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Block Chain Application on Property Law: Meeting Legal Certainty for Creditors in Bankruptcy Cases

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Abstract

This paper aimed to analyze the possibilities of the Block chain technology in upgrading the Indonesian property law and its future utility in property-related transactions, especially with regard to the bankruptcy law regime. Both statutory and the case based approaches were used as the research methodology to collect authentic data related to block chain technology benefiting the upgradation of the property law. The statutory approach helped in understanding the pertinent laws and regulations while case based approach helped to study the social and financial implications of the law. The data analysis technique adopted was a descriptive-analytical approach. Since the study was made with a legal and economics perspective, the findings included a positive view of property law in Indonesia when block chain technology is adopted with some exceptions of bankruptcy cases where the execution failed due to property law problems. The study highlighted factors that could help the property regulations upgrade.

Keywords: property law, block chain, cryptocurrencies, bankruptcy

Introduction

Block chain is a technology that enables the existence of cryptocurrency. Almost all cryptocurrencies, including Bitcoin, Ethereum, Bitcoin Cash, and Litecoin, are secured via Block chain networks (Andersen, 2022). Although Indonesia has banned cryptocurrencies as a payment instrument, it is still being traded as a commodity (Alexander Sugiharto & Muhammad Yusuf Musa, 2020). Indonesia's Commodity Futures Trading Regulatory Agency (Badan Pengawas Perdagangan Berjangka Komoditi – "BAPPEBTI") has approved 229 crypto assets to be traded in the country (Bintarto, 2022; Chang, 2019). A greater challenge is that the Indonesian government is yet to enact laws governing cryptocurrencies, though over the course of more than 75 years since its independence, Indonesia has striven hard to prove itself as a legal state, in accordance with the Indonesian constitution. Another big challenge is that prior to its independence, since Indonesia was under the Netherlands' colonization, it is still carrying the colonial legacy in the form of a strong influence of the Netherlands

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on its law regime. For example, the Indonesian civil law regime still relies on *Burgerlijk Wetboek* (BW), a codification of private law norms stated by the colonial masters and that still remains the Indonesian core civil code. The national legal experts are now looking forward to redefine the Indonesian legal regime, particularly its property law, which is still invariably under the colonial influence (Widjaja, 2019).

The Indonesian property law is mostly regulated in accordance with the *Burgerlijk Wetboek* (BW), reminding one of the colonial regimes. Out of its several books, the second book of the civil code (BW) covers the ownership, possession, transfer, and loss of property rights. Some academicians argue that Indonesia has been enacting an ancient legal framework since its independence without significant changes. Despite the long debate, however, till date, the code still remains as the legal source of property law, with some changes through the enactment of other laws (Andersen, 2022). For example, land ownership in Indonesia has not recognized BW as law, but instead, it refers to Law no. 5/1960 on Basic Agrarian Principles. Similarly, Indonesia also does not recognize the collateral mechanism of law stipulated in the BW, as the collateral-related regulation has been replaced with Law no 4/1996. This law deals with a protection mechanism for the creditors to receive their payment without taking risks in case of borrower getting into insolvency. In the Indonesian legal regime, insolvency usually results in the general confiscation of the insolvent's property and the case is governed under the property law (Ameyaw & de Vries, 2023).

Under Indonesian property law, bankruptcy is well-defined (Retnaningsih & Ikhwanisyah, 2017; Shubhan, 2020; Steele, 1999; Toha & Retnaningsih, 2020). The Law no. 37/2004 concerning Bankruptcy and Postponement of Debt Settlement Obligation declares one as insolvent when two elements are fulfilled. First, is that the presence of two or more creditors and second, one of the debts is already payable. The fulfillment of these elements would allow the rightful parties to request the court to declare the party to be insolvent or bankrupt. Bankruptcy under the law would dismantle one's right to be one with a capacity. Therefore, to do any legal action, including entering an agreement, the insolvent individual would require the permission of his curator.

This paper aimed to analyze the possibilities of the Block chain technology in upgrading the Indonesian property law and its future utility in property-related transactions, especially with regard to the bankruptcy law. This topic is viewed from legal and economic perspective with normative approach methodology.

To explore the topics throughout, this paper is organized in the following order: the next section is a problem statement and the conceptual framework where are discussed the present property law in Indonesia and problems that surround its practical application, including the bankruptcy cases, and how the execution fails to meet the court request due to property law problems. This section also suggests the use of Block chain technology, along with its benefits and risks, showing how it can upgrade the property law using the Block chain technology. The existing property regulatory challenges are also highlighted to support the arguments. The section following it presents the review of previous studies, and some laws and acts that could act as a narrative and a rationale to perform the current study. The next section is the methodology section, followed by results and discussion on the questions posed, with due mention of some possible utilization of the upgraded property law in the bankruptcy cases. Lastly, the paper concludes with the steps and recommendations that are required to take to upgrade the Indonesian legal regime.

Literature Review

- *The Colonial legacy and evolution of Property Law*

Since the Netherlands colonized Indonesia for more than 350 years, there is still an influence of the Netherlands' legal system. The Indonesian law schools still include a lot of Dutch terms in their teaching. In the property law regime, the second book of BW has stipulated a clear status over one's ownership over properties. However, a significant change of property recognition started to change in 1960. The enactment of Law no. 5/1960 on the Agrarian Basic Principles marked the reformation of Indonesian Property Law. In general, the enactment partly was the execution of the initial plan after independence, removing colonization traces that are seen to be unfit with the society norms. Post its enactment, Law no.5/1960 governs all land-related regulation and dismisses all land-related provisions in BW. One significant difference that Law no.5/1960 offers is the recognition of property rights over land (Marwan & Bonfigli, 2022; Toha & Retnaningsih, 2020).

The Indonesian civil law indoctrinates classified properties differently, the most prominent classification for this research is the division based on the property's movability, making the division into movable and immovable property (Prananda, Syukur, & Diaz-Granados, 2023). Under the law, this kind of classification is recognized as natural classification. Such a classification also requires legal recognition to make a clear framework for property ownership. Under Indonesian law, most movable objects are considered to have their ownership status "built-in" with the property (Pati, 2019). In other words, the ownership of one's property is proven by the mere possession of the property. The economic justification for such a possession is that the cost to prove one's ownership if we opt to take another option in determining the ownership is that the transaction cost in proving one's ownership might be too high and even be more expensive than the property itself.

In a case where the property is less valuable, the framework is highly efficient. However, if the value of the property is more valuable, then a problem might arise. People will invest too much on not losing the property or, even worse, would be more likely to do illegal occupation to own a property. The regulators in the past realized this problem and came up with a solution: certificate of ownership. Some property rights require more than just a display of possession to proof. More valuable properties (i.e., vehicles and gold) require a display of ownership certificates to prove one to be the owners. In the theoretical context, the ownership right still is attached to the property, but the existence of a certificate would be a stronger proof to it. This concept, however, does not apply to immovable property (Thamrin et al., 2021).

Under Indonesian law, land ownership is specifically regulated under Law no. 5/1960. The law requires all land to be certificated and all transfer of ownership must be recorded by the mechanism provided by the government. This is why land ownership transfer must be done in front of a 'special professional' required by the law, a Land Deed Official ("LDO"). Under Government Regulation no. 51/2022, all transactions that involve a transfer of property ownership require the presence of a notary.

- *Indonesian Securities Law*

Under finance theory, leverage is a tool to amplify return. Businesses with leverage could earn more profit with lower equity. The leverage, which is the loan that financial institutions offer, however, comes as a double-edged sword. In order to get leverage, one should risk his asset through the securities mechanism. In giving a loan, a financial institution does not share the risk with the business, unlike the concept of investment. Therefore, the financial institution would request an asset to be the collateral of the loan, in case the debtor fails to pay his debt.

BW recognizes two types of guarantees: general guarantee and property guarantee. Under the first, the debtor guarantees to pay the loan by staking all his property ownership throughout. This means that failing to pay the agreed loan would result in the existence of the creditor's right to request the debtor to liquidate all his property to pay the loan. In practice, however, the process is not that simple, since the request should be submitted before the court. The second type of guarantee, the property guarantee, relieves the procedural problem encountered in the first type of guarantee. The property guarantee means that the debtor stakes his specific properties as the collateral of the loan. In general, the collateral would be more valuable than the value of the loan so that the creditor would be assured of the loan payment and the properties encumbered would be put under *parate executie* under the agreement. *Parate executie* gives the creditor a right to liquidate the collateral in case of non-payment without requiring the case to be taken before the court. This simplifies the procedure, saving more on the transaction and procedural costs (Vidan & Lehdonvirta, 2019).

There are four types of securities recognized under Indonesian law: lien, fiduciary, mortgage right, and hypoteek (Irma et al., 2021). Each of these is used in different types of properties. Movable objects would be put under either lien or fiduciary while immovable objects would be put under either mortgage right or hypothec. The Lien mechanism requires one's property to be under the possession of the creditor. This way, the creditor is ensured from the hold-up behavior of the debtor by not paying the debt. In the case where the debtor fails to pay the debt, then the creditor, assuming there is a right of execution provision in the agreement, could execute the property by auctioning it and gets his payment as agreed.

In practice, liening allows the creditor to have the access to this resolution easier as the possession of the encumbered property is in the possession of the resolution. However, this form of securities invites another efficiency problem. The shift of possession to the creditor causes the property to be "unusable" by the creditor and in the end, it will leave the property to produce anything during the period. Imagine that you are encumbering your machinery and the machinery is your tools for reaping profit. If the machinery is under the possession of the creditor, then the machinery would not make any profit. In light of this, the solution proposed was to let the possession of the property remains with the debtor, but the creditor is assured that in case of payment failure, the property is executable. This mechanism is what fiduciaries essentially offer.

The creditor will provide loans with only the proof of ownership possessed by the creditor, while the property itself can be possessed by the debtor. This way, the debtors could still reap values out of the securities, which is essential for the loan

payment, and the creditors would be assured of future payment, while also allow execution in case of payment failure. Mortgage right is specifically applied for lands, where the lands under mortgage right would be registered to the National Land Agency. For large vehicles like cruise and airplane, the available securities mechanism is hypothec. Hypothec used to also applicable for land until the enactment of Law no.5/1960. This section, however, would not probe deeper into the mechanism but is aimed to cover the available securities under Indonesian Law.

- *Block chain Technology and Its Implications*

Block chain comes as an alternative to transactions by cutting off intermediaries, in both types of transfer of ownership discussed earlier: the transfer of property ownership and transfer of ownership of securities (Fauziah et al., 2020; Geiregat, 2018). Block chain technology might not be that recent in development, yet its real-world application remains limited to date, apart from the adoption of cryptocurrency. Block chain was first introduced by Satoshi Nakamoto in the form of a cryptocurrency product, the Bitcoin. For the first time, the internet allows not only the exchange of information but also value. For Block chain transactions, the bank works as an intermediary. Block chain technology allows to bypass intermediaries through consensus mechanisms. Instead of handing the ledger to the intermediary, each of the participants in an ecosystem now owns the same transaction ledger. This means that one cannot arbitrarily create a transaction without the approval of other holders. Each of these ledger holders, called nodes, would verify each transaction. We do not mean to get too technical, but for the sake of this writing, we will cover a little technicalities of Block chain technology (Inci & Lagasse, 2019).

Methodology

This paper aimed to analyze the possibilities of the Block chain technology in upgrading the Indonesian property law and its future utility in property-related transactions, especially with regard to the bankruptcy law. This topic is viewed from legal and economic perspective with normative approach methodology. This research used a normative juridical research method which facilitates to examine the legal norms that are applicable in comparative approaches and case studies (Irwansyah, 2020). The study also adopted a novel method that gives the results in the form of decentralized cryptocurrency block chain technology (Herbert & Litchfield, 2015). A normative legal research design further is applicable when a study aimed to examine applicable normative law taking a conceptual and case based approach (Soekanto & Mamudji, 2001). The current study aimed to make use of both statutory approach and the case-based approach in order to collect authentic data related to block chain technology benefiting the upgradation of the property law. The statutory approach helped in understanding the pertinent laws and regulations while case-based approach helped to study the social and financial implications of the law.

A qualitative approach was used to analyze all the data and information collected from diverse sources including primary, secondary, and tertiary legal material. The primary legal data included the laws and regulations, while the secondary data was obtained from various previous research studies, case histories and books, articles, and legal reports. The tertiary legal data was used for providing instructions/explanations

on primary and secondary data. The data analysis technique adopted was a descriptive-analytical approach. The data compilation and analysis were done through deductive reasoning methods in order to make legal conclusions from general to specific.

Problem Statement and Conceptual Framework

As a research study, it is interesting to explore the hypothesis that BW has been outdated and such a claim is verifiable. The colonial regime now cannot influence the current law and civil society. This is one part of the question that this paper has addressed. Secondly, while this paper focuses on property law, it turned out to be a more interesting study with the new technology, the Block chain technology, coming into play. The main objective behind allowing the trading of cryptocurrencies in Indonesia is to “help with financial risk assessment, anti-money laundering (AML) and combating the financing of terrorism requirements” under the Block chain technology (Alexander Sugiharto & Muhammad Yusuf Musa, 2020). Though there are currently no regulations that might bring the block chain technology into the regulatory regime for financial securities, as current regulations only enable cryptocurrency to be traded as commodities as a futures exchange in Indonesia. For this reason, in Indonesia, Block chain technology is developing in a rather slow manner. The present regulators seem to be of opinion that Block chain technology requires some time before a more complex regulation can be enacted (Andersen, 2022).

In the context of property law, the regulation is more of a recognition instrument for the assets produced through the Block chain technology. The Block chain technology, however, offers unlimited collaboration possibilities that might even unlock the full potential of our property law regime. The Block chain technology works as a machine of trust, where one can ensure a secure transaction without the fear of fraud or forgery. It allows no hold-up game between parties and leaves no room for ‘fake ownership’ to take part in any transaction within the ecosystem. We argue that the development of property law will greatly reduce the transaction cost of transferring assets, preventing ‘double-spending’ problems in the real world due to overlapping proofs of ownership and identifying fake certificates to be transacted under the ecosystem. When one fails to fulfill the payment obligations under a loan agreement, the consequence would not only result in breach of contract but also bankruptcy, in case where the elements are fulfilled (Widjaja, 2019).

In theory, the case of bankruptcy would be a protection mechanism for the creditors to receive their payment without taking risks along with the borrower. Bankruptcy results in the general confiscation of the insolvent’s property. Once declared bankrupt, a curator would be appointed to settle the unfulfilled legal obligation. The property would later be assessed to settle all the obligations. The insolvent might have known that he will be declared bankrupt by the court and he, therefore, will face general confiscation. General confiscation is limited to one’s property, and in case of a corporation, it should not involve the shareholders’ property. To evade this consequence, some cases evidence that the insolvent, with prior knowledge of the possible future, transferred the right of all assets to a third party, leaving him having no asset under his ownership. Even if later the court does declare him to be bankrupt, there would be virtually nothing to be confiscated (Shubhan, 2020; Steele, 1999).

The problems stated above raise a serious threat against the certainty of the creditors. Even if the law might virtually protect the creditors' right, the protection is often found as 'on paper' protection in which, the decision has been passed in favor of the creditors, yet execution is impossible. The regulation has overseen this possibility upholding *actio paulina* principle, but it is only applicable for the transfer in the past one year. Therefore, despite the clear ruling, the creditors are always under risk of not getting paid. Under the economics theory, risk will be translated into cost and this risk results in a higher cost to do funding, which would eventually result in slower economic growth from the macroeconomics point of view.

While these problems seem to be fraud-related seeking criminal justice, the essential problem lies in an ambiguous property ownership. There also exists no clear legislation nor proper asset data management of the property. Such issues were seen to be too complex until the invention of Block chain technology, which had the potential to upgrade the property law. Previous studies have not discussed the issue of upgrading of property law regime through Block chain technology nor have considered its benefits in the bankruptcy law developments. As an example, there are numerous cases where the decision of the commercial court is straightforward in deciding one to be bankrupt and, consequently, all of his property would be legally confiscated. However, in practice, the execution does not work smoothly as the bankrupt party has previously transferred his property beforehand or without the authority of the creditors through some technological intervention. In such a case, creditors that have been involved in an agreement with good faith might suffer significant loss.

Hence the current study explored the possibilities of upgrading the Indonesian property law and its future utility in property-related transactions, especially with regard to the bankruptcy law through the Block chain technology. This topic is viewed from legal and economic perspective with normative approach methodology.

Results and Findings

The Indonesian currency is determined by law, according to Article 23B of the country's constitution, and the currency legislation of 2011 mandates that nearly all financial transactions in Indonesia be conducted in Rupiah, the country's only recognized currency. Cryptocurrency has although grown in popularity, and Indonesian regulators are still trying to catch up. The purchase and selling of cryptocurrencies in Indonesia are only authorized for investment reasons as a trading commodity only or for legally specified crypto assets, according to the country's legislation. The central bank has also underlined that cryptocurrencies are not a valid method of payment. Banks are forbidden to facilitate the use of cryptocurrency as a form of payment.

In spite of such restrictions, according to data from the Block Chain Association of Indonesia, the number of investors has risen by 280% since 2020, from 1.5 million to 4.2 million, with a daily trading volume reaching USD 117.4 million and trading about 229 cryptocurrencies. In Indonesia, crypto assets under block chain technology are regulated under a few laws, namely: (i)

Ministry of Trade Regulation No. 99 of 2018 on General Policy for Future Trading of Crypto Asset ("MoT Regulation 99/2018"); (ii) Commodity Futures Trading Supervisory Agency (*Badan Pengawas Perdagangan Berjangka Komoditi* or "BAPPEBTI") Regulation No. 5 of 2019 on Technical Provisions on the Implementation of Physical Market of Crypto Asset in Futures Exchange, as lastly amended by BAPPEBTI Regulation No. 8 of 2021 on Guidelines of the Implementation of Physical Market Trading of Crypto Assets on Futures Exchanges ("BAPPEBTI Regulation 8/2021"); and (iii) BAPPEBTI Regulation No. 7 of 2021 on Decree on the List of Tradeable Crypto Assets in the Crypto Asset Trading Market. All types of Crypto Assets under Art. 1 Point 7 of BAPPEBTI Regulation 8/2021, are defined as intangible property in digital form, using cryptography, information technology networks, and distributed ledgers to regulate the creation of new units, verify transactions, and secure transactions without the intervention of other parties.

This might raise a question as to whether Crypto Assets (property) have the same treatment, definition, and function to cryptocurrency. It is known that cryptocurrency is a sub-class category of Crypto Assets, but not all Crypto Assets are cryptocurrencies. Cryptocurrency is the store of value and method to transfer that value between the currency users. As per the law, the Crypto Assets can be traded in Indonesia after fulfilling the requirements as determined by BAPPEBTI. Besides, all such trade transactions should have economic benefits, such as taxation, digital economic growth, the information technology industry, and the competence of experts in the field of informatics (digital talent). It is also necessary to ensure that the crypto asset has passed the risk assessment, which include risks of money laundering, terrorism financing, and proliferation of weapons of mass destruction.

BAPPEBTI establishes the following responsibilities for crypto-asset physical traders: (i) to establish standard operating procedures for monitoring and evaluating the crypto-assets exchanged by the trader; (ii) the crypto-assets should be exchanged by the crypto-assets physical trader and monitored and assessed independently and actively; (iii) traders should actively report to BAPPEBTI, the Crypto assets Futures Exchange, and the Crypto assets Committee the outcomes of the monitoring and assessment of traded crypto-assets; and (iv) to unilaterally impose limitations on crypto-assets that fail to meet the trader's risk standards.

In 2021, the number of global crypto holders has been estimated to have increased by 3.9% to more than 300 million crypto users worldwide, with more than 18,000 businesses already accepting cryptocurrencies as payment. Indonesia was the seventh-largest crypto user base, below Brazil and Pakistan. It is estimated that there are 7.2 million Indonesians who own cryptocurrencies, while according to the Indonesian Block Chain Association, as of July 2021, the number of crypto owners in Indonesia is 7.4 million people, an increase of 85% from 2020, as presented in Figure 1. This number is significantly more than the number of stock investors in Indonesia with only 2.7 million investors, based on data from the Indonesia Stock Exchange.

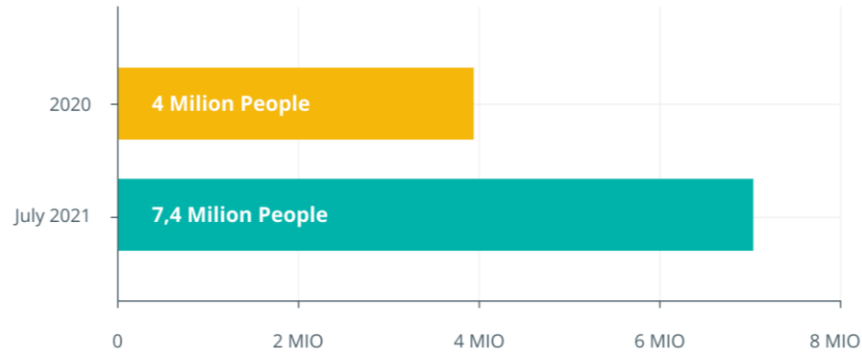


Figure 1: Indonesian Crypto Investor Growth
Source: Indonesia Block Chain Association

The total population of Indonesia in June was 272 million people, which means that only 2.7% of the Indonesian population owns crypto. This shows that there is still room for the crypto industry to grow, develop and reach more corners of Indonesian society. The rapid growth of crypto investors in Indonesia is partly the result of Indonesian regulators that have welcomed crypto and Block chain developments with open arms. Throughout 2021, there have been many discussions with officials, new crypto regulations and developments in the sector.

It is hoped that Block chain could fortify the Indonesian Property Law. The Ministry of Trade Regulation No. 99 of 2018 has formally authorized crypto asset trading and decreed it lawful. Furthermore, the Indonesian Commodity Futures Trading Supervisory Authority, or BAPPEBTI, published Regulation No. 5 of 2019 to provide a thorough regulatory framework for the crypto-assets future. These BAPPEBTI Regulations in Indonesia have made significant progress toward building a comprehensive legal framework that will guarantee that the crypto sector thrives in the country, even if it is not yet accepted for payment. Some of the key regulations include BAPPEBTI Regulation No. 7 (2020), which has compiled a list of 229 crypto assets that may be traded lawfully on future exchanges; BAPPEBTI Regulation No. 5 (2019), which recognizes Bitcoin as a commodity and the regulatory standards for cryptocurrency exchanges also has been classified.

The built-in consensus in the Block Chain Technology is a way out from the problem. Since now consensus is required for any property transaction, we can therefore expect a proper transaction of a real digital certificate that represents the ownership of a property. If someone is transferring a property in the real world, it is with a certificate and the transferring process is done when the property is handed over to the buyer and the name in the certificate is changed into the buyers. In the present digital world, it is a little bit hard to apply, unless all the data regarding the ownership is stored in one centralized data. However, to authors' understanding now, even with centralized data, multiple certificates still occur, and the centralization result to a less transparent regulation in the property law, causing uncertainty and to the bankruptcy case, un-executable properties require a lot of effort to verify. In the decentralized system, the certificate can be converted into non-fungible token, making it essentially a transferable goods, without requiring all data to be stored in a centralized server. This way, certificate issued can easily verified and there is no way

one can duplicate or issue a forged certificate. The mechanism is simple, yet the impact is rather huge as it scales throughout a country's jurisdiction, enhancing legal certainty with a definitely lower cost. With these features, we are now one step closer to reach a more perfect market with lower cost of verification, virtually zero risk of fraud and tampering, and lower risk of dispute as the ledgering mechanism of property transfer is clearer.

In a case of bankruptcy, too, all of the default party's property is put as security to ensure that creditors would be paid accordingly. On paper, the normative result would be quite certain as the debtors should be unable to transfer his right over the secured property. However, the practical administration often differs. In numerous cases, the creditors are normatively protected, but the administration problems are hindering them from the protection. On the surface, the problem seems to be the mechanism, but we argue that proper administrative management would solve the problem. The data verification process takes time and even with the huge amount of time, administration errors occur and the transfer of rights over secured property still proceeds.

Discussion

Taking Block chain technology into account, the tamper-proof and verifiability it offers would be a huge cost-saver with the more accurate and less risky application. Digitizing an asset certificate with a clear linkage to the property is essential. We agree with Coase's theorem that one of the most essential elements of an efficient market is the clear regime of property ownership. Therefore, even before the application of Block chain may work, digitalization is required. All certificates over assets should be in digital form. Once everything is turned into digital form, Block chain technology will jump into the game to deal with the trust problem.

In centralized digital data storage, we rely fully on the benevolence of the asset administrator. Even in an assumption that the institution is benevolent, we are unable to ensure that all the individual officers are so. Therefore, a single trivia error or unaligned incentives would result in a risk of uncertain asset ownership, not to mention the downside of external source of problems, including a single point of failure and hacking. To deal with this, monopoly power over consensus and validation shall not be centralized and instead, be decentralized. The decentralization is embodied in the consensus mechanism that is adopted by Block chain technology. The hashing and Merkle tree mechanism allows a decentralized consensus to be reached with almost no way to hack the data. Consensus and Merkle tree mechanism allows trust to be capitalized, where one can safely assume that the data is fully his own, others cannot save it against his will and more importantly, allows transparency between all parties.

To illustrate the use of technology, say that one person is under bankruptcy, which result in total encumbrance of all his property. Once declared bankrupt, the government, under the command of the judicial body, will disallow all kind of transaction of asset of the bankrupt individual. Using Block chain technology, all of assets under his name would be marked as not tradable on a permissioned ledger in a Block chain ecosystem, disallowing it to be changed in any way, unless through a legal mechanism enacted by the government.

Despite the wonder offered by the possibilities of Block chain technology application in the property law regime, there are a lot of obstacles to deal with. First, a large-scale digitization is required in order to allow this kind of seamless technology experience to take over the piles of administrative paper with high risk of human error. Second, interoperability between ledger is required. One of the largest problems we are facing is that, despite the huge amount of data we have given, each of it are closed to each other. Say for example, you cannot use your Starbucks loyalty card to get discount at Dunkin Donut's. Same goes for the data, we might have inputted personal information in one ministry, yet those data are not well-recorded on the other, leaving a lot of gaps for mistakes between governmental bodies. Third, new innovation always come with one thing, uncertainty. While to date Block chain technology poses no serious threat, the technology is still in its infancy. This is to say that there is more that we do not know about it than what we know. Committing too much and relying solely on such an infant technology might not be best, at least until we could discover all factors for a proper cost and benefit analysis.

Faced with all the problems, the judicial question raised on the law and economics perspective is whether to regulate or not regulate. We have to understand that the application of Block chain technology in the property registration process might be a huge leap in reducing transaction costs and certainty. The regulatory framework that we need to require a regulation that stimulate the technology application, yet wary enough not to react, when possible, risk raises from the technology emergence. Perhaps, *sandbox regulatory* system adopted in the P2P lending business might be a good start to stimulate the technology emergence in a smaller ecosystem.

Conclusion

In the context of this study, it is concluded that Block chain is revolutionary due to its decentralized nature. In the view of Block chain technology, the digital world is now being reshaped with the existence of this technology. The Block chain technology allows the value transfer, a great addition to our present broad internet development. An image of an official certificate, for example, cannot be used as a proof. This is because the image can be copied indefinitely, and the question of its authenticity can be raised. For this reason of authenticity, immovable property transaction requires a testament from notary. In a smaller scale, an ownership over image of specific certificate is not sufficient due to its duplicative nature, raising trust issues. Block chain technology solves this so-called double-spending problems in action.

This research focuses on the possibilities of combining Block chain technology with the present regulatory system in the property law regime. There are a lot of advantages offered by applying the technology and allows a more transparency and certainty for creditors in the context of bankruptcy. However, we do not probe deeper on the cost benefit analysis for the usage of the Block chain technology in the property law context. We pave the way for future researchers to probe these matters deeper. Some future research that might invite economists would be the cost efficiency offered from the adoption of Block chain technology in the property law context, while information technologist might be cliqued to develop an app that allows Block chain ecosystem to be adopted in a large scale.

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