compatibility of crypto assets with the legal qualifications of fiduciary security objects. Meanwhile, research conducted by Ariza Fachrur Razak focused on legal protection through the use of smart contracts as a technical mechanism enabling the automated execution of crypto assets[16] .

Another study conducted by H. V. Tambunan and E. N. Butarbutar examined issues of legal certainty in the enforcement of crypto assets as

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[13] Pauweni and Try Nuryandi Ismanto, "Aspek Hukum Terhadap Perjanjian Hutang Menggunakan Aset Kripto," *Repository Unhas* (2025).
[14] Joni Laksito, Dian Karisma, and Budi Hartono, "Tantangan Hukum Dalam Regulasi Transaksi Kripto Di Indonesia Antara Peluang Dan Risiko" 2, no. 4 (2024): 57–69.
[15] Putri, Desi, and Tarina, "Kepastian Hukum Jaminan Fidusia Atas Cryptocurrency Sebagai Aset Digital Tidak Berwujud Dalam Perjanjian Kredit Di Indonesia."
[16] Ariza Fachrur Razak et al., "Pengaturan Dan Perlindungan Hukum Aset Kripto Sebagai Objek Jaminan Dalam Kajian Hukum Jaminan," *Al-Zayn: Jurnal Ilmu Sosial & Hukum* 4, no. 1 (2026): 1551–64.

collateral upon debtor default, particularly in the context of high price volatility[17]. On the other hand, research by Nurjihad, K. Cahyasari, and Diva concentrated on the legal validity of crypto assets as objects of law in loan agreements from the perspectives of civil law and crypto asset trading regulations[18]. Furthermore, the study conducted by N. R. C. Lahay, N. M. Kasim, and S. N. M. Kamba explored the transformation of property law concepts in the digital era and emphasized the need to deconstruct classical civil law paradigms in response to the emergence of digital assets[19].

Although these studies have made valuable contributions to the discussion of crypto assets as collateral objects, they generally remain limited to analyses concerning the normative possibility or legal validity of crypto assets as collateral. They have not comprehensively addressed the structural issues arising once crypto assets are positioned as objects of fiduciary security, particularly those relating to digital possession based on private keys, enforcement mechanisms under conditions of extreme volatility, and institutional designs capable of ensuring collateral value stability[20].

Most existing studies have not examined in depth the enforcement of security interests in circumstances where crypto asset values experience drastic declines or market crash conditions. In financing practices, however, the stability of collateral value is a critical factor in ensuring the repayment of a debtor's obligations[21]. Furthermore, previous studies have not proposed

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[17] Hariyanto Valentino Tambunan and Elisabeth Nurhaini Butarbutar, "Kepastian Hukum Eksekusi Aset Digital Kripto Sebagai Jaminan Pelunasan Hutang," *Jurnal Hukum Justice* 2, no. 1 (2024): 10–20.
[18] Nurjihad, Krismanova Dwi Cahyasari, and Amara Diva Abigail, "Keabsahan Aset Kripto Sebagai Jaminan Dalam Akta Perjanjian Pinjaman Dana," *Notaire* 6, no. 1 (2023): 111–26, https://doi.org/10.20473/ntr.v6i1.38741.
[19] Caesarani Lahay, Nur Mohamad Kasim, and Sri Nanang Meiske, "Transformasi Konsep Kebendaan Dalam Era Digital : Dekonstruksi Status Hukum Aset Kripto Sebagai Objek Perdata Modern Di Indonesia," *Judge : Jurnal Hukum* 06, no. 03 (2025): 727–39.
[20] Khoitil Aswadi and Wahyu Adi Mudiparwanto, "Perlindungan Hukum Aset Kripto Sebagai Objek Jaminan Berdasarkan Perspektif Hukum Jaminan," *Diversi Jurnal Hukum* 10, no. April (2024): 424–56.
[21] Dahris Siregar, "Analisis Legalitas Aset Kripto Sebagai Obyek Jaminan Di Indonesia," *Jurnal Yuridid* 11, no. 1 (2024): 98–111.

an institutional framework capable of maintaining collateral value stability and mitigating the risks associated with crypto asset volatility. Likewise, there has been no systematic examination of how digital asset custody mechanisms may be integrated with the electronic fiduciary security registration system currently implemented within Indonesian legal practice. Existing discourse continues to focus primarily on the question of whether crypto assets may serve as collateral, while the more fundamental issue of how possession structures, enforcement mechanisms, and the role of a Central Custodian may ensure collateral value certainty within the existing legal system has not been comprehensively explored.

Methods

This study employs a normative juridical research method, which is a legal research approach aimed at identifying legal rules, principles, and doctrines in order to address existing legal issues[22]. This approach is utilized to analyze the legal norms governing fiduciary security and their relevance to the use of crypto assets as collateral within the Indonesian legal system. The research adopts two primary approaches, namely the statutory approach and the conceptual approach.

The statutory approach is conducted through an examination of various regulations related to fiduciary security, particularly Law Number 42 of 1999 concerning Fiduciary Security, as well as regulations governing crypto assets issued by the Commodity Futures Trading Regulatory Agency (Bappebti). The conceptual approach is employed to analyze the concepts of property law contained in Book II of the Burgerlijk Wetboek, particularly those relating to possession (bezit) and the enforcement of security interests.

The legal materials used in this study consist of both primary and secondary legal materials. Primary legal materials include legislation and regulatory instruments concerning fiduciary security and crypto assets.

[22] Peter Mahmud Marzuki, *Penelitian Hukum* (Jakarta: Kencana Prenada Media Group, 2005).

Secondary legal materials comprise legal literature, scholarly journals, previous research findings, and legal doctrines developed by experts relevant to the subject matter of this study.

Legal materials were collected through library research by reviewing and examining legal sources relevant to the research issues. The collected legal materials were subsequently analyzed using qualitative analysis techniques, involving the systematic interpretation and examination of legal norms in order to obtain a comprehensive understanding of the issues under study.

The method of analysis employed in this research is prescriptive analysis, which seeks to formulate legal arguments regarding how legal norms should regulate fiduciary security over crypto assets. Through this method, the research not only describes the existing legal issues but also proposes legal solutions in the form of a reconstruction of the concepts of possession and control, enforcement mechanisms, and the urgency of establishing a Central Custodian to ensure the certainty and stability of collateral value.

Result and Discussion

1. Mechanisms of Possession and Enforcement of Fiduciary Security over Crypto Assets under Indonesian Laws and Regulations

Fiduciary security within the Indonesian positive legal system constitutes a form of proprietary security right possessing a distinctive characteristic, namely the separation between juridical possession and physical possession of the collateral object[23]. Pursuant to Article 1 paragraph (2) of Law Number 42 of 1999 concerning Fiduciary Security, a fiduciary security is defined as: "A security right over movable property, whether tangible or intangible, and over certain immovable property, particularly buildings that cannot be encumbered with a

[23] Nugraha Endi Yuaga and Nanik Trihastuti, "Jaminan Fidusia Sebagai Jaminan Kebendaan Yang Memberi Hak Mendahulu Dalam Perolehan Pelunasan Utang," *JIHHP : Jurnal Ilmu Hukum, Humaniora Dan Politik* 5, no. 5 (2025): 3779–85.

mortgage right as referred to in Law Number 4 of 1996 concerning Mortgage Rights, which remains under the control of the Fiduciary Grantor as collateral for the repayment of a specific debt, granting the Fiduciary Grantee a preferential position over other creditors." This provision confirms that the scope of fiduciary security extends to movable property, whether tangible or intangible, as well as certain immovable property that cannot be subject to mortgage rights.

Furthermore, Article 1 paragraph (4) of Law Number 42 of 1999 stipulates that: "Property, as referred to in paragraph (1), means anything that may be owned and transferred, whether tangible or intangible, registered or unregistered, movable or immovable, provided that such property cannot be encumbered with a mortgage right or hypothec". This provision demonstrates that fiduciary security is not limited to tangible assets such as motor vehicles or inventory but also encompasses intangible assets, including receivables, intellectual property rights, and other forms of rights possessing economic value[24]. The expansion of collateral objects reflects the normative flexibility of the fiduciary security regime in accommodating various forms of property. Nevertheless, practical challenges remain in adapting these legal concepts to technologically based assets, particularly crypto assets.

The mechanism of possession within conventional fiduciary security arrangements is founded upon the separation between juridical possession and physical possession of the collateral object. Normatively, Law Number 42 of 1999 concerning Fiduciary Security provides that a fiduciary security right is created upon registration with the Fiduciary Registration Office, evidenced by the issuance of a Fiduciary Security Certificate as an implementation of the principles of publicity and legal certainty. Such certificate possesses executorial title,

[24] Octavianus Aldo, "Hak Debitur Atas Objek Jaminan Fidusia Sebagai Hak Kebendaan Menurut Undang-Undang Nomor 42 Tahun 1999 Tentang Jaminan Fidusia," *Lex Crimen Unsrat* VI, no. 10 (2021): 99–105.

enabling the creditor to undertake parate executie in the event of debtor default[25].

However, the enforcement mechanism underwent a significant development following the issuance of Constitutional Court Decision Number 18/PUU-XVII/2019. The Court held that the execution of a fiduciary certificate may not be carried out unilaterally where there is no mutual agreement regarding the occurrence of default and where the debtor refuses voluntarily to surrender the collateral object[26]. This decision reflects a paradigm shift from an absolute enforcement mechanism toward a framework that places greater emphasis on debtor protection and the principle of due process of law in the execution of fiduciary security rights.

Under the Indonesian legal system, crypto assets are fundamentally classified as digital commodities rather than legal tender[27]. This position is expressly reflected in Law Number 7 of 2011 concerning Currency, which stipulates that the only lawful means of payment within the territory of the Republic of Indonesia is the Indonesian Rupiah. Consequently, the use of crypto assets as a payment instrument has not received legal recognition and is instead acknowledged solely as an investment instrument and a tradable digital commodity[28].

Such recognition was subsequently reinforced through Minister of Trade Regulation Number 99 of 2018, which designates crypto assets as commodities that may serve as the subject matter of futures contracts traded on futures exchanges. This regulatory framework provides legal

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[25] Kintannia Khairunnissa Indriyanti, "Kekuatan Eksekutorial Sertifikat Jaminan Fidusia Pasca Putusan Mahkamah Konstitusi Nomor 18 / PUU-XVII / 2019," *Konsensus : Jurnal Ilmu Pertahanan, Hukum Dan Ilmu Komunikasi* 2, no. 4 (2025): 16–31.
[26] Restu Agus Setiawan and Rahayu Fery Anitasari, "Implikasi Putusan Mahkamah Konstitusi Nomor 18 / PUU _ XVII / 2019 Terhadap Undang- Undang Jaminan Fidusia Ditinjau Dari Aspek Keadilan," in *Book Chapter Hukum Dan Lingkungan* (Universitas Negeri Semarang, 2019), 791–814, QRCBN 62-6861-0144-710.
[27] Indah Naomy Christian Yulianty Simanjuntak, "Kedudukan Crypto Assets Sebagai Objek Jaminan Kebendaan Dalam Perspektif Hukum Indonesia," *JURNAL LOCUS : Penelitian & Pengabdian* 4, no. 6 (2025): 2606–14, https://doi.org/10.58344/locus.v4i6.4349.
[28] Razak et al., "Pengaturan Dan Perlindungan Hukum Aset Kripto Sebagai Objek Jaminan Dalam Kajian Hukum Jaminan."

recognition of the economic value of crypto assets and their status as transferable digital property, thereby strengthening the argument that crypto assets may, in principle, qualify as objects of fiduciary security under Indonesian law.

From the perspective of property law, crypto assets may be classified as intangible movable property in accordance with the concept of property under Article 499 of the *Burgerlijk Wetboek* (BW), which provides that: *"Property consists of every good and every right that may be subject to ownership rights."* Furthermore, Article 503 of the BW stipulates that: *"There are corporeal goods and incorporeal goods."* Article 499 establishes that the concept of property encompasses all goods and rights that may be owned, thereby extending beyond tangible objects to include intangible assets possessing economic value[29]. This classification is further reinforced by Article 503 of the BW, which divides property into two categories: corporeal goods, which possess a physical form and can be physically perceived, and incorporeal goods, which are abstract in nature and consist of subjective rights that nevertheless possess economic value and are capable of transfer[30].

Accordingly, crypto assets may be legally classified as intangible movable property because they satisfy the essential requirements of property, namely possessing economic value and being capable of ownership and control. This legal status is further strengthened by the recognition of crypto assets as digital commodities subject to the supervision of the Financial Services Authority (Otoritas Jasa

[29] Qonita Nailah Basri et al., "Analisis Kedudukan Hukum Benda Menurut Kitab Undang-Undang Hukum Perdata," *Jurnal Kajian Hukum Dan Kebijakan Publik* 3, no. 1 (2025): 405–14.
[30] Guntur Prambudi Wijaya, "Eksekusi Jaminan Fidusia Atas Barang Bergerak Tidak Berwujud Di Era Digital," in *Dandapala Direktorat Jenderal Badan Peradilan Umum*, 2026, https://dandapala.com/article/detail/eksekusi-jaminan-fidusia-atas-barang-bergerak-tidak-berwujud-di-era-digital.

Keuangan/OJK) [31]. Consequently, from a theoretical standpoint, crypto assets satisfy the requirements to qualify as objects of fiduciary security under Law Number 42 of 1999 concerning Fiduciary Security through a mechanism involving the transfer of security rights based on trust without requiring the actual transfer of physical possession.

The principal instrument that determines control over digital assets is the private key. From a technical perspective, a private key is a confidential cryptographic code that grants its holder the authority to access, transfer, and control crypto assets stored within a digital wallet (crypto wallet) [32]. Consequently, the party possessing access to the private key exercises effective control over the relevant assets, regardless of who is legally recognized as the owner[33].This characteristic creates a unique challenge within secured transactions law because juridical possession recognized by law does not necessarily correspond with factual control within the blockchain-based digital environment.

Although crypto assets may theoretically be classified as intangible movable property that satisfies the requirements of a fiduciary security object, the Indonesian legal system has not yet established explicit regulations specifically governing crypto assets as objects of proprietary security rights[34]. While Law Number 42 of 1999 concerning Fiduciary Security permits intangible assets to serve as fiduciary collateral, such provisions were originally formulated in the context of conventional

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[31] Aji Prasetyo, "OJK Dan Bappebti Tuntaskan Peralihan Pengawasan Aset Kripto," *Hukum Online*, 2025, https://www.hukumonline.com/berita/a/ojk-dan-bappebti-tuntaskan-peralihan-pengawasan-aset-kripto-lt688b33eb69b1f/?page=2.

[32] Rayi Kharisma Rajib, Fauzil Adim Mahsun, and Fakhri, "Kedudukan Private Key Dalam Pewarisan Aset Kripto : Tantangan Pembuktian Waris Dalam Perspektif Kitab Undang-Undang Hukum Perdata," Kampus Akademis Publising Jurnal Ilmiah Nusantara (JINU) 3, no. 3 (2026): 1004–16.

[33] Eka Ermala, "Jurnal Ilmiah Hukum Pewarisan Aset Digital Di Indonesia : Tinjauan Literatur Sistematis Tentang Status Hukum , Problematika , Dan Reformasi Hukum," *Cessie : Jurnal Ilmiah Hukum* 5, no. 1 (2026): 8–17.

[34] Rayi Kharisma Rajib, An Nisaa' Amelia Amrullah, and Citra Rahmawati, "Pengaturan Aset Digital Sebagai Harta Waris Dalam Perspektif Kitab Undang-Undang Hukum Pengaturan Aset Digital Sebagai Harta Waris Dalam Perspektif Kitab Undang-Undang Hukum Perdata," *JURNAL MEDIA AKADEMIK (JMA)* 4, no. 5 (2026), https://doi.org/10.62281.

intangible assets, such as receivables and claims. As a result, a normative gap exists regarding the mechanisms for the creation, possession, control, and enforcement of security interests over blockchain-based digital assets. Accordingly, the principal challenge in recognizing crypto assets as objects of fiduciary security lies in the inability of the conventional secured transactions regime to adequately accommodate the technological characteristics of decentralized digital systems.

The security law system in Indonesia has thus far remained grounded in the paradigm of physical possession, whereby possession is understood as a legal relationship between a legal subject and an object whose existence can still be factually identified[35]. However, in the era of rapidly advancing digital technology, possession is no longer associated with physical control over an object but has shifted toward digital control over access to blockchain systems[36].. Therefore, the concept of possession within fiduciary security law must be interpreted more progressively in order to accommodate the characteristics of digital assets, which do not possess a physical form yet retain economic value and are capable of being transferred.

Possession of digital assets is fundamentally determined by control over private keys and custody mechanisms relating to digital wallets. Control over a private key grants its holder full authority to transfer or dispose of crypto assets[37]. This condition demonstrates that factual control within a blockchain system is no longer measured by the physical existence of an asset but rather by the technical ability to access

[35] Hendri Rusniati, “Analisis Yuridis Aspek Hukum Benda Tidak Bergerak Sebagai Objek Jaminan Fidusia,” *Disiplin Majalah Civitas Akademika Sekolah Tinggo Ilmu Hukum Sumpah Pemuda* 27, no. September (2021): 198–207.
[36] Kurniawan Tri Wibowo, *Aspek Hukum Dalam Dunia Digital*, ed. Lilis Khalisatul Karimah and Septimike Yourintan Mutiara, 1st ed. (Banten: Sada Kurnia Pustaka, 2025).
[37] Halim Hermanto, “Pengaturan Penyitaan Aset Kripto Sebagai Hasil Tindak Pidana Pencucian Uang Di Indonesia Regulation Of Confiscation Of Crypto Assets As A Result Of Money Laundering Crimes In Indonesia,” *Rewang Rencang : Jurnal Hukum Lex Generalis* 6, no. 7 (2025): 1–32.

a digital system. Accordingly, within fiduciary security arrangements, the transfer of rights should not merely be understood as the transfer of juridical rights but must also be accompanied by a digital access control mechanism capable of ensuring certainty of possession for the creditor.

In global practice, mechanisms for the possession of crypto assets are generally divided into two principal models, namely self-custody and third-party custody. Under the self-custody model, the asset owner personally retains the private key, such that all control over the asset remains directly with that individual[38]. This model provides a high degree of autonomy however, within the context of fiduciary security, it creates substantial risks because the creditor does not possess direct access to the asset in the event of the debtor's default. Conversely, the third-party custody model places possession of crypto assets with a third-party custodial institution responsible for safeguarding and managing access to digital assets[39].

This model is more widely utilized in international practice for institutional purposes because it is considered to provide greater certainty and security. In addition, an exchange-based custody mechanism has also developed, whereby crypto assets are stored through digital asset trading platforms acting as custodial service providers[40]. Through this system, control over the assets does not remain entirely with the debtor, thereby enabling supervision and enforcement to be carried out more effectively.

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[38] Asril Bahtiar and Heppy Hyma Puspytasari, "Perbandingan Pengalihan Hak Milik Aset Kripto Melalui Waris Menurut Hukum Perdata Indonesia Dan Delaware Code," *Indonesian Journal of Contemporary Law Perbandingan* 3, no. 4 (2026): 1–38.

[39] Putri Purbasari, Raharningtyas Marditia, and Rafi Radithya Nazhif, "Digital Inheritance Of Cryptocurrency Assets : The Indonesian Legal Perspective," *Perspektif Hukum Universitas Hang Tuah* 25, no. 2 (2025): 226–57.

[40] Arief Eko Saputro and Rachmadi Usman, "Perlindungan Hukum Bagi Investor Komoditi Token Pada Tokotoken Melalui Platform Exchange Tokocrypto Legal Protection for Commodity Token Investors in Tokotoken Through the Tokocrypto Exchange Platform," *Jurnal Kolaboratif Sains* 8, no. 7 (2025): 4460–71, https://doi.org/10.56338/jks.v8i7.7962.

The creditor's form of possession within fiduciary security arrangements is generally manifested through possession of documentary evidence of ownership of the collateral object, such as a Motor Vehicle Ownership Certificate (Bukti Kepemilikan Kendaraan Bermotor/BPKB), even though the asset itself physically remains under the debtor's control[41]. This differs from crypto assets, where the concept of possession undergoes a fundamental transformation because it is no longer based upon physical documents but rather upon digital control over access to the transfer of such assets. Accordingly, whereas in conventional fiduciary security the instrument of control consists of documentary proof of ownership, in the context of crypto assets the relevant form of possession lies in control over the private key or digital access mechanisms that enable the transfer and control of crypto assets within a blockchain system.

The conventional evidentiary law system has not yet been fully capable of accommodating the pseudonymous and encrypted characteristics of blockchain technology. Consequently, proving who controls a private key and who possesses actual control over a crypto asset becomes a complex issue. This condition demonstrates that the implementation of fiduciary security over crypto assets requires a reformulation of regulations that not only recognizes the status of crypto assets as collateral objects but also clearly regulates digital possession mechanisms in a manner that is measurable and capable of ensuring legal certainty.

The enforcement mechanism within the fiduciary security law regime essentially constitutes a form of legal protection for creditors when a debtor defaults on the principal agreement[42].. Law Number 42 of 1999

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[41] Dija Hedistira and Pujiyono, "Kepemilikan Dan Penguasaan Objek Jaminan Fidusia Apabila Terjadi Sengketa Wanprestasi Dalam Perjanjian Kredit," *Jurnal Privat Law Universitas Sebelas Maret* VIII, no. 1 (2020): 78–83.

[42] Nadya Putri Utami and Hera Alvina Satriawan, "Perlindungan Hukum Terhadap Kreditur Dalam Pelaksanaan Eksekusi Jaminan (Tanah Dan Bangunan) Studi Putusan

concerning Fiduciary Security grants a special position to creditors through the Fiduciary Security Certificate, which possesses executorial title equivalent to a final and binding court judgment. Based on this legal construction, creditors may, in principle, carry out enforcement without having to initiate civil litigation proceedings before a court.

The principal obstacle in the enforcement of fiduciary security over crypto assets lies in the aspect of control over the private key as the primary instrument of control over digital assets[43]. Consequently, even though the security right has juridically been transferred to the creditor, enforcement cannot be carried out if the creditor does not have access to the relevant private key. This condition demonstrates a discrepancy between the concept of possession in conventional security law and the control mechanisms inherent in blockchain technology. Furthermore, the crypto asset system does not possess a centralized custodial institution as found in the banking or capital market systems. In a bank account, a competent authority may freeze or seize an account pursuant to a legal order.

Conversely, within a decentralized blockchain system, there is no single authority capable of compelling the transfer or freezing of assets directly[44].. As a result, when a debtor refuses to provide access to the pledged crypto assets, the creditor encounters difficulties in carrying out enforcement despite possessing legal authority through the fiduciary security certificate.

In addition, the cross-border nature of crypto assets also creates jurisdictional challenges in the enforcement process. Crypto assets may

Nomor 90/PDT.G/2022/PN MTR," *Jurnal Rekomendasi Hukum Universitas Mataram* 1, no. 3 (2025).

[43] Deny Akbar Santoso, Ermanto Fahamsyah, and Firman Floranta Adonara, "Penggunaan Cryptocurrency Sebagai Objek Jaminan Fidusia," *Syntax Literate: Jurnal Ilmiah Indonesia* 7, no. 09 (2022): 2541–0849, https://doi.org/10.36418/syntax-literate.v7i9.14200.

[44] Felicia et al., "Tantangan Dan Peluang Blockchain Di Era Digital Dalam Bidang Keamanan Data Dan Transaksi Digital.," *Journal of Comprehensive Science (JCS)* 3, no. 11 (2024): 31–51, https://doi.org/10.59188/jcs.v3i11.2887.

be transferred instantaneously to digital wallets located outside the jurisdiction of Indonesia without the involvement of intermediary institutions[45]. This condition may hinder law enforcement authorities and creditors from effectively tracing, freezing, or seizing such assets. Therefore, a reformulation of regulations is required that not only recognizes crypto assets as objects of fiduciary security but also specifically regulates mechanisms of digital control, electronic seizure, and blockchain-based enforcement in order to ensure legal certainty within the modern financing system.

The first reconstruction should be directed toward the reformulation of the concept of possession within fiduciary security law. To date, possession in property law continues to be understood within a conventional paradigm based upon physical or administrative control over an object. Accordingly, the reconstruction of possession (*bezit*) should also be accompanied by the standardization of custody mechanisms in fiduciary agreements involving crypto assets. It is therefore necessary to establish regulations requiring the use of specific custodial systems for crypto assets serving as collateral objects.

Through such mechanisms, digital control would no longer remain entirely individual in nature but would instead exist within a system of control capable of being legally verified by both creditors and regulators. Such standardization would simultaneously serve as an instrument for minimizing the risk of unilateral asset transfers by debtors.

In addition to reconstructing the concept of possession, reforms must also be directed toward the enforcement mechanism for fiduciary security over crypto assets. The enforcement system under Law Number 42 of 1999 concerning Fiduciary Security is fundamentally built upon the assumption that collateral objects may be seized and physically

[45] Asmara Nova Susanto and Wiwik Afifah, "Peran Lembaga Yang Mendukung Penelusuran Alat Bukti Tindak Pidana Pencucian Uang Yang Menggunakan Cryptocurrency," *Media Hukum Indonesia (MHI) Published by Yayasan Daarul Huda Krueng Mane* 2, no. 4 (2024): 271–83, https://doi.org/https://doi.org/10.5281/zenodo.14181850.

controlled[46]. Meanwhile, digital assets have evolved into various forms that exist within blockchain systems, which neither recognize physical possession nor possess a single authority capable of compelling the transfer of assets. Therefore, specific regulations are required concerning digital seizure mechanisms that provide a legal basis for the acquisition of control over digital assets through designated electronic systems.

Such regulations are important to ensure that the executorial title contained in fiduciary security arrangements does not remain merely a form of normative legitimacy but may also be implemented effectively in practice. The reformulation of enforcement mechanisms must also encompass the legalization of a forced transfer mechanism, namely the transfer of digital assets pursuant to a legal order through a custodial system or certain controlling institution without requiring the active consent of the debtor at the time of default. In the absence of regulations governing forced transfer, creditors will continue to encounter difficulties in exercising their executorial rights even where they possess a fiduciary security certificate and a court judgment.

As a supporting measure for such reconstruction, legislative reform and comprehensive regulatory harmonization are required. One fundamental step is the amendment of Law Number 42 of 1999 concerning Fiduciary Security to incorporate provisions governing digital assets as objects of proprietary security rights, together with the mechanisms for their possession and enforcement. In addition, the state must establish specific regulations explicitly governing digital assets as collateral objects, including standards for asset protection, custodial systems, procedures for digital seizure, and blockchain-based enforcement mechanisms. The existence of such specific regulations is

[46] Putu Eka and Trisna Dewi, "Eksekusi Jaminan Fidusia : Analisis Konflik Norma Dalam UU Nomor 42 Tahun 1999 Dan Putusan Mahkamah Konstitusi No . 18 / PUU-XVII / 2019 Execution of Fiduciary Guarantees : Analysis of Norm Conflicts in Law," *Journal of Intellectual Property Law* 1, no. 1 (2024): 60–72.

essential to address the disharmony between the digital asset trading regime and the secured transactions law regime, which have thus far operated separately.

Ultimately, such legal reconstruction carries significant implications for enhancing legal certainty and creditor protection within digital asset-based financing systems. Legal certainty regarding possession and enforcement mechanisms will increase the confidence of financing institutions in utilizing crypto assets as objects of proprietary security rights[47]. Furthermore, the existence of custodial systems and integrated supervisory mechanisms may mitigate the risks of value fluctuations and unlawful asset transfers, which have thus far constituted the principal weaknesses associated with crypto assets [48].

2. The Urgency of the Role of a Central Custodian in Ensuring Legal Certainty and the Stability of Collateral Value

The existence of custodial institutions within Indonesia's financial market system functions as an instrument for the safeguarding, recording, and control of assets in order to ensure legal certainty concerning ownership and the transfer of rights over an asset[49]. The definition of a Central Custodian, officially translated as a Central Securities Depository and Settlement Institution (*Lembaga Penyimpanan dan Penyelesaian*—LPP), is explicitly regulated under Article 1 point 22 of Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector (P2SK Law), which provides that: *"A Central Securities Depository and Settlement Institution is a Party that conducts central custodial activities for*

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[47] Irbah Ufairah Razak and Aad Rusyad Nurdin, "Prinsip Kehati-Hatian Terhadap Aset Kripto Sebagai Objek Jaminan Pada Perbankan," *Legal Spirit* 9, no. 2 (2025): 1978–2608.
[48] "Peran Bank Kustodian Dalam Menjaga Keamanan Aset," DBS Treasures, 2025, https://www.dbs.id/id/treasures-id/articles/peran-bank-kustodian-dalam-menjaga-keamanan-aset.
[49] Emiel Salim Siregar et al., "Peran Lembaga Penunjang Pasar Modal Dalam Menjamin Kepastian Hukum," *INNOVATIVE: Journal Of Social Science Research Volume* 5, no. 3 (2025): 246–57, https://j-innovative.org/index.php/Innovative.

Custodian Banks, Securities Companies, and other Parties." Furthermore, pursuant to Article 1 paragraph 21 of Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector (P2SK Law): *"A Custodian is a Party that provides safekeeping services for Securities and other assets related to Securities, as well as other services, including receiving dividends, interest, and other rights, settling Securities transactions, and representing account holders who are its customers."*

A central custodian plays a role in facilitating the enforcement process against crypto assets when a debtor defaults. In this regard, a central custodian may establish an integrated mechanism through which creditors can obtain access to the transfer or liquidation of assets pursuant to an enforcement order without being entirely dependent upon the debtor's willingness to surrender the private key. Accordingly, the existence of a centralized custodial institution may serve as an instrument for reconstructing the principle of *constitutum possessorium* in relation to digital assets. In this context, a central custodian institution may become a fundamental pillar in building trust within Indonesia's crypto asset industry through its preventive function of reducing the risks of fraud, asset misappropriation, and unlawful transfers of collateral objects[50].

Within blockchain systems that are anonymous and cross-jurisdictional in nature, the risk of misuse of digital assets is relatively higher than that associated with conventional assets. Through centralized supervision, the movement of crypto assets used as collateral may be monitored more effectively, thereby reducing the potential for moral hazard on the part of debtors and third parties. Such a system would strengthen legal protection for creditors while

[50] "Icc Resmi Berizin Ojk, Tegaskan Perannya Sebagai Kustodian Aset Kripto Pertama Di Indonesia," BCA Sekuritas, 2025, https://bcasekuritas.co.id/latest-news/news/icc-resmi-berizin-ojk-tegaskan-perannya-sebagai-kustodian-aset-kripto-pertama-di-indonesia.

simultaneously enhancing the confidence of the financing industry in the use of crypto assets as objects of proprietary security rights.

The role of a central custodian institution is highly relevant in ensuring certainty of control over digital assets serving as objects of fiduciary security. Through a centralized custodial system, control over assets no longer depends solely upon the debtor's individual control of the private key but instead exists within a system of control that may be legally verified. The establishment of a central custodian mechanism for crypto assets should be integrated with financial institutions operating under state supervision in order to ensure its legitimacy and legal certainty[51]. Such an implementation model may be developed through a specialized digital asset custodial institution vested with the authority to store, manage, and control access to crypto assets used as objects of fiduciary security. Under such a system, control over digital assets would no longer rest entirely with the debtor but would instead be subject to the supervision of an institution possessing legal authority and established security standards.

The Financial Services Authority (*OJK*) holds a strategic role in establishing the regulatory and supervisory framework for digital asset custodial institutions, particularly following the enactment of Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector, which provides for the transfer of supervision over digital financial assets from the Commodity Futures Trading Regulatory Agency (*Badan Pengawas Perdagangan Berjangka Komoditi*/Bappebti) to the OJK[52].

[51] Jundri R Berutu, Yuhelson, and Dedy Ardian Prasetyo, *Aset Kripto Di Indonesia : Regulasi, Pengawasan, Dan Kepastian Hukum Di Era Digital*, ed. Ahmad Khanafi, 1st ed. (Yogyakarta: Penerbit Depublish Digital, 2025).

[52] Beni Darmawan Hidayat and Muhamad Hasan Sebyar, "Implikasi Hukum Perpindahan Pengawasan Aset Kripto Dari Bappebti Ke OJK Terhadap Pelaku Industri Dan Investor," *HAKIM : Jurnal Ilmu Hukum Dan Sosial* 2, no. 4 (2024): 888–99, https://doi.org/10.51903/hakim.v2i4.2206.

On the other hand, Bank Indonesia may also play a role in maintaining the stability of the payment system and the security of digital transactions involving blockchain-based assets. As the authority responsible for supervising the financial services sector, the OJK occupies a central position in the formulation of regulations and supervision of digital asset custodial activities.

The OJK possesses strategic authority to formulate operational standards, governance frameworks, risk management requirements, and consumer protection mechanisms within the digital financial ecosystem[53]. Furthermore, the OJK is responsible for ensuring that the use of crypto assets in financing activities does not create systemic risks that may disrupt the stability of Indonesia's national financial services sector. Therefore, synergy between the Financial Services Authority (OJK) and Bank Indonesia is essential in establishing a crypto asset custodial system that not only ensures legal certainty but also supports the stability of the national financial system.

The highly volatile nature of crypto assets fundamentally constitutes a serious threat to the certainty of collateral value, as extreme price fluctuations may cause the value of collateral to decline drastically within a short period. Under such circumstances, a Central Custodian may perform monitoring and risk management functions through mechanisms such as collateral value adjustments, margin calls, and automatic liquidation when the value of the asset falls below a specified threshold.

One of the principal weaknesses of the current system is the absence of an authority capable of freezing or compelling the transfer of crypto assets when a debtor defaults[54]. With the involvement of a Central

[53] Chintya Chrisannita Siboro, Nency Grecya Sihombing, and Dosni Ana Ragita Pakpahan, "Peran Otoritas Jasa Keuangan Dalam Pengawasan Transaksi Kripto Di Indonesia : Tinjauan Regulasi Dan Tantangannya," *KAMPUS AKADEMIK PUBLISING Jurnal Ilmiah Nusantara (JINU)* 1, no. 6 (2024): 92–102.
[54] Muhammad Dafa Razwa Ramadhan, "Perspektif Hukum Terhadap Cryptocurrency Sebagai Boedel Pailit" (Universitas Lampung, 2023).

Custodian, the enforcement process may be carried out more effectively because the assets remain under the control of the Central Custodian, which is subject to national regulations and regulatory supervision. Therefore, the legal reconstruction of fiduciary security over crypto assets should not be limited to the normative recognition of digital assets as collateral objects. Legal reform must be directed toward the establishment of an institutional framework capable of ensuring control, security, value stability, and the effective enforcement of digital collateral objects. Accordingly, a Central Custodian constitutes a crucial institution required to address the structural weaknesses of blockchain systems when confronted with the requirements of secured transactions law.

The existence of a Central Custodian also possesses significant relevance in integrating the principle of publicity into the digital asset security system. The principle of publicity fundamentally aims to provide information to third parties regarding the legal status of an asset that has been encumbered with a security right[55]. In relation to conventional collateral objects, this principle is implemented through official registration and recording systems that are administratively accessible. However, within decentralized blockchain systems, there is no specific mechanism that explicitly indicates whether a particular crypto asset is subject to a security interest. Consequently, third parties may encounter difficulties in determining the legal status of such assets, thereby creating opportunities for unlawful transfers or multiple encumbrances over the same asset.

A Central Custodian may address this issue through a digital recording system integrated with the security creation mechanism. Through custodial registration, the status of assets that have been used

[55] Nur Lailah et al., "Asas Publisitas Dalam Hukum Jaminan ; Telaah Kritis Terhadap Perspektifitas Perlindungan Kreditur," *Al-Muamalat: Jurnal Ilmu Hukum & Ekonomi Syariah* 10, no. 2 (2025): 53–69, https://doi.org/https://doi.org/10.32505/muamalat.v10i2.11098.

as collateral may be clearly identified, thereby creating transparency and legal protection for all interested parties. This system simultaneously serves to prevent the practice of double collateralization, namely the use of the same asset as collateral for multiple obligations without the knowledge of other creditors. In this regard, the Central Custodian functions as an institution that implements the principle of publicity in a modern manner through digital technology that is more adaptive to the characteristics of crypto assets.

The establishment of a Central Custodian cannot be undertaken merely as a private institution operating without state supervision, considering that digital assets are closely related to financial system stability, consumer protection, and the security of electronic transactions. Therefore, the ideal custodial institutional model must be developed through state-based supervision involving authorities possessing legitimacy within the financial and financial technology sectors. Such an approach is necessary to ensure that the Central Custodian functions not only as a technical service provider but also as a legal institution subject to the principles of accountability, transparency, and the protection of public interests.

In line with this objective, the establishment of a Central Custodian also requires comprehensive and measurable security standards and digital asset governance frameworks. The state must establish minimum standards concerning private key storage, encryption systems, multi-factor authentication, disaster recovery systems, and digital audit mechanisms capable of ensuring the security of users' assets. Such standards must be developed based on the principle of prudential regulation in order to ensure that digital asset management is conducted in a professional, transparent, and legally accountable manner[56]. In the absence of robust security standards, a Central Custodian itself may become a new central point of vulnerability within the digital asset ecosystem. Therefore, custodial policy development must be directed toward achieving a balance between technological innovation and legal protection, thereby ensuring that the development of digital asset-based financing systems may continue without compromising the principle of prudence within the financial sector.

Ultimately, the establishment of a Central Custodian reflects the direction of modernization within Indonesia's secured transactions law system. The development of digital technology demonstrates that the law can no longer rely upon conventional paradigms that recognize only tangible objects as subjects of possession and security rights. Accordingly, the national legal system must move toward a more adaptive approach in response to technological developments and the transformation of the digital economy. A Central Custodian constitutes an important component of this modernization process because it is capable of integrating the principles of legal certainty, creditor protection, financial stability, and enforcement effectiveness within a single institutional framework that is relevant to the characteristics of modern digital assets.

Conclusion

Crypto assets juridically possess the potential to serve as objects of fiduciary security because they satisfy the characteristics of intangible movable property that has economic value and is capable of being transferred. The recognition of crypto assets as digital commodities within the Indonesian legal system further strengthens the possibility of their application as objects of proprietary security rights.

[56] Siti Azijah Alisia and Abdul Halim Barkatullah, "Legalitas Bitcoin Dan Teknologi Blockchain Dalam Sistem Keuangan Indonesia : Analisis Tatanan Hukum," *Urnal Ilmu Sosial & Hukum Al-Zayn: Jurnal Ilmu Sosial & Hukum* 3, no. 3 (2025): 2856–63, https://doi.org/DOI: https://doi.org/10.61104/alz.v3i3.1743.

Nevertheless, the existing fiduciary security regime remains grounded in a conventional paradigm based on physical and administrative control and, therefore, has not yet been able to accommodate the characteristics of blockchain-based digital assets that operate within a decentralized system. The principal issue lies in the mechanisms of possession and enforcement of crypto assets, which depend upon private keys as the primary instrument of control, thereby creating a gap between juridical possession and factual control over the collateral object. In addition, the volatility of crypto asset values, the potential for cross-jurisdictional transfers, and the absence of digital seizure mechanisms also constitute obstacles to ensuring the effective enforcement of creditors' rights.

Accordingly, a reconstruction of fiduciary security law that is more adaptive to the development of digital technology is required through regulatory reform concerning the possession, supervision, and enforcement of digital assets. One strategic measure that is necessary is the establishment of a Central Custodian as an institution responsible for the control and safekeeping of crypto assets under state supervision. The existence of a Central Custodian plays an important role in ensuring legal certainty, implementing the principle of publicity, preventing unauthorized transfers and double encumbrances, and supporting the effective enforcement of security rights when a debtor defaults.

Furthermore, a centralized custodial system may also support the stability of collateral value through monitoring mechanisms, risk management, and supervision of digital asset movements. Therefore, the establishment of regulations and institutional frameworks concerning a Central Custodian constitutes an essential component in the modernization of Indonesia's secured transactions law system in order to provide legal protection, certainty, and effectiveness in the use of crypto assets as objects of fiduciary security.

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