Digital Securities and Blockchain Technology: Challenges and Impact on Thai Capital Market in Legal Context

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Digital Securities and Blockchain Technology: Challenges and Impact on the Thai Capital Market in Legal Context

Supawich Sirikanchana¹

I. Introduction

A. Background and statement of the problem

“Digital securities” are an outcome of a phenomenon known as “disruptive technology,”² which essentially affects the operation of capital market structure from the beginning transaction as the issuance of securities to the on-going transaction as securities trading and settlement. The change of technology from a documentary to digital basis plays an important role in the securities industry. Likewise, the law governing these operations must also be adjusted for its suitability to these developments. In short, the governing law must catch up to the digital era in order to properly fit the digital economy.

B. Purpose of the study

(i) To understand significant elements of securities and categorize them;
(ii) To understand how blockchain works and its effect on securities transactions;
(iii) To identify and analyze the existing laws and regulations in targeted countries and to compare the advantages and disadvantages between those laws; and
(iv) To propose proper laws, regulations and policies.

C. Methodology

This study utilizes the documentary research method, which emphasizes the laws and regulations of Thailand and other selected countries. Philosophical, historical and comparative legal methods will also be applied by investigating various documentary sources; for instance, textbooks, documents, articles, journals, related courts’ verdicts and legal opinions.

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² In the Cambridge Dictionary, “disruptive technology” is define as “a new technology that completely changes the way things are done.” <https://dictionary.cambridge.org/dictionary/english/disruptive-technology>
D. Scope of the study

This research focuses primarily on laws and regulations involving securities and securities transactions that have been disrupted by digitalization. Firstly, general information and characteristics of blockchain will be outlined and its adaptation to securities transactions highlighted, followed by the provision of additional information that will focus on the laws and regulations of selected countries and compare facts with underlying ideas. Then, the core concept and features of “digital securities” will be explained, along with the relationship between digital securities and transactions that occur within the securities industry. Most importantly, the relevant Thai laws will be discussed with respect to their adaptability and suitability. Finally, after considering all relevant information, the obstacles and challenges for in-practice business affairs will be analyzed.

E. Assumptions

For decades, securities have been made tangible in the form of documents, which most people, along with related laws and regulations, gradually became familiar with. In other words, laws and regulations were designed on the basis of physical documents. Thus, in its early stages, the emerging digitalization era seemed like a disruption to social and business activities. However, in due course, people adjusted to digital technology because of the greater convenience and flexibility it provides. Unfortunately, laws and regulations are different, as they are not able to self-adjust in the manner of human beings. Therefore, a key assumption of this study is that the current laws of Thailand in this domain have not yet adjusted to digitalization and a critical question could be the appropriateness of amending these laws, which this paper will explore.

F. Importance of the study

Securities are an intangible, synthetic asset that became tangible in the form of documentation over decades. As a result, laws and regulations concerning securities were originally designed to support the concept based on the idea of its documentary substance. Nowadays though, as technology plays an increasingly vital role in our lives, the digitalization of documents has changed ways of doing business, especially transactions in the capital market from the beginning to the end process. In this situation, balancing the original objectives of securities
law and regulations with the emerging disruption of technology is the key question that this research paper aims to answer.
II. Understanding blockchain: Technology underlying digital securities

A. Blockchain in brief

In the early 1960s, the concept of a new communication system known as the “internet” was initially proposed for the purpose of national security. Afterwards, it was extensively developed and utilized throughout the world by various means. The rise of the internet era transformed the world from a documentation (paper-based) approach to an online (digital-based)-centric one and also set the stage for subsequent significant digital technologies. In other words, the emergence of the internet era established the first milestone for a whole new digital age. Undeniably, digital technology, from the past until today, has played an important role in propelling economic growth and social development. Just over a decade ago, in 2008, the word “blockchain”, together with “Bitcoin”, first entered the public consciousness. With haste, blockchain as the underlying technology behind Bitcoin drew the attention of both prominent researchers and practitioners as one of the most considerable digital developments of our time, and which was rapidly globally accepted. In principle, blockchain is a general-purpose digital technology, on par with other digital tools for providing more convenient living and ease of business operation, just like the internet, its associated implements and cloud computing. It is a platform upon which other innovations are developed, as well as the internet. Likewise,
blockchain technology will play a crucial role in shifting the way we live and do business in the manner that the internet has.9

Furthermore, an important propellant of the development of blockchain technology into a more pragmatic application was economic difficulties. To be more precise, the US housing bubble’s bursting in 2008 caused an immense financial crisis in developed countries, which soon expanded around the world. At the time, before the bubble emerged, the financial market adhered to three firm beliefs, namely:10 (i) a growth in the scale of financial activities directly relates to the real economy; (ii) the use of the complexity of financial products and services, in particular, those based on securitized credit and derivatives is widely accepted; and (iii) a rise in confidence that this growth in scale and the complexity of products was adding economic value and thus making the global economy both more efficient and less risky. On the contrary, those assumptions were obviously wrong, as risk management practices were often poor between entities in the financial markets; for instance, inadequate corporate governance arrangements, unfit-and-improper regulation from authorities and a conflict of interest amongst rating agencies for financial products, etc. In order to solve those problems, a new standard for financial business practices was set, as well as tighter regulations from authorities applied.11 At that point, the financial system was entirely reliant on a handful of institutions and players. At the time, because of stricter laws and regulations, as well as reduction in trust in the existing financial institutions. In this situation, financial technology providers, which almost all services rely on blockchain technology, stepped in and offered new services at lower costs through well-designed digital platforms.12 In essence, new players or start-up entrepreneurs offered trust and transparency, responding to the crisis of trust towards traditional financial institutions, such as commercial banks, investment banks, securities brokerages and insurance companies. Coincidentally, at the right moment, the rise of

9 William Mougayar, The business blockchain: promise, practice, and application of the next internet technology (John Wiley& Sons, Inc., 2016) [xix]
11 There are numerous of laws and regulations with an intention to untangle an outcome of the 2008 financial crisis and to prevent the forthcoming financial crisis. Examples of important laws and regulations are the Dodd–Frank Wall Street Reform and Consumer Protection Act and, the Third Basel Accord of The Basel Committee on Bank Supervision. Thailand had partially adopted idea of rules and regulations making from aforesaid laws and regulations which can be found in the Securities and Exchange Act 1992, the Derivatives Act 1999, and the Financial Institution Act 2008 together with regulations enacted under those laws.
12 Susanne Chishti and Janos Barberis, The fintech book, the financial technology handbook for investors, entrepreneurs and visionaries, (Wiley, 2016) 10
blockchain-based financial services triumphed gradually, following the 2008 financial crisis. After that time, a great expansion in blockchain in financial services and later in other domains, apart from financial services, also began. From the above-mentioned developments, creating and maintaining trust and transparency are undeniably the most important issue amongst business counterparties. In other words, the heart of doing business, especially in finance, is to shape and facilitate trust and transparency amongst participants. After the lesson learnt from the recent financial crisis, it is evident that blockchain technology is seemingly missing a piece of the puzzle for a fulfillment of trust and transparency for financial business operations. This ought to be a reason behind why blockchain technology, as a solution-providing instrument, was applied to those cases. This is also the core assumption that must be explored before moving further to further study “digital securities”, which tend to be so relevant in the context of blockchain. In order to do so, a brief definition of blockchain, along with its major characteristics and the requirements of trust and transparency, will be discussed below.

B. Definition of blockchain

The definition of blockchain incorporates various aspects, varying by the sources and purposes of the annotation defining it. The aim of focusing on the definition of blockchain is to provide an essential starting point for establishing a firm understanding of the technology behind digital securities. The variety of displayed definitions altogether tends to lead in the right direction of understanding what blockchain really is.

To begin with, the US Securities and Exchange Commission, primarily focuses on the idea of decentralized or distributed databases of information and is often used for issuing and transferring digital asset that may be considered as securities:

14 Paul Vigna and Michael J. Casey. The age of cryptocurrency: how bitcoin and digital money are challenging the global economic order, (Picador, 2016) 15-17
16 The Securities and Exchange Commission’s role is to regulate securities market related matters in the United States of America. As a federal organization, its foundation was laid in an era that was ripe for reform after the Great
“The blockchain and distributed ledger technology. These terms generally refer to databases that maintain information across a network of computers in a decentralized or distributed manner. These networks commonly use cryptographic protocols to ensure data integrity. Blockchains are often used to issue and transfer ownership of digital assets that may be securities, depending on the facts and circumstances.”

Correspondingly, the Financial Industry Regulatory Authority\(^{18}\) states that blockchain technology can also be categorized as part of distributed ledger technology. It also subscribes to the idea of connecting peer-to-peer network participants, which makes the network secure by means of cryptographic methods:

“Distributed ledger technology involves a distributed database maintained over a network of computers connected on a peer-to-peer basis, such that network participants can share and retain identical, cryptographically secured records in a decentralized manner.”

Meanwhile, the UK’s Financial Conduct Authority\(^ {20} \) defines blockchain with a focus on how secure and safe record keeping mediated by blockchain is and also offers a short explanation on how it differs from traditional centralized record keeping:

“While there is no formal definition of distributed ledger technology, it can be described as a set of technological solutions that enables a single, sequenced, standardized and cryptographically-secured record of activity to be safely distributed to, and acted upon by, a network of varied participants. This record could contain for example, transactions, asset holdings or identity data. This contrasts with a traditional centralised ledger system, owned and

\(^{17}\) Securities and Exchanges Commission (SEC), the SEC’s Strategic Hub for Innovation and Financial Technology (FinHub) <https://www.sec.gov/finhub>

\(^{18}\) Financial Industry Regulatory Authority (FINRA) is not part of the government. It is a not-for-profit organization authorized by Congress to protect America’s investors by making sure the broker-dealer industry operates fairly and honestly. It can be considered as self-regulatory organization or “SRO” for securities broker-dealer industry.


\(^{20}\) Established on 1 April 2013, taking over responsibility for conduct and relevant prudential regulation from the Financial Services Authority. The Financial Conduct Authority, as a government organization, is the conduct regulator for financial services firms and financial markets in the United Kingdom and the prudential regulator for those firms. It aims to make markets work well – for individuals, for business, large and small, and for the economy as a whole.
operated by a single trusted entity. We consider a blockchain to be a type of distributed ledger technology where records are collated into “blocks” and linked using a cryptographic signature.”

The Asian Development Bank\textsuperscript{22} has also addressed blockchain technology. It gives a clear definition of it based on the process of record keeping and also displays a positive attitude on how data is managed using the technology:

“Blockchain refers to how data are stored on the ledger. Rather than being stored individually, data are stored in a block bundled with other data. A single block contains multiple data points, and all blocks are stored in a specific order (the chain). Each block includes a timestamp and a link to the previous block. In a cyberattack, rather than manipulating one data point alone, the bundling of multiple datasets in one block would require the manipulation of the whole block of data and—due to the timestamp and link—the blocks linked to the attacked block (depending on the method used to connect the blocks into the chain). The level of resilience provided by the linking process may vary depending on the design of the blockchain.”\textsuperscript{23}

Moving forward by taking advantage of digital technology, the Bank of Thailand\textsuperscript{24} also took a big step forward by adopting blockchain technology for transforming its government bond record keeping. It adopts blockchain to the scriptless bond project, which will replace the paper-based bond certificate. It gave a brief definition that embodies the core characteristics of blockchain:

“Blockchain is an immutable, shared digital ledger, that records transactions between peers in the network through a chain of cryptographically linked blocks that is distributed to member nodes in the network.”\textsuperscript{25}

\textsuperscript{21} Financial Conduct Authority (FCA), DP17/3 Discussion Paper on distributed ledger technology, April 2017 <https://www.fca.org.uk/publication/discussion/dp17-03.pdf>

\textsuperscript{22} The Asian Development Bank was conceived in the early 1960s as a financial institution that would be Asian in character and foster economic growth and cooperation in one of the poorest regions in the world. It assists its members, and partners, by providing loans, technical assistance, grants, and equity investments to promote social and economic development.

\textsuperscript{23} Asian Development Bank, Distributed ledger technology and digital assets: policy and regulatory challenges in Asia, (Asian Development Bank, 2019) 4-9

\textsuperscript{24} Apart from acting as banking sector’s regulator and monetary policy settler, the Bank of Thailand provides banking facilities to the government in terms of depository and lending facilities for the Ministry of Finance, acts as the custodian for the government, acts as the representative of the government for investment in assets and FX, trades and transfers the bill of exchange, securities, and share certificate, and controls and oversees FX. In additions, it may provide banking facilities to the state enterprise or other government agencies. Moreover, it acts as the registrar for the government bonds by acting as the government representative in purchasing and selling government bonds, paying principal and interest, or acts as the registrar of state enterprises, specialized financial institutions, or other government agencies.

\textsuperscript{25} Bank of Thailand, Project DLT Scripless Bond: Investing in Thailand’s future Transforming the securities markets infrastructure with blockchain, September 2018 <https://www.bot.or.th/English/DebtSecurities/Documents/DLT%20Scripless%20Bond.pdf>
From a lawyer’s perspective, blockchain is a technology that can create an infrastructure for data storage and management; the transformation of databases will play a crucial role in almost every domain that used to be occupied by trusted intermediaries and this will directly affect the way in which the legal structure of data-related transactions is altered:

“Blockchain technology constitutes a new infrastructure for the storage of data and the management of software applications, decreasing the need for centralized middlemen. While databases often sit invisibly behind the scenes, their significance cannot be understated. Databases serve as a backbone for every platform, website, app, or other online service. Up to this point, databases have for the most part been maintained by centralized intermediaries, such as large Internet companies or cloud computing operators such as Amazon, Microsoft, and Google. Blockchains are changing this dynamic, powering a new generation of disintermediated peer-to-peer applications, which are less dependent on centralized control.”

Nonetheless, another view from a legal practitioner on blockchain is optimistic of blockchain technology as a near-perfect record-keeping tool. A brief process of how blockchain works is also provided:

“The blockchain is the record documenting every transaction involving the digital currency. The transaction record, or ledger, contained in the blockchain is complete, unalterable, and accessible to all users of the platform. It provides a complete historical record, in chronological order, of the parties involved in each transaction, the amount of digital currency processed in each transaction, and the time and date of each transaction. The information contained in the blockchain is used to process all transactions and to ensure the continued integrity of the currency system. That integrity is essential in order to preserve the user confidence necessary to keep the system operating as a viable medium of economic value exchange.”

Last but not least, the view of a financial practitioner concentrates on the data management aspect, which is very important for doing business, especially in the financial sector. The more a network grows, the stronger consensus becomes, and as a result, every participant works as a data manager that can gain access to and crosscheck the availability and correctness:

“A blockchain is a lattice network of computers linked not to a central server, but rather to each other. Computers in this network define and agree on a shared state of data and adhere to certain constraints imposed upon this data. This share state is simply a distributed state machine pioneered by an open-source, public blockchain-based

26 Primavera De Filippi and Aaron Wright, Blockchain and the law: the rule of code, (Harvard University Press, 2018) 33
27 Jeffrey H. Matsuura, Digital currency: an international legal and regulatory compliance guide, (Bentham Science Publisher, 2016) 4-5
distributed computing platform called Ethereum\textsuperscript{28} where each “block” can change the current state. The rest of the block contains transactions that the miner can choose to include in a block. As the blockchain network grows bigger, and more nodes and miners participate in it, the overall consensus tends to become stronger on account of more participating players who tend to enforce their own rules (while other players also enforce theirs).”\textsuperscript{29}

In accordance with all of the above-mentioned definitions of blockchain, the conclusion can be drawn that the heart of blockchain technology is to create trust amongst participants. However, in order to bring about such trust, there are two major principles that must be explained. Firstly, the concept of the “cryptography of data storage” that makes the data stored on the database secure and traceable. Secondly, but as important as the foregoing principle is the concept of the “distributed database” that meets the need of transparency and integrity. The combination of these two foundational principles is at the heart of blockchain technology and the next topic to be illuminated.

C. Blockchain and the trust protocol

In the financial services sector, particularly in securities businesses, since 2008 it has been vividly apparent that the presence of trust cements relationships by allowing stakeholders to work together and make businesses run.\textsuperscript{30} This notion conforms the core principle presence in the United Nations Commission on International Trade Law (UNCITRAL), Model Law on Electronic Commerce 1996\textsuperscript{31} which suggests a fit and proper standard for more reliability in doing electronic

\textsuperscript{28} Ethereum is a global, open-source platform for decentralized applications. Launched in 2015, Ethereum is the world’s leading programmable blockchain. On Ethereum, you can write code that controls digital value, runs exactly as programmed, and is accessible anywhere in the world. As of now, thousands of developers all over the world are building applications on Ethereum, and inventing new kinds of applications.

\textsuperscript{29} Pranay Gupta and T. Mandy Tham, Fintech the new DNA of financial services, (Walter de Gruyter, 2019) 108-112

\textsuperscript{30} Dennis Jaffe, The essential importance of trust: how to build it or restore it, 5 December 2018 <https://www.forbes.com/sites/dennisjaffe/2018/12/05/the-essential-importance-of-trust-how-to-build-it-or-restore-it/#6333439264fe>

\textsuperscript{31} The Model Law thus relies on a new approach, sometimes referred to as the “functional equivalent approach”, which is based on an analysis of the purposes and functions of the traditional paper-based requirement with a view to determining how those purposes or functions could be fulfilled through electronic-commerce techniques. For example, among the functions served by a paper document are the following: to provide that a document would be legible by all; to provide that a document would remain unaltered over time; to allow for the reproduction of a document so that each party would hold a copy of the same data; to allow for the authentication of data by means of a signature; and to provide that a document would be in a form acceptable to public authorities and courts. It should be noted that in respect of all of the above-mentioned functions of paper, electronic records can provide the same level of security as paper and, in most cases, a much higher degree of reliability and speed, especially with respect to the identification of the source and content of the data, provided that a number of technical and legal requirements
commerce. The keystone is also to create and maintain trust in doing electronic commerce and to diminish the distrust of doing business via electronic means, which appeared as a problem at that time. The key feature of the model law is to establish core characteristics of trusted electronic data, also known as trusted digital data, as stated in Article 9 and Article 10 of the model law.\(^{32}\) In the blockchain context, the issue is whether blockchain is the optimal technology for creating and maintaining trustworthiness for securities businesses, according to the model law. Furthermore, in order to state whether blockchain is the right solution, exploring the two core characteristics underlying blockchain, consisting of “cryptography of data” and “distributed database”, is necessary. These two foundations will be described in the following.

(i) Cryptography of data

The idea of cryptography in this context can be traced back to the proposal, “How to time-stamp a digital document,”\(^{33}\) which primarily aimed to give an approximate idea of when a document came into existence. Importantly, accurate timestamping conveys the order of creation

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**ARTICLE 9. Admissibility and evidential weight of data messages**

(1) In any legal proceedings, nothing in the application of the rules of evidence shall apply so as to deny the admissibility of a data message in evidence:
   
   (a) on the sole ground that it is a data message; or,
   
   (b) if it is the best evidence that the person adducing it could reasonably be expected to obtain, on the grounds that it is not in its original form.

(2) Information in the form of a data message shall be given due evidential weight. In assessing the evidential weight of a data message, regard shall be had to the reliability of the manner in which the data message was generated, stored or communicated, to the reliability of the manner in which the integrity of the information was maintained, to the manner in which its originator was identified, and to any other relevant factor.

**ARTICLE 10. Retention of data messages**

(1) Where the law requires that certain documents, records or information be retained, that requirement is met by retaining data messages, provided that the following conditions are satisfied:

   (a) the information contained therein is accessible so as to be usable for subsequent reference; and
   
   (b) the data message is retained in the format in which it was generated, sent or received, or in a format which can be demonstrated to represent accurately the information generated, sent or received; and
   
   (c) such information, if any, is retained as enables the identification of the origin and destination of a data message and the date and time when it was sent or received.

(2) An obligation to retain documents, records or information in accordance with paragraph (1) does not extend to any information the sole purpose of which is to enable the message to be sent or received.

(3) A person may satisfy the requirement referred to in paragraph (1) by using the services of any other person, provided that the conditions set forth in subparagraphs (a), (b) and (c) of paragraph (1) are met.

of documents chronologically. In other words, all digital document in the ledger will be sequenced in order, by the time of existence. Then, the security property requires that a document’s timestamp cannot be altered after timestamping. The consequence of this is that each new document certifies the integrity of the contents of previous one. To be more precise, each document’s certificate fixes the entire history of documents and certificates up until that point. In addition, for making the data structure on documents and certificates more secure, the “cryptographic hash function”\(^3\) and “digital signature”\(^4\) have been also be introduced to provide a solution. This involves taking information and rearranging it in such a way that the only intended recipient can understand and use the information for its intended purpose through the process of encryption and decryption, blended with complex mathematical code.\(^5\) In particular, “timestamp”, “cryptographic hash function” and “digital signature” are altogether fundamental techniques behind the block-building in blockchain technology.

The process of cryptography, known as a process of data safekeeping, can be illustratively explained by this diagram:\(^6\)

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\(^{3}\) Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, Bitcoin and cryptocurrency technologies a comprehensive introduction, (Princeton University Press, 2016) [xx-xxiii]

\(^{35}\) In principle, a hash function is a mathematical function with the following three properties: Its input can be any string of any size; it produces a fixed-sized output, for example, a 256-bit output size; and it is efficiently computable, compare to a reasonable amount of time. For a hash function to be cryptographically secure, three additional properties are needed, which are collision resistance, hiding, and puzzle friendliness.

\(^{36}\) In principle, a digital signature is a digital form analog to a handwritten signature on paper. For corresponding, two functions are needed which are; only the owner can make signature, but others, who relevant with it, can verify its validity; and signature must be tied to a particular document, to prevent using it to indicate a different document.

\(^{37}\) Burniske and Tatar, above n 7, 14

This diagram, from the American Institute of Mathematical Sciences, illustrates the workflow of cryptography, which is a composition of the cryptographic hashes function, timestamp, digital signature,\textsuperscript{39} and data bundled up as a block. Each block containing data and other information is hashed and timestamped. Then, each time an alteration or a modification of the data occurred, new data, together with other information, is timestamped and hashed and later stored in a new block, with each block needing to refer to the preceding block to be valid. Furthermore, for more efficient improvement, instead of maintaining the documents individually, all can be collected as a group into blocks and, for more security, these blocks would be linked together as a chain.\textsuperscript{40} From the aforementioned process, if one wanted to alter or modify data, alteration will apply as new separate block of information. As a result, cryptographic hash does not prevent unauthorized meddling with the data, but all meddling will be shown to all network’s participants, detail of which is provided in the following. At this point, the term “blockchain” has been created on the basis of the above-mentioned method. This process can increase the trustworthiness of data stored in blockchains.

(ii) Distributed database

Following the process of cryptography, a distributed database or ledger is a concurrent concept developed for assuring the trustworthiness of blockchain. The idea is that every user or node in the network would have knowledge of the alteration or modification made by updating the ledger of all users.\textsuperscript{41} Assuming that each node, as a ledger holder in the network, always keeps track of all data, then collectively, the ledger holders ensure that the history of transactions cannot be altered or modified after coming into existence. In other words, blockchain is a platform for everyone involved with the network to know the history of recorded information. If a user aims to change data that already occurred, then that data is considered a new transaction that will be stored as a new block of data in the blockchain.

\textsuperscript{39} Other information contains digital signatures, nonce values, nBits and a few other user defined values. Every user has two keys, a private and public key. A digital signature containing these two keys is involved in both signing phase and verification phase. The private key is kept confidential and is used to sign a transaction to encrypt the data. The public key is known by everyone and is used to validate and decrypt the data in the verification phase of the transaction, consequentially confirming data authenticity.

\textsuperscript{40} Narayanan, Bonneau, Felten, Miller and Goldfeder, above n 32, 1-25

\textsuperscript{41} Ibid, 1-25
The idea of the distributed database, as another core concept of blockchain, can be simply illustrated in this diagram.\textsuperscript{42}

![Diagram illustrating centralized, decentralized, and distributed networks.](image)

The Paul Baran’s diagram illustrates an overall comparison between a centralized network, a decentralized network and a distributed network. Unlike the network that we are already familiar with, a blockchain protocol initiates a pattern of distributed computations which, according to the theory, ensure the integrity of the data exchanged and data storage amongst users without going through a trusted third party.\textsuperscript{43} In order to do so, blockchain enables users to directly communicate and perform transactions, after which the record of these transactions will be authenticated by mass collaboration, which is influenced by collective self-interest instead of a dominant third party.\textsuperscript{44} Fundamentally, any person who can access the internet with a computing device can become involved with his preferred blockchain network. In addition, for some protocols, the enthusiasm for getting involved with the network is reciprocal, as every volunteer who provides computation power for the network is rewarded\textsuperscript{45} with valuable digital asset in

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{42} Paul Baran, On Distributed Communications: I. Introduction to Distributed Communications Networks, (The Rand Corporation, 1964) 2
\item \textsuperscript{43} Don Tapscott and Alex Tapscott, Blockchain revolution: how the technology behind bitcoin is changing money, business, and the world (Penguin Random House LLC, 2016) 4-6
\item \textsuperscript{44} Burniske and Tatar, above n 7, 15-16
\item \textsuperscript{45} Mining, in the context of blockchain technology, is the process of adding transactions to the large distributed public ledger of existing transactions, known as the blockchain. The term is best known for its association with bitcoin, though other technologies using the blockchain employ mining. For example, Bitcoin mining rewards people who run mining operations with more bitcoins. https://www.techopedia.com/definition/32530/mining-blockchain
\end{itemize}
\end{footnotesize}
exchange for their time and computation resources. As a result, the idea of a global spreadsheet rapidly emerged and continued to develop over time by leveraging the resources of a large peer-to-peer network to verify and approve each transaction.\textsuperscript{46} The more people or computing power become involved with the network, the more trust and transparency the network can generate.\textsuperscript{47} In essence, blockchain generally has no central, primary database, with no single institution tasked with auditing transactions and keeping records.\textsuperscript{48} Therefore, blockchain is a distributed database representing a network consensus of every transaction that has ever occurred. In addition, removing the intermediate database also reduces the duration of time for storing and processing the flow of data and also preserves the anonymity of users. In return, it decreases the time for transmitting data between everyone who is involved with the network and, in the meantime, concealing the identity of users.\textsuperscript{49}

(iii) Types of blockchain

Initially, blockchain can be categorized by two types of network participation, consisting of public and private blockchains. To begin with, a “public blockchain” is a type of network in which every user is able to validate the transaction and participate in the process of attaining consensus.\textsuperscript{50} All data in the network can be confirmed and synced with every user. Anyone with a computer and internet connection can be enrolled as a user and be provided with the complete blockchain history. The benefit of the public network is the anonymity of the user and full transparency of the ledger.\textsuperscript{51} On the other hand, a “private blockchain” is a restricted type of network that only allows authorized users to participate in it. Additionally, most users in the network are unable to participate in the verification and validation of transactions. Instead, a limited user, who is authorized by the network owner, initiates, verifies and validates each transaction. This type does not provide the decentralized security offered by public blockchains. It can be precisely defined as a traditional centralized system with cryptographic verification and

\textsuperscript{46} Vigna and Casey, above n 12, 123-124
\textsuperscript{47} Quinn DuPont, Cryptocurrencies and blockchains (Polity Press, 2019) 98-102
\textsuperscript{48} Tapscott and Tapscott, above n 41, 6-7
\textsuperscript{49} Mougayar, above n 8, 45-47
\textsuperscript{50} David Lee Kuo Chuen and Linda Low, Inclusive fintech: blockchain, cryptocurrency and ICO (World Scientific Publishing Co. Pte. Ltd., 2018) 212
\textsuperscript{51} Rosario Girasa, Regulation of cryptocurrencies and blockchain technologies: National and international perspectives (Palgrave Macmillan, 2018) 32-33
validations attached. A combination of public and private blockchains can also be utilized and is known as a “consortium blockchain.” In this type of network, data or transactions can be either accessed as open source or privately, with the user having the authority to choose in advance. In this context, this type of hybrid network tends to be categorized as a private blockchain, given that a unique characteristic for creating trust and transparency is only fully applied to public blockchains.

D. Uncertainty of blockchain

On the surface, blockchain or distributed ledger technology is generally claimed to be a trusted protocol for creating and maintaining trustworthiness in the doing of business because of its characteristic flawless security, immutability and unparalleled transparency. Blockchain also addresses the data storage trust issue by ensuring that data are not manipulated while stored. However, beyond these inbuilt protections, blockchain does not make inaccurate data accurate. In other words, inaccurate or false data stored in the network remains inaccurate or false, because blockchain’s function does not rectify data and rather preserves it as original as it is generated. Like any other technology though, blockchain also has certain limitations and loopholes. Concerning the idea on the transformation of digital securities, controversy around data security is considerable.

Blockchain has at times aroused concerns on the issue of data security, as many platforms that use it as an underlying technology have been exploited by hackers. Moreover, in some cases, there may be security glitches or errors in the creation of blockchain that allow hackers easier

55 Mougayar, above n 47, 66
56 “smart contract”, which is a means behind platform operation, is a self-enforcing agreement embedded in computer code managed by a blockchain. The code contains a set of rules under which the parties of that smart contract agree to interact with each other. If and when the predefined rules are met, the agreement is automatically enforced. The contracts are integrated into the blockchain to ensure trust and transparency. By Shermin Voshmgir, Smart contract, July 2019 <https://blockchainhub.net/smart-contracts/>
57 Epiq Angel, Yes, blockchain can be hacked too, April 2019 <https://www.epiqglobal.com/engb/thinking/blog/blockchain-can-be-hacked>
access to data. On the other hand, even if the platform had been built more securely, hackers would still be able to engage in fraudulent activities. If a security flaw exists on the blockchain network where an application operates, valuable data may be stolen from users without being detected because the illicit activity is not reflected until the data is stolen or altered. The most well-known case is that of the Decentralized Autonomous Organization or “DAO,” against which an attack sought a duplicate transaction logic in the implementation of a smart contract. This attack occurred on June 18, 2016, and netted approximately $70 million USD to the hacker, who was able to get the DAO to return Ether, which is a type of cryptocurrency, multiple times before it could update its own balance. There were two main flaws that allowed this digital heist to occur, the first being the smart contract that sent the Ether and then updated the internal token balance. Secondly, The DAO coders had also failed to consider the possibility of a recursive call that could act in such a way.

From this incident, it is clear that, while the security of most blockchain technology in the form of prime mover protocol remains intact, the security of the applications that use blockchain, such as digital wallets, exchanges and the accounts of third-party services, remains dubious. Millions of dollars’ worth of assets stored through cryptographic processes have been stolen from the compromised accounts of individuals and exchanges over the years. These vulnerabilities still remain, and no system is perfect, but to know the fallible nature of technology frameworks can lead to an effective solution for risk mitigation and possibly proper regulation in the future.

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60 David Siegel, Understanding the DAO attack, June 2016 <https://www.coindesk.com/understanding-dao-hack-journalists>
61 Emma Avon, above n 57
62 A hard fork was proposed that would return all the Ether stolen to the DAO in the form of a refund smart contract. The new contract could only withdraw and investors in the DAO could make refund requests for lost Ether. The hard fork uncovered a number of arguments that are still prevalent in the world of cryptography today.
63 Justin Stoltzfus, Can the blockchain be hacked?, January 2019 <https://www.techopedia.com/can-the-blockchain-be-hacked/2/33623>
E. Blockchain and digital disruption

Blockchain technology is transforming the landscape of the securities industry, as well as the laws and regulations that govern its activities. In general, any transaction in which data is held or can be kept is a means for digital disruption. Blockchain is playing a crucial role in the transformation of the securities industry’s landscape, as it provides more security and the rapid distribution of data through its cryptography of data processes and distributed database nature. Furthermore, blockchains are specifically built for creating “smart contracts” that autonomously execute different types of transactions, the records of which are maintained in a blockchain. Essentially, smart contracts are a series of pre-input orders that execute autonomously based on predetermined factors. Hence, the digital disruption that blockchain introduces practically affects all data-intensive matter. Securities issuers, service providers and investors are commonly familiar with securities certificates, as nowadays they adhere to a registrar system created to provide trust and transparency for the expression of rights over commodities. However, the difference between securities and most commodities and other investments is empirical. In principle, they have no intrinsic value in themselves, as they represent rights in another context. For instance, a share of stock, as equity, represents right of ownership, as well as a debenture, while debt securities represent rights of creditorship. The value or market price of securities is driven by demand and supply of the people who desire to buy and sell them. In theory, there are two factors by which securities can easily utilize blockchain technology. Obviously, both of these characteristics of securities are created rather than produced and, unlike other consumable products, are not consumed by their investors as foundational features. In accordance with this feature, the value of securities, for instance, shares and debentures also represent the principle of financial accounting and corporate finance. This, in essence, states that the purpose of creating a securities certificate is for the transformation of an abstract right into a tangible form that can be

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67 David M. Weiss, Financial instruments: equities, debt, derivatives, and alternative investments (Portfolio, 2009) 6-7
68 Thomas Lee Hazen, Securities regulation in a nutshell, (West, 10th edition, 2009) 1-3
69 Ibid, 2
70 Charles H. Meyer, Accounting and finance for lawyers in a nutshell, (West, 2006) 1-16
71 Jeffrey J. Haas, Corporate finance in a nutshell, (West, 2015) 131-158
legally possessed and exercise the corresponding rights.\textsuperscript{72} Blockchain, in essence, is a technology engaged with data management. Therefore, it can be applied to the concept of the transformation of rights in securities. Firstly, a transaction involving securities is consensually verified between network participants and distributed to all parties who store the same duplicated records. In this case, the network participants can be varied, either among securities business operators or between securities business operators and investors. This largely eliminates redundant validation and costs of reconciliation for the ecosystem as a whole. Secondly, securities transactions are able to transform from manual processes into self-executing smart contracts to automate and increase operational efficiencies. Most importantly, the record-keeping of securities via blockchain is immutable, as the history of all transactions is time-stamped and stored in ledgers retained by authorized participants and, in theory, cannot be amended.\textsuperscript{73} All of these factors can create trust amongst all of the participants in the network once a cryptographically-secure transaction has been conducted. Generally, if blockchain technology can be fully implemented, there will no longer be a need for document-based securities certificates issued and organized by a trusted entity; instead, securities can be issued and organized by a collection of users who keep track of data, rather than having to rely on a single entity to perform all of the processes.\textsuperscript{74} To be more accurate, this new type of asset that is created and maintained via blockchain can variously be termed a blockchain-based asset, “crypto asset,”\textsuperscript{75} “coin” or “token.”

Initially, the core idea of token offerings was to fund new projects by pre-selling tokens to supporters. These tokens would typically be exchanged for cryptocurrencies such as Bitcoin and Ether, as both have high market liquidity and are easier to exchange for fiat currencies.\textsuperscript{76} This idea leads to the “Initial Coin Offering” (“ICO”) or “Initial Token Offering” (“ITO”) concept, which was initially based on the idea of crowd sourcing or asking for donations from the public. This contrasts with the traditional Initial Public Offering (“IPO”) or Public Offering (“PO”) that is already regulated under the Securities and Exchange Act B.E. 2535 (1992) for investor protection and market integrity. In the early days, many ICOs were conducted without lawyer, securities

\textsuperscript{72} James Steven Rogers, The end of negotiable instruments: bringing payment systems law out of the past, (Oxford, 2012) 59-53
\textsuperscript{73} Bank of Thailand, above n 22
\textsuperscript{74} Narayanan, Bonneau, Felten, Miller and Goldfeder, above n 32, [xx-xxiii]
\textsuperscript{75} Burniske and Tatar, above n 7, [xv]
\textsuperscript{76} Shermin Voshmgir, Token Sales: ICOs, IEOs, ITOs, STOs, July 2019 <https://blockchainhub.net/ico-initial-coin-offerings/>
intermediaries, or authority approval. Early supporters were enthusiasts who want to help diffuse the use of technology rather than investors intentionally focused on financial returns. Ultimately, “Securities Token Offerings” (“STO”) were later developed after the popularity of the ICO. These differ from ICOs, because the idea underlying STO is to convert existing legal right in securities into a digital form based on blockchain technology. In other words, the foundational idea of STO is to move real-world securities onto blockchain to gain the advantages of trust and transparency while retaining the characteristics of securities. Consequently, securities tokens, also known as digital securities, are a blockchain-based representation of value that is subject to regulation under the Securities and Exchange Act B.E. 2535 (1992).

The key point is that existing laws and regulations relating to securities were originally tailored for the traditional, paper-based system in the form of securities certificates. However, the existing laws and regulations may not be suitable for all situations, especially when digital technology disrupts and sets a new standard for securities businesses’ practices.

77 Cointelegraph, ICO Vs IPO: Key Differences, 2018 <https://cointelegraph.com/ico-101/ico-vs-ipo-key-differences>
III. Legal perspectives survey of traditional securities

A. Introduction

A transaction involving a “security” has significant legal implications. It entails securities laws that regulate the issuance of securities and prospectus requirements, as well as the antifraud provisions aimed at protecting investors. In most countries, failure to comply with securities regulation would result in criminal liability. For instance, issuers that sold securities to public investors without registering their offerings with competent authorities or conducting the offerings pursuant to a specific legal exemption from registration would violate provisions of the issuance of securities. Under such circumstances, the competent authority (i.e., the Securities and Exchange Commission) or private parties may bring lawsuits against issuers against whom criminal liabilities may be imposed. Hence, it is vital to consider the definition of “security,” which is a legal definition that varies by jurisdiction.

B. The United States of America

(i) Overview of federal securities law

Following the Great Depression and stock market collapse in October 1929, the U.S. Congress enacted the federal securities laws and created the SEC as an independent agency to administer and enforce these. There are two primary sets of federal securities laws that come into play when a company wants to offer and sell its securities, namely: the Securities Act of 1933 (the “Securities Act”) and the Securities Exchange Act of 1934 (the “Exchange Act”). The Securities Act regulates the issuance and offering of securities to the public, which must be registered with the Securities and Exchange Commission (the “SEC”), whereas the Exchange Act regulates the operation of stock exchanges and trading.

82 Marc I. Steinberg, Understanding Securities Law, (LexisNexis, 2014) 27
85 Cox, Hillman, Langevoort, above n 79, 5 - 10
(ii) Definition of securities

The Securities Act and the Exchange Act have largely similar definitions of securities. According to section 2(a)(1) of the Securities Act and section 3(a)(10) of the Exchange Act, the term “security” is defined broadly as encompassing a range of specified financial instruments, some of which seem, at first glance, to be self-explanatory, such as stock, bond, debenture and note. Others, which are elusive and require expansive interpretation, such as an “investment contract,” is commonly known as the generic catchall term.

In essence, the federal courts do not have a unified approach to interpreting the definition of a security; however, the courts focus on two questions, namely:

a. When an instrument that nominally falls into statutory lists is not actually a security by its substance;

b. When an instrument falls within the generic catchall terms, principally “investment contract.”

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86 Steinberg, above n 80, 27
87 Section 2(a)(1) of the Securities Act of 1933 states that “when used in this title, unless the context otherwise requires, …, the term “security” means any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit for a security, fractional undivided interest in oil, gas, or other mineral rights, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or, in general, any interest or instrument commonly known as a “security”, or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing.”
88 Section 3(a)(10) of the Securities and Exchange Act of 1934 states that “when used in this title, unless the context otherwise requires, …, the term “security” means any note, stock, treasury stock, security future, security-based swap, bond, debenture, agreement or in any oil, gas, or other mineral royalty or lease, any collateral-trust certificate, preorganization certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit for a security, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or in general, any instrument commonly known as a “security”; or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing; but shall not include currency or any note, draft, bill of exchange, or banker’s acceptance which has a maturity at the time of issuance of not exceeding nine months, exclusive of days of grace, or any renewal thereof the maturity of which is likewise limited.”
89 Cox, Hillman, Langevoort, above n 79, 29
90 Palmiter, above n 81, 51
(iii) Testing for securities

a. Statutory lists

The instruments set forth in the enumerated lists of section 2(a)(1) of the Securities Act and section 3(a)(10) of the Exchange Act are, at first glance, securities. However, due to the phrase “unless the context otherwise requires” that is stated at the beginning of both sections, the Supreme Court has construed the definition of security several times as focusing on the economic reality of the context of a transaction instead of a literal interpretation of the statutes. Therefore, even if an instrument falls within one of the enumerated lists, it does not guarantee that the instrument is a security.

In United Housing Foundation, Inc. v. Forman, the Supreme Court held that the transaction that labeled the instrument as “stocks” in a cooperative housing project purchased by individuals in order to take up residency in the project, were not to be treated as securities under the Federal Securities Law. The Supreme Court rejected a literal approach, evidenced by the sale of “stocks,” merely because it contained the word “stock,” but the Court assessed the economic reality by considering some of the significant attributes of the stock that are dividend-dependent on profits, are negotiable and transferable, as well as voting rights and the possibility of appreciating in value. However, stocks as defined in the Forman case lack these characteristics of ordinary stocks. The Court reasoned that purchasers are motivated to use or consume the item purchased rather than by the anticipation of receiving returns on their investment.

b. Judicial interpretation of “investment contracts” – The Howey test

Instruments that are not included in the enumerated lists could be securities under the term “investment contracts,” which is found in the text of the statutory definition in section 2(a)(1) of the Securities Act and section 3(a)(10) of the Exchange Act. However, neither statute define “investment contract,” as a “catchall phrase … included to cover unique instruments not easily classified.” Over the past few decades, there has been debate on the meaning of the “investment contract” abstraction; however, this remains far from settled. In this time, the Supreme Court has continuously developed a framework for defining an investment contract.

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91 Steinburg, above n 80, 28
92 Thomas Lee Hazen, Securities Regulation, (American Bar Association, 2011) 31
93 Golden v. Garafalo, 678 F.2d 1139, 1144 (2d Cir. 1982).
94 Cox, Hillman, Langevoort, above n 79, 30
In 1946, the Supreme Court considered *Securities and Exchange Commission v. W.J. Howey Co.* and outlined a four-element test for determining whether the sale of lands in a citrus grove coupled to a service contract by which the seller’s affiliate handled the cultivation, harvesting, marketing of citrus fruits and the remitting of any profits to investors, constituted an “investment contract.” In *Howey*, the SEC brought a lawsuit against the respondent sellers for offering the land sale and contract without registration with the SEC for the offering of securities. The Supreme Court held that the transaction was an “investment contract” and, hence, a security under federal law. The court defined an “investment contract” as any transaction in which: (i) a person invests money; (ii) in a common enterprise; (iii) with an expectation of profits; and (iv) solely from the efforts of others. These conditions are discussed in more detail below:

1. **A person invests money**

   The first requirement of *Howey* is an investment of money, which can be cash or noncash in form, and that investors expect financial returns, rather than a consumable commodity or service. In *Howey*, investors were not motivated to occupy the land or consume an inexpensive supply of citrus fruits; however, they were solely motivated by the prospect of return on their investment.

   The significant difference between investment and consumption in *United Housing Foundation, Inc. v. Forman* is embodied in the fact that the Supreme Court held that the tenants invested in stocks in order to lease an apartment, not to invest for profit. Therefore, it failed the first requirement of the Howey Test.

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95 Jay B. Sykes, Securities Regulation and Initial Coin Offerings: A Legal Primer, (Congressional Research Service, 2018) 6
96 Ibid. 5 Howey, 328 U.S. at 299. The Exchange Act contains a definition of the term “security” that is “virtually identical” to the term’s definition in the Securities Act, including the use of the undefined term “investment contract.” See 15 U.S.C. § 78c(a)(10); Tcherepnin v. Knight, 389 U.S. 332, 336 (1967). The Supreme Court has explained that for purposes of evaluating whether a transaction qualifies as an “investment contract,” the “coverage of the two Acts may be considered the same.” United Housing Foundation, Inc. v. Forman, 421 U.S. 837, 847 n.12 (1975). See also SEC v. Edwards, 540 U.S. 389, 393 (2004) (noting that the Court has treated the two definitions “as essentially identical in meaning”),
97 Palmiter, above n 81, 52
98 Cox, Hillman, Langevoort, above n 79, 38 - 44
99 Ibid. 38-44
(2) **In a common enterprise**

The element of common enterprise focuses on the notion that investors’ interests shall rise and fall with the enterprise. Investors shall have interrelated interests in a common scheme that can be a horizontal or vertical commonality. A horizontal commonality means that multiple investors pool funds or other assets and derive profits that are not necessarily distributed pro rata. A vertical commonality arises when the interests of investors and issuers are aligned.

Several courts broadly interpret that the requirement of common enterprise is met when there is some connection between the efforts of promoters and the collective success of investors. On the other hand, other courts (i.e., in the case of the *Securities and Exchange Commission v. Alliance Leasing*) strictly interpreted that investors shall share risk with the manager.

(3) **With an expectation of profits**

The heart of investment contracts is “the presence of an investment in a common enterprise premised on a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others.” The expected profits, which can be either fixed or variable returns, shall be the principal motivation of the investment. Additionally, the return shall be derived from the earnings of the enterprise or appreciation of the investment, but not the additional capital contribution.

In *Securities and Exchange Commission v. Edwards*, the Supreme Court held that a contractual entitlement earning can involve either fixed or variable returns of the enterprise, satisfying the “expectation of profits” aspect of the Howey Test. Furthermore, the Supreme Court clarified that the “profit” component of *Howey* was confined to “capital

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100 Hazen above n 90, 32
101 Palmiter. Above n 81, 52
102 Hazen, above n 90, 32
103 Steinburg, above n 80, 37
104 Hazen, above n 90, 33 United Housing Foundation, Inc. v. Forman, 421 U.S. at 852.
105 Palmiter, Above n 81, 52
106 In Edwards, the Securities and Exchange Commission filed suit against Edwards, a company that leased payphones to individuals. Individuals would pay up front money and would receive a fixed return monthly in exchange. The Securities and Exchange Commission alleged that investment products are securities and subject to federal securities law.
107 Steinburg, above n 80, 33
appreciation resulting from the development of the initial investment” or “a participation in earnings resulting from the use of investors’ funds.” Additionally, in *United Housing Foundation, Inc. v. Forman*, the Supreme Court also held that the expectation of profits under the Howey Test shall include capital appreciation or increases in earnings from the operation of the enterprise.

(4) **Solely from the efforts of others**

According to *Howey*, the Supreme Court held that profits must be derived “solely” from the efforts of managers. However, other, lower courts dropped the “solely” indication by accepting that investor efforts in the common enterprise may contribute to profits. The efforts of managers must be primarily or substantially predominant, and investors must only be passive. Accordingly, when some efforts of investors are necessary for the accomplishment of the operation (i.e., franchise contract, pyramid sales arrangements and customer referral agreements), this does not alter the scheme’s character from that of the investment contract.

In *Securities and Exchange Commission v. Turner*, for instance, the critical enquiry of the court was “whether the efforts made by those other than the investor are the undeniably significant ones, those essential managerial efforts which affect the failure or success of the enterprise.” In *Turner*, the court required that the efforts made by those other than the investor must be the undeniably significant ones that would satisfy the component of “solely from the efforts of others” in the Howey Test.

Some courts maintained that the efforts must come after the arrangement. In *Securities and Exchange Commission v. Life Partners*, the court held that the arrangements did not involve investment contracts on the grounds that the major efforts of those other than the investor

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108 Ibid. 34
109 Concerning a sale-leaseback, the lease payments are like interest payments and the buyback is like a capital return secured with the purchased asset. The court held that a sale-leaseback arrangement for payphones can constitute an “investment contract” under the Howey Test.
110 Palmiter, above n 80, 52
111 Notably, in typical franchise arrangements case, the court held that it fails the prong of “solely from the efforts of others” and thus not a security. In *Crowley v. Montgomery Ward*, the court considered the economic reality that the franchisee distributed significantly and substantially (such as managing and operating stores with the franchisor). However, in *Securities and Exchange Commission v. Aqua-Sonic*, the court held that an unusual franchise arrangement is a security because franchisee was unable to sell products, so he was lacked participation.
112 Hanzen, above n 90, 33
113 Steinburg, above n 80, 35, 497 F.2d 483 (5th Cir. 1974).
occurred prior to the point at which the investments actually occurred. Consequently, it failed the fourth requirement of the Howey Test. However, in Securities and Exchange Commission v. Mutual Benefits, the court declined to follow Life Partners.

(iv) Dynamic interpretation of “security”

The Supreme Court clarified that the Howey Test “embodies a flexible rather than a static principle, one that is capable of adaptation to meet the countless and variable schemes devised by those who seek the use of the money of others on the promise of profits.” In applying the test, therefore, the Court concentrated on the importance of the “economic realities underlying a transaction,” as opposed to the form or name of transactions in which their promoters offer it.

C. The United Kingdom

(i) Overview of UK securities regulation

The development of securities regulation in the UK has gradually developed over several decades. In 1986, two separate events, namely the so-called “Big Bang” and the adoption of the Financial Services Act 1986 (FSA), brought about significant changes in the UK capital markets, making them more attractive to foreign investors by providing more accessible and greater investor protection. At that time, the UK securities industry was comprehensively deregulated. The Big Bang arose from concerns that the UK stock exchanges were too restrictive compared to other countries, with the FSA implemented to reduce self-regulating practices by providing more governmental oversight.

114 Cox, Hillman, Langevoort, above n 79, 52 - 53
115 Ibid. 52-53
116 Jay B. Sykes, above n 93, 6
117 Ibid. 849, United Housing Foundation, Inc. v. Forman, 421 U.S.
118 Reves v. Ernst & Young, 494 U.S. 56, 61 (1990) (“Congress’ purpose in enacting the securities laws was to regulate investments, in whatever form they are made and by whatever name they are called.”); Tcherepnin v. Knight, 389 U.S. 332, 336 (1967) (explaining that “in searching for the meaning and scope of the word ‘security’ … form should be disregarded for substance and the emphasis should be on economic reality”).
120 David P. Stowell, An Introduction to Investment Banks, Hedge Funds, and Private Equity (Academic Press, 2010) 38
Subsequently, the FSA was superseded by the Financial Services and Markets Act 2000 (the “FSMA”) and by the Companies Act 1989. The FSMA subsequently became the primary legislation governing all aspects of the securities markets in the UK. It was supplemented by secondary legislation and rules, with the FSMA establishing the Financial Conduct Authority (FCA) to be a regulatory body, which has the general function of enhancing market integrity, promoting competition and protecting investors. Violations of the FSMA, such as failure to be FCA-authorized when required, and market abuse offences, would result in criminal prosecution under the Criminal Justice Act 1993.

Notably, UK securities regulation was affected by European Community directives that were intended to move the European Union (EU) towards a single market. As the UK was a member of the EU, it was obliged to incorporate EU legislation into its domestic laws. Therefore, the EU securities regulations became a parallel regime for the UK, and increasingly supplanted UK securities laws.

(ii) Definition of securities

The definition of “investments” in the FSMA, for all intents and purposes, is synonymous with the U.S. definition of “securities.” The FSMA defines the terms “investments” in Part II of Schedule 2, which is: securities, instruments creating or acknowledging indebtedness, government and public securities, instrument giving entitlement to investments, certificates representing securities, units in collective investment schemes, options, futures, contracts for differences, participation in Lloyd’s syndicates, deposits, loans secured on land, and rights in investments.

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121 Len Sealy, Sarah Worthington, Cases and Materials in Company Law, (Oxford University Press, 8th edition) 6
122 The secondary legislation and rules include the Financial Services and Markets Act (Regulated Activities) Order 2001 (RAO) which provides the specific activities in which firms must receive FCA permission, and the Public Offering of Securities Regulations 1995 (POS Regulations) which regulates public offerings of securities.
123 Financial Conduct Authority, About the FCA, July 2019 <https://www.fca.org.uk/about/the-fca>
126 Ibid, 151
127 Part II of Schedule 2 of the FSMA
Investments
General
10. The matters with respect to which provision may be made under section 22(1) in respect of investments include, in particular, those described in general terms in this Part of this Schedule.
Securities
11. (1) Shares or stock in the share capital of a company.
   (2) “Company” includes—
       (a) any body corporate (wherever incorporated), and
       (b) any unincorporated body constituted under the law of a country or territory outside the United Kingdom, other than an open-ended investment company.

   Instruments creating or acknowledging indebtedness
12. Any of the following—
   (a) debentures;
   (c) loan stock;
   (d) bonds;
   (f) any other instruments creating or acknowledging a present or future indebtedness.

Government and public securities
13. (1) Loan stock, bonds and other instruments
    (a) creating or acknowledging indebtedness; and
    (b) issued by or on behalf of a government, local authority or public authority.
   (2) “Government, local authority or public authority” means—
       (a) the government of the United Kingdom, of Northern Ireland, or of any country or territory outside the United Kingdom;
       (b) a local authority in the United Kingdom or elsewhere;
       (c) any international organization the members of which include the United Kingdom or another member State.

   Instruments giving entitlement to investments
14. (1) Warrants or other instruments entitling the holder to subscribe for any investment.
   (2) It is immaterial whether the investment is in existence or identifiable.

Certificates representing securities
15. Certificates or other instruments which confer contractual or property rights—
    (a) in respect of any investment held by someone other than the person on whom the rights are conferred by the certificate or other instrument; and
    (b) the transfer of which may be effected without requiring the consent of that person.

Units in collective investment schemes
16. (1) Shares in or securities of an open-ended investment company.
   (2) Any right to participate in a collective investment scheme.

Options
17. Options to acquire or dispose of property.

Futures
18. Rights under a contract for the sale of a commodity or property of any other description under which delivery is to be made at a future date.

Contracts for differences
19. Rights under
    (a) a contract for differences; or
    (b) any other contract the purpose or pretended purpose of which is to secure a profit or avoid a loss by reference to fluctuations in—
        (i) the value or price of property of any description; or
        (ii) an index or other factor designated for that purpose in the contract.

Contracts of insurance
20. Rights under a contract of insurance, including rights under contracts falling within head C of Schedule 2 to the Friendly Societies Act 1992.

Participation in Lloyd’s syndicates
21. (1) The underwriting capacity of a Lloyd’s syndicate.
    (2) A person’s membership (or prospective membership) of a Lloyd’s syndicate.

Deposits
In essence, the FSMA defines “investments” by grouping generic categories of similar investment vehicles, rather than specifying the individual instruments. For instance, Part II of Schedule 2 groups together debentures, loan stocks, bonds, certificates of deposit and any other instruments for creating or acknowledging a present or future indebtedness under the category of “instruments creating or acknowledging indebtedness.”

Additionally, section 22(4) of the FSMA further states the general definition of “investment” as including any asset, right or interest, while section 22(5) further states that the Treasury may make an order to specify some instrument as an “investment.”

Therefore, the definition of “investments” in the FSMA (which is similar to the term “securities” in some countries) means specified investment under Part II of Schedule 2 and any instrument specified by the Treasury to be the investment under section 22(5) of the FSMA.

(iii) Testing for investment

Unlike the Howey Test within U.S. federal securities laws, UK securities law does not have a generalized test to determine the nature of an “investment”. The FCA or court may take the approach of substance over form to interpret legislation and consider the investment. For instance, the courts rendered judicial interpretation in several cases to determine the statutory definition of “Units in Collective Investment Schemes.”

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22. Rights under any contract under which a sum of money (whether or not denominated in a currency) is paid on terms under which it will be repaid, with or without interest or a premium, and either on demand or at a time or in circumstances agreed by or on behalf of the person making the payment and the person receiving it.

Loans secured on land

23. (1) Rights under any contract under which—
   (a) one person provides another with credit; and
   (b) the obligation of the borrower to repay is secured on land.

   (2) “Credit” includes any cash loan or other financial accommodation.

   (3) “Cash” includes money in any form.

Rights in investments

24. Any right or interest in anything which is an investment as a result of any other provision made under section 22(1).

128 Mazando, above n 124, 152
129 Ibid.
Units in collective investment schemes

According to Part II of Schedule 2 of the FSMA, “Units in Collective Investment Schemes” is one of the categories comprising “investments.” Section 235 of the FSMA defines the meaning of a collective investment scheme as:

“(1) any investment arrangements with respect to property of any description, including money, the purpose or effect of which is to enable persons taking part in the arrangements (whether by becoming owners of the property or any part of it or otherwise) to participate in or receive profits or income arising from the acquisition, holding, management or disposal of the property or sums paid out of such profits or income.

(2) the arrangements must be such that the persons who are to participate (“participants”) do not have day-to-day control over the management of the property, whether or not they have the right to be consulted or to give directions.

(3) The arrangements must also have either or both of the following characteristics—

(a) the contributions of the participants and the profits or income out of which payments are to be made to them are pooled;

(b) the property is managed as a whole by or on behalf of the operator of the scheme ...

Pursuant to section 235 of the FMSA, therefore, is a three-fold test to consider a collective investment. The collective investment scheme exists on the basis that: (i) the scheme must constitute an arrangement; (ii) the participants must not be involved in the day-to-day management of the property; and (iii) the arrangement must satisfy one of the following conditions, namely: (a) the pooling of the contributions of the participants and the profits or income; or (b) the operator of the scheme manages the property.

In short, the collective investment scheme is the arrangement by which investors hand over their property or money (and relinquish day-to-day control of it) to other persons who pool the contributions. The investors subsequently receive the profits from their investments. In general, the collocative investment scheme might be structured as a unit trust or fund; however, this is not always accurate when applying section 235 of the FMSA. For instance, any pooling of assets that entails their owners to relinquish day-to-day control of them, such as betting and gambling in the
racehorse industry, can be a collective investment scheme.\textsuperscript{131} Accordingly, the England and Wales Court of Appeals has developed a framework to determine the scope of the statutory definition of a “collective investment scheme.”

In \textit{FSA v. Fradley and Woodward}, the FSA filed a lawsuit against Fradley and Woodward, who jointly operated a betting service collecting money from the public and placing bets on their behalf on horse races. The FSA claimed that Fradley and Woodward operated a collective investment scheme, as characterized the investment in horse racing in this case, without FSA approval. The England and Wales Court of Appeals held that the betting scheme had been an unlawful collective investment scheme. Additionally, the court ruled that:

\begin{itemize}
  \item The term “arrangements,” which underpin a collective investment scheme, do not require any formality or need to be legally binding.
  \item The term “property of any description” could comprise money paid by persons joining the scheme, and there is no necessity for these monies to be invested in anything.
  \item Some participants in the scheme (and not necessarily all participants) have relinquished day-to-day control to the operators, such that the scheme is classified as a collective investment.
\end{itemize}

(iv) \textbf{Dynamic interpretation of “investments”}

The FSMA defines the term “investments” in Part II of Schedule 2, which specifies enumerated categories of investments rather than the individual instruments, such as securities, instruments creating or acknowledging indebtedness, government and public securities, instrument fiving entitlement to investments, certificates representing securities and units in collective investment schemes. Although the FSMA does not have a generic catchall term (similar to the “investment contract” and the Howey Test of the Securities Act and the Exchange Act under U.S. federal securities law), the FSMA authorizes the Treasury to add a new instrument as the

“investment.” 132 Hence, the scope of “investments” may be broad enough to cover new financial instruments that the Treasury deems to be in need of regulation.

**D. The Commonwealth of Australia**

**(i) Overview of the regulation of the Australian securities markets**

The cornerstones of the Australian securities laws are the Corporations Act of 2001 (the “Corporations Act”) and the Australian Securities and Investment Acts of 2001 (the “ASIC Act”). 133 Both statutes are cross-vesting legislation in which the states refer their specific legislative powers to the Commonwealth Parliament to enact corporate and securities legislation applying throughout Australia in accordance with section 51 (xxxvii) of the Commonwealth Constitution. 134, 135 However, these referral powers are not the only source of the powers of the Commonwealth to make law in these areas; for instance, the ASIC Act Part 2 Division 2 (unconscionable conduct and consumer protection) is made pursuant to the Commonwealth’s power by virtue of Section 51(xx) of the Commonwealth Constitution regarding “foreign corporations and trading or financial corporations formed within the limits of the Commonwealth.” 136

The Corporations Act covers company law and financial markets law. The act regulates matters such as the formation, governance and termination of companies, as well as takeovers, fundraising and financial services and markets. The ASIC Act, on the other hand, mandated the formation and operation of the Australian Securities and Investments Commission (ASIC), an independent Commonwealth Government agency, which acts as the registrar of

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132 Section 22(5) of the FMSA
133 Robert Baxt, Ashley Black, Pamela Hanrahan, Securities and Financial Services Law, (LexisNexis, 2017) 5
134 Commonwealth of Australia Constitution Act – Section 51 (Legislative Powers of the Parliament)

“The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to: …

(xxxviii) the exercise within the Commonwealth, at the request or with the concurrence of the Parliaments of all the States directly concerned, of any power which can at the establishment of this Constitution be exercised only by the Parliament of the United Kingdom or by the Federal Council of Australasia; …”

135 Mazando, above n 124, 158
136 Commonwealth of Australia Constitution Act – Section 51 (Legislative Powers of the Parliament)

“The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to: …

(xx) foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth; …”
companies, consumer protection regulators and as the markets and financial services regulator in
the areas of company and securities laws. Additionally, the Corporations Act and ASIC Act are
supplemented by several relevant laws and regulations, such as those imposed by the ASIC in the
exercise of its regulatory functions.

(ii) Definition of securities

The Corporations Act contains several definitions of “securities,” which have
different meanings across its ten chapters, depending on the financial activity that the respective
chapter aims to regulate. However, these disparate definitions are codified and regulated as
“financial products” in Chapter 7 (financial services and markets). The term “financial product”
of the Australian Corporations Act is synonymous with the term “investments” in the FSMA of
the UK and “securities” in the Securities Act and the Exchange Act of the US. The Corporations
Act defines “securities” in section 92, which provides three categories of definitions of

138 Baxt, Black, Hanrahan, above n 132, 5
139 Corporations Act – section 92

Securities

(1) Subject to this section, securities means:
   (a) debentures, stocks or bonds issued or proposed to be issued by a government; or
   (b) shares in, or debentures of, a body; or
   (c) interests in a managed investment scheme; or
   (d) units of such shares;
   but does not include:
       (f) a derivative (as defined in Chapter 7), other than an option to acquire by way of transfer
           a security covered by paragraph (a), (b), (c) or (d); or
       (g) an excluded security.
   Note: A derivative does not include an option to acquire a security by way of issue (see the
       combined effect of paragraph 761D(3)(c), paragraph 764A(1)(a) and paragraph (d) of the
       definition of security in section 761A).
   
(2) The expression securities, when used in relation to a body, means:
   (a) shares in the body; or
   (b) debentures of the body; or
   (c) interests in a managed investment scheme made available by the body; or
   (d) units of such shares;
   but does not include:
       (e) a derivative (as defined in Chapter 7), other than an option to acquire by way of transfer
           a security covered by paragraph (a), (b), (c) or (d); or
       (f) an excluded security.
   Note: A derivative does not include an option to acquire a security by way of issue (see the
       note to subsection (1)).

(2A) In Part 1.2A, securities means:
   (a) shares in a body; or
   (b) debentures of a body; or
   (c) interests in a registered scheme or a notified foreign passport fund; or
securities: (i) securities of a “body;” 140 (ii) securities for corporate acquisitions and takeovers; 141 (iii) securities for the purposes of fundraising (Chapter 6D) and financial services and markets (Chapter 7). 142 The first two groups mostly apply to corporations, whereas the last group applies to financial services and markets as “financial products.” 143 The last group (section 92(4)) is the cornerstone definition of securities used in the capital market. It provides that fundraising (Chapter 6D) is defined by section 700, 144 while financial services and markets (Chapter 7) are defined in

(d) legal or equitable rights or interests in:
   (i) shares; or
   (ii) debentures; or
   (iii) interests in a registered scheme or a notified foreign passport fund; or
(e) options to acquire (whether by way of issue or transfer) a security covered by
   paragraph (a), (b), (c) or (d).
It does not cover:
   (f) a derivative (as defined in Chapter 7), other than an option to acquire by way of transfer
   a security covered by paragraph (a), (b), (c) or (d); or
   (g) a market traded option.

Note 1: A derivative does not include an option to acquire a security by way of issue (see the
note to subsection (1)).
Note 2: Section 9 defines body.

(3) In Chapters 6 to 6CA (inclusive):
   “securities” means:
   (a) shares in a body; or
   (b) debentures of a body; or
   (c) interests in a registered scheme; or
   (d) when used in Chapter 6C--an interest in a listed notified foreign passport fund; or
   (e) legal or equitable rights or interests in:
      (i) shares; or
      (ii) debentures; or
      (iii) interests in a registered scheme or interests in a fund mentioned in
      paragraph (d); or
   (f) options to acquire (whether by way of issue or transfer) a security covered by
      paragraph (a), (b), (c), (d) or (e).
It does not cover:
   (g) a derivative (as defined in Chapter 7), other than an option to acquire by way of transfer
   a security covered by paragraph (a), (b), (c), (d) or (e); or
   (h) a market traded option; or
   (i) when used outside Chapter 6C--an interest in a notified foreign passport fund.

Note 1: A derivative does not include an option to acquire a security by way of issue (see the
note to subsection (1)).
Note 2: Section 9 defines body.

(4) In Chapter 6D securities has the meaning given by section 700 and in Chapter 7 security has the
meaning given by section 761A.

140 Corporations Act – section 92(2)
141 Corporations Act – section 92(3)
142 Corporations Act – section 92(4)
143 Mazando, above n 124, 159
144 Corporations Act – Section 700

Coverage of the fundraising rules
   (1) In this Chapter, securities has the same meaning as it has in Chapter 7, but does not include:
section 761A. For instance, a share in a body, the debenture of a body, legal or equitable rights or interests in shares or debentures, options to acquire by ways of issue, shares, debentures or interests in registered managed investment schemes, or a legal or equitable right or interest in any of these.

Notably, Chapter 7 broadly defines “financial product” to include a wide range of financial instruments, including securities, general insurance products, derivatives, superannuation interests, bank deposits, government bonds, foreign exchange products and margin lending facilities.

(iii) Scope of securities and financial products

Although the Corporations Acts has a broad scope of the definition of “financial product,” which includes both traditional instruments (such as shares and debentures) and non-traditional instruments (such as Australian carbon credit units), the Corporations Act limits the

(a) a security referred to in paragraph (e) or (f) of the definition of security in section 761A; or
(b) a simple corporate bonds depository interest in simple corporate bonds, where the simple corporate bonds were issued under a 2-part simple corporate bonds prospectus.

Offers and invitations both covered
(2) For the purposes of this Chapter:
   (a) offering securities for issue includes inviting applications for the issue of the securities; and
   (b) offering securities for sale includes inviting offers to purchase the securities.

Person offering securities
(3) For the purposes of this Chapter, the person who offers securities is the person who has the capacity, or who agrees, to issue or transfer the securities if the offer is accepted.

Geographical coverage of Chapter
(4) This Chapter applies to offers of securities that are received in this jurisdiction, regardless of where any resulting issue, sale or transfer occurs.

145 Corporations Act – section 761A

Definitions
In this Chapter: …
“security” means:
(a) a share in a body; or
(b) a debenture of a body; or
(c) a legal or equitable right or interest in a security covered by paragraph (a) or (b); or
(d) an option to acquire, by way of issue, a security covered by paragraph (a), (b) or (c); or
(e) a right (whether existing or future and whether contingent or not) to acquire, by way of issue, the following under a rights issue:
   (i) a security covered by paragraph (a), (b), (c) or (d);
   (ii) an interest or right covered by paragraph 764A(1)(b), (ba) or (bb); or
(f) a CGS depository interest; or
(g) a simple corporate bonds depository interest;
but does not include an excluded security or a foreign passport fund product. In Part 7.11, it also includes a managed investment product and a foreign passport fund product.
scope by providing a specific list of enumerated financial instruments, in the same manner as the FSMA in the UK.\textsuperscript{146}

\section*{F. Federal Republic of Germany}

(i) Overview of the German securities regulation

Securities regulation as a distinguished area of law just flourished in continental Europe since 1980.\textsuperscript{147} According to the German source of law, securities regulation is subject to both European and national legislation.\textsuperscript{148} To begin with the European legislation as an overarching legal structure, European Securities and Markets Authority (ESMA)\textsuperscript{149} which is an independent European Union (EU) authority plays a crucial role in safeguarding the stability of the European Union's financial system by enhancing the protection of investors and promoting stable and orderly financial markets.\textsuperscript{150} Specifically, ESMA initiates the idea of “a single rulebook” in form of; for instance, directives and regulations for EU financial markets.\textsuperscript{151} As a consequence, these directives and regulations must be implemented by the member states; therefore, German securities regulation is principally derived from primary European legislation.\textsuperscript{152} Nevertheless, national provisions, through state legislation procedure, may also provide further aspect and interpretation of the directives into more concrete term.\textsuperscript{153} Therefore, member states still have flexibility for implementation of the directives and national legislator may adjust their legislation according to national concept of laws varied by country.

In Germany, a group of laws governing securities transactions and securities businesses consists of the Stock Exchange Act (\textit{Börsengesetz} – “\textit{BörsG}”), the Securities Trading

\begin{itemize}
\item \textsuperscript{146} Mazando, above n 124, 164 - 65
\item \textsuperscript{147} Marvin Fechner and Travis Tipton, ‘Securities Regulation in Germany and the U.S.’, Penn Law: Legal Scholarship Repository, Comparative Corporate Governance and Financial Regulation 2016 Vol.5, 1.
\item \textsuperscript{148} Ibid. 2-3
\item \textsuperscript{149} ESMA was founded as a direct result of the recommendations of the 2009 de Larosière report which called for the establishment of a European System of Financial Supervision (ESFS) as a decentralized network. It began operations on 1 January 2011 according to its Founding Regulation and replaced the Committee of European Securities Regulators (CESR) which was a network of EU authorities which promoted consistent supervision across the EU and provided advice to the European Commission.
\item \textsuperscript{150} European Securities and Markets Authority, About ESMA <https://www.esma.europa.eu/about-esma/who-we-are>
\item \textsuperscript{151} Ibid.
\item \textsuperscript{152} Niamh Moloney, EU Securities and Financial Markets Regulation, (Oxford, 3rd edition, 2014), 22
\item \textsuperscript{153} Fechner and Tipton, above n 147, 7
\end{itemize}
Act (Gesetz über den Wertpapierhandel/ Wertpapierhandelsgesetz – “WpHG”), the Securities Prospectus Act (Wertpapierprospektgesetz – “WpPG”) and the Securities Acquisition and Takeover Act (Wertpapiererwerbs- und Übernahmegesetz - “WpÜG”). These laws are the major sources of federal securities regulations which enacted by the federal legislator. Notably, they are overseen by the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistung sauficht – “BaFin”). On the national level, securities regulation aims at two policy goals which consist of providing protection and functionality of securities market and providing protection for investors and debtors who are involving with securities transactions and businesses. In order to accomplish the aforementioned functions, BaFin has duty to conduct rule-making, supervision of securities-related transactions and enforcement of laws and regulations. In addition, BaFin is also able to enact ordinances and guidelines for explicitly interpretation of laws and regulations. Undeniably, the main objective of securities regulation in Germany is in accordance with the main objective of securities regulation internationally, as to ensure the transparency and integrity of the financial market and to provide protection for investors. Therefore, the legal basis for the fundamental doctrine is presumed to be corresponded to other countries’ securities regulation.

(ii) Definition of securities

In principle, securities are originally issued in the form of bearer instruments. As an outcome, in order to transfer securities, the physical delivery of the paper documents is compulsory. Then, after a rapid development of securities trading and securities market, the securities transferring procedure had developed by introduction of the securities custody process. In this case, issuers of securities are not involved in the administration of transferring and do not know the identity of their counterparties. Instead, the financial service providers known as

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154 On 1 May 2002 the Federal Banking Supervisory Office (Bundesaufsichtsamt für das Kreditwesen – BAKred) was merged with the then Federal Securities Supervisory Office (Bundesaufsichtsamt für den Wertpapierhandel – BAWe) and Federal Insurance Supervisory Office (Bundesaufsichtsamt für das Versicherungs-wesen – BAV) to become the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht – BaFin). [https://www.bafin.de/EN/DieBaFin/AufgabenGeschichte/aufgabengeschichte_node_en.html]

155 Federal Financial Supervisory Authority (BaFin), Securities Supervision [https://www.bafin.de/EN/DieBaFin/AufgabenGeschichte/Wertpapieraufsicht/wertpapieraufsicht_node_en.html]

156 Federal Financial Supervisory Authority (BaFin), Law & Regulation > Interpretative decisions [https://www.bafin.de/EN/RechtRegelungen/Auslegungsentscheidungen/ae_node_en.html]

securities custodian operates in the process. Securities, in form of securities certificate, are deposited at a central depository which stores most of the certificates relating to listed securities. Nonetheless, securities certificates remain by depositing at a central depository, instead of circulate them in the market.\footnote{Ibid. 13} In other words, transferring of securities is affected by way of book entry on client accounts and without the need to move document certificates physically.

According to German law, securities can fundamentally be categorized into equity securities, other investment equivalent to equity securities, and debt securities. In detail, the definition of securities can be explicitly found in Section 2 of the Securities Trading Act (\textit{WpHG})\footnote{Securities Trading Act (\textit{WpHG}) \textit{SECTION 2 Definitions} …} Section 2 of the Securities Prospectus Act (\textit{WpPG})\footnote{Securities Prospectus Act (\textit{WpPG}) \textit{SECTION 2 Definitions} …} and Section 2 of the Securities
Acquisition and Takeover Act (WpÜG)\textsuperscript{161}. Although, each Act provides different style of writing varied by specific purpose of the law, but the definition of securities can be concluded as three components which are: (i) whether or not represented by a certificate; (ii) transferable or can be traded in the market; and (iii) exceptions are always available depending on policy goal, for instance, not include instruments of payment that are by nature negotiable on the financial markets (for the purpose of securities trading); or money market instruments having a maturity of less than 12 months (for preparation of prospectus).

(iii) Dynamic interpretation in characteristics of securities

In 2017 and 2019, BaFin had proclaimed an official guideline on classification of tokens which drew a line between securities and token that will not be regulated. The first guideline is the “Advisory letter Ref. no.: WA 11-QB 4100-2017/0010, Supervisory classification of tokens or cryptocurrencies underlying “initial coin offerings” (ICOs) as financial instruments in the field of securities supervision”\textsuperscript{162} and the latter is the “Guidance Notice, Second advisory letter on prospectus and authorisation requirements in connection with the issuance of crypto tokens Ref.: WA 51-Wp 7100-2019/0011 and IF 1-AZB 1505-2019/0003”\textsuperscript{163}. These guidelines give a brief explanation on whether the product ought to be considered as securities. In summary, BaFin confirms that there are three types of token which are: (i) utility token; (ii) currency token; and (iii) security token. While only “true” utility token is outside the scope of regulation, currency token and security token must fall within the scope. Further, hybrid forms require a case by case assessment of their functionality and content. BaFin also confirms that it is not the denomination or labelling of a token within one of the three categories, but the rights associated with the token that classify it as securities will be thoroughly examined. In the context, there are essential

\textsuperscript{161} Securities Acquisition and Takeover Act (WpÜG)  
\textsc{SECTION 2} Definition …

(2) "Securities" means shares, securities comparable to shares, certificates representing shares; and other securities whose object is the acquisition of shares, securities comparable to shares, or certificates representing shares, even if no certificates have been issued in respect thereof. …

\textsuperscript{162} Federal Financial Supervisory Authority (BaFin), Initial Coin Offerings: Advisory letter on the classification of tokens as financial instruments  
<https://www.bafin.de/SharedDocs/Downloads/EN/Merkblatt/WA/dl_hinweisschreiben_einordnung_ICOs_en.html>

\textsuperscript{163} Federal Financial Supervisory Authority (BaFin), Guidance Notice crypto tokens  
<https://www.bafin.de/SharedDocs/Downloads/EN/Merkblatt/WA/dl_wa_merkblatt_ICOs_en.html>
characteristics for being qualified as securities, which are standardisation, negotiability and transferability in (capital) markets as well as incorporation of rights comparable to securities.

In essence, BaFin determines on a case-by-case basis whether a token constitutes as securities within the meaning of the Securities Trading Act (WpHG) or the Securities Prospectus Act (WpPG). BaFin bases its assessment on the criteria set out in the statutory provisions under securities supervision law, as well as other relevant laws and applicable national and EU laws in the field of securities supervision.
IV. Overview of digital securities

From the 1990s onwards, a global trend in businesses was the shift from the use of documentary materials to digitalization, which also extends to the fund-raising process and directly effects either the demander of capital or the correspondent willing to invest. Therefore, these developments in law and practice concerning securities provide another illustration of the general point that the reification of abstract rights into document form no longer serves a useful function. Thus, the shifting from document-based securities to digital-based securities is necessary for complying with international practices.

A. Definition of digital securities

While there is currently no comprehensive definition of “digital securities” available, from an overall point of view, the term “digital securities” is composed of the two words, “digital” and “securities.” Initially, these two words seem inconsequential, as they represent different concepts. However, in order to simplify “digital securities” in the legal context, a review of laws concerning these two ideas is necessary. In general, a security is “any evidence of debt or ownership;” in other words, in layman’s terms, securities mean stocks, bonds and a growing array of more complicated financial instruments, including hybrids, options and other derivatives that trade privately or publicly. Added to this is the concept of maintaining those securities’ data in a digital manner, specifically maintaining them by means of blockchain technology. Altogether, a digital security is a digital representation of an asset that happens to be a security and for which ownership is verified and recorded on a distributed ledger. Moreover, a digital security, which is subject to traditional securities laws, is often referred to as a “securities token.”

165 James Steven Rogers, above n 70, 49-53
166 Jason A. Pederson, The Wall Street primer: the players, deals, and mechanics of the U.S. securities market (Praeger Publisher, 2009) 1-8
One of the authoritative examples\textsuperscript{168} for discussing whether digital tokens issued by a business entity can be classified as securities or not is the case of “DAO.”\textsuperscript{169} In this instance, the facts presented to the SEC state that holders of DAO Tokens were able to share in the anticipated earnings from these projects as a return on their investment in DAO Tokens. In addition, DAO Token holders could monetize their investments in DAO Tokens by re-selling them on a number of web-based platforms that support secondary trading in DAO Tokens. Consequently, the SEC Commission determined that DAO Tokens constitute securities under the Securities Act of 1933 and the Securities Exchange Act of 1934. The most important question then is whether the doctrine the SEC applied meant that DAO Tokens were securities. In this case, the SEC mainly adopted principles from the foundation case, the Securities and Exchange Commission v. W.J. Howey Co, in combination with other cases.\textsuperscript{170} In essence, the SEC employed a substance over form approach to determine that the DAO Tokens constituted an “investment contract,” which under the U.S. federal securities law makes them securities. This reasoning centered around three key “economic realities,” which are:\textsuperscript{171}

(i) The nature of payment and expectation of profit

In this case, the Securities and Exchange Commission clearly stated that payment made in form of cash (“fiat money”) was not necessary. However, the use of Ether, a type of crypto currency, in exchange for the DAO Tokens would deem the tokens as investment contracts. In addition, offerees who purchased DAO Tokens did so with a reasonable expectation that the venture would return profit. The various promotional materials that were used by the offeror, as well as the pronouncements made by the offeror’s founding members and the efforts to list the coin exchange, point towards a venture that was designed to be “for-profit.”


\textsuperscript{169} The DAO, as an example, abbreviates for “Decentralized Autonomous Organization”, which is a term used to describe a “virtual” organization embodied in computer code and executed on a distributed ledger or blockchain. The DAO was created by Slock.it and Slock.it’s co-founders, with the objective of operating as a for-profit entity that would create and hold a corpus of assets through the sale of DAO Tokens to investors, which assets would then be used to fund “projects.”

\textsuperscript{170} The SEC also refer to these cases which are SEC v. Edwards, 540 U.S. 389, 393 (2004); United Housing Found., Inc. v. Forman, 421 U.S. 837, 852-53 (1975); and Tcherepnin v. Knight, 389 U.S. 332, 336 (1967). In order for in-depth understanding please read chapter III. International Legal Perspectives of Traditional Securities

(ii) Profit derived from the management efforts of others

In principal, business entities are designed with the purpose of maximizing return on investment. On this point, the Securities and Exchange Commission focuses on whether that return is derived from the management efforts of others. In this case, the effort of the offeror was essential to the business entity on the basis of the following factors: investor expectations were influenced by promotional activity and marketing materials, which were controlled and monitored by the offeror; potential offerees were informed that the offeror was an expert in Ethereum and blockchain protocols; offerees expected that the offeror would take on managerial roles in the venture post-launch to continue to monitor and safeguard operations, which the offeror did.

(iii) Voting rights of the tokens

The Securities and Exchange Commission further concluded that the voting rights associated with the DAO Tokens were limited and that token holders therefore held no meaningful control over the enterprise because their voting rights were largely perfunctory and holders had very limited means to communicate with each other, even though curators had a central operational role in the DAO and also controlled the proposals that were voted on by DAO Token holders. In addition, the nature of the offering in this case made it difficult for DAO Token holders to join together to effect change or exercise meaningful control. In summary, the DAO Tokens resembled shares in a widely held corporation.

In this instance, the Securities and Exchange Commission ultimately concluded that the definition of “issuer” was broad enough to include the DAO, which was an unincorporated organization, and that since the DAO was responsible for the success or failure of the enterprise, it was the entity about which the investors needed information material for their investment decision.

This case report reiterates the fundamental principles of U.S. federal securities laws and describes their applicability to a new paradigm of capital raising that uses distributed ledger

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172 The SEC refer to the case SEC v. Glenn W. Turner Enters., Inc.
173 The SEC Commission deems it appropriate and in the public interest to issue this report of investigation (“Report”) pursuant to Section 21(a) of the Exchange Act to advise those who would use a Decentralized Autonomous Organization (“DAO Entity”), or other distributed ledger or blockchain-enabled means for capital raising, to take appropriate steps to ensure compliance with the U.S. federal securities laws. All securities offered and sold in the United States must be registered with the Commission or must qualify for an exemption from the registration requirements. In addition, any entity or person engaging in the activities of an exchange must register as a national securities exchange or operate pursuant to an exemption from such registration.
or blockchain technology to facilitate the capital raising process by issuing securities. The automation of certain functions through this technology does not remove the conduct from the purview of U.S. federal securities laws. This case report outlined an important milestone for addressing blockchain technology that provides availability for digital transformation in fundraising procedures. Nevertheless, if fundraising methods can be regarded as securities under governing laws, the issuer or involving parties are obliged to comply with the securities laws and regulations. From this aspect, contemplation of the meaning of digital securities depends upon the governing securities laws of each state. Hence, the essential elements of “securities” under Thai law shall be considered in order to clarify the scope of “digital securities.”

B. Digital securities under Thai law

The current law governing “securities” was instituted in the Securities and Exchange Act, B.E. 2535 (1992). In theory, securities law is a clear example of legislation developed in the wake of a financial crisis.\footnote{Louis Loss and Joel Seligman, Securities Regulation, Third edition, (Little, Brown and company, 1989) 3 -28 Though, securities law could trace its root back to the statue of king Edward I of England, in 1285 when authorized the Court of Aldermen to license brokers in the City of London. However, modern securities regulation has flourished in the United States, after battles of philosophy and financial cries, time after time. For instance, the Wall Street crash of 1929, the Great Depression between 1929 to 1939, the Black Monday in 1987, and the latest global financial crisis in 2008.} It responded to a genuine problem and crafted a reasonable solution that drew on existing legal principles.\footnote{Paul G. Mahoney, Wasting a crisis: why securities regulation fail (The University of Chicago Press, 2015) 37} It mainly corresponds to fundraising practices and related issues, for instance the public offering of securities, the disclosure of information requirement, the operation of securities businesses and corporate governance for publicly-held corporations, etc. The law promoting digital transactions was contained in the Electronic Transaction Act, B.E. 2544 (2001), which was the first legislation in Thailand to recognize the legal effect of the use of electronic records in transactions. Originally, it was a long-awaited law to establish the fundamental structure for the exponential growth in electronic transactions, especially in the electronic commerce context. It achieved this by dispensing with legal obstacles to the use of modern means of electronic transactions and laying down legal principles for computer-based communications.\footnote{Pinai Nanakorn, ‘Electronic Transactions Law in Thailand’ Thammasat Review (2002) 52-55} According to this foundation, in order to pave the way for the availability of digital securities, the acceptance of digitalization for securities transaction was made compulsory. In doing so, according to the laws of Thailand, the Securities and Exchange Act, B.E. 2535 (1992)
lucidly defined “securities” by providing a list of securities products. In combination with the Electronic Transaction Act, B.E. 2544 (2001), it was intended to be a general provision for making electronic data functionally equivalent to paper documents.\textsuperscript{177} It endorsed that electronically-made data would have a legal effect and be enforecable under law\textsuperscript{178} under two conditions: that those data be accessible and usable for subsequent references without its meaning being altered;\textsuperscript{179} and that those data be created by an appropriate measure with a reliable method.\textsuperscript{180} Therefore, legally, digital securities could be addressed under these two fundamental laws. To be more precise, the classification of securities under Thai law seeks to incorporate their features and potentiality for transformation into digital form.

(i) Classification of securities

Under the Securities and Exchange Act B.E. 2535 (1992),\textsuperscript{181} the classification of securities is not clearly classified, but a list of named securities is provided. The objective of

\textsuperscript{177} Ibid, 65
\textsuperscript{178} Under the Electronic Transaction Act, B.E. 2544 (2001);
SECTION 7. Information shall not be denied legal effect and enforceability solely on the ground that it is in the form of a data message.
\textsuperscript{179} Under the Electronic Transaction Act, B.E. 2544 (2001);
SECTION 8. Subject to the provision of Section 9, in the case where the law requires any transaction to be made in writing, to be evidenced in writing or supported by a document which must be produced, if the information is generated in the form of a data message which is accessible and usable for subsequent reference without its meaning being altered, it shall be deemed that such information is made in writing, is evidenced in writing or is supported by a document.
\textsuperscript{180} Under the Electronic Transaction Act, B.E. 2544 (2001);
SECTION 9. In the case where a person is to enter a signature in a writing, it shall be deemed that such data message bears a signature if:
(1) the method used is capable of identifying the signatory and indicating that the signatory has approved the information contained in such data message as being his own; and
(2) such method is a reliable one and appropriate for the purpose for which the data message is generated or sent, having regard to the surrounding circumstances or an agreement between the parties.
SECTION 10. In the case where the law requires that any information be presented or retained in its original form as an original document, if such information is presented or retained in the form of data message pursuant to the following requirements, it shall be deemed that such information is presented or retained as an original document under the law:
(1) a reliable method is used with the data message to assure the integrity of the information from the time when it is generated in its final form; and
(2) the information is capable of being subsequently displayed.
The integrity of the information under (1) shall be determined by having regard to its completeness and unalteration, apart from the addition of any endorsement or record or any change which may arise in the normal course of communication, storage or display of the information, which does not affect the integrity of that information.
\textsuperscript{181} Under the Securities and Exchange Act, B.E. 2535 (1992) the terminology of “securities” is listed as follows;
SECTION 4. In this Act "securities" means
(1) treasury bills;
(2) bonds;
(3) bills;
classifying securities is to understand more about their features and potential for transformation into digital form. The possible dimensions by which securities can be classified are numerous, and so classification involves identifying the most economically-crucial features. In particular, the classification defines the securities with reference to the characteristics, and so it is also applicable to newly prescribed securities under (10) of Section 4 of the Securities and Exchange Act B.E. 2535 (1992). Additionally, in principle, one of the most important features of securities is that they are tradable through transfer in exchange for cash. Also, the holding of securities give the holder the right to receive future monetary benefits under a stated set of conditions and, except for derivatives, allows the holder to own the underlying asset without taking physical possession.

Essentially, securities can be classified into four groups, namely: equity securities, debt securities, derivatives securities and other securities, as outlined below.

a. Equity securities

An equity security represents the value of ownership by sharing interest in the capital of a company. In other words, holding equity securities means contributing to the company’s capital, whereas “share” is the only type of equity securities available under the Securities and Exchange Act B.E. 2535 (1992). Shareholders, as the equity owners of a company, are residual claimants and so are entitled to any assets in the company that remain after it pays off all of its

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(4) shares;
(5) debentures;
(6) investment units which are instruments or evidence representing the rights to the property of a mutual fund;
(7) certificates representing the rights to purchase shares;
(8) certificates representing the rights to purchase debentures;
(9) certificates representing the rights to purchase investment units;
(10) any other instruments as specified by the Securities and Exchange Commission.


183 Sanjay Bulaki Borad, Financial Securities, August 2018 <https://efinance.com/investment-decisions/financial-securities>

184 There are two types of business organization which are able to issue “share” considered as equity securities. Under the Civil and Commercial Code, the type of business organization is “limited company”, while under the Public Limited Company Act B.E. 2535 (1992) is “public limited company”.

Under the Civil and Commercial Code, SECTION 1096. A limited company is that kind of company which is formed with a capital being divided into shares of an equal value and with the liability of the shareholders being limited to the amount unpaid on the shares held by them.

Under the Public Limited Company Act B.E. 2535 (1992) SECTION 15. A Public Limited Company is the kind of company established with the purpose to offer shares for sale to the public and the liability of the shareholders is limited to not exceeding the amount payable on the shares and said company has specified such objective in its Memorandum of Association.

185 Haas, above n 69, 473-475
contract claimants. The number of shares possessed represents a monetary value that directly relates to the amount of capital contributed to the company. As owners, shareholders are entitled to the profits of the company by having a claim on the company’s earnings subject to the payment of dividends. Furthermore, shareholders can also participate in the operations of the company by exercising their voting rights. However, in case a company incurs losses, shareholders get no return, and in the case of bankruptcy, they are on the losing end. As a result, in practice, shareholders may not get anything in return on their investment if the failure in doing business occurred.

### b. Debt securities

A debt security creates a fixed contractual claim against the borrower. The claim is limited to the payment of interest and the repayment of principal in accordance with the contract evidencing the debt. Debt securities can be categorized into two groups, which are public debt securities and private debt securities. For public debt securities, the two types are “treasury bills” and “bonds”. For private debt securities, there are three major types, namely “bonds”, “debentures”, and “notes.” All of them represent contractual claims against the securities issuer by representing a promise by the issuer to pay the amount borrowed on a specified maturity date, together with interest at specified times until that date. There is purposefully no direct definition for public debt securities in the Securities and Exchange Act B.E. 2535 (1992), and so a definition can be adopted from the Public Debt Management Act B.E. 2548 (2005). Thus, the definition provided is not completely matched with that imprecisely stated in the Securities and Exchange Act B.E. 2535 (1992), but it can also be used. As the process for the issuance of public debt

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186 Civil and Commercial Code: SECTION 1269  
187 Civil and Commercial Code: SECTION 1200  
188 Civil and Commercial Code: SECTION 1176  
189 Civil and Commercial Code; SECTION 1096  
190 Haas, above n 69, 275-278  
191 Under the Public Debt Management Act B.E. 2548 (2005), the definition of “debt instrument”, “treasury bill”, “promissory note” and “bond” are described as: SECTION 4. In this Act: “debt instrument” means a treasury bill, promissory note, bond and other instruments a result of which a debt is incurred as specified by the Committee, and shall also include a debt instrument issued under scripless system; “treasury bill” means a document of short-term debt incurrence issued by the Ministry of Finance, which matures in not more than twelve months from the date of issuance; “promissory note” means a promissory note under the Civil and Commercial Code; “bond” means a document of long-term debt incurrence, which matures in not less than twelve months from the date of issuance;
securities is specifically designed for its kind, the Bank of Thailand is entrusted as a monetary policy maker and banking sector regulator, and to act as the underwriter in conjunction with the Ministerial Regulation issued by the Ministry of Finance, purposely tailored for the issuance, purchase, sale and transfer of public debt instruments. On the other hand, according to the Securities and Exchange Act B.E. 2535 (1992), private debt securities can generally be categorized as “bills” and “debentures,” which are available as various types, in accordance with their specific, obligatory features, especially for the case of debentures. These debt securities differ from each other in terms of maturity, collateral, repayment of principal, interest payment, expiry of the term, etc. They also differ from equity securities in the sense that debenture holders are creditors of the company. This is in contrast to equity shareholders, who are owners of the company. According to the Civil and Commercial Code, bills can be categorized into three types, i.e., bills of exchange, promissory notes and checks. However, under the Securities and Exchange Act B.E. 2535 (1992), only bills of exchange and promissory notes can be considered securities because of their use in fundraising. Moreover, debentures are a debt instrument, excluding bills, that

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192 The Public Debt Management Act B.E. 2548 (2005), SECTION 11. In issuing a debt instrument within the country, the Minister may entrust the Bank of Thailand or other persons to act as the underwriter.

193 Civil and Commercial Code: Section 4 of the Securities and Exchange Act BE 2535 (1992), "bill", which is a type of securities, means any bill issued for raising funds from the public as specified in the notification of the Securities and Exchange Commission.

194 Notification of the Securities and Exchange Commission No. GorChor. 34/2547 Type of negotiable instrument considered as securities.

CLAUSE 3. Negotiable instruments issued by company is whereby for the purpose of fundraising from public and as an evidence which given to lender or purchaser. Without the following mentioned characteristic, instruments shall be deemed as securities.

(1) Instrument which the issuing company issued for payment of debt.
(2) Instrument which the issuing company issued for the purpose of loan, whereby specify name of financial institution, securities company, insurance company, or other prescribed by the office of the Securities and Exchange Commission, as a payee. With "non-negotiated" clause or other clause which can be resemblance deemed at the front of the instrument from the date of issued.
(3) -Revoked-
(4) Instrument which the Ministry of Finance aval payment of debt in full or guarantee full amount of payment, including interest, without any conditions from the date of issued.

195 Under SECTION 4 of the Securities and Exchange Act BE 2535 (1992), "debenture", which is a type of securities, means "any debt instrument of whatever name excluding bills, divided into units, each with equal value and a predetermined rate of return, issued by any company to a lender or purchaser, representing the right of the holder of such instrument to receive money or other benefit."
represent a loan agreement which divided into units, issued by any borrower to lenders. There is an enormous variety of debenture issues and new kinds of debentures are spawned almost daily, such as asset-backed, convertible and pay-in-kind debentures. Through a process of natural selection, some of these new instruments became popular and many even replace existing species. Some innovations succeed, as they widen investor choice or reduce the cost of fundraising by harmoniously adapting to tax rules and government regulation.\(^\text{197}\)

**c. Derivative securities**

Derivative securities are “derivative” in nature, as their value is derived from an underlying asset or other financial or economic variable;\(^\text{198}\) for instance, other securities, commodities, currencies, etc. Originally, risk management was by far the most important function of derivatives in providing an efficient method for managing the risks arising from fluctuation in underlying asset price. Consequently, due to the leverage element, derivatives became particularly attractive for prospect returns by investing or trading in the markets for the purpose of speculation.\(^\text{199}\) The value of derivatives is dependent on that of the underlying asset; in other words, they have no value of their own. Furthermore, the derivative certificate owner does not have any ownership stake in the underlying asset.\(^\text{200}\) However, there are a variety of derivatives instruments available in financial markets, but all derivative instruments are comprised of one or more of the four building blocks of derivatives, which are options, forwards, futures and swaps.\(^\text{201}\) In Thailand, there are two different statutes governing securities and derivatives, namely the Securities and Exchange Act B.E. 2535 (1992) and the Derivatives Act B.E. 2546 (2003), respectively. This is in spite of the fact that, in Thailand, both securities and derivatives businesses are governed by the Securities and Exchange Commission. According to the Securities and Exchange Act B.E. 2535 (1992), three instruments (certificates representing the right to purchase shares, certificates representing the rights to purchase debentures and certificate representing the right to purchase investment units) are financially derivative in their nature. However, the Securities and Exchange

\(^{197}\) Frank Lamay, Corporate Finance (McGraw-Hill Create, 2015) 498
\(^{198}\) Haas, above n 69, 213
\(^{199}\) Rasiah Gengatharen, Derivatives Law and Regulation, International banking, finance, and economic law; v.20 (Kluwer Law International 2001) 8-22
\(^{201}\) Internationally, there are three main categories of derivatives: structured securities and deposits, stripped securities, and securities with option characteristics. Within each category of derivative securities there are various sub-categories. The range of derivatives is so large that it would not possible to describe all of them here.
Act B.E. 2535 (1992) defines and regulates these instruments as “securities,” and not derivatives. Therefore, these instruments have been excluded from the boundary of the Derivatives Act B.E. 2546 (2003), whereas other types of derivatives that are qualified pursuant to Section 3 of the Derivatives Act 2546 (2003) are governed under the Derivatives Act B.E. 2546 (2003).

d. Investment unit

The investment units are one of the enumerated lists of securities. According to section 4(6) of the Securities and Exchange Act B.E. 2535 (1992), an investment unit constitutes instruments or evidence representing the rights to the property of a mutual fund. In practice, an asset management company (“AMC”) pools the money of several investors, called unitholders, and to then invest in various eligible assets covered by the SEC’s regulations, such as stocks, bonds, derivatives and structured notes. The investments are professionally managed by fund managers on behalf of the unitholders. These unitholders hold instruments or evidence issued by the asset management company representing the rights to the property of a mutual fund, such as capital gains and dividend interests arising from their investments. There are several benefits to investing in investment units, two of which are professional management and diversification.

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202 Under the Derivatives Act B.E. 2546 (2003);
SECTION 4. This Act shall not apply to the following:
(1) any off-exchange derivatives contract of which the obligation for payment is calculated from any foreign exchange rate or interest rate;
(2) any contract to purchase or sell a securities with a [concurrent] agreement to sell back or buy back such securities;
(3) any contract or trade as specified in the notification of the Securities and Exchange Commission.

203 Under the Derivatives Act B.E. 2546 (2003);
SECTION 3. In this Act: “derivatives” means a contract having one or any combination of the following characteristics:
(1) a contract in which one party is obliged to deliver goods as specified in the contract to the other party at a given time in the future, and the other party, in turn, is obliged to make payment for such goods at a price specified therein;
(2) a contract in which one party is obliged to make payment to the other party, or vice versa, in the amount which is equivalent to the difference between the price or value of goods or variable specified in the contract and the price or value of such goods or variable prevailing at a given time or period of time in the future as specified in the contract;
(3) a contract in which one party is entitled to demand the other party to deliver goods, or make payment for goods, or make payment in the amount which is equivalent to the difference between the price or value of goods or variable specified in the contract and the price or value of such goods or variable prevailing at a given time or period of time in the future as specified in the contract, or to demand the other party to enter into a contract under subsection (1) or (2).

204 Under the Securities and Exchange Act B.E. 2535 (1992);
SECTION 4. In this Act: “mutual fund management” means the management of investments under a mutual fund project by issuing investment units of each project for sale to the public and bringing proceeds therefore to invest in, or procure for profit from holding in, securities, derivative, or any other properties, or invest in or procure for profit by other means.
Within the asset management company, the fund manager, who has suitable qualifications and experience, is responsible for portfolio managements for the unitholders, who are able to manage their investment risks by diversifying their holdings in various financial assets rather than one or a few individual stocks.

e. **Other type of securities**

Apart from the aforementioned types of securities, according to the Securities and Exchange Act B.E. 2535 (1992), the Securities and Exchange Commission has the authority to declare any financial instrument a “security.” At present, there are five instruments that have already been declared securities, which includes “trust certificates,” “derivative warrants,”

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205 Under the Securities and Exchange Act, B.E. 2535 (1992);
SECTION 4. In this Act "securities" means …
(10) any other instruments as specified by the Securities and Exchange Commission.
206 Notification of the Securities and Exchange Commission No. GorChor. 10/2552 Re: Additional Types of Securities (No. 5)
Trust certificates under the first paragraph shall mean instrument representing rights of holder in the capacity of beneficiary, divided into units, each classified in the same class having equal value.
“certificates representing interest from underlying securities” (CRI), “depository receipts”207 and “transferable subscription rights” (TSR).208

(ii) Digital securities from Thai legal perspective

According to Thai legal developments in laws concerning securities, the idea of digitalization of securities was implemented approximately three decades ago, in 1992.209

207 Notification of the Securities and Exchange Commission No. GorChor. 7/2558 Re: Additional Types of Securities (No. 9)
CLAUSE 2. The following instruments shall be deemed as securities in accordance with Section 4 of the Securities and Exchange Act B.E. 2535 (1992):
(1) derivative warrant under Clause 3;
(2) certificate representing interest from underlying securities (CRI) under Clause 4;
(3) depositary receipt under Clause 5.
CLAUSE 3. Derivative warrant means a unitized instrument having terms and conditions equally determined in advance for each unit and entitling the holder any of the following rights:
(1) the right to buy underlying securities, issued by any entity which is not the derivative warrant issuer, at a specific time or within a specific period;
(2) the right to sell underlying securities, issued by any entity which is not the derivative warrant issuer, at a specific time or within a specific period;
(3) the right to receive cash settled between the price of the underlying securities issued by any entity which is not the derivative warrant issuer, at a specific time or during a specific period, and the price determined by the instrument;
(4) the right to receive cash or near-cash assets which is calculated between the underlying securities index at a specific time or within a specific period, and securities index determined by the instrument.
CLAUSE 4. Certificate representing interest from underlying securities (CRI) means a certificate that entitles any holder the right to receive financial benefits equivalent to or in reference to the received financial benefit from the underlying securities held or being held by the issuer of such certificate. In this regard, the certificate thereof shall exclude investment unit, derivative warrant, or other securities similar to the unit or warrant as prescribed by the SEC Office.
CLAUSE 5. Depositary receipt means a unitized instrument having the same terms and conditions for each unit, and issued by a custodian for the purpose of representing the right of any holder to claim for the deposited asset subject to the deposit agreement, or other rights as described by the custodian in the instrument. In this regard, the deposited asset shall be any of the following assets:
(1) securities traded on a foreign exchange;
(2) other securities, instruments or assets as prescribed by the Securities and Exchange Commission.

208 Notification of the Securities and Exchange Commission No. GorChor. 21/2562 Re: Additional Types of Securities (No. 10)
CLAUSE 2. Transferable Subscription Right (TSR) shall be determined as securities under Section 4 of the Securities and Exchange Act B.E. 2535 (1992).
CLAUSE 3. Transferable Subscription Right (TSR) under Clause 2. means a financial instrument issued by a public limited company for its shareholders in proportion to the number of shares held by each shareholder so that each shareholder or other persons to whom the financial instrument is transferred can use as evidence for exercising the subscription right of the public limited company, which is proportionate to the number of shares held by each shareholder. Moreover, shall include those financial instrument which issued under the shareholders’ meeting resolution for its shareholders in proportion to the number of shares held by each shareholders, but not issued to shareholders who is causing a public limited company to have obligation under foreign law.

209 The Stock Exchange of Thailand, Share for all, (Stock Exchange of Thailand, 2015) 81
<https://www.set.or.th/dat/vdoArticle/attachFile/AttachFile_1430219316397.pdf>
concurrently with an enactment of the Securities and Exchange Act B.E. 2535 (1992). This was introduced as an alternative for the previous securities certificate system, which is based on a documentary registration of securities. For the securities certificate system, the bearer or person whose name is on the certificate is considered the owner of the claimed securities. Based on this idea, the role of securities registrar was established in order to verify who the legal owner of claimed securities in such cases is. Under this system, a confirmation from the securities registrar is compulsory in many cases for exercising the rights associated with securities. Consequently, for securities trading and investment, changing of the name or transferring of the certificate causes impediments to the securities business, as it decreases liquidity and also increases the operational risk of doing business. To address this, the Stock Exchange of Thailand introduced a “scripless system,” which is an electronic-based securities holding system without a documentation form of securities certificate. Later, in 1995, the system was handed over to the Thailand Securities Depository Co. Ltd., which is a subsidiary of the Stock Exchange of Thailand. In doing so, the securities balance was recorded and retained as an electronic account in a highly-secured system. Nonetheless, the scripless system was still in demand for the issuance of securities certificates, which appear in the form of documents, and are then converted to securities certificates in an electronic securities account. Furthermore, securities holders who demand securities certificates are able to order the Depository to withdraw securities in certificate form. The scripless system provides securities trading in the Stock Exchange of Thailand with more efficiency and convenience for all investors, as securities can be electronically transferred from securities sellers to buyers without the process of delivering and receiving securities certificates or changing the

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211 For example, Civil and Commercial Code; SECTION 1129. Shares are transferable without the assent of the company unless, in case of shares entered in a name certificate, it is otherwise provided in the regulations of the company.

   The transfer of shares entered in a name certificate is void unless made in writing and signed by the transferor and the transferee whose signatures shall be certified by a signature of one witness at least. The instrument must also state the reference numbers of shares so transferred.

   Such transfer is invalid as against the company and third persons until the fact of the transfer and the name and address of the transferee are entered in the register of shareholders.

212 The Thailand Securities Depository Co., Ltd. (TSD) was established on November 16, 1994 with a registered capital of THB 200 million, and commenced operations on January 1, 1995. The TSD provides two types of securities post trade services which are securities depository services and securities registration services.

213 The Stock Exchange of Thailand, Above n 191, 81
names that appear on the certificate.\textsuperscript{214} Prior to the introduction of the scripless system, for the purpose of securities trading, the securities certificate must be prepared for delivery by signing the name of the transferor in advance. This process increased the complexity of securities trading practices for both investors and registrars, because shareholders can only be verified after the book closing period and also be burdensome for the registrar, for instance in terms of document keeping, verification and timely proceedings. In other words, since 1992, the trading of securities in the Stock Exchange of Thailand has shifted from a physical document basis to a digital one under the scripless system. Although the scripless system is not completely digital, it established a robust foundation for the digitalization of securities in Thailand.

Notably, some investment units are scripless in their nature. Thai laws and regulations do not mandate that investment units shall be in the form of scripts, such as some other instruments (e.g., shares and bonds). According to section 4(6) of the Securities and Exchange Act B.E.2535 (1992), “investment units” are instruments or evidence representing the rights to property of a mutual fund. In practice, most unitholders who buy or redeem units possess the passbooks that constitute the evidence representing the rights to the units of the mutual fund. However, in some cases, unitholders do not hold any documents when they buy or redeem units. The transactions are recorded in the system of the asset management company in which the unitholders could request that they issue evidence.

Subsequently, in 2018, following the emergence of cryptography, blockchain technology, crypto currencies and digital assets, the government of Thailand responded by enacting the Emergency Decree on Digital Asset Business Act B.E.2561 (2018).\textsuperscript{215} Under this law,
the “digital asset”\(^{216}\) is acknowledged and businesses that utilize them are also regulated by the Ministry of Finance\(^{217}\) through the operation of the Securities and Exchange Commission. Nevertheless, the “digital asset” addressed by this law consists of “cryptocurrencies”\(^{218}\) and “digital tokens.”\(^{219}\) Both of them are common as electronic data units built on an electronic system or network, which in this case is the distributed ledger technology. Notwithstanding this, digital token can be treated similarly to “securities” under the Securities and Exchange Act B.E.2535 (1992) because of its function as a fundraising instrument, but under the Emergency Decree,\(^{220}\) all securities created pursuant to the Securities and Exchange Act B.E.2535 (1992) are not to be regarded as “digital tokens.” Therefore, under the laws of Thailand, digital tokens and securities cannot be considered the same thing, despite the fact that in terms of fundraising their functions are comparable. In addition, the Securities and Exchange Commission is empowered to specify any other electronic data unit with a similar purpose to crypto currencies or digital tokens as legally constituting crypto currencies or digital tokens, respectively. Consequently, tokenized securities (also referred to as “securities tokens”), which share features with traditional securities (such as shares) are “securities” under the Securities and Exchange Act B.E.2535 (1992), but cannot be considered digital tokens under the Emergency Decree on Digital Asset Business Act B.E.2561 (2018). Technically, existing securities can be tokenized by applying blockchain technology and smart contracts. These securities tokens then provide a new form of representation, management, and distribution of existing securities.\(^{221}\) In practice, securities tokens have earlier liquidity, a broader fundraising base, far lower issuing costs, the capacity to explore transaction history and

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\(^{216}\) SECTION 3. In this Emergency Decree: “digital asset” means cryptocurrency and digital token.

\(^{217}\) SECTION 4. The Minister of Finance shall be in charge of the enforcement of this Emergency Decree and shall have the power to issue notifications and appoint competent officer to perform duties in accordance with this Emergency Decree.

\(^{218}\) SECTION 3. In this Emergency Decree: “Cryptocurrency” means an electronic data unit built on an electronic system or network which is created for the purpose of being a medium of exchange for the acquisition of goods, services, or other rights, including the exchange between digital assets.

\(^{219}\) SECTION 3. In this Emergency Decree: “Digital Token” means an electronic data unit built on an electronic system or network for the purpose of:

1. specifying the right of a person to participate in an investment in any project or business;
2. specifying the right of a person to acquire specific goods, specific service, or any specific other right under an agreement between the issuer and the holder, and shall include any other electronic data units of right as specified in the notification of the Securities and Exchange Commission.

\(^{220}\) The Emergency Decree on Digital Asset Business Act B.E.2561 (2018), SECTION 5. Securities pursuant to the law governing securities and exchange shall not be regarded as cryptocurrency or digital token under this Emergency Decree.

\(^{221}\) Shermin Voshmgir, Token Economy How Blockchains and Smart Contracts Revolutionize the Economy (Blockchain Hub Berlin, 2019, 2nd amended printing) 217
other information related to their provenance\textsuperscript{222} than traditional securities that took the form of documents.

Most recently, the Securities and Exchange Act B.E.2535 (1992) had been amended by the Securities and Exchange Act (No. 6) B.E. 2562 (2019). The latest amendment allows using of scripless system by depository center for all types of securities and throughout the whole process.\textsuperscript{223} To be more precise, securities issuer can issue securities via using depository center as its securities registrar. In the case, the issuer uses depository center as an agent for maintaining its securities record. Nevertheless, there are two conditions under law; (i) The depository center must be licensed under law, and (ii) Issuer must comply with rules and procedure specified by the depository center. Under the aforementioned conditions, it shall be deemed that the issuer has prepared and delivered securities certificates to the buyers in accordance with form or procedure specified by law.

In summary, in the chronological order of Thai legal development and by their nature, digital securities technically can be classified into three types, which are: “scripless securities,” “digital tokens” and “securities tokens.” Nevertheless, these three types of digital securities can be categorized by their nature into two groups, namely “securities originally issued in digital form” and “securities later converted to digital form.” Both, newly introduced scripless system and digital tokens (not treated as securities by substantive law), can be considered to resemble securities originally issued in digital form. On the contrary, securities later converted into digital form consisting of original scripless securities and securities tokens. From the aforementioned fact, it can be concluded that the idea and practice of digital securities under Thai laws conform to international norms, despite the fact that some laws or regulations must be appropriately adjusted. Henceforth, distributed ledger technology can be adopted and implemented for transactions involving digital securities under Thai law.

\textsuperscript{222} Ibid, 206
\textsuperscript{223} Securities and Exchange Act (No. 6) B.E. 2562 (2019);
SECTION 225/1 In the case where the securities depositor under Section 225 is a securities issuing company, it shall be deemed that the securities issuing company has prepared and delivered securities certificates to the buyers in accordance with the form or procedure specified by law upon compliance with the rules and procedure specified by the Securities Exchange.
V. Impact of blockchain on the current legal landscape in Thailand

Blockchain or distributed ledger technology shifts the paradigm of service and management in relation to the securities industry, as the transactions occurring in the industry are all involved with the creation, transmittance and storage of data. Therefore, preparations for establishing an appropriate operating model for all stakeholders should be initiated to encourage the expansion of business networks and incorporate the emergence of opportunities arising from this. As outlined above, blockchain technology provides more secure, economical, rapid and, most importantly, trustworthy transactions in the issuance, transfer and settlement of securities. In order to comprehend the fundamental structure of the securities industry, an overview of the process of securities business transaction cycles (as summarized from the Securities and Exchange Act), can be demonstrated by this diagram:

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224 A fundamental operation of securities business describes in chapter V. in this research paper focuses mainly on equity securities which is the most common type of securities issued for fundraising. Although, other securities, for instance, debt securities, derivatives securities, and investment unit have their own unique operation, but the main idea presented in this paper can also be adapted to those securities’ operation as well.
To begin with, a securities issuer who seeks new capital for an expansion plan, issues securities for fundraising. In Thailand, only a “limited company” under the Civil and Commercial Code Book III, Title XXII or a “limited public company” under the Public Limited Company Act B.E. 2535 (1992) can issue securities in exchange for funds, i.e., cash or other valuable assets. In order to establish the juristic person status, the company must be registered at the Department of Business Development, Ministry of Commerce, which functions as a registration office. Under the registration scheme, the company is obliged to register either “the memorandum of association” or “the regulations of the company” during its formation phase. Then, these registered documents are published in the royal gazette to ensure that every person can access the published information, and also be enforced by the law. From this perspective, in order to issue securities, the company must have previously been set up and registered at a public authority who functioned as a trusted intermediary for record-keeping. Then, in general, when a company offers securities, the offering plan is regulated by the Securities and Exchange Commission which, in practice, prescribes two sets of rules for public offerings of newly issued shares as rules for a limited public company.

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225 Civil and Commercial Code; SECTION 1015. A partnership or a company, upon registration being made in accordance with the provisions of this Title, constitutes a juristic person distinct from the partners or shareholders of whom it is composed.

Public Limited Company Act B.E. 2535 (1992); SECTION 41. The company duly registered under this Act shall become a juristic person on the date of registration by the Registrar.

226 Civil and Commercial Code; SECTION 1098. The memorandum of association must contain the following particulars:
(1) the name of the proposed company, which must always end with the word “limited”;
(2) the part of the Kingdom in which the registered office of the company shall be situated;
(3) the objects of the company;
(4) a declaration that the liability of the shareholders shall be limited;
(5) the amount of share capital with which the company proposes to be registered, and the division thereof into shares of a fixed value; and
(6) the names, addresses, occupations and signatures of the promoters, and the number of shares subscribed by each of them.

Public Limited Company Act B.E. 2535 (1992); SECTION 18. The Memorandum of Association must at least contain particulars as follows:
(1) the name of the company, under Section 11(1);
(2) the purpose of the company to offer shares for sale to the public;
(3) the objective of the company, which must specify clearly categories of business;
(4) the registered capital including the type, number and value of shares;
(5) the location of the head office, which must be in any locality in the Kingdom;
(6) the names, dates of birth, nationalities, and addresses of the promoters and the number of shares for which each of them has subscribed.

The name of the company shall not be of descriptions prohibited by the ministerial regulation.

227 Securities and Exchange Act B.E. 2535 (1992); SECTION 32. No promoter of a public limited company shall offer newly issued shares for sale to the public or
with general rules concerning the nature of public fundraising and rules for a limited company\textsuperscript{228} and, in exceptional cases, contra to the nature of private fundraising. Apart from offering newly issued shares, the issuance plans of other type of securities are also regulated by the Securities and Exchange Commission\textsuperscript{229} The main issue is that the Securities and Exchange Commission is not responsible for securities record keeping, but instead is responsible for assuring conducive environments for a fair, efficient, dynamic and inclusive capital market\textsuperscript{230} based on the principle of the disclosure of information in order for investors to be sufficiently informed for making investment decisions.\textsuperscript{231} Following the process of the issuance and offering of securities, the transferring and settlement of the securities takes place. These two latter processes occur more frequently than the former, as the transferring of securities generates wealth for investors, as well as the relocation of capital’s market value from business to other business. During these processes, securities are involved with relevant business operators, including underwriters, brokers, dealers, investment advisors, auditors, rating agencies, secondary markets, clearing houses and securities depositaries. These are regulated securities business entities under the Securities and Exchange Act B.E.2535 (1992) of the Securities and Exchange Commission licensing regime. In other words, they are able to proceed with their business operations after obtaining specific licenses or, in some other persons unless having obtained an approval from the Securities and Exchange Commission Office and having complied with Section 65.

The application for approval under the first paragraph shall be made when such promoter has registered the memorandum of association in accordance with the law relating to public limited companies.

cases, getting approval from the Securities and Exchange Commission to continue operating. Nevertheless, specific issues pertaining to the issuance, transfer and settlement of securities will be analyzed subsequently.

A. Issuance of securities

In accordance with the process of the issuance of securities, except the newly introduced scripless system, securities ought to be primarily issued in a documentary manner acknowledged as “securities certificates.” Nonetheless, the governing laws do not vividly state whether the securities certificate must be merely represented on paper, but it can be deduced from the legal term of “certificate” and current practices of securities issuers who, by law, also functioned as securities registrars. In the case of a limited company, under the Civil and Commercial Code, a

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232 Securities and Exchange Act B.E. 2535 (1992); SECTION 5. Unless otherwise specified by the provisions of this Act, the Securities and Exchange Commission, the Capital Market Supervisory Board, the Securities and Exchange Commission Office, the board of directors of the Securities Exchange, and the Securities Exchange shall issue the notification to the public specifying the period for consideration of the issuance of a license and granting of an approval under this Act. In cases where an application for a license or for an approval is refused, the applicant shall also be notified of the reasons therefor.


234 Civil and Commercial Code, SECTION. 1128. Every share certificate shall be signed by one of the directors at least and shall bear the seal of the company. A share certificate must contain the following particulars:
    (1) the name of the company;
    (2) the reference numbers of the shares to which it applies;
    (3) the value of each share;
    (4) in the case where the shares are not fully paid up, the amount paid on each share; and
    (5) the name of the shareholder or a statement that the certificate is issued to bearer.

235 Public Limited Company Act B.E. 2535 (1992), SECTION 56. A share certificate shall at least contain particulars as follows:
    (1) the name of the company;
    (2) the registration number of the company and date of registration of the company by the Registrar;
    (3) the types, value, and serial numbers of the share certificate, and number of shares;
    (4) the name of the shareholders;
    (5) the signature of at least one director, signed or printed; but the director may assign the share registrar under the law on securities and securities exchange to sign or print signature on his behalf;
    (6) the date of issue of the share certificate.

236 Civil and Commercial Code, SECTION 1138. A limited company must keep a register of shareholders containing the following particulars:
    (1) the names and addresses, and occupations, if any, of the shareholders, a statement of the shares held by each shareholder, distinguishing each share by its reference number, and of the amount paid or agreed to be considered as paid on the shares of each shareholder;
    (2) the date on which each person was entered in the register as a shareholder;
    (3) the date on which each shareholder ceased to be a shareholder;
    (4) the reference numbers and date of certificates issued to bearer, and the respective reference numbers of shares entered in each such certificate; and
company must keep a register of shareholders by itself. Likewise, in the case of a public limited company, under the Public Limited Company Act B.E. 2535 (1992), a company must also keep a register of shareholders by itself, along with an option that the company may assign to a particular person to maintain the register of shareholders. In concise terms, a securities issuer fundamentally also has a role as a securities registrar, but for a public limited company, an allowance for a third party registrar can be made. This conforms to the development of the “scripless system,” which only applies to listed securities on the Stock Exchange of Thailand, as only a public limited company can offer shares to the public via the Stock Exchange. Nevertheless, the scripless system is not a compulsory procedure, and instead is optional under the Securities and Exchange Act B.E. 2535 (1992). In business practice, the Stock Exchange of Thailand had established

(5) the date of cancellation of any name certificate or certificate to bearer.
Public Limited Company Act B.E. 2535 (1992),
SECTION 61. The company shall keep a register of shareholders containing at least the following particulars:
(1) the names, nationalities, and addresses of the shareholders;
(2) the types, value, serial numbers of certificate and numbers of shares;
(3) the date of registration as shareholder or of termination as shareholders.
SECTION 62. The company shall keep the register of shareholders and registration supporting evidence at the head office of the company, but the company may assign any person to the duty of keeping the register of shareholders and registration supporting evidence for the company at any place but shall notify the shareholders and the Registrar of such keeper of the register.
In the case where the register of shareholders is lost or defaced or damaged in essence, the company shall report to the Registrar within fourteen days from the date on which it had or should have knowledge of such loss, defacement, or damage and shall prepare or repair the register of shareholders within one month from the date of report.
The register of shareholders shall be presumed correct.
\(^{236}\) Securities and Exchange Act B.E. 2535 (1992);
SECTION 189. Any issuer of securities who wishes to have its securities traded in the Securities Exchange shall proceed to have such securities listed in the Securities Exchange. ..., and
SECTION 224. In cases where the operation of a clearing house, a securities depository center or a securities registrar is undertaken by the Securities Exchange, no license from the SEC shall be required. In this regard, the Securities Exchange shall operate such businesses in accordance with the rules, conditions and procedures as specified in the notification of the Capital Market Supervisory Board under Section 223. ... (For more information about listed company and listed securities in Thailand, please see https://www.set.or.th/en/company/companylist.html)
\(^{237}\) Public Limited Company Act B.E. 2535 (1992);
SECTION 15. A Public Limited Company is the kind of company established with the purpose to offer shares for sale to the public and the liability of the shareholders is limited to not exceeding the amount payable on the shares and said company has specified such objective in its Memorandum of Association.
Also, with SECTION 24. An offer of shares for sale to the public or to any person shall be in accordance with the law on securities and stock exchange.
\(^{238}\) Securities and Exchange Act B.E. 2535 (1992);
SECTION 191. The company issuing securities which are listed in the Securities Exchange shall be required to keep a register of securities holders in accordance with the rules and procedures as specified by the board of directors of the Securities Exchange.
In keeping the register referred to in the first paragraph, the securities issuing company may appoint the Securities Exchange or any other person who has been given a license to provide services of being a securities registrar in accordance with Section 221 to carry out such duty.
Thailand Securities Depository Co. Ltd. ("TSD"), which as of today, is Thailand’s sole central securities depository, equipped with the functions of a securities registrar managing a scripless system. TSD provides services in relation to securities transactions, for instance, securities deposits, withdrawals, transfers, pledges and revocation. The procedure of issuing securities can be simply demonstrated by this diagram:

![Diagram of securities issuance process]

According to the business practice of TSD, which is based on the current legal limitation, prior to being converted into digital data, these securities must first be issued as document securities certificates. In other words, the process of securities issuance under Thai law still requires a process of digitization of paper documents into digital data. This is in contrast to the idea of distributed ledger technology, by which, once these data have been set up and finalized, they can, via distributed ledger, become the basis for a single source of truth for network

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239 Securities and Exchange Act B.E. 2535 (1992); SECTION 220. No person shall operate the business of a securities depository center unless a license has been obtained from the SEC. A securities depository center means a center where services for the deposit and withdrawal of securities including related services for the purpose of account clearing are provided.

240 Securities and Exchange Act B.E. 2535 (1992); SECTION 221. No person shall provide securities registrar services unless a license has been obtained from the SEC.


242 The Stock Exchange of Thailand, above n 191, 81
participants to proceed further in performing securities-related transactions. In Opposition to the idea of newly introduced scripless system which seems to conform with the idea of distributed ledger. From the aforementioned information, it can be summarized that current Thai laws have already provided a channel for the issuance of both “securities later converted to digital form” and “securities originally issued in digital form”. Although, scripless securities can fully be applied to listed public limited companies and in the near future, this will be extended to non-listed public limited companies. However, it is still not clear whether limited companies can utilize the scripless system under the principles of private autonomy and freedom of contracts. Furthermore, the idea of securities tokens remains unaddressed under current Thai laws, as “digital tokens” under the Emergency Decree on Digital Asset Businesses B.E. 2561 (2018) are not considered as “securities” by the Securities and Exchange Act B.E. 2535 (1992).

B. Transfer of securities

In accordance with the process of securities transfer, governing laws set limitations by prescribed legal form on transactions. Legal relationships in this context can be categorized into two groups, which are the connection between the securities transferor and transferee; and between the securities holder and securities registrar. In the case of a limited company, under the Civil and Commercial Code, between the transferor and transferee of securities, the legal form is prescribed in two scenarios. Firstly, for shares entered in a name certificate, the transfer must be made in writing and signed by the transferor and transferee, whose signatures shall be certified by the signature of at least one witness. Secondly, for shares entered in a certificate to a bearer, the transfer can be made through the delivery of the certificate. Then, in the case of a public limited company, under the Public Limited Company Act B.E. 2535 (1992), shares are transferred through endorsement of the share certificate by the transferor, who specifies the name of the transferee and

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243 Civil and Commercial Code, SECTION 1129. Shares are transferable without the assent of the company unless, in case of shares entered in a name certificate, it is otherwise provided in the regulations of the company. The transfer of shares entered in a name certificate is void unless made in writing and signed by the transferor and the transferee whose signatures shall be certified by a signature of one witness at least. The instrument must also state the reference numbers of shares so transferred. Such transfer is invalid as against the company and third persons until the fact of the transfer and the name and address of the transferee are entered in the register of shareholders.

244 Civil and Commercial Code, SECTION 1135. Shares entered in a certificate to bearer are transferrable by the mere delivery of the certificate.
delivers the certificate to the transferee. In every case, the transferor and transferee, as contractual parties, must follow the prescribed legal form, otherwise the transfer of shares will be voided and cannot be legally enforced. Furthermore, in every case for both limited and public limited companies, after the transfer has already been completed, the securities holder must register an alteration of the ownership of securities to the securities registrar in order to act as a lawful securities holder. However, the transfer of securities through the scripless system is distinctive, as shareholders must make a request to their securities brokers, who will then make a book entry for the transfer of transactions through the TSD system. In addition, as an option for securities certificate holders who registered securities with the TSD, the holder must submit a securities transfer request form and related documents, together with a securities certificate signed by the transferor and transferee, to the TSD. Then, the TSD will validate the transaction and issue securities certificate to the transferees. Moreover, shareholders who deposit their securities in the issuer account can transfer securities within the account or between central securities

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245 Public Limited Company Act B.E. 2535 (1992), SECTION 58. A transfer of shares shall be complete upon endorsement of the share certificate by the transferor by specifying name of the transferee and delivery of the share certificate to the transferee. Such transfer of shares may be used as proof to the company when the company has received an application for registration of the transfer of shares, but may be used as proof to outside persons when the company has registered the transfer of the transfer of shares. In this connection, if the company is of the opinion that the transfer of shares is in order the company shall register the transfer of shares within fourteen days from the date of receipt of the application or, if the company finds the transfer of shares incomplete, the company shall notify the applicant according within seven days. In the case where the transferee wishes to have a new share certificate, he shall make a written request to the company, duly signed by the transferee with at least one witness signing in attestation to the signature of the transferee, and deliver the former share certificate and other evidence back to the company. In this connection, if the company is of the opinion that the transfer of shares is in order, the company shall register the transfer of shares within seven days from the date of receipt of the application and shall issue a new share certificate within one month from the date of receipt of such application.

246 The Stock Exchange of Thailand, above n 221

247 Securities and Exchange Act B.E. 2535 (1992); SECTION 225. Where securities are deposited with the Securities Exchange, the depositor shall prepare a list of securities holders, whose securities have been deposited with the Securities Exchange, in accordance with the rules and procedures as specified by the Securities Exchange. After the Securities Exchange has accepted the deposit of such securities, the Securities Exchange may accept the transfer of such deposited securities into its own name and shall hold such securities for the depositor or for any customer who is the owner of such securities. Securities which are in the name of the Securities Exchange in accordance with the first paragraph shall be presumed to be securities held by the Securities Exchange on behalf of those persons according to type, category and amount as appear in the list of names prepared by the depositor. On the closing date of the register of the securities issuing company, the Securities Exchange shall collect the accounts of all deposited securities and the name lists of the holders of such securities, which existed on the date prior to first closing day, from the depositor of such securities and deliver them to the registrar of the securities issuing company. Such lists shall be deemed as a part of the securities register, except for the names of those persons to whom the registrar of the securities issuing company has notified objection within three business days from the receipt of such lists, on the ground that the holding of securities by such persons is contrary to the law or any restriction on transferability which have been registered in accordance with the law....
depository participants, for instance, brokers, dealers and financial institutions who can function as securities custodians. The procedure of transferring securities can be simply demonstrated by this diagram:

![Diagram of securities transfer](image)

In summary, under Thai laws, the process of securities transfer requires many procedures, as well as significant documentation. Securities issuers and businesses that are considered intermediaries still have an important function in verifying and maintaining a record of transferred securities certificate or digital data. The idea underlying current laws is fundamentally based on the centralization of management perspective by which authorized or trusted securities intermediaries provide a crucial role in matching and executing trading transactions. In other words, trustworthiness in doing business is vested trusted intermediaries. This contrasts with the concept of distributed ledger technology, which is based on the model of decentralization of trust in executing transactions. Applying distributed ledger technology to the securities transfer process provides benefits such as time reduction in the transfer of securities, decreases in documentation work and also increased transparency and traceability in transaction transfers.

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248 Securities and Exchange Act B.E. 2535 (1992);
SECTION 228. The transfer of securities from the account of a securities depositor to the account of another securities depositor may be made only when the Securities Exchange has received a request from the securities depositor or when the clearing house of the Securities Exchange has notified the Securities Exchange, at the end of each trading day, of the delivery of the securities between members who have traded the securities in the Securities Exchange.

The transfer of securities referred to in the first paragraph or within the account of a securities depositor shall be deemed legally valid if undertaken in accordance with the rules, conditions and procedures as specified in the notification of the Capital Market Supervisory Board.
C. Settlement of securities

In accordance with the process of the settlement of securities, the Securities and Exchange Act B.E. 2535 (1992) provides a distinctive and convenient channel for securities clearing and settlements arising from the trading of securities within an exchange, as a post-trade securities service known as a clearing house.\(^{249}\) This stands in contrast to an off-exchange or over-the-counter (OTC) securities trading, by which settlement is made exclusively between parties by delivering a securities certificate and paying remuneration privately between securities sellers and buyers as counterparties. In the OTC settlement, the terms and conditions of delivery and payment are based on the bilateral agreement or contract made between the counterparties. Hence, these contracts can be enforced under the Civil and Commercial Code by the general provisions of the law of obligation and the law of contract. Therefore, the clearing house generally provides the service of clearing and settling post securities trading for in-exchange trading. The Thailand Clearing House Co. Ltd. (TCH), which is a subsidiary of The Stock Exchange of Thailand, also performs a clearing house service for all securities traded on the exchange.\(^{250}\) The TCH serves as the central counterparty to all trading activities on exchanges by guarantee clearing and settlement for concerned parties, disregarding the non-performance of contractual obligations from counterparties. This important mechanism decreases counterparty risks and maintains the continuation of the exchange operation, creating trust for in-exchange securities trading. Practically, the TCH as the direct central counterparty (CCP) will become a buyer to every selling member and a seller to every buying member in every matching transaction. Therefore, a member who has bought or sold the securities is obliged to utilize the TCH as a clearing house, as per the contract term, rather than the counterparty of the transaction.\(^ {251}\) The procedure is conducted

\(^{249}\) Securities and Exchange Act B.E. 2535 (1992); SECTION 219. No person shall operate the business of a clearing house unless a license has been obtained from the Securities and Exchange Commission. A clearing house means a center where services for the settlement and delivery of traded securities including related services are provided.

\(^{250}\) The Stock Exchange of Thailand, TCH <https://www.set.or.th/tch/en/about/about.html>

\(^{251}\) Securities and Exchange Act B.E. 2535 (1998); SECTION 223/1. Any obligations either as a counterparty or through novation in a securities trading agreement by the clearing house and the placement of collateral, if undertaken in accordance with the clearing house’s rules as approved by the Capital Market Supervisory Board, shall be legally binding and enforceable by law.

\(^{251}\) Securities and Exchange Act B.E. 2535 (1998); SECTION 223/2. In cases where the clearing house enters into an obligation in a securities trading agreement either as counterparty or through novation, the clearing house shall be bound to the rights and obligations with the member
through the method of novation of the obligation. Then, after the clearing and settlement process has been executed, the traded securities will be deposited at the TSD in its role as the securities depository. However, securities that are traded through an OTC settlement can also be deposited at the TSD if they are of the same type as the registered securities that have already been deposited at the TSD and the securities owner can, correspondingly, request documentation in the form of the deposited securities certificate at any time. The procedure for settling securities can be simply demonstrated by this diagram:

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under the securities trading agreements for which it provides settlement and delivery services, regardless of whether such member has entered into securities trading agreement for its own accounts or for the accounts of others.

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SECTION 349. When the parties concerned have concluded a contract changing the essential elements of an obligation, such obligation is extinguished by novation.

If a conditional obligation is made unconditional, or a condition is added to an unconditional obligation, or if a condition is changed, it is regarded as a change of an essential element of such obligation.

A novation by a change of the creditor is governed by the provisions of this Code concerning transfer of claims. and;

SECTION 350. A novation by a change of the debtor may be affected by a contract between the creditor and the new debtor, but this cannot be done against the will of the original debtor.

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SECTION 227. Any securities owner who has deposited securities with the Securities Exchange may request the Securities Exchange to issue the securities certificates in his own name by submitting an application in accordance with the form specified by the Securities Exchange.

Upon receiving the application referred to in the first paragraph, the Securities Exchange shall notify the securities issuing company, of the name of the person who is the owner of such securities, and the securities issuing company so notified shall enter the name of the securities owner in the register of the company as well as issue new securities certificates, in the name of such securities owner.

In submitting the application referred to in the first paragraph, if the owner of the securities is a depositor who does not directly deposit such securities with the Securities Exchange, the owner of such securities shall apply through the depositor of such securities.
In summary, under Thai laws, the process of the settlement of securities is exclusively available in-exchange for a post-trade transaction. Nonetheless, the entire procedure solely depends on the trustworthiness of the clearing house, which can also be considered one of the intermediaries processed as part of the securities market. Distributed ledger technology can be adopted as a solution for improving the process of securities settlement, as the technology provides more transparency, speed, accountability and accessibility for stakeholders. To be more precise, the trading transaction and order of execution can be easily tracked and crosschecked by all nodes. Moreover, the settlement time will be substantially reduced, which will increase the efficiency of the market, as well as the liquidity of the registered securities. Moreover, with distributed ledger technology the settlement procedure can also be applied to the OTC transaction, which will in turn increase trustworthiness, accessibility and efficiency as a whole. The only condition required is that the participants or counterparties must get access to the service platform and adjust to an online environment.
VI. Obstacles and challenges

From a legal perspective, technology always has a significant impact on reshaping business practices more rapidly than the legal framework can be meaningfully adapted, as laws relating to business transactions are initially designed and then occasionally developed on the basis of the business landscape. The technology involved with data management is overwhelmingly disruptive with the potential to fundamentally change the capital market infrastructure and practices. Likewise, securities are the core subject of transformation in a system such as distributed ledger technology, once a digital version of securities is created in place of a tangible version of securities certificates. In order to better understand “digital securities” and its consequences, the explanation will be divided into two sections, namely building infrastructure and the way forward.

A. Building infrastructure

The fundamental idea behind “digital securities” is to “tokenize” securities by representing each unit of a given security as a unique, cryptographic, public-private key pair that is stored and transferred on a blockchain. As a result, the availability of digital securities mainly depends on the acceptance of blockchain-based securities or “securities tokens” under governing laws. To be more precise, in order to make securities tokens be lawfully accepted, the laws must recognize an underlying technology or setup a selected criterion for technological standard. In this case, from author aspect, the Emergency Decree on Digital Asset Businesses B.E. 2561 (2018) is the best evidence indicating that Thai law has already recognized an existence of blockchain to be implemented as an underlying technology for fundraising transactions. Although, under the Emergency Decree, the “digital token,” which duplicates specific features along with the functions of securities, cannot be considered a security under the Securities and Exchange Act B.E. 2535(1992), as an enactment of the Emergency Decree tends to separate digital tokens from securities under the Securities and Exchange Act for the purposes of regulation and administration.254 Nevertheless, before an enactment of the Securities and Exchange Act (No. 6 ) B.E. 2562 (2019), the only difference between digital token and securities token is that digital tokens are primarily created in the form of digital data. In contrast to digital securities that must

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254 Emergency Decree on Digital Asset Businesses B.E. 2561 (2018); SECTION 4. The Minister of Finance shall be in charge of the enforcement of this Emergency Decree and shall have the power to issue notifications and appoint competent officer to perform duties in accordance with this Emergency Decree. …
for the most part be authorized and issued as paper certificates, prior to being converted into digital form. Although, from 2019 on, an introduction of the new scripless system along with the original scripless system, which are the only format of “digital securities” available under law, will pave way for making use of blockchain in securities transactions. Despite the fact that all procedures of scripless systems are administered by the Stock Exchange of Thailand and its subsidiaries is notable. This indicates that in Thailand, the concept of digital securities was first developed and implemented with the intent to centralize trust, as an exchange and its subsidiaries are the center for data management and is ultimately overseen by the Securities and Exchange Commission. This attitude contradicts the principle of decentralization of trust, which is one of a key idea behind blockchain technology. Furthermore, after the emergence of blockchain technology, the Emergency Decree was promulgated on May 2018 with an acknowledgement of it. However, investment transactions relating to digital tokens are still being regulated by the centralization of trust, which resembles the way in which securities are regulated under the Securities and Exchange Act. In other words, investment transactions must be conducted via licensed business entities, which are ultimately overseen by the Securities and Exchange Commission. Thus, under Thai laws, there are two categories of fundraising instruments. The prior one as “securities” which nowadays can also appeared as “digital securities” via the scripless system. The latter one as already acknowledged by the term “digital token”. In this situation, an ambiguity arises as to whether issuing as digital securities under the Securities and Exchange Act or issuing as digital token under the Emergency Decree. Hence, in order to establish a legal infrastructure for the proper implementation of blockchain, the governing laws or subordinated regulations should initially draw a clear line between “digital securities” under the Securities and Exchange Act and “digital token” under the Emergency Decree. Then the governing laws should also reconsider measures for regulating transactions relating to digital securities, especially securities tokens, under the Securities and Exchange Act.

Prior an enactment of the Securities and Exchange Act (No. 6 ) B.E. 2562 (2019), for the openness of securities initially issued in digital form or “securities tokens,” the Electronic Transaction Act, B.E. 2544 (2001) provides a just solution to the issue, as it is promulgated as

255 Emergency Decree on Digital Asset Businesses B.E. 2561 (2018); SECTION 26. A digital asset business operator shall obtain a license from the Minister upon the recommendation of the SEC....
being a general provision treating electronic data as functionally equivalent to paper documents. By endorsing that electronically-produced data shall have legal effect and be enforceable under law under two conditions, those data are made accessible and usable for subsequent reference without their meaning being altered, and are created by an appropriate measure with a reliable method. Therefore, legally, the idea of digital securities can be brought about under this fundamental electronic transaction law. Nevertheless, the only obstacle is that distributed ledger technology must be accepted as “an appropriate measure with a reliable method” under this law.

At present, blockchain technology is still not fully accepted by the Electronic Transactions Development Agency (ETDA), which is the public authority responsible for regulating electronic transactions. However, the ETDA, through the Electronic Transaction Commission, outlined a Notification on the Standard for Information Security System Measures B.E. 2555 (2012). This Notification called for “an appropriate measure with a reliable method” under the Electronic Transaction Act. Nevertheless, the provided measures and methods still require an interpretation as to whether blockchain technology corresponds to the stated qualifications. Therefore, under Thai laws, there is still a legal risk in implementing blockchain technology for securities tokens.

On the other hand, an enactment of the Securities and Exchange Act (No. 6 ) B.E. 2562 (2019) set up a legal basis for direct acceptance of digital securities or securities tokens, instead of applying the Electronic Transaction Act. The expansion of scripless system paves way for issuing securities originally in digital format. In essence, from now on the securities issuer who complies with rules and procedure specified by the depository center can issue digital securities or securities token without any prior securities certificate or documentation burden. In this case, the Securities and Exchange Commission (SEC) is responsible for setting standard and regulate the depository center. There are two issues arise: First, the securities issuing company, which cannot or do not issue or deposit its securities with the depository center, cannot acquire the opportunity. Second, the standard set by the SEC should conform to the standard set by the ETDA for the benefit of digital business operators and protection of investors.

Furthermore, distributed ledger technology is a cutting-edge innovation that initiates a new paradigm for data management. Hence, the technology will bring about a substantive alteration in transactions in relation to the capital market. As a consequence, laws governing transactions also demand overhaul going forward, with details elaborated in the next topic.

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256 The Electronic Transactions Development Agency <https://www.etda.or.th/files/1/files/129-191.PDF>
B. The way forward

(i) Identification of securities holders

In theory, as blockchain can be suitably adapted for applied business model, the technology can be made available in various forms, for instance public and private versions. As a result, blockchain does not need to be anonymous or even pseudonymous,257 but can be designed for providing complete transparency. To be more precise, the software can be designed to provide full transparency amongst nodes that perform as ledger holders. In the case of identification of securities holders, the free flow of information can at least be between the issuer and securities holder, and can also be expanded to some selected securities intermediaries, for instance, brokers, dealers and exchanges. When the selected participants are connected on the blockchain, as is at the least required, the information given about securities holder as registered with the securities issuer or registrar is accessible and ready for inspection. While identifying anonymous or pseudonymous securities owners is not possible as a practical matter for public blockchain. The blockchain network that securities were issued and registered with could be programmed to enable the issuer, securities holder and any selected intermediaries involved with such securities to identify the owners of such digital securities.258 Thus, with the permission of the securities holder, blockchain can be programmed to provide accessibility of information (public or private) on securities holders’ identities between ledger holders. This will help provide convenience and reduce costs for the process of “know your customer” (KYC) and “customer due diligence” (CDD) in the issuance of securities and in doing securities businesses.

(ii) Betterment of securities transaction

Some of the most fascinating characteristics of blockchain are the accessibility and transparency of data between ledger holders and the traceability of occurrence transactions data. In contrast to the current securities transactions process that practically remains manual, paper-intensive and redundant due to the involvement of many intermediaries. The document base securities transaction makes the issuance, transfer and settlement procedures less efficient, more time-consuming and also adds additional costs to the involved parties. As the potential benefits of

258 Ibid, 97
applying blockchain technology to capital markets have become increasingly apparent, legislators and regulators have begun embracing the prospect of a distributed ledger system.\textsuperscript{259} In general, blockchain can be applied as a registry and inventory system for the recording, monitoring, identifying and transacting of securities. Thus, blockchain technology can be used for any form of asset registry.\textsuperscript{260} As an outcome, the issuance, transfer and settlement of securities on a blockchain would be much faster than a trade of securities in the existing exchanges (minutes instead of days). Moreover, an implication of using blockchain, beyond the time reduction in securities transactions, is the outstanding potential benefits of decreasing the overall costs to stakeholders, as well as maximizing operational process efficiencies.\textsuperscript{261} For example, during the securities transfer process, shared information about securities, such as the issuance and remaining amounts for offer, as well as basic information on issuers and the serving intermediaries, could be accessed in the meantime. All transactions would be processed and validated by smart contracts before being committed to the network. Moreover, the process of clearing and settlement and the depository of securities could interact between opening accounts, considered as nodes or ledger holders in the system and also be conducted automatically with smart contracts.

**(iii) Necessity of intermediaries**

Nowadays, the shift from the direct holding of securities by investors or securities holders to the current intermediated holding system is typical. For example, in order to buy or sell securities via the securities exchange, practically, transactions must be performed by or through intermediaries. In the securities market, intermediaries are distinguished by their action or business, for instance, brokers, dealers, exchanges and depositaries. In the blockchain context, the decentralization of databases provides direct connectivity amongst nodes or ledger holders. Furthermore, as the record of transactions is verified by all nodes, then all data pertaining to executed transactions shall be used as a reference or evidence by all nodes that can be considered participants. Therefore, according to the aforementioned context, in theory, the necessity of intermediaries appears to be diminished. In addition, the theory of blockchain must also be

\textsuperscript{259} Tom Zanki, Delaware blockchain plans look good for digital shares, May 2016 <https://www-law360-com.ezproxy. bu.edu/articles/791941/delaware-blockchain-plans-look-good-for-digital-shares?article_related_content=1>

\textsuperscript{260} Melanie Swan, Blockchain: blueprint for a new economy (O’Reilly Media, 2015) xi

harmonized with the current development of securities businesses, as well as the accessibility and understanding of information technology amongst users. From this angle, the changing of securities business trends is influenced by the “platform model,” which is a business based on enabling value-creating interactions between external producers and consumers and the fostering of matches amongst users, as well as to facilitate the exchange of goods or services, thereby enabling value creation for all of the participants.\textsuperscript{262} According to the model, if securities businesses could provide more connectivity and convenience for clients, then the intermediaries shall remain. In addition, as the accessibility and understanding of information technology is still inadequate, the availability of securities intermediaries shall also remain as well. Nonetheless, the rules, conditions and procedures for securities business operation, for instance having adequate sources of capital to cover operations, having reliable operating systems and data security systems, the maintaining of records of assets belonging to individual clients and the segregating of client assets from their own assets, etc., must be appropriate to the digital securities platform.

(iv) Enforcement for unfair practices

Issues concerning unfair practices in the capital market such as false dissemination, insider trading, market manipulation, front running and embezzlement, are considerable. The laws imposing criminal offences on unfair practices are always relevant to the issuance, transfer and settlement of securities. In Thailand, the Emergency Decree on Digital Asset Businesses B.E. 2561 (2018) also imposes offences in a similar manner to the corresponding provisions in the Securities and Exchange Act B.E. 2535 (1992). This is to ensure that the transactions concerning digital assets are fair, transparent and efficient, that market integrity is preserved and investors are protected. Nevertheless, the challenging issue arising for enforcement practices is the globalization of securities transaction via distributed ledger technology, as the fundamental idea of blockchain is that of decentralized of ledger holders.\textsuperscript{263} In the case of public blockchain, in contrast to private blockchain, the participants in securities transaction are internationally diverse. The point is that nowadays, enforcement of the laws is restricted by the jurisdiction of each country, and so how the laws can be suitably enforced if an offender is located outside the legal jurisdiction is an important question. On the other hand, the laws could restrict securities transactions by prescribing

\begin{footnotesize}
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\item \textsuperscript{262} Geoffrey G. Parker, Marshall W. Van Alstyne, and Sangeet Paul Choudary, Platform revolution: how networked markets are transforming the economy and how to make them work for you (W. W. Norton & Company, 2016) 3-5
\item \textsuperscript{263} Jeffrey H. Matsuura, above n 24, 77
\end{itemize}
\end{footnotesize}
a transaction restriction, such as setting a limit on participants or licensing participants who have role as intermediaries. The idea also discourages against the primitive idea of technology that tends to provide financial support for business startups or small and medium-sized businesses with access to capital and the capital market. In addition, if investors decide to invest in jurisdiction by themselves, the issue of legal enforcement will still arise as well. Finally, if legislators or regulators enact laws or proclaim regulations based on qualifications and performance of the participants, an important point is whether these are fit and proper for the situations that occur. Appropriateness for balancing between promoting businesses, together with technology and the protection of investors, must also be under carefully considered by authorities.
VII. Conclusions and suggestions

The emergence of blockchain or distributed ledger technology will play a central role in transformation of international capital markets. Whether stakeholders are ready or not, adaptation to the technology is unavoidable. Above all, blockchain, in theory, offers an appealing alternative to traditional securities market practices by promoting efficiency, transparency and security to digital securities, which is a type of data-centric practice. From an international perspective, under the laws of various countries, digital securities are a development based on existing securities. Currently, although there are numerous types, securities are made tangible through a registration process as physical certificates. Internationally, securities are regulated under securities laws, but fundraising instruments that use blockchain as an underlying technology demand interpretation from authorities as to whether they can be considered as securities. In contrast to Thai laws, digital tokens, under the Emergency Decree on Digital Asset Businesses B.E. 2561 (2108), duplicate the functions of securities as fundraising instruments, but should not be considered securities under the Securities and Exchange Act B.E. 2535 (1992). This means that under Thai laws, an alternative for fundraising is available. On the other hand, securities can both primarily issued in digital form, or require conversion from documentation to digital form. Hence, securities tokens initially issued in digital form through the tokenization process are available under law. The only limitation is that the issuer must use and comply to the scripless system developed and operated by the depository center which at present operates by the Stock Exchange of Thailand. This illustrates that, digital securities are only available for public limited companies listed on the stock exchange. Other types of business entities, such as limited companies or limited partnerships, cannot utilize the scripless system. As a result, the process concerning securities certificates, as well as the issuance, transfer and settlement of securities, in all cases, still cannot take advantage of blockchain technology being implemented in place of the documentation procedure.

For the successful implementation of blockchain technology, an acceptance of it under the Electronic Transaction Act, B.E. 2544 (2001) which is a fundamental law for digital transaction, is essential. Nevertheless, as of now, blockchain is still not explicitly accepted by the Act. An acceptance of blockchain under the Securities and Exchange Act B.E. 2535 (1992) by adding specific provisions supporting the process of securities tokenization and related securities intermediaries. In doing so, even if, legislators and regulators can balance business operations and investor protection, but the standard set might not be consistent with other industry standard.
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