ANALYSIS OF DEVELOPMENT OF THE INFRASTRUCTURE OF THE STOCK MARKET IN UZBEKISTAN AND THE METHODOLOGY OF ITS ESTIMATION

Abstract: In this scientific article the author analyzed the economic essence and content of the stock market infrastructure, theoretically studied the tasks and functions of the stock market infrastructure and determined the main directions of its formation. In addition, the institutional foundations of the stock market were studied, and its current activities were analyzed from a technical and functional point of view. The factors influencing the development of the stock market infrastructure are determined, and on the basis of various econometric models, the influencing factors on the development of the stock market are revealed. McKinsey & Co.'s matrix evaluation methodology has been improved. and modified to focus on assessing the development of the stock market infrastructure. At the end of the article the author suggests recommendations for the further development of the infrastructure of the stock market in the Republic of Uzbekistan.

Key words: infrastructure, fund, stock market, stock market infrastructure, financial market, stock exchange.

Language: English

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In Uzbekistan, the stock market directs temporarily free assets of legal entities and individuals to investments and allows them to be transformed into all sectors of the economy. In Uzbekistan, all transactions on the primary and secondary securities market have been accomplished through the electronic trading system of the stock exchange and through the organized and unorganized trade system. However, the full operation of the secondary securities market, the constant announcement of shares value on the stock exchange, the increase of interest and intention to buy shares in the population, the fact that the shares are converted into real securities and the absence of a significant source of income for the stock market, market does not allow for development. Also, the stock market infrastructure in the country is low and does not fully meet the government's macroeconomic and active investment policy requirements. Because, as in the stock market, the main function of the stock market is to attract long-term investments in the provision of temporarily free money resources for legal entities and individuals, in order to ensure sustainable economic growth. These circumstances require the...
necessity to improve the stock market infrastructure in the context of modernization of the economy. The Strategy for Action for the Development of the Republic of Uzbekistan in five priority areas for 2017-2021 sets out key tasks for the "Improvement of the Investment Climate and Strengthening the Role of Stakeholders in Strategic Management of Enterprises" [1]. Implementation of these tasks requires acceleration of the work on improvement of the stock market infrastructure.

Literature review
Scientifically-theoretical aspects of the development of the stock market infrastructure in the conditions of modernization of economy are the direction of research of many foreign scientists. In this regard, Alyoxin BI, Dj.Beyli, E.Bredli, R.Breyl, R.Waitilem, B. Williams, S.Mayers, K.Morris, U.Oilila, E.Peters, E.Rode, R. Rosen, A.Sigel, Dj.Tyulz, Dj.Soros, F.Fabotsts, J. Hicks, U. Sharp, studied in scientific research. Despite the considerable contribution of the listed researchers to the field of economics, the peculiarities of the issues of financing and stock market analysis, evaluation, regulation and control of their activities are not taken into consideration.

G.Aleksandr, A.Basov, V.Galanov, Dj.Gitman, A.Kilyachkov, V.Kolesnikov, Ya.Mirkin [3], E.Petere, B.Rubtsov [4], in the countries of the Commonwealth of Independent States. Torkanovskiy, O. Xmyz, L.Chhaldaeva, Barinov E.A. [5], Kilyachkov AA, Chaldaeva L.A. [6], Berzon N.I. [7], Sharp U., Aleksander G., Beyli Dj. [10]. The activities of the stock market participants and organizers have not been studied as an infrastructure institution in the research of these scientists.

Insufficient knowledge of the intervention of the state bodies influencing the development of the stock market of Uzbekistan, the lack of adequate perception of the state's ownership of large shareholding packages, insufficient understanding of the population's access to securities and profits, non-circulation of infrastructure bonds, income generation and guarantees, not investigated.

The general aspects of the stock market development, the general aspects of improving the functioning of the securities market are reflected in the research works by I.Butikov, M. Khamidulin, Sh.Shohazamiy, U.Alieva, N.Karimov, F.Mirzaev and others.

At the same time, the lack of adequate scrutiny of the issues of improving the infrastructure of the stock market in the process of modernization of Uzbekistan's economy, increasing the efficiency of the infrastructure of the stock market, improving the efficiency of infrastructure activity in the development of the market, improving the state regulation mechanisms and increasing the role of institutional investors, was selected.

Methodology
In this research, systematic approach, analysis and synthesis, functional and comparative analysis, grouping, forecasting, logical outline of economic processes understanding, expert evaluation, comparison of statistical data and other methods are used.

Analysis and results
Analyzing the current state of the stock market infrastructure of the Republic of Uzbekistan, the volume of trade turnover at the Republican Stock Exchange "Tashkent" in 2010-2017 grew by almost 6 times in 2017 compared to 2010. Thus, the volume of transactions at the Republican Stock Exchange Toshkent at the end of 2017 amounted to 298.6 billion soums, which is 0.4% less than in 2016. (2019 - 299.8 billion soums) and 2.6 times more than in 2007.

The number of transactions in the RSE Toshkent amounted to 2,572, and in 2016, 3,808 transactions were concluded, and in 2007 - 8887. During the reporting period, securities worth 1 551.6 million were sold to 99 joint-stock companies.

Figure 1 shows that the trade turnover of the RSE Toshkent during 2010-2017 does not have a flat growth since the stock market has been able to reach the result of 2011 only five years later. One of the main reasons for this is the sharp increase in listing companies, which is the result of a large number of shares sold by large companies during this period. In 2017, a 0.4 percentage point decrease compared to 2016.
Impact Factor:

- ISRA (India) = 1.344
- ISI (Dubai, UAE) = 0.829
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- ICV (Poland) = 6.630

Source: The author's calculations based on the data of the RSE “Tashkent”.

Fig. 1. Volume of trade turnover at the Republican Stock Exchange "Tashkent" in 2010-2017. (billions UZS)

According to the analysis, 85% of the largest companies in the city (including 98% of banking and insurance companies) are all controlled and inspected by the Central Office. The share of investments attracted by the securities market (over 6%) is 27.8%, Tashkent - 14.6%, Fergana - 11.7%, Khorezm - 11.6%, Samarkand - 10.9% Namangan region - 6.09%. It should be noted that in the rest of the country, investment activity was low, especially in Jizzakh region - 0.03%. 85.5% of the total volume of securities turnover fell to Tashkent city and 9.8% to Tashkent region. the rest of the regions accounted for 0.1-0.2 per cent. It is the same trend that determines the share of Tashkent city in regional commodities (7.52%), ie the role of the securities market in the economy of the region, much more than in other regions.

Table 1
Analysis of trading volumes and structure of the securities market for 2009-2017 (billion UZS)

| Years  | Total turnover of | Primary stock market share | Secondary stock market share | Primary stock market share in % | Secondary stock market share in % |
|--------|------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| 2009 year | 749.6            | 561.5                       | 188.1                       | 74.9                            | 25.1                            |
| 2010 year | 1681             | 1095.4                      | 585.6                       | 65.2                            | 34.8                            |
| 2011 year | 1603.4           | 692.4                       | 911                         | 43.2                            | 56.8                            |
| 2012 year | 2093.5           | 1293.8                      | 877.7                       | 58.1                            | 41.9                            |
| 2013 year | 977.4            | 811.6                       | 165.8                       | 83.0                            | 17.0                            |
| 2014 year | 1327             | 1205.7                      | 121.3                       | 90.9                            | 9.1                             |
| 2015 year | 3508             | 3242                        | 266                         | 92.4                            | 7.6                             |
| 2016 year | 14460            | 13184                       | 1276                        | 91.2                            | 8.8                             |
| 2017 year | 17340            | 15093                       | 2247                        | 87.0                            | 13.0                            |

Source: The author's calculations based on the data of the RSE “Tashkent”. 

Philadelphia, USA 170
According to the results of Table 1, the volume of trading in securities for 2009-2017 grew by 23 times. In the volume of sales volumes mainly account for the largest share of primary securities. The share of secondary securities was slightly smaller, with only 56.8% in 2011. In 2009-2017, the average market share was 76.2 and 23.8 percent respectively.

Considering the data given below in Table 4, we can conclude from the analysis results that the role of the securities market in the Tashkent city economy is relatively high compared to other regions. Thus, the national securities market is concentrated mainly in Tashkent. In general, the region has not been fully used by the securities market.

One of the most important tasks of the stock exchange is to attract the financial and stable stock companies of our republic to the exchange listing. At the beginning of 2015, there were 133 companies on the stock quote page, and another 128 companies were added to the list for the year. 2016 year As of January 1, 261 joint-stock companies were included in the stock market quotation. Listing companies on the Stock Exchange include commercial banks, insurance companies, metallurgy, energy, agro-industrial complex, construction materials and oil and gas industry.

According to the stock market listing categories of joint-stock companies can be distributed as follows: joint-stock companies meeting the requirements of category "A" - 24, "B" - 28, "C" category - 177, "Pn" - 32 . 2016 year Market capitalization of shares of joint-stock companies listed on the stock exchange as of 1 January amounted to 8436 billion soums. As of 1 January 2015, the volume of gross domestic product amounted to 7018.3 billion soums.

Another important indicator in the stock market activity is your listing companies and their circulation.

### Table 2

| Name of Regions | Number of transactions, Pcs | Total amount of transactions, thousand UZS | Share, in % |
|-----------------|----------------------------|------------------------------------------|------------|
| Andijan         | 302                        | 442 794,2                                | 0,15       |
| Bukhara         | 21                         | 1 291 382,5                              | 0,43       |
| Tashkent City   | 1 078                      | 270 114 779,3                           | 90,47      |
| Jizzakh         | 5                          | 3 006,7                                  | 0,00       |
| Karakalpakstan  | 1                          | 4 001,4                                  | 0,00       |
| Kashkadarya     | 4                          | 98,9                                     | 0,00       |
| Navoi           | 102                        | 1 028 110,0                              | 0,34       |
| Namangan        | 4                          | 454 700,0                                | 0,15       |
| Samarkand       | 218                        | 598 420,3                                | 0,20       |
| Surkhandarya    | 3                          | 2 306 655,0                              | 0,77       |
| Syrdarya        | 104                        | 1 710 829,8                              | 0,57       |
| Tashkent region | 195                        | 8 819 797,8                              | 2,95       |
| Fergana         | 533                        | 10 329 265,9                             | 3,46       |
| Horoscope       | 2                          | 1 451 265,7                              | 0,49       |
| Total           | 2 572                      | 298 555 107,5                           | 100%       |

Source: The author's calculations based on the data of the RSE "Tashkent".
The region has the highest number of shares in the region - Tashkent city, which is 90.47% of the total volume of trade in Tashkent city by the end of 2017, and 41.9% of concluded transactions accounted for investors in Tashkent. Fergana region is 3.46% of the total turnover.

The volume of the stock market has grown from year to year. The largest growth is observed in 2009 (1.7 times more than in 2008). In 2010, it increased by 1.06 times compared to 2009. The stock market was significantly higher than the OTC market (approximately 28.5 times the primary market in 2010 and 1.56 times on the secondary market).

In the context of a consistent macroeconomic policy of the national economy, the securities market has a steady growth trend. As a result of this tendency, the volume of shares market has been steadily rising. However, despite the small volume of sales turnover, its size has a tendency to grow. However, according to the official World Bank data, the share market share of capitalization to GDP remains unchanged. In our opinion, the national securities market does not fully meet the requirements of the modern macroeconomic policy of the state and the consistent implementation of an active investment policy.

Overall, the share of investments attracted into the economy of the country during the period of 2007-2017 does not exceed 10% of the total volume of investment attracted by the securities market, which means that the results are very low and that the increase in the share of these investments is an urgent problem.

As a result of the influence of several macroeconomic factors on the development of the securities market, as a result of the factors influencing the factors influencing the equity market (economic growth, population savings and annual inflation rate) and the state of the risk, the economy as a whole and the economy as a whole, and gradual development of the macroeconomic policy.

### Table-3

**Share of trading volume and stock market in the securities market of Uzbekistan for 2009-2017**

| Years       | Total trading volume of the stock market (billion UZS) | Volume of trade in stock exchange | Sales volume of the stock of market (billion UZS) | Share of the stock market in % | Share market out of stock market market in % |
|-------------|-----------------------------------------------------|-----------------------------------|--------------------------------------------------|-------------------------------|---------------------------------------------|
| 2009 year   | 749,6                                               | 90                                | 659,6                                            | 12.0                          | 88.0                                        |
| 2010 year   | 1681                                                | 64.4                              | 1616.6                                           | 3.8                           | 96.2                                        |
| 2011 year   | 1603.4                                              | 213.1                             | 1390.3                                           | 13.3                          | 86.7                                        |
| 2012 year   | 2093.5                                              | 170.7                             | 1922.8                                           | 8.2                           | 91.8                                        |
| 2013 year   | 977.4                                               | 93.2                              | 884.2                                            | 9.5                           | 90.5                                        |
| 2014 year   | 1327                                                | 97.6                              | 1229.4                                           | 7.4                           | 92.6                                        |
| 2015 year   | 3508                                                | 160.8                             | 3347.2                                           | 4.6                           | 95.4                                        |
| 2016 year   | 14460                                               | 299.8                             | 14160.2                                          | 2.1                           | 97.9                                        |
| 2017 year   | 17340                                               | 298.6                             | 17041.4                                          | 1.7                           | 98.3                                        |

Source: The author's calculations based on the data of the RSE "Tashkent".
Exchange, but there are a number of problems. Attracting financial and stable stock companies, increasing the number of listing companies, increasing the number of circulating instruments and their profitability, liquidity, the development of the secondary securities market, maximizing the tenders, increasing transparency in trading and, most importantly, legal entities and residents of the country, which can turn the stock exchange into cash money in the hands of the public by increasing its trust vix mechanism. Sustainable development of the stock market promotes the development of the securities market and, consequently, the development of the country's economy.

Methodology for assessing the development of the stock market infrastructure

The level of stock market development in Uzbekistan was calculated on the basis of McKinsey & Co. At the same time, the McKinsey & Co. methodology, which evaluates market competitiveness, has been adapted to assess the development of infrastructure. In the methodology used, the level of each indicator was determined based on the nature of the infrastructure and divided into five main categories: undeveloped, low-developed, moderately developed, highly developed and highly developed. In matrix-based method consisting of 5 indicators, each indicator includes a number of factors that are assessed on a 10-point scale.

Table-3
Criteria of valuation of the stock market infrastructure
(based on the McKinsey & Co. methodology)

| From 0.1 to 20 | low |
| From 21 to 40 | lower than average |
| From 41 to 60 | average |
| From 61 to 80 | above average |
| From 81 to 100 | high |

As mentioned above, the indicators of evaluation and indicators of the matrix of investment attractiveness indicators of the McKinsey & Co. methodology indicate that ten indicators, such as information retention, reduction of documents required by issuers and investors, the degree of insurance coverage, the use of marketing methods, the use of electronic document availability, availability of qualified staff, stock market activity, number of issuers, banks' funds etc. Zoridaagi activities and the provision of normative-legal documents. (Table 4). Prices were based on surveys and expert assessments from 275 respondents during the survey.

Table-4
The level of stock market infrastructure development in Uzbekistan

| № | Indicators | Stock Exchange | Central Depository | Investment Intermediaries | Developmental Levels (by individual factors) |
|---|------------|----------------|--------------------|--------------------------|---------------------------------------------|
| 1 | Information support | 6 | 5 | 4 | average | lower than the average | lower than the average |
| 2 | Reduction of documents required from issuers and investors | 3 | 3 | 3 | lower than the average | lower than the average | lower than the average |
| 3 | Insured status | 2 | 3 | 1 | low | lower than the average | low |
| 4 | Level of Marketing Methods | 4 | 3 | 1 | average | lower than the average | low |
Impact Factor:

| Source    | Impact Factor |
|-----------|---------------|
| ISRA (India) | 1.344         |
| ISI (Dubai, UAE) | 0.829         |
| GIF (Australia) | 0.564         |
| JIF        | 1.500         |
| PII (India) | 0.912         |
| РИНЦ (Russia) | 0.207         |
| ESJI (KZ)  | 4.102         |
| SJIF (Morocco) | 2.031         |
| ICV (Poland) | 6.630         |

Accessibility of electronic document | Level of qualified staff availability | The population's stock market activity | Number of issuers (joint-stock companies) | Activities of banks in the stock market | Normative-normative documents availability level |
|-----------------------------------|--------------------------------------|--------------------------------------|--------------------------------------------|---------------------------------------|-----------------------------------------------|
| Average                          | Average                              | Average                              | Above average                               | Above average                         | High                                          |
| Lower than the average           | Lower than the average               | Low                                  |                                           |                                       |                                               |

Source: The author's development on the basis of primary data obtained from population and expertise.

According to the stock market infrastructure development in Uzbekistan, the Stock Exchange -53 points, the Central Depository -55, and the number of investment agents - 45 points, correspond to the average development index (41-60 points).

According to the above table, the level of development of infrastructure of the Republic of Uzbekistan is currently at a moderate level. This is due to the lack of marketing tools.

Low use of electronic systems has a negative impact on the infrastructure development. In our opinion, it is necessary to develop the use of the electronic system in the stock market, such as holding a general meeting of shareholders online, the possibility of buying and selling securities without access to an electronic digital signature, establishing rating agencies regularly announcing the level and risk of listing companies' profitability reasonable.

In short, the McKinsey & Co. matrix defines the priorities for the development of the stock market.

Table 5

Factors affecting the development of the stock exchange index (UCI)

| Years | Stock Market Indices | GDP billion UZS | Investment in fixed capital billion UZS | Remaining balance in the depreciated accounts | Monetization rate (%) | Remaining funds in the correspondent account, billion UZS |
|-------|----------------------|-----------------|----------------------------------------|-----------------------------------------------|-----------------------|---------------------------------------------------------|
|       | Y                    | X1              | X2                                     | X3                                            | X4                    | X5                                                      |
| 2010  | 112                  | 62 388,3        | 15 288,2                               | 458,5                                         | 18,8                  | 122                                                     |
| 2011  | 345                  | 78 764,2        | 17 953,4                               | 890,6                                         | 20                    | 135                                                     |
| 2012  | 405                  | 97 929,3        | 22 797,1                               | 1168,8                                       | 21                    | 182                                                     |
| 2013  | 696                  | 120 861,5       | 28 689,4                               | 1549,6                                       | 22                    | 211                                                     |
| 2014  | 774                  | 145 846,4       | 35 225,6                               | 1804,75                                      | 23,0                  | 268                                                     |
| 2015  | 886,5                | 171 808,3       | 41 670,2                               | 2059,9                                       | 24,0                  | 305                                                     |
| 2016  | 990,1                | 199 325,1       | 49 770,7                               | 2515,05                                      | 24,5                  | 359                                                     |

\[
Y = 0.221X1 - 0.842X2 - 1.704X3 - 846.6X3 + 40.2X + 11569.6
\]

CONCLUSION OF THE RESULTS

Regression statistics

Multiple R = 0.949211
Impact Factor:

| Journal/Region     | Impact Factor |
|--------------------|---------------|
| ISRA (India)       | 1.344         |
| ISI (Dubai, UAE)   | 0.829         |
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R-square 0,901001
The normalized R-square 0,406006
Standard Error 367,5583
Observations 7

Monetary policy and GDP growth in the country were highly influential factors, depending on the level of impact. As a result of the low level of the stock market against capital investments, it is adversely affected by the stock market as well as the depreciated savings accountability is higher than the development of the stock market.

Conclusion and recommendations

1. The experience of foreign countries (USA, China, Russia, Kazakhstan) deeply studied the development of a gossip infrastructure in Uzbekistan, and the application of the methods used in the stock market to the practice of Uzbekistan contributes to the further development of the stock market and increasing its competitiveness.

2. It is necessary to create an automated communication system of stock exchanges, depositories, investment intermediaries and settlement clearing organizations to raise the operating mechanism of the stock exchange to the level of world standards, mitigate requirements for listing and listing of securities, and most important of the stock market infrastructure.

3. It is necessary to allocate and circulate infrastructure bonds at the rate of 10% per annum on the coupon. Because it has proven that there are some advantages in attracting other types of borrowed funds.

4. The reason for slowing down the effective functioning of the securities market is the low growth of these investment institutions, the lack of highly qualified staff. The lack of investment companies, consulting firms, managing companies, nominal holders, and underwriters in all regions is proven to account for less than 1% of the provinces, so they need to pay special attention to the formation of the regions.

5. It is expedient to set up a remote online general meeting of stockholders of joint-stock companies that are issuers of securities. On this basis, documents and reports submitted to shareholders electrify, saves time for shareholders and ensures participation of all shareholders (quorum) at 100%.

6. Based on the McKinsey & Co. methodology indicators of the stock market infrastructure in Uzbekistan, it was identified that the most advanced, less developed factors based on the expert evaluation and inquiry data collected from the population at the level of up to ten points were identified and developed We believe that the development of the system of events will contribute significantly to the development of the stock market infrastructure.

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