The development of electronic securities trading as a means of increasing the investment activity of citizens

Cherkasova S.  
Lviv University of Trade and Economics  
Lviv, Ukraine  
Svetlacher@i.ua

Kalaitan T.  
Lviv University of Trade and Economics  
Lviv, Ukraine  
kalaitanvt@gmail.com

Yaroshevych N.  
National University “Lviv Polytechnic”  
Lviv, Ukraine,  
natalya.yaroshevych@gmail.com

Abstract — The development trends of electronic stock trading in Ukraine are considered. The low investment activity of the citizens of the country and the insufficient involvement of individuals in the processes of electronic stock trading were noted. Among the main reasons that hinder the development of the electronic securities trading in the country are the lack of stimulating state support, the insufficiently effective functioning of the national stock market, the decline in incomes and savings of the citizens as a source of investment, poor promotion of this method of investment in society. It is concluded that the further development of the stock electronic trading in Ukraine will be possible subject to the development of an appropriate regulatory framework, increasing the number of liquid securities in the registers of stock exchanges, developing digital infrastructure, increasing digital literacy of citizens and their income.

Keywords — electronic securities trading, investment activity, stock market, savings of citizens.

I. INTRODUCTION

Savings of the population in all economically developed countries of the world are the main and most significant source of domestic investment resources necessary to ensure stable economic growth. The development of electronic exchange trading in securities greatly simplifies attracting savings of investment-active citizens to the investment sector of the economy. Under these conditions, it is important to ensure the transparent and effective functioning of the electronic exchange trading mechanism in securities, its availability for citizens of the country and foreign investors, which will create a solid basis for increasing investments and improving the infrastructure of the stock market.

The issues of e-commerce development in national markets are of interest to many scientists of today. So, the works of A. Karcheva, D. Ogorodnaya and V. Openko [1] explore the impact of digitalization on the development of the national and international economy. N. Udaltsova and V. Mosin [2] study the impact of digital technology on business. L. Garifova points out the importance of using information in the digital economy to create new products and services [3].

T. Kosova and O. Yaroshevskaya [4], M. Gutz [5], Ya. Tanchak [6] and others study modern trends in the development of electronic commerce in the stock market and its impact on improving the financial infrastructure. O. Karpishchenko and A. Chikalova [7] consider electronic technologies as a way to attract people to the stock trading. The need to further study the current trends in the development of electronic stock trading in the Ukrainian market and the development of recommendations for the active involvement of the country’s population in this process led to the choice of the research topic.

II. METHODS

In the process of studying the current state of the investment activity of the population in the country, methods of statistical analysis and the time series construction were used. This made it possible to assess the contribution of individuals to the formation of the deposit base of banks and investment assets of collective investment institutions in Ukraine in the last five years. Based on a study of trends in time series indicators, it was concluded that individuals are not sufficiently involved in investment processes.

To identify the trend of e-commerce development in the practice of the Ukrainian stock market, methods of analysis, synthesis and comparison were used. The calculations made it possible to single out Ukrainian Exchange, JSC as the leader of e-commerce, which provides the largest volume of operations with shares and derivatives in the Ukrainian market.

In order to determine the degree of development of stock e-commerce infrastructure in Ukraine, methods of institutional analysis have been used. It allowed to study the conditions of participation in e-commerce and the composition of its participants.

To consider the main factors hindering the development of stock e-commerce, integrated assessment and comparison methods were used. Due to their use, deficiencies in the regulatory, organizational and institutional support of this form of trade were revealed.
In order to substantiate the main directions of further development of electronic stock trading in the country and more actively attract individuals to it, the methods of a systematic approach and strategic management have been applied, the use of which allowed identifying the most important groups of organizational, legal and economic problems.

III. RESULTS

The processes of formation and development of the Ukrainian financial market infrastructure over the past two decades have significantly expanded the possibilities of investing savings by citizens of the country. The most popular among them is the placement of funds in deposit accounts in banks and participation in collective investment schemes offered by joint investment institutions (JII), non-state pension funds (NPF), life insurance companies, etc. However, the growth rates of the volume of investments of individuals in banks remain low (Table I), the number of citizens participating in collective investment remains insignificant.

In 2017, the total amount of funds invested by citizens into domestic financial institutions for the purpose of preservation and accumulation amounted to 505.67 billion UAH. For 2013-2017 this indicator grew only by 13.46%, which is not enough to ensure high rates of economic growth. With an absolute increase in the amount of invested savings of citizens, their share significantly decreased in relation to the size of the country’s GDP. If in 2013 this indicator was about 30.6%, in 2017 it decreased to 17% [11].

In the past five years, the population of the country has had a low interest in increasing savings in traditional financial institutions, such as banks (+ 10.23%) and credit unions (-29.55%). At the same time, the volume of investments of retail investors in JII and NPF (+188.7% and + 86.66%, respectively) increased dynamically.

TABLE I. VOLUMES OF INDIVIDUALS’ SAVINGS INVESTMENT IN FINANCIAL INSTITUTIONS IN UKRAINE IN 2013-2017, MILLION UAH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>433726</td>
<td>416371</td>
<td>389060</td>
<td>437152</td>
<td>478100</td>
<td>10.23</td>
</tr>
<tr>
<td>Life insurance companies</td>
<td>2337.4</td>
<td>2040.4</td>
<td>2067.1</td>
<td>2636.9</td>
<td>2813.1</td>
<td>20.35</td>
</tr>
<tr>
<td>Credit unions</td>
<td>1330.1</td>
<td>989.8</td>
<td>855.2</td>
<td>831.8</td>
<td>937.0</td>
<td>-29.55</td>
</tr>
<tr>
<td>NPF</td>
<td>66.7</td>
<td>71.6</td>
<td>80.5</td>
<td>92.4</td>
<td>124.5</td>
<td>86.66</td>
</tr>
<tr>
<td>JII</td>
<td>8206.4</td>
<td>10835.5</td>
<td>14557.5</td>
<td>19209.8</td>
<td>23692.0</td>
<td>188.7</td>
</tr>
<tr>
<td>Total</td>
<td>445667</td>
<td>430308</td>
<td>406620</td>
<td>459922.9</td>
<td>505666.6</td>
<td>13.46</td>
</tr>
</tbody>
</table>

Analysis of the structure of individuals - participants of collective investment institutes (CII) (Table 2) gives grounds to speak about the predominance among them of the citizens insured under life insurance contracts and participants of the NPF. At the same time, it is necessary to note a significant reduction, starting in 2015, of the number of participants in the JII, which is due to the closure of a significant number of public investment funds in the country.

TABLE II. DYNAMICS OF INDIVIDUALS’ PARTICIPATION IN THE NON-BANK COLLECTIVE INVESTMENT INSTITUTIONS IN UKRAINE IN 2013-2017

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of CII participants, thousand people</td>
<td>6321.3</td>
<td>6282.3</td>
<td>5998.1</td>
<td>5255.6</td>
<td>5173.7</td>
</tr>
<tr>
<td>including:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>persons insured under life insurance contracts,%</td>
<td>73.5</td>
<td>73.5</td>
<td>82.3</td>
<td>79.2</td>
<td>78.8</td>
</tr>
<tr>
<td>NPF participants,%</td>
<td>13.3</td>
<td>13.3</td>
<td>14.0</td>
<td>15.9</td>
<td>16.2</td>
</tr>
<tr>
<td>JII participants,%</td>
<td>13.2</td>
<td>13.2</td>
<td>3.7</td>
<td>4.9</td>
<td>5.0</td>
</tr>
<tr>
<td>The average volume of investments in CII per physical person, UAH</td>
<td>1678.5</td>
<td>2060.7</td>
<td>2785.1</td>
<td>4174.4</td>
<td>5147.1</td>
</tr>
<tr>
<td>among them:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in the life insurance companies</td>
<td>502.8</td>
<td>441.8</td>
<td>418.5</td>
<td>633.1</td>
<td>690.0</td>
</tr>
<tr>
<td>in NPF</td>
<td>79.3</td>
<td>85.9</td>
<td>96.2</td>
<td>110.8</td>
<td>148.1</td>
</tr>
<tr>
<td>in JII</td>
<td>9869.4</td>
<td>13036</td>
<td>65456.4</td>
<td>74862.8</td>
<td>92474.6</td>
</tr>
</tbody>
</table>

Sums of investments by NPF’s participants and customers of life insurance companies for long-term savings in 2013-2017 remained scanty, which indicates a weak involvement of the savings of such citizens in the investment process. In contrast, an active increase in investment in the study period was provided by individuals - participants of investment funds. The amount of JII assets per one retail investor has increased from 9,869.4 in 2013 to 92,474.6 mln UAH in 2017, that is, almost 10 times, which characterizes the successful development of investing by individuals in such institutions and an increase in the number of qualified investors in their composition. The largest volume of retail investors’ funds is invested in venture capital and closed non-venture investment funds. At the end of 2017 the average volume of assets per retail participant of such funds was, respectively, 39.97 mln UAH and 1.07 mln UAH [11]. In fact, this means that in present time conditions only the well-to-do stratum of Ukrainian society shows high activity in the process of investing savings, and the mass retail investor remains outside these processes.

Investment activity of Ukrainian citizens at the present stage remains low, which significantly limits the amount of domestic investment resources that can be attracted to the development of the national economy. A more active position in the composition of retail investors is occupied only by participants of closed JII, but the proportion of such citizens in the total economically active population of the country in 2017, according to our calculations, did not exceed 1.4% [10; 11].

Insufficient trust in traditional financial institutions and a large amount of accumulated savings of citizens, which is outside the financial system, requires the active introduction of other, simpler and at the same time more efficient investment tools that are attractive to economically literate people in the country. Since 2009, one of such instruments has been investing in securities through the introduction of electronic commerce on Ukrainian Exchange, JSC. The launch of electronic stock trading in the country was a response to the complication of exchange processes, the emergence of new financial instruments and the dictates of time to expand the sphere of digital technologies application. The development of e-commerce in securities is aimed at attracting to investment processes economically and financially literate citizens who...
have savings and the intention to invest them for obtaining a sufficiently high income, who are skilled in the use of digital technologies, willing to take risks and acquire new knowledge in the process of stock exchange transactions. First of all, this definition includes qualified retail investors who have sufficient own savings and are fully aware of the risks that accompany the process of investing in securities.

The development of electronic trading in securities has a positive effect on the processes of individual investment, the improvement of stock exchanges and the increase in the volume of attracted investment resources (Table 3).

### Table III. ADVANTAGES AND BENEFITS OF THE DEVELOPMENT OF ELECTRONIC SECURITIES TRADING

<table>
<thead>
<tr>
<th>For investment active citizens</th>
<th>For stock exchanges</th>
<th>For the national economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent investment of own savings in effective stock market instruments</td>
<td>Improving the liquidity of stock exchanges by increasing the volume of stock trading</td>
<td>Additional attraction of citizens' savings in the investment sector of the economy</td>
</tr>
<tr>
<td>Prompt access to market information for making effective investment decisions</td>
<td>Expansion of the liquid and reliable securities list in the exchange listing</td>
<td>Increasing in the number of investment active population</td>
</tr>
<tr>
<td>Automatic maintenance of operations of purchase and sale of securities with an online broker</td>
<td>Improving, increasing the operational, transparency and stability of securities trading</td>
<td>Increasing in the volume of demand and supply of securities in the market, the establishment of their fair market price</td>
</tr>
<tr>
<td>The ability to develop original investment strategies based on their own experience, knowledge and skills in stock trading</td>
<td>Increasing the number of online brokers, private investors and their accounts opened on the exchange</td>
<td>The development of the national stock market, increasing its liquidity, capacity and attractiveness for investors</td>
</tr>
<tr>
<td>Using modern stock trading software</td>
<td>Increasing in revenue of the exchange due to the increase in the amount of fees for exchange transactions</td>
<td>Increasing the volume of foreign investments by attracting funds from non-residents</td>
</tr>
<tr>
<td>Increasing the income and welfare of traders, and cost savings</td>
<td>Upgrades of online trading software used by the exchange</td>
<td>Changes in the social structure of society by increasing the stratum of wealthy citizens</td>
</tr>
<tr>
<td>Improving the financial literacy of citizens and their investment culture</td>
<td>Integration into the global stock trading system</td>
<td>Development of the stock mechanism of financing business activities</td>
</tr>
</tbody>
</table>

For individual investors, these advantages are manifested in a simple way of connecting to the system of electronic trading, using up-to-date software, automated servicing of trading operations with an online broker, obtaining prompt and wide access to market information, which makes it possible to make sound investment decisions with the aim of generating income and risk limitation.

The development of electronic commerce contributes to the improvement of the stock exchanges activities themselves, which is manifested in an increase in the volume of exchange operations, ensuring their proper liquidity, expanding the role of listing securities, the composition of professional and non-professional participants, and the upgrade of the software used.

The macroeconomic effect of the electronic stock trading development is reflected in an increase in the volume of domestic investment resources, the establishment of a more fair price for capital, a change in the social structure of society due to an increase in the number of wealthy citizens, etc.

Since March 2009, participants in the Ukrainian stock market have received the opportunity provided by Ukrainian Exchange, JSC to connect to direct access systems using Internet technologies for the stock market. In the process of further improving e-commerce, investors were able to connect to derivatives trading in the derivatives market.

To implement the technical tools of electronic trading, the exchange provided the opportunity to install a trading platform - QuiK or Smart Trade. Investor costs for connecting to digital trading remain small and include the minimum amount required for starting a deposit into an account (3000-5000 UAH), a monthly subscription fee to an online broker (100-150 UAH), a fee for opening an account in securities (about 50 UAH) [12]. In the process of concluding transactions, traders also need to pay an exchange fee for each operation and services for storing securities.

At the time of launching e-commerce in securities, four companies provided connection services on the national market, including Dragon Capital, Securities Expert, Gainsfort Online and Prospect Investments [12]. The development of e-commerce has led to an increase in the number of brokers and the number of individual investors opening accounts on the exchange. At the beginning of 2018, more than 10 thousand individual accounts were opened by retail investors at Ukrainian Exchange, JSC. For 2010-2017 this indicator has increased almost five times, which characterizes the high dynamism of digital trade and the attractiveness of this investment method for an ordinary investor. Today professional stock exchange participants are 90 securities traders, among whom 13 are delivering online services to retail investors [12].

The number of individual investors' accounts on the stock exchange directly depends on the development trends of the stock market. In the face of rising prices and high market volatility, the number of retail investors' accounts, as a rule, increases [13].

The implementation of e-commerce systems is also being realized on other Ukrainian exchanges, in particular on PFTS and Perspectiva, but Ukrainian Exchange, JSC provided investors with more attractive opportunities to trade derivatives on the derivatives market, which led to an increase in transaction volumes.

The positioning of Ukrainian Exchange, JSC as the main platform in the country for e-commerce in securities has greatly influenced the increase in its volume of exchange transactions. Since 2015, Ukrainian Exchange, JSC occupies a leading position on the Ukrainian stock exchange market and derivatives market (Fig. 1).
In 2018, the share of Ukrainian Exchange in the volume of operations in the stock market was 63.9%, and in the derivatives market - 69.8%. However, the exchange's contribution to the total stock exchange turnover of the country decreased from 18.8% in 2010 to 8.0% in 2018, which is due to the higher rate of increase in operations with government bonds. Indirectly, this situation indicates a low rate of distribution of electronic exchange trading in the country and the presence of factors hampering its development. Professional market participants include here such of them as an insufficient number of effective instruments for trade, low liquidity of the national stock market, a decrease in the volume of stock exchange operations, which in aggregate does not contribute to the growth of retail customers demand for Internet trading.

Institutional factors also affected the decline in e-commerce of securities. The state policy regarding the development of electronic trading in securities remains insufficiently thought out. Thus, by the decision of the National Security and Defense Council of May 2, 2018, within the framework of imposing economic sanctions on Moscow Exchange MICEX-RTS, PJSC , it is prohibited for the e-commerce organizer Ukrainian Exchange, JSC to use software developed by the above-mentioned exchange [15]. Due to the imposition of this ban on May 18, 2018 Ukrainian Exchange, JSC made an Appeal to the participants of exchange trading, Ukrainian and foreign investors [16]. The appeal substantiated the destructiveness of the imposed ban on the development of electronic commerce in securities in the country.

The refusal of full-scale e-commerce and the transition to the market of orders immediately affected the fall in the monthly volume of transactions at JSC Ukrainian Exchange. Compared with May 2018, in June this figure decreased 77.1 times, in July - 363.6 times, in August - 1313.6 times, etc. And only as a result of trade in December 2018, the volume of exchange trading on the stock exchange reached 12.1% of the size of the indicator for May 2018 [17]. The consequence of this prohibitive measure was the fall of confidence in the Ukrainian market from domestic and foreign investors.

The study showed that the pace of increasing the volume of electronic trading in securities on the Ukrainian stock market remains low, the number of retail investors participating in electronic transactions is also small. While maintaining such rates of development of e-commerce, the task of more active attracting savings of the country population to the investment sphere through the considered mechanism cannot be performed in the near future.

IV. DISCUSSION

According to researchers, to obtain the proper effect of using information technology, the presence of three components is necessary: regulatory legal framework that creates a dynamic business environment, appropriate skills to enable businesses to use the capabilities of these technologies and the presence of institutions (public and private) that help introduce IT-technologies [18, p. 20].

With regard to electronic securities trading, this effect can be achieved with the elaboration of a program document - the Concept of its development in the country and the state regulator represented by the National Securities and Stock Market Commission a well-thought-out and clear policy regarding the expansion of electronic technologies on stock exchanges and the improvement of digital infrastructure.

Accepted in 2018, the Concepts of the development of the digital economy and society of Ukraine for 2018–2020 [19] set goals for the state to create appropriate incentives for the use of digital technologies, but no measures are provided for the development of digital trading in the stock market.

The specific model of the corporate securities market in Ukraine also limits significantly the increase in the volume of electronic trading in securities. As a result of privatization, the securities market in the country was not sufficiently effective in attracting capital for business development. There are a large number of public joint-stock companies in Ukraine, but there are no examples of successful IPOs attracting capital from private investors.

In order to increase the role of citizens in the processes of investing in the stock market, it is advisable to use the experience of the Republic of Kazakhstan, in which the People’s IPO program is developed at the state level. The objective of the program is the massive involvement of citizens of the country to invest in shares of the largest national companies. Under the terms of the program, citizens of the country have the priority right to purchase shares, and in the second turn, pension funds can implement their purchase [20].

The ineffective model of the corporate securities market in Ukraine led to a meager amount of securities, primarily stock, in the lists of stock exchanges. At the beginning of 2018, there were only 8 types of shares in the registers of stock exchanges priced under the second category of listing, 7 of which were on Ukrainian Exchange, JSC [14], 80 types of shares remained in the exchange list of the specified exchange in the “non-listing” category.

The reduction in the number of securities admitted to trading on the stock exchanges is another negative factor hindering the full development of electronic stock trading in the country. The reason for this is the tightening of the regulator’s requirements for issuers of securities and the procedure for clearing the market of poor-quality instruments. The negative impact on the liquidity of the national market strengthens the scanty “free lot” of the shares in circulation.

The ability of individuals to participate in e-commerce processes directly depends on the state of the national economy and the size of their real incomes and savings. Selected indicators characterizing the possibilities of increasing investment savings by citizens of Ukraine are presented in Table 4.
Advances in Economics, Business and Management Research, volume 81

Analysis of trends in the presented indicators in 2013-2017 shows a decrease in the ability of citizens to accumulate savings. Thus, the country’s per capita GDP in 2017 amounted to 2,715.7 USD, which is lower than in 2013 by 35.6%, and is one of the lowest among the countries of the former Soviet Union. Compared with the Republic of Kazakhstan, this indicator in 2017 was lower by 3.3 times, by the Russian Federation - by 2.8 times, by the Republic of Belarus - by 35.5%, by Armenia - by 30% [21].

Indicators of the ratio of individuals’ incomes to GDP, the subsistence minimum, unemployment rate, and the consumer price index have negative dynamics, indicating a decline in the ability of the Ukrainian population to accumulate savings. A slight increase is characteristic only for the indicator of the average monthly nominal wage.

Practice shows that the proportion of the population that is actively involved in electronic commerce remains small in other countries. According to experts, in Russia this figure is no more than 0.8%, whereas in China about 50% of households in one form or another and with different amounts of savings participate in stock trading [22].

The possibility of citizens’ participating in stock trading to place their savings appears only in the case of full coverage of consumer spending with current income. Otherwise, talking about investing is not necessary.

An important factor hindering the development of electronic stock trading in the country is the insufficient promotion of this type of investment among the population, as well as low digital and financial literacy of citizens. In this area, it is necessary to consider illustrative examples of the effectiveness of electronic commerce and their further popularization in the mass media. Thus, according to the results of the last Best Private Investor contest organized by Ukrainian Exchange, JSC, for three months of trading with the three winners, the yield was reached at the rate of 1648%, 748% and 512% per annum [12], which is extremely attractive for a mass investor. Conducting such contests, as well as trainings and seminars on e-commerce, will certainly contribute to promoting this type of e-commerce to the masses, increasing digital literacy and investment activity of the population.

V. CONCLUSIONS

The study showed a low rate of development of electronic trading in securities in Ukrainian practice. In present conditions, the mechanism of electronic commerce is not able to have a positive impact on the increase in the investment activity of the country’s population, whose indicators in the past five years have remained at a low level. Among the main reasons limiting the participation of citizens in the electronic securities trading are the lack of stimulating state support in the development of digital stock infrastructure and the imposition of a ban on its use of certain types of software; a limited list of liquid securities in the registers of stock exchanges; reducing income and investment savings of citizens; low financial and digital literacy of the population, as well as poor promotion of this type of investment in society.

Improving the state regulation of the national securities market in the direction of stimulating the development of its stock exchange segment and ensuring proper transparency of stock exchange operations will help increase confidence in stock instruments and the attractiveness of electronic commerce among retail investors. For the further development of electronic stock trading in the country and more active involvement of the population in investment processes through this mechanism, it is necessary to overcome the crisis in the national economy, increase incomes and savings of citizens, which will lead to an increase in the number of retail investors willing to master digital exchange technologies and invest in securities.

References