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Blockchain technology and corporate law

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Abstract

The article analyses legislative initiatives aimed at regulating the use of blockchain in corporate governance. The tokenisation equity opens up new opportunities for companies to attract investment. As a result, many traditional companies are interested in converting traditional securities into security tokens. Countries aspiring to lead the blockchain industry are seeking to establish a legal framework for security tokens and a blockchain-based registration system for them. The use of blockchain brings with it not only the digital transformation of companies, but also the emergence of a new type of organization - decentralized autonomous organization (DAO). Existing legal forms are not appropriate for the DAO, which requires the creation of a new type of legal entity. Changes to corporate law that address these trends will eliminate legal risk and drive digital transformation of companies

Keywords list (en): blockchain; security token; tokenisation equity; decentralized autonomous organisation; DAO.

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¹ INTRODUCTION

Corporate law is actively evolving globally influenced by digitalisation. Digitalisation usually includes a rather wide range of processes resulting from the introduction of digital technologies in various spheres. At the same time, researchers justify the need to distinguish between the concepts of digitisation and digitalization (Ross 2017; Savić 2019). Digitisation means the conversion of analogue data into a digital format required for the further digitalisation of business processes. Digitalisation involves deeper business transformation processes. Ritter and Pedersen (2020) define digitalisation as “the application of digital technologies that brings about changes in business-to-business firms and business markets caused by digitization”. Thus, digitalisation of a company should be considered, on the one hand, as a process of implementing digital technologies into the company’s processes and, on the other hand, as a result of this implementation, which implies a significant, fundamental change in the business processes.

² One of the important elements of company digitalisation is the use of new digital technologies in corporate governance, such as distributed ledger technologies (DLT), including blockchain and artificial intelligence (AI). (Laptev & Feyzrakhmanova 2021). These technologies are expected to help companies deal with corporate governance challenges more effectively. However, their implementation is impeded by legal uncertainties caused by the slowness and wariness of the legislature. An appropriate legal framework would significantly mitigate the legal risks associated with the application of digital technologies in corporate governance. Therefore, the experience of countries leading in legislating the use of digital technology in corporate governance is in high demand.

³ Blockchain technology has had the biggest impact on corporations. This article analyses the legislation of blockchain-friendly countries to identify the trends in changes in corporate law due to the use of blockchain technology in corporate governance.

⁴ TOKENISATION EQUITY

Blockchain-based digital assets have opened up opportunities for traditional corporations. The tokenisation of corporate capital enables companies to attract investment more efficiently. The key benefits of tokenisation are increased liquidity, faster settlement and lower costs (Heines et al. 2021; Benedetti and Rodríguez-Garnica 2020).

⁵ Companies tokenize their assets by issuing security tokens on the blockchain. Tokens can be equity or debt financial instruments. Debt tokens are aimed at raising funds for the company from investors. The company issuing these tokens takes on the obligation to repay them at the end of a certain time period by paying a fixed amount or an amount determined according to the terms of the issue (for example, at the market value of the token).

6 Equity tokens, such as traditional stocks, give their holders voting power, partial company ownership, entitlement to dividends and other benefits, depending on the type and design of the token. Equity tokens can be used both by crypto projects and traditional companies. The use of tokens can significantly reduce the costs of issuing them, therefore tokens are usually issued by tech start-ups on the blockchain. Traditional companies can tokenise shares already issued in a traditional form. Quadrant Biosciences, for example, converted all ordinary shares into Quadrant Token tokens on the Ethereum platform in 2018¹ Which each Quadrant Token representing one ordinary share of the company with all typical rights associated with it.

7 The conversion of ordinary shares into equity tokens is not an isolated case. The Capital Markets and Technology Association (CMTA) has developed legal standards for the tokenisation of shares for Swiss corporations. According to the DLT Act 2020 in Switzerland, the tokenisation process does not involve issuing shares in the form of tokens, implying that shares and tokens would be the same instrument. Rather, the DLT Act provides an instrument to associate newly issued or existing shares with digital tokens, so that the shares legal title can be transferred only via the tokens transfer via the distributed ledger².

8 There is a difference in approach to defining equity tokens. Some lawyers define equity tokens as “traditional shares issued and maintained in a digital form on a blockchain and all transfers and settlement of such shares are recorded on the blockchain” (Dilendorf et. al 2019). Others claim that a security token is a “digital representation” of an investment product, not the product itself (Lambert et al. 2022).

9 In our opinion, the definition of a token depends on the legislation of the particular country. The US Securities and Exchange Commission, for example, requires the application of securities laws to security tokens (Goforth 2022; Guseva 2021). However, most countries have taken the direction of creating specific legislation. A special category of tokenised rights called “uncertificated registered securities” (Registerwertrechte) has been introduced in the Swiss Code of Obligations (CO), along with «simple» uncertificated securities (einfache Wertrechte; droitsvaleurs simples). The foundation of the Liechtenstein Blockchain Act is the Token Container Model. A security token contains a real asset, which can be a share or a bond.

10 Regardless, the tokenization of stocks requires the creation of a special registration system of blockchain records. Lambert et al. (2022) claim that “legally, the primary record in many jurisdictions is still paper-based or stored in a government-owned, centralized database” which “makes any amendments to records (such as the capitalization table) inefficient and costly for issuers and investors alike” (Lambert et al. 2022).

11 The state of Delaware, known as the legal hub for 66% of Fortune 500 companies (a list of the 500 largest US corporations), has been a leader in establishing a legal framework for the use of blockchain in securities registration. In 2016, the state governor launched the Delaware Blockchain Initiative (DBI), in which he directed the state government, with the assistance of the Delaware Bar Association's Corporate Law Council, to allow the use of blockchain technology to issue and record shares on distributed registers.

¹² The relevant amendments were made in 2017 to Article 8 §224 of the Delaware Code. The amendment permitted corporate records storage on any information storage device by a method using one or more distributed electronic networks or databases. The ability to convert records into an easily readable paper format upon request of any person entitled to inspect such records has been established as a mandatory requirement for the form of the records. The existence of such a capability gives the corporate records their evidentiary value. Following Delaware, Wyoming and California have also legislated to allow corporate records in the blockchain.

¹³ The Russian Federal Law of 31.07.2020 No. 259-FZ “On Digital Financial Assets, Digital Currency and Amendments to Certain Legislative Acts of the Russian Federation” establishes a special type of digital financial assets (DFAs) that certifies rights to participate in the capital of a joint stock company (Article 13). However, DFAs are not an uncertificated security under Russian law, therefore, they are recorded by the operator of the information system in which DFAs are issued (Sannikova 2021).

¹⁴ In Germany, the Electronic Securities Act (Gesetz zur Einführung von elektronischen Wertpapieren, eWpG), which enables the issuance of bearer bonds using distributed ledger technology (DLT), only came into force in 2021. The Electronic Securities Act introduces a category of “electronic securities” that are equivalent to traditional securities issued by means of a physical certificate. Electronic securities are divided into central register securities and crypto securities. Cryptocurrency security is an electronic security entered in a cryptocurrency security registry and is therefore a subtype of electronic security.

¹⁵ Thus, the use of share tokens requires a transition to a new system of registering corporate records based on distributed ledger technology.

¹⁶ It is essential to distinguish equity tokens from tokenized stocks (or stock tokens). Some cryptoexchanges offer investors an opportunity to buy tokenised stocks of companies such as Coinbase, Tesla, Apple and Microsoft. Investors need to be informed about the difference between equity tokens and tokenized stocks. When buying tokenised stocks, the holder does not receive the shareholder's rights, such as the right to vote. In essence, the buyer is buying a derivative, a derivative instrument on the underlying stocks. As the value of the token is linked to the value of the underlying stock, if the value of the underlying stock increases, so does the value of the tokenized stock. The token holder can receive dividends if the underlying stock earns them, and even exchange tokens for the underlying stock the terms of the financial product permitting. Tokenized stocks are democratising investor access to the financial markets. However, financial regulators have been wary of the new financial product. The SEC, for example, banned the crypto exchange Binance from trading them forcing Binance to restrict the US traders' access to stock tokens.

¹⁷ Tokenisation of equity increases the liquidity of equity tokens and debt tokens by: - reducing the cost of issuance by eliminating strict formal procedures; - eliminating intermediaries such as registrars; - expanding the geographical offering of tokens due to their transnational nature, etc.

¹⁸ In addition, the tokens allow for more efficient corporate governance because custom rules can be encoded into them (e.g., automating dividend payments) and used in

online voting at annual shareholder meetings.

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DECENTRALISED AUTONOMOUS ORGANISATIONS

The potential of blockchain technology can only be fully realized in a fundamentally new type of company - decentralized, autonomous organization (DAO). These organisations operate on blockchain platforms because blockchain, due to its decentralised nature, enables decentralisation in corporate governance. Unlike traditional corporations, in a DAO it is not the governing body that makes decisions, but all participants who reach a consensus through the implementation of smart contracts. The various smart contracts within a DAO regulate relationships related to the organisation's management: membership, voting, distribution of funds, and other aspects.

20 The first experience of The DAO, a decentralised venture capital fund on the Ethereum blockchain, was rather unsuccessful (Dhillon 2017). A mistake in the program's code led to the theft of nearly a third of the company's capital. To prevent damage, Ethereum hard-forked to send the hacked funds to an account available to the original owners. However, this decision, despite its positive effect of restoring participants' property rights, was perceived ambiguously by some participants. The principle of immutability of transactions in blockchain was found to be relative, damaging the credibility of the organisation itself. The case of The DAO showed that participants always have a choice of which version to accept. It was this split led to one of the first Ethereum forks when part of the community did not accept the fraud and the world's second largest blockchain network split in two.

21 Technologically, the first DAO projects were a set of basic smart contracts and tokens that project developers could use as a basis for developing their participation logic (token price, participant share sizes, and other features), voting methods, and rules for controlling the execution of a majority decision. One of the first truly well-known projects of this type was Maker-DAOc, a set of Ethereum-based smart contracts that uses the stablecoin DAI to guarantee the value of the assets used in the DAO (MakerDAO 2020). DAI can be exchanged for both crypto-assets and fiat currency. Decisions are made using the MKR management token 100% owned by end users.

22 The DAO concept has become very popular and widely used in the management of crypto projects. In 2022, the leading platforms for these types of DAO projects are Ethereum and Solana blockchains (Puggioni 2022). The major advantages of DAO are: - democratic governance, when anyone can become a member; - complete transparency, ensuring trust between members; - no/reduced risk for an individual member's abuse compared to a top manager position in a traditional company.

23 However, DAO projects of this type also have disadvantages. Firstly, the experience of The DAO and several similar projects has shown smart contracts are technically vulnerable. There are also concerns about the ability of non-professionals to make business decisions. Therefore, MIT Technology Review criticised the idea of building a venture capital fund as a DAO: "The idea is that that the wisdom of its crowd of voters will breathe intelligence into the DAO so it can make smart decisions" (Simonite 2016).

²⁴ Another important disadvantage of the first generation of DAOs is the high technological barrier to implementation. Skills are needed in developing languages such as Solidity, programming smart contracts and publishing them in existing blockchains. Next generation DAOs may overcome this disadvantage by offering the creation of DAOs as a service (Faqr 2020). These services are provided by Aragon³, DAO stack⁴, Moloch⁵, Colony⁶ and others. All of these platforms have a user interface to create their DAO project and configure its settings. Some of them follow the path of simplification (Aragon), and others (Moloch) have a lot of customization and require technical skills in programming and scripting languages . Even though it is questionable whether such solutions are truly decentralised, developers tend to use layer 1 blockchain to store all data or anchoring. However, the popularity of these platforms and the number of DAO projects hosted on them suggest this approach is valid and has future potential⁷.

²⁵ An obstacle to the successful functioning of DAOs is the lack of legal certainty (Sims 2019), as existing legislation on legal entities does not take the specifics of the new type of organisation based on smart contracts into account. Currently, many DAOs operate without any legal status, however, there is high risk of a DAO qualifying as a general partnership. The general partnerships members have personal and unlimited liability which makes this approach being taken by regulators very high. This is evidenced by the position of the Financial Action Task Force in the DeFi sector, where DAOs are in high demand. The updated FATF (2022) guidelines state that “ even where projects publicly brand themselves as “DeFi”, often there continue to be personal and centralized aspects that may be subject to AML/CFT obligations” .

²⁶ Therefore, some DAOs are registered as foundations or associations in blockchain-friendly countries such as Switzerland. However, such a legal solution does not ensure true decentralisation, as both the foundation and association must have at least a director.

²⁷ US states such as Vermont, Wyoming and Tennessee have taken the path of creating a special legal design for a DAO. In 2018, the state of Vermont adopted the Senate Bill 269: An Act Related to Blockchain Business Development, authorizing the creation of a new type of business entity - a Blockchain-Based Limited Liability Company (BLLC). Vermont BLLC is not specific to DAOs but applies standard LLC law to any company using blockchain-based technology for a material portion of their business activities. A BLLC is required to disclose additional information in its founding documents, such as a summary of its mission and purpose, information about the blockchain technology to be used, protocols for responding to security breaches, voting procedures to address certain types of matters, the procedure for becoming a member, and the rights and obligations of each group of participants and so on.

²⁸ The State of Wyoming is the first in the world to give DAOs legal status by passing the Wyoming Decentralised Autonomous Organisation Supplement in 2021. A DAO is recognised as a new type of limited liability company. The name of such an entity must contain the indication “DAO”, “DAO LLC” or “LAO”. Under the law there are two types of DAOs: member-managed and algorithmically managed. If the company's articles of association do not comply with its type, it is considered member-managed. However, a company may be registered as an algorithmically managed DAO

LLC only if the smart contract management system is operational at the time of application, but it may be updated, changed or otherwise upgraded at a later date.

²⁹ The DAO must have the articles of organization, which may be supplemented by an operating agreement, as well as a basic smart contract. The articles of organisation or operating agreement of the DAO must include special “notice of restrictions on duties and transfers”:

³⁰ “The rights of members in a decentralized autonomous organization may differ materially from the rights of members in other limited liability companies. The Wyoming Decentralized Autonomous Organization Supplement, underlying smart contracts, articles of organization and operating agreement, if applicable, of a decentralized autonomous organization may define, reduce or eliminate fiduciary duties and may restrict the transfer of ownership interests, withdrawal or resignation from the decentralized autonomous organization, return of capital contributions and dissolution of the decentralized autonomous organization”⁸ (Wyoming DAO LLCs).

³¹ Also worth noting that DAO smart contracts will take precedence if they conflict with the articles of organization or the operating agreement. All the DAO LLCs must have a registered agent, an individual or entity located in the State of Wyoming, that serves as the contact person for the Secretary of State.

³² Thus, the legal framework of Wyoming DAO LLC has only solved the problem of limiting the liability of participants in the DAO but has not adequately addressed the other problems associated with the DAO. Despite this, the first organisation, American CryptoFED DAO, has already been registered in Wyoming and proclaimed as its mission the creation of a "zero inflation, zero deflation, zero transaction costs monetary system" using cryptocurrency.

³³ Following the example of Wyoming, Tennessee also legislated a new type of legal entity for the DAO. The new legislation amends Title 48 of the Tennessee Code to allow Tennessee limited liability companies (LLCs) to register as “decentralized organizations”. Tennessee law uses Wyoming law wording with the only difference being the use of the term “decentralized organization” instead of “decentralized autonomous organization”. Perhaps this was to highlight the varying degrees of automation in a DAO. The registration name for such an organisation must include the abbreviations “DO”, “DAO”, “DO LLC.”, or “DAO LLC.”.

³⁴ The Republic of the Marshall Islands has passed the Decentralised Autonomous Organisations Act 2022 that would allow DAOs to register as limited liability companies (LLCs) as well as the registration of both for-profit DAOs and non-profit DAOs.

³⁵ As Kaal (2021) rightly points out, “DAOs with limited liability have become a trend in the legal design of DAOs”. The examples of DAO legislation described above show that DAO as a new type of organisation with fully decentralised governance requires a new type of legal entity.

³⁶ **CONCLUSION**

Distributed ledger technology is the digital technology that is driving the companies digital transformation. Tokenisation of equity makes it easier to attract investment in

companies and encourage corporations to convert traditional securities into security tokens. Blockchain's fullest potential in corporate governance is leading to the emergence of a new type of organisation - a decentralised autonomous organisation. A DAO ensures the participation of all its members in corporate governance.

³⁷ The prospects that blockchain technology for corporations are tempered by legal uncertainty. The article explores new legislative initiatives developed by leading technology countries to regulate the use of blockchain in corporate governance. The cases analysis shows the importance of developing fundamentally innovative legal models that take the specifics of blockchain technology into consideration. Despite the similarities between traditional uncertificated securities and securitised tokens, such tokens need a new legal framework, including a special blockchain-based registration system.. Attempts to adapt existing legal forms for DAOs are difficult to recognise as successful as DAO is a fundamentally new type of legal entity requiring a new legal framework. Under these circumstances, corporate law cannot remain unchanged. The main challenges for corporate law today are the creation of a legal framework for the tokenisation of equity and the legalisation of DAOs.

Remarks:

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Аннотация

The article analyses legislative initiatives aimed at regulating the use of blockchain in corporate governance. The tokenisation equity opens up new opportunities for companies to attract investment. As a result, many traditional companies are interested in converting traditional securities into security tokens. Countries aspiring to lead the blockchain industry are seeking to establish a legal framework for security tokens and a blockchain-based registration system for them. The use of blockchain brings with it not only the digital transformation of companies, but also the emergence of a new type of organization - decentralized autonomous organization (DAO). Existing legal forms are not appropriate for the DAO, which requires the creation of a new type of legal entity. Changes to corporate law that address these trends will eliminate legal risk and drive digital transformation of companies

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