

PhD, Igor Rekunenko

State Institution of Higher Education
«Ukrainian Academy of Banking of the National Bank
of Ukraine», Chair of Finance

FEATURES AND OPERATION OF STOCK MARKET TRADING INFRASTRUCTURE

Summary. The article discusses the features and operations of the basic elements of stock trading infrastructure. Characterized the activity of traders and systems they use. Identified basic development challenges of stock market infrastructure and proposed solutions.

Keywords: stock exchange, stock market, infrastructure, trade.

I. Introduction

Elements of component trading market infrastructure are coordinating element of the whole financial market infrastructure. The main representatives of this component are the organizers of the trade. They play an important role in national economic development because their activities are aimed at mobilization, allocation and reallocation of financial resources by organizing transactions of sale and purchase various financial instruments.

Multiform aspects of individual elements of trading stock market infrastructure, such as stock exchanges are continuously researched by domestic and foreign scientists such as R. Glenn Hubbard, P. Hartmann, G. Stol, B. Staley, J. Domovits, P. Lanskov, J. Myrkin, B. Rubtsov, S. Panchyshyn, V. Kornieiev, M. Kozoriz, A. Kopylova, O. Pobedinsky, A. Sokhatska and others. Most existing scientific works are characterized by only a few elements of the trading stock market infrastructure. However, features functioning of integrated system such infrastructure and its impact on the financial market at the current stage of economic development investigated not enough.

II. Statements of the problem

The study of the functioning of the elements of stock market trading infrastructure at the present stage of economic development, provide suggestions of holistic mechanism for improving the operation of these elements.

III. Results

Trade system is a base of the trading of the stock market infrastructure. For the present we have two main interpretations of the term «trading system». Under the "trading system" we understand as the stock market infrastructure in other words stock exchanges or OTC system and the system of rules, that are applied in the conduct of trade or on which realize programs that independently carry out trade [1] (Fig. 1).

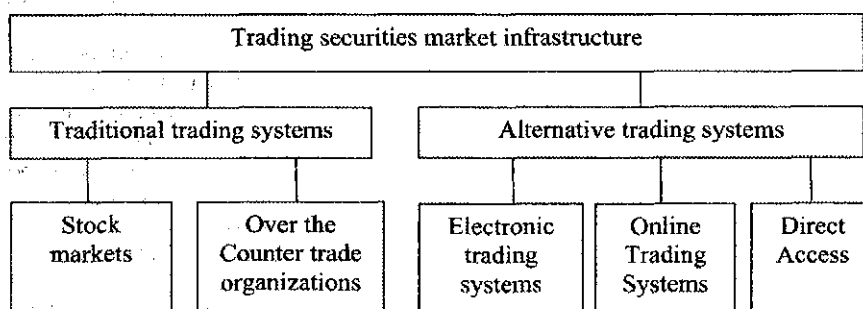


Figure 1. The structure of trade infrastructure stock market

Like an infrastructure element, trading system is a set of computational tools, software, databases, telecommunications devices and other equipment, which provides the capability of the agreements as well as support, storage, processing and disclosure of the information necessary for the preparation and execution of securities transactions and financial instruments.

According to another interpretation, the trading system is defined as the series of interrelated rules to market entry and exit from it. In the simplest form trading system is a means of systematizing and facilitates trade at stock exchanges.

International experience suggests that among key trading infrastructure occupy the exchange.

The process of establishing trading infrastructure was held by the creation of separate stock exchanges or for organization independent stock departments on the existing commodity exchanges. Stock exchange, as a historically the most important institution of trading infrastructure, are performing a variety tasks:

- establishment of a permanent market;
- alignment of prices for stock assets;
- provision and dissemination of financial information about transactions, quotes, stock indices, analytical information about the market;
- development of rules, techniques and working methods in the market.

Stock market is characterized by large turnovers, which allow to create a highly efficient infrastructure, and this advantage of stock exchanges among the other ele-

ments of the trading infrastructure detecting in the reducing the risks of signing and execution of purchase and sale financial instruments. The price for this is a strict standardization of the agreement stringent restrictions on the activities of market participants increased commitment to support the liquidity and reliability.

Caring about possibility of external financing on favorable terms for themselves, most major issuers worldwide sees the stock markets as a goal of entering the financial market. Accordingly, their interest in maintaining high rankings Exchange like the infrastructural institution coincides with the social purpose of economic growth.

So, the organization of the exchange market, information transparency of exchange process, guarantee the implementation of the agreement, transparency and openness of stock trading, the concentration of temporarily free resources, market liquidity, honest and fair price formation are some of the essential advantages of the stock exchange. However, despite of the obvious benefits, stock markets are experiencing acute competition from the OTC markets and alternative trading systems.

The scope of OTC transactions gets the majority of IPOs and the secondary circulation of securities that are not listed at the stock exchanges, which possess a reduced investment quality. The impetus for the development of the OTC market was the increase in the volume and variety of high-quality securities. Organized OTC market in one of the largest securities markets – the U.S., presented by trading system NASDAQ, which has existed since 1971, the proportion of which is often by number of deals in a outstrips the New York Stock Exchange (NYSE).

Ukraine in this sense also had a considerable share in the organized segment of the OTC market. This market was represented by the so-called OTC Stock Trading System (STS), which at this time is a complex of organizational, legal, technological and technical solutions. Due to the advantages of the used e-trade and information complex and relatively liberal (compared to the stock exchanges) trade rules STS, at the time could concentrate the most of the organized securities market. Today this organizer of the stock market is a stock exchange, and its trade system PFTS NEXT created on leading technology exchange NASDAQ OMX and MICEX used in more than 50 countries. PFTS NEXT supports all kinds of modern e-commerce and fully adapted to the Ukrainian legislation and settlement and depository system.

The existing commercial systems can be mechanical and automatic. Mechanical trading system (MTS) – is a set of rules that define the input and output of the trade. It is assumed that correct mechanical trading system has a characteristic and repeatable set of transactions. If the rely on an assumption, that the market situations, that occurred in the past, would have a place in the future, the mechanical system in its statistical framework will give the expected results. This system only produces the signals for the purchase or sale, but it does not conduct the trade.

Automatic Trading System (ATS) – trading system that can independently open and close trading positions in real time. Its main difference from a mechanical trading system is a mechanism that is responsible for the delivery of sales orders to the ex-

change. This makes it possible to trade without the direct participation rights. In other words, make automatic input orders to the exchange or at the broker trading platform

The main advantage of automated trading system is its integrity and self-sufficiency, i.e., it has a complete set of software and hardware solutions.

Later, with the development of Internet technology, financial instruments started to be used in trading, which is called Internet trading.

Online Trading – is a technology that allows to an individual who entered into an agreement with a broker and has access to the Internet, see online information about the trading on the stock exchange and to conclude agreements.

Actually, one of the purposes of creating this market was to provide the possibilities to individuals to trade securities on the Stock Exchange. Currently, the degree of penetration electronic trade at different market segments varies: the stronger centralized and more market liquidity and the greater requirements for the standardization of securities and implemented operations, the more dissemination of ATC. Therefore Internet trading has received most widespread in the markets of highly liquid stocks and their derivatives, and trade in medium-and low liquid stocks provided through the conventional intermediaries' – brokers. As for the other securities markets, the introduction Internet trading technologies is significantly slower than in the equity markets. Interaction PBX broker trading platform through the software is shown in Figure 2.

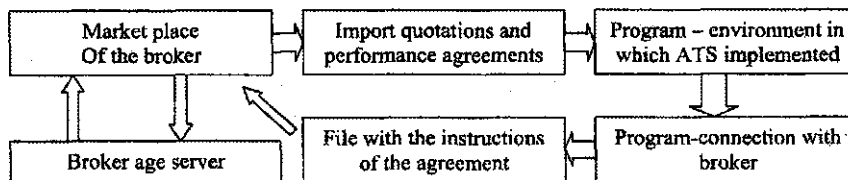


Figure 2. Scheme of interaction ATS with trading platform of the broker

The implementation of trade, involves the organization of complete infrastructure connection broker with a client and supporting its functioning according to set rules. Exchange transactions in the prescribed mode apply to transactions, which related to the protocol of communication channel, information exchange interface, data recovery, and internal states of the system.

In Ukraine, the individuals have had the opportunity to trade stocks online in 2009. It was then ПАТ «Українська біржа», and after that ПАТ «Фондова біржа ПФТС» announced the launch of Internet trading securities.

Online Trading has some strong arguments in its favor:

- acceptable value purchase and sale;
- high liquidity;
- transparency of transactions and low spreads (the difference between the best bid and ask prices at the same time on any asset (stocks, futures, options));
- a rapid account opening with a minimum initial capital.

The main factors that determine the development of stock exchanges at present stage is the reduction cost of the services markets, eliminating borders and barriers that hinder competition, management reform exchanges, new technologies and tools of trade [2].

Activity of stock exchange at the current moment is characterized by the following main trends of the global stock exchange industry:

- internationalization of stock exchanges;
- the growth processes of mergers, cooperations, mutual access, unification of trade rules, exchange of information in the field of traditional stock trading;
- universalization of exchanges activity ;
- technologization of exchanges activity and gradual blurring of lines between traditional stock exchanges and electronic trading systems.

At the current moment the exchanges activity is characterized by the following key trends in the global exchange industry:

- the internationalization of the markets;
- the upward tendency in the processes of merging, cooperation , mutual access, harmonization of trade rules, the information exchange in the area of traditional stock trading;
- the universalization of the exchanges activity;
- the exchanges automation and gradual borders blurring between traditional exchanges and electronic trading systems.

We have rather fragmented stock infrastructure on the current Ukrainian financial market. The main task for our market is to create a strong (single) exchange system and therefore the trading platform. The market openness for multilateral trade systems can prevent the stock exchange from the idea of high liquidity center, which could support the derivatives sector and the economy with the help of building strong IPO market. The state regulator and the market as a whole should not be afraid that the unified exchange may encourage the stock monopolistic behavior or allow it to take actions that would run counter to the public (government) interest and which cannot be independently suspended through the internal management processes.

But for the effective activity of the Ukrainian trade infrastructure such measures aren't sufficient. Therefore, the trade organizers should be developed in concordance with the following statements:

- for the purpose of competence on the world market, Ukrainian exchange should offer an appropriate technology, which helps to decrease bargaining time of financial instruments sell-buy;
- the necessity of attracting foreign investors, who are able to bid remotely, require the presence of advanced technology. Investors should be assured in legal reasoning, normative regulation and withdrawing their funds without any restrictions at any time. However, it is necessary to introduce a sustainable infrastructure related with intermediaries and regulator before taking serious attempts in private investors attraction.

Since the stock exchanges establishment in Ukraine, we can admit certain qualitative changes. Undeveloped domestic stock markets resulted in low economic development, lack of significant foreign investment income and the efficiency of redistribution in the economy. Moreover, the situation of complete dominance of over-the-counter securities market remained the same for 15 years. During all the time Ukrain-

ian financial market was characterized by huge predomination of the unorganized market, lack of attractive for investment financial instruments in circulation and, as a result, low liquidity of stock markets [3].

The activity of trade organization on the Ukrainian securities market is implemented by stock exchanges. At the beginning of 2013 the total number of licensed trade organizers was 10.

The increasing volume of financial resources invested in securities of Ukrainian issuers (both domestic and foreign investors) as well as growing value of issuer's securities resulted in upward tendency in trading on the stock market.

The main indicator of the stock exchange power is its market capitalization, which provides an assessment of its development and competitiveness in domestic and foreign markets. In comparison with developed market economies the capitalization of Ukrainian stock exchanges is extremely low and is only 0.4 % of total world GDP, while the United States – 21.1 %, Japan – 7.0 %, Germany – 4.5 %, Russia – 2.6 %. The low level of Ukrainian stock exchanges capitalization is determined by the securities market peculiarities of formation, development, fragmentation and imperfection.

It should be mentioned that despite the certain growth in the organized domestic stock market, the Ukrainian stock exchange is dropped behind not only the leading trading platforms, but also the trade organizers of developing countries. According to the classification of members of the World Federation of Exchanges (WFE), the major world stock exchanges are divided into three regions: stock exchanges of the American region, exchanges in Asia Pacific region and stock markets in Europe, Africa and Central Asia. Table 1. provided the capitalization data of the top-10 global stock exchanges and the two Ukrainian stock exchanges.

Table 1. The largest world and Ukrainian exchange market capitalization during 2009-2011 in \$ bn

No.	Exchange	Year			Deviation	
		2009	2010	2011	+/-	%
1	NYSE Euronext (USA)	11838	13394	11796	- 42	- 0,35
2	NASDAQ OMX (USA)	3239	3889	3845	606	18,71
3	Tokyo Stock Exchange Group (Japan)	3306	3828	3325	19	0,58
4	London Stock Exchange Group (UK)	3454	3613	3266	- 188	- 5,44
5	NYSE Euronext (Europe)	2869	2930	2447	- 422	- 14,71
6	Shanghai Stock Exchange (China)	2705	2716	2357	- 348	- 12,87
7	Hong Kong Exchanges (China)	2305	2711	2258	- 47	- 2,04
8	TMX Group (Canada)	1677	2170	1912	235	14,01
9	BM&FBOVESPA (Brazil)	1337	1546	1229	- 108	- 8,08
10	Australian Securities Exchange (Australia)	1597	1454	1198	399	- 24,98
....	PFTS Stock Exchange (Ukraine)	30	26	17	-13	- 43,33
....	Ukrainian Exchange (Ukraine)	-	40	26	-	-

According to the data given in the table, it can be concluded that during the period from 2009 till 2011 the largest international and domestic stock markets capitalization has fallen, except NASDAQ OMX (United States) and TMX Group (Canada), which increased their capitalization by \$606 bn (or by 18.71 %) and by \$235 bn (14.01 %) respectively.

This situation is due to the world financial crisis, inflation expectations and worsening financial and economic situation of the country. Therefore, exchange indexes have decreased almost on every stock exchange. Regarding Ukrainian stock market capitalization, we can admit that the figure is hundreds of times less in comparison with world data. However, the amount of listed on stock exchanges Ukrainian companies is not the lowest. The main reason for such low level of capitalization – the absence of foreign issuers on the Ukrainian stock market, the dispersion of domestic issuers on existing stock exchanges and the lack of investors' interest to plough into the financial instruments.

Comparing the stock market's capitalization in relation to GDP allows determining the activity of stock exchanges affects the formation of this indicator in a given country (Table 2).

Table 2. The correlation between stock market capitalization to GDP among CIS in 2008-2011

Country	Year			
	2008	2009	2010	2011
Armenia				
GDP, \$ bn	11,9	8,4	9,7	9,9
Shares market capitalization, \$ bn	0,2	0,1	0,1	0,1
Ratio capitalization/GDP, %	1,5	1,7	1,5	1,4
Belarus				
GDP, \$ bn	н/д	н/д	55,1	54,6
Shares market capitalization, \$ bn	н/д	н/д	3,7	1,1
Ratio capitalization/GDP, %	н/д	н/д	6,7	2,1
Kazakhstan				
GDP, \$ bn	131,7	107,0	148,1	186,4
Shares market capitalization, \$ bn	31,1	57,3	60,7	43,3
Ratio capitalization/GDP, %	23,7	53,5	41,0	23,2
Kyrgyzstan				
GDP, \$ bn	4,7	4,5	4,5	5,8
Shares market capitalization, \$ bn	0,09	0,07	0,08	0,2
Ratio capitalization/GDP, %	1,9	1,6	1,8	2,7
Russia				
GDP, \$ bn	1418,2	1250,0	1459,8	1695,4
Shares market capitalization, \$ bn	375,0	763,5	959,8	771,2
Ratio capitalization/GDP, %	26,4	59,2	65,8	45,5
Ukraine				
GDP, \$ bn	123,1	114,3	140,9	150,3
Shares market capitalization, \$ bn	23,5	25,8	39,4575	25,5583
Ratio capitalization/GDP, %	19,1	22,6	28,0	17,0

The ratio between market capitalization and GDP indicates the level of resources capitalization in the given period of time. According to the data in the table 2 the level of this ratio over the explored period decreased in all countries, except Kyrgyzstan.

It should be mentioned that this situation could be due to changes in characteristics of analyzed countries market infrastructure, but the stock market reduction affects the competitiveness deterioration not only the individual companies, but also the country as a whole. The reduction of market capitalization share in GDP volume influences the secondary market securities.

Assessment of the current situation of Ukrainian stock market infrastructure allows highlighting the following main factors, which cause insufficient trade organizers development level:

- the lack of reliable and comprehensive information about the capitalization level of market players;
- the stock market development irregularity in the part of united functioning mechanism absence;
- the presence of high risk for using the accumulated capital in the real economy due to significant volatility and dependence on external financial market resources;
- limitations of financial instruments, which are used by financial intermediaries, and the low derivatives use;
- the significant level of market monopolization, which prevents the formation of mass and liquid stock market;
- low level of population' awareness and education about the stock market. This leads to low activity of individuals on exchanges, despite the fact that they are one of the main investors in developed countries;
- high degree of shadow economic activities and political interference [4].

IV. Conclusions

To sum up, it can be argued that in order to solve the problem of weak stock markets in Ukraine, we need to develop the government stock market development program based on the international experience and national peculiarities. The basis of this program should be granting a proposals complex for ensuring information transparency, openness and availability of exchange activities. The organized stock exchanges activity allows countries became easily integrated into the international market, to decide the issue of additional financial resources and stimulate national development.

The modern information technologies, which are based on optimization techniques and elements of the cybernetics theory, could penetrate into the scope of professional securities market players. This leads to the fact that today there are increasing so-called informational automated trading systems, the aim of which is to provide the investor (the user of the system) reasonable profitability level of operations at the stock exchange with market tools (usually shares).

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