

THE NEED TO USE BLOCKCHAIN TECHNOLOGIES IN THE ACTIVITIES OF DEPOSITORY INSTITUTIONS TO REDUCE THE IMPACT OF THREATS TO THE ECONOMIC SECURITY OF JOINT STOCK COMPANIES AND ITS SHAREHOLDERS IN UKRAINE

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Abstract. In today's financial relations in the securities market, more and more companies seek to use blockchain technology to reduce risks and threats to their activities. The purpose of the article is to study the peculiarities of the depository system of Ukraine and to establish the possibilities of using blockchain technologies to minimize threats to the economic security of joint stock companies and their shareholders. In the course of the research, methods of analysis and synthesis were used to study the legal provision of depository services in Ukraine. The historical method and the method of comparative analysis were used to analyze the activities of depository institutions. To determine the threats that directly or indirectly affect the economic security of joint stock companies and the welfare of their shareholders, in cooperation with depository institutions, the method of generalization was used. The main results of the study are: studying the impact of depository institutions on the economic security of joint stock companies and their shareholders; systematization of the main violations of the current legislation on the circulation of securities and maintenance of registers of their owners, as well as the establishment of negative consequences of violations of the law by registrars, which may affect the economic security of the company. The implementation of blockchain technologies in the activities of depository institutions will help reduce the impact of threats to the economic security of joint stock companies and their shareholders.

Keywords: joint stock company; shareholder; depository institution; technology blockchain.

JEL Classification: G14, G20, G38, K42

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Introduction. In today's economic environment, blockchain technologies play an important role as tools for preventive measures in the fight against various types of fraud. The peculiarity of the activities of joint-stock companies is that during its activity the joint-stock company has to interact with different types of registrars [2] (Fig. 1).

Thus, when carrying out state registration of a joint-stock company or when making any changes to the Unified State Register of Enterprises, Institutions and Organizations of Ukraine, its founders (representatives) apply to the state registrar, as well as state tax authorities and state social insurance funds, etc.

Registration of shares is carried out in accordance with the requirements of the legislation of the Central Depository or the National Bank of Ukraine, which are directly engaged in maintaining the register of shareholders and the transfer of ownership rights to securities. the fact that depository institutions have complete and reliable information about shareholders, and their shareholdings, the history of their acquisition, and other rather significant facts.

Literature review. The issue of interaction of joint-stock companies with financial intermediaries in the stock market was investigated in Korneev V. (2007),

which systematized financial intermediaries and defined their role in the Ukrainian stock market [3].



Figure 1. Types of registrars of certain activities of the joint-stock company

Compiled personally by the author [2]

In her dissertation, Brus S. (2007) researched the main economic services in the Ukrainian securities market and pointed out the subjects that provide them [4].

In the dissertation Kuznetsova E. (2021) investigated the financial and legal regulation of the activities of professional securities market participants, including depository institutions [5].

In previous works, written with colleagues Khudolii L., Denysenko M., Mikhno S. (2012), I investigated the main threats that affect the economic security of both joint stock companies and financial intermediaries that provide services in the securities market of Ukraine [6-7].

Aims. The purpose of the article is to study the peculiarities of the depository system of Ukraine and to establish the possibilities of using blockchain technologies to minimize threats to the economic security of joint stock companies and their shareholders.

Research methods. In the course of the study, the methods of analysis and synthesis were used to study the legal support of depository services in Ukraine , a generalization method was used. These methods helped to achieve the goal.

Results. The main issues of interaction of the joint-stock company with depository institutions are regulated by the normative legal acts of Ukraine. Shareholder. The Registration Commission has the right to refuse to register the shareholder (its representative) only in the absence of the shareholder (his representative) documents identifying the identity of the shareholder (his representative), and in the case of the participation of the shareholder representative - also documents confirming the authority of the representative to participate in the general meeting of shareholders of the company. The list of shareholders who registered to participate in the general meeting is signed by the chairman of the

registration commission, who is elected by a simple majority of votes of its members before the registration. A shareholder who has not registered is not eligible to participate in the general meeting.

The powers of the registration commission under the contract can be transferred to the depository institution. In this case, the head of the registration commission is a representative of a depository institution that provides additional services to the joint-stock company, in particular regarding the performance of the functions of the registration commission.

Article 1 of the Law of Ukraine "On the National Depository System" [2] establishes that the register of owners of registered securities is "a list of owners of registered securities drawn up in accordance with the requirements of the legislation by the Central Depository or, in cases established by this Law, the National Bank of Ukraine for a certain date indicating the number of registered securities belonging to these owners on the right of ownership, nominal value and type of such securities and other information determined by the Commission".

Article 3 of the same Law indicates that the following types of depository activities may be carried out in Ukraine:

- 1) depository activity of the Central Depository;
- 2) depository activities of the National Bank of Ukraine;
- 3) depository activity of the depository institution;
- 4) activities for the storage of assets of collective investment institutions;
- 5) activities for the storage of assets of pension funds.

At the sametime, the economic activity of a depository institution can be combined with activities for storing assets of collective investment institutions and storing assets of pension funds.

Acquisition and termination of rights to securities and rights to securities are carried out by fixing the relevant fact in the depository accounting system, which is "a set of information, records on issue securities (type, nominal value and quantity, circulation restrictions, etc.) on securities accounts of holders of such accounts, on issuers, holders of securities entitled to securities and rights to securities restrictions on the rights to securities authorized by them persons, stewards, pledge holders, other persons empowered by the relevant rights to securities, which contains data that allows identifying issued securities and specified persons, a register of securities codes (international identification numbers of securities), as well as other information provided by law (hereinafter – the depository accounting system)" [2].

The system of the register of owners consists of:

- register of registered securities owners;
- personal accounts of the issuer and registered persons;
- logs of records in the registry;
- documents that are the basis for forming and amending the registry.

The registry system is conducted separately for each issuer. In the case of several issues of securities issuer, the register of securities owners is compiled and maintained for each of them [2].

The registrar opens two types of accounts to the issuer:

1. issue account for crediting the declared issue to it;
2. account for redemption of registered securities on which the type is displayed. quantity, nominal value of securities purchased by the issuer for the purpose of cancellation or subsequent sale.

Depository accounting of securities – accounting of securities, rights to securities and their restrictions on securities accounts (hereinafter – depository accounting).

Depository accounting in the system of depository accounting of securities is carried out in quantitative terms.

At the same time, the accounting of the rights to securities of a particular owner is carried out exclusively by depository institutions, the National Bank of Ukraine in cases specified by this Law and correspondent depositories or their clients, and the accounting of securities and securities rights is carried out exclusively by the Central Depository or the National Bank of Ukraine.

The Central Depository ensures the formation and functioning of the securities depository accounting system. The Central Depository keeps a depository record of all issued securities, except those that are registered by the National Bank of Ukraine in accordance with the competence specified by this Law.

The exclusive competence of the Central Depository includes:

- 1) crediting of securities (except for securities within the competence of the National Bank of Ukraine) to the depository accounting system, their accounting and storage, as well as write-off of securities in connection with their repayment and / or cancellation;
- 2) keeping records of the issuer's obligations on securities of their own issues (except for securities within the competence of the National Bank of Ukraine) in respect of each issue of securities on the basis of depositing a global certificate and /or a temporary global certificate;
- 3) storage of global certificates and temporary global certificates (except for global certificates and temporary global certificates of securities issued within the competence of the National Bank of Ukraine);
- 4) numbering (codification) of securities in accordance with international norms, maintaining a register of securities codes (international identification numbers of securities);
- 5) compilation of registers of owners of registered securities (except for securities within the competence of the National Bank of Ukraine);
- 6) storage of information about persons determined to provide the issuer with a register of registered securities owners;
- 7) receipt of income and other payments on the operations of issuers (including those located and rotating outside Ukraine) to the account of the Central Depository opened in the Settlement Center for their further transfer to recipients;
- 8) opening and maintaining securities accounts of issuers, the National Bank of Ukraine, depository institutions, correspondent depositories, clearing institutions and the Settlement Center;
- 9) keeping an account in securities of a depository institution that has ceased its depository activity or to which the relevant license for offenses on the securities market

or in another case determined by the Commission has been canceled, as well as responsible storage of documents, databases, copies of databases, archives of depository institution databases, information about its depositors that have not closed their securities accounts in accordance with the established procedure, and securities that were accounted for in their accounts and submission of information on the status of such accounts in accordance with the law;

10) establishment of unified rules (standards) for the display and transfer of information on accounting and circulation of securities, servicing corporate actions of issuers and other information that is entered into the depository accounting system;

11) implementation of international standards on depository activities;

12) control over customers in terms of their depository activities in accordance with the procedure and limits established by this Law.

The exclusive competence of the National Bank of Ukraine includes the implementation of depository accounting of government securities and bonds of local loans. The peculiarities of the National Bank of Ukraine's conduct of depository and clearing activities with government securities and bonds of local loans are established by the Commission in agreement with the National Bank of Ukraine.

To ensure depository accounting of domestic government bonds of Ukraine, target bonds of domestic government loans of Ukraine, treasury obligations of Ukraine and domestic bonds, the National Bank of Ukraine exercises the following powers:

1) crediting of securities to the depository accounting system, their accounting and storage, as well as write-off of securities in connection with their repayment and/or cancellation;

2) keeping records of the issuer's obligations under the securities of their own issues in respect of each issue of securities on the basis of depositing a global certificate and/or a temporary global certificate;

3) storage of global certificates and temporary global certificates;

4) compilation of registers of registered securities owners;

5) storage of information about persons determined to provide the issuer with a register of registered securities owners;

6) receipt of income and other payments on the operations of issuers (including those located and rotating outside Ukraine) to the account of the National Bank of Ukraine for their further transfer to recipients;

7) opening and maintaining accounts in securities of issuers, depository institutions, correspondent depositories, clearing institutions and settlement center.

A depository institution is a legal entity that is formed and operates in the form of a joint stock company or limited liability company and which in the prescribed manner received a license to conduct depository activities of a depository institution.

Depository activity of a depository institution is an exclusive type of activity, except for its combination with other activities in the case stipulated by Article 3 of this Law.

Depository institution on the basis of an agreement on the provision of a register of registered securities owners has the right to provide services to the issuer of

securities in accordance with this Law and the Law of Ukraine "On Joint Stock Companies".

The depository institution has the right to provide the issuer with additional services during the general meeting (regular or extraordinary) of the joint stock company, in particular, to perform the functions of the registration commission or counting commission, to prepare and provide the issuer with reference and analytical materials that characterize the securities market, advising on accounting and / or circulation of securities, as well as services for managing its account in the Central Depository or other services, are not prohibited by law regarding securities issued by the issuer.

The depository institution has the right to provide additional services to the depositor, in particular for the exercise of securities rights.

To assess the capacity of depository services in the securities market, its analysis for 2016-2020 was carried out.

As of 31.12.2020, the Central Securities Depository served 10,209 securities issued on securities accounts opened by depository institutions (175 aggregated, 117 segregated and 175 segregated on which securities belonging to depository institutions are accounted for on the right of ownership). At the end of 2020, 10,389 accounts were opened for issuers (Table 1).

Table 1. Dynamics accounts opened by the Central Securities Depository upon end 2020 Year

	31.12.2016	31.12.2017	31.12.2018	31.12.2019	31.12.2020
Total number of securities issued by the Central Securities Depository	11376	11670	11452	11632	10209
Number of accounts opened to clients of the Central Depository – issuers of securities	10635	10504	10513	10295	10389
Number of accounts opened to clients of the Central Depository – depository institutions	437	434	433	418	467

Source: compiled by the author according to the annual reports of the NSSMC [9]

At the end of 2020, the number of accounts of securities owners, according to depository institutions, amounted to 4.06 million. pcs. , of which 197,171 depositors opened a securities account under an agreement with a depositor and 3,865,183 under contracts with issuers during dematerialization (Fig. 2).

The total face value of securities owned by securities owners, according to depository institutions as of 31.12.2020, amounted to 2438.35 billion. UAH 100,0.

At the end of 2020, the nominal value of securities accounted for by depository institutions on the accounts of depositors - legal entities - residents amounted to 80.37%, and individuals - residents only 2.40% of the total nominal value of securities.

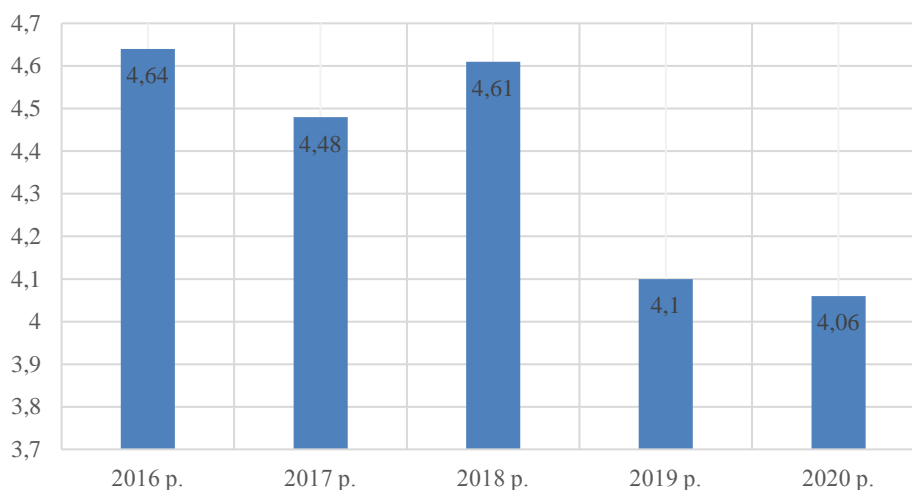


Figure 2. Number of securities owners' accounts, mln.

Source: compiled by the author according to the annual reports of the NSSMC [9]

As of 31.12.2020, according to depository institutions, 53.6% of the total nominal value of securities owned by securities owners is concentrated in shares.

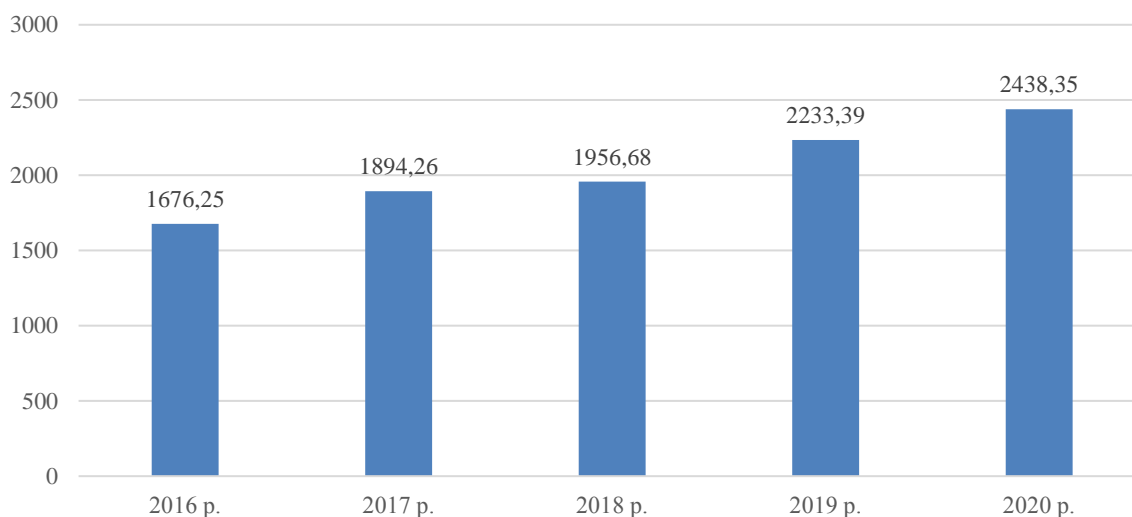


Figure 3. Nominal value of securities owned by holders of securities, UAH billion

Source: compiled by the author according to the annual reports of the NSSMC [9]

As of 31.12.2020, 178 legal entities had licenses on the stock market to conduct professional activities in the stock market. In 2020, 11 licenses were issued and 11 licenses for professional activities in the stock market – depository activities were canceled.

Table 2. The number of licenses for certain types of professional activities in the stock market - depository activities

	31.12.2016	31.12.2017	31.12.2018	31.12.2019	31.12.2020
Depository activity of depository institution	232	210	198	186	178
Joint investment assets storage activities	47	44	41	39	37
Activities for the storage of assets of pension funds	14	14	14	15	15

Source: compiled by the author according to the annual reports of the NSSMC [9]

During 2020, prudential supervision analyzed compliance with regulatory values of prudential norms by the Central Securities Depository and professional stock market participants, namely: securities traders, depository institutions, clearing institutions, asset management companies, stock exchanges

In carrying out prudential supervision of depository institutions conducting exclusively depository activities on the stock market, they analyzed their compliance with such prudential standards as the size of their own funds, the adequacy ratio of their own funds and the coefficient of covering operational risk.

During 2020, most depository institutions adhered to the established requirements. At the same time, the deviation of prudential norms from the established regulatory values of several companies took place only in July, August and December 2020.

The value of the adequacy ratio of own funds and the operational risk coverage ratio of the Central Securities Depository – PJSC "National Depository of Ukraine" (hereinafter – PJSC "NDU"), during the reporting year met the established requirements and significantly exceeded the relevant regulatory values.

It is positive to reduce the number of violations of the law by registrars of registered securities, but the violations themselves sufficiently affect the level of economic security of the joint-stock company and the well-being of its shareholders.

Discussion. The main threats that directly or indirectly affect the economic security of joint stock companies and the welfare of their shareholders, when interacting with depository institutions, are [6-7]:

- do not meet the established requirements of the premises for storing documents of the registry system;
- unreasonable refusals to make changes to the registry system;
- inconsistency of the information provided in the reports given by the registry system;
- untimely opening of personal accounts of holders of registered securities;
- non-issuance of temporary certificates of ownership of registered securities to owners of registered securities;
- untimely provision or non-provision of information to the SSMSC or the Antimonopoly Committee of Ukraine about persons who own more than 10% of the shares of the general statutory fund of the company;
- introduction into the register of changes in the transfer of property rights without the presence of sales contracts, power of attorney agreements or other civil law

agreements;

- access to the registry system of persons who did not have the authority or documents of which were not properly executed, etc.

The main negative consequences of the joint stock company's interaction with depository institutions that violate the law or potentially affect its economic security are [6-7]:

- the impossibility of obtaining a register of shareholders, which raises suspicion of deliberate changes in it on the part of the registrar;

- impossibility to hold a general meeting of shareholders without the appropriate register and change of the registrar;

- raider seizure of a joint-stock company by amending the register and obtaining a controlling stake and other actions by third parties.

Given the peculiarities of the use of blockchain technologies in financial transactions, we believe that its use in the depository system of Ukraine will help prevent:

- changes in information in the registers of owners of securities without the presence of contracts of sale, power of attorney or other civil law agreements;

- to the register of owners of securities of persons who have no grounds for it;

- fraud with the general meeting of shareholders due to changes in the register of holders of securities;

- raider seizure of a joint-stock company by making changes to the relevant registers.

We believe that the use of blockchain technologies in depository activities will help minimize threats to both joint stock companies and individual shareholders.

Conclusions. Thus, the author for the first time investigated the impact of depository institutions on the economic security of joint stock companies and their shareholders; the main violations of the current legislation on the circulation of securities and the maintenance of registers of their owners are systematized, as well as the negative consequences of violations of the law by registrars, which may affect the economic security of the company. The implementation of blockchain technologies in the activities of depository institutions will help reduce the impact of threats to the economic security of joint stock companies and their shareholders.

Literature:

1. Report to the nations 2020: Global study on occupational fraud and abuse. URL: <https://www.acfe.com/report-to-the-nations/2020>.
2. On the Depository System of Ukraine: Law of Ukraine. URL: <https://www.nssmc.gov.ua/document/?id=10667528>
3. Korneev V. (2007). Financial intermediaries as development institutions. K.: Osnova. 192 p.
4. Brus S.I. (2007). Depository services on the securities market of Ukraine: author. Dis. Kand. econ. Sciences : Special. 08.00.08 "Money, Finance and Credit".
5. Kuznetsova E.A. (2021). Financial and legal regulation of the activities of professional participants in the securities market. Dissertation for the degree of Doctor of Philosophy in specialty 081 – Law. URL: http://elar.naiu.kiev.ua/bitstream/123456789/19385/1/dyser_kuznetsova.pdf
6. Mihus, I. P. Khudolii, L.M. Denysenko, M. P. Mikhno, S. P. (2012), *Korporatyvne upravlinnia v systemi ekonomichnoi bezpeky aktsionernykh tovarystv Ukrainy* [Corporate governance in the system of economic security of joint-stock companies from Ukraine], TOV "Maklout", Cherkasy, Ukraine, 127 p.
7. Shulha I. P. (2010), *Ekonomichna bezpeka emisiinoi diialnosti aktsionernykh tovarystv* [Economic security of issue activities of joint stock companies], MAKLAUT, Cherkasy, Ukraine, 425 p.
8. On joint stock companies: Law of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/514-17#Text>
9. Annual report on the activities of the National Securities and Stock Market Commission for 2020. URL: <https://www.nssmc.gov.ua/about-us/annual-reports>.