

THE WAYS OF IMPROVING AND INCREASING THE ACTIVENESS OF UZBEKISTAN COMPOSITE INDEX (UCI)

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Annotation

This article investigates strategies for enhancing and developing the Uzbekistan Composite Index (UCI), which encompasses all 102 listed joint-stock companies in Uzbekistan's stock market. Utilizing a dataset spanning 1916 days, the study analyzes the historical trends of the UCI index rates, alongside fluctuations in the number of listed companies, accumulated executed quantity, and trading amount. Employing Ordinary Least Squares (OLS) regression, the research aims to uncover correlations and insights crucial for understanding the dynamics of the UCI and devising effective measures for its advancement. This analysis provides valuable insights for investors, policymakers, and market participants interested in fostering the growth and resilience of Uzbekistan's capital markets.

Annotatsiya

Ushbu maqola O'zbekiston fond bozoridagi barcha 102 ta aktsiyadorlik

jamiyatlarini o'z ichiga olgan Uzbekistan Composite Index (UCI) ko'rsatkichini oshirish va rivojlantirish strategiyalarini o'rganadi. 1916 kunlik ma'lumotlar to'plamidan foydalangan holda, tadqiqot UCI indeksi stavkalarining tarixiy tendentsiyalarini, ro'yxatga olingan kompaniyalar sonining o'zgarishi, to'plangan bajarilgan miqdor va savdo miqdorini tahlil qiladi. Oddiy eng kichik kvadratlar (OLS) regressiyasidan foydalangan holda, tadqiqot UCI dinamikasini tushunish va uni rivojlantirish uchun samarali choralarni ishlab chiqish uchun muhim bo'lgan korrelyatsiya va tushunchalarni ochishga qaratilgan. Ushbu tahlil O'zbekiston kapital bozorlarining o'sishi va barqarorligini rag'batlantirishdan manfaatdor bo'lgan investorlar, siyosatchilar va bozor ishtirokchilari uchun qimmatli tushunchalarni beradi.

Аннотация

В данной статье исследуются стратегии повышения и развития Композитного индекса Узбекистана (UCI), который охватывает все 102 акционерные компании, акции которых котируются на фондовом рынке Узбекистана. Используя набор данных за 1916 дней, в исследовании анализируются исторические тенденции ставок индекса UCI, а также колебания количества зарегистрированных на бирже компаний, накопленного количества исполненных сделок и объема торгов. Используя регрессию обычных наименьших квадратов (OLS), исследование направлено на выявление корреляций и идей, имеющих решающее значение для понимания динамики UCI и разработки эффективных мер для его развития. Этот анализ предоставляет ценную информацию для инвесторов, политиков и участников рынка, заинтересованных в содействии росту и устойчивости рынков капитала Узбекистана.

Keywords: descriptive statistics, correlation coefficient, regression analysis, histogram, graph-box, ANOVA table, Normality test, Collinearity test, Shapiro Wilk test, Heteroscedasticity test, Reliability test

Introduction

Stock market indices are important because they provide valuable insights into the overall health and performance of an economy, influence investor confidence and behavior, facilitate capital formation, serve as benchmarks for investment performance, inform policymaking decisions, and impact a country's international standing. Therefore, in this research, we mainly focused on improving the performance of Uzbekistan Composite Index (UCI) and this research including some steps. Firstly, identifying dependent variable which we are going to develop, is core of analysis and the main dependent variable is **Uzbekistan Composite index rate** during the 8 years. Secondly, identifying variables that influence the increasing or decreasing of the rate of the stock index. That are **the number of listed companies**, since, Uzbekistan Composite index consists of all companies listed and **accumulated executed quantity** that refers to the total number of shares or contracts of a particular security that have been traded and executed over a period of time. Furthermore, **accumulated trading amount** that refers to the total monetary value of all trades executed for a particular security over a specified period of time can be another independent variable, since it shows the level of trading and it impacts the index rate. In addition, this research aims to construct a robust model that highlights the correlation between these variables and the index rate.

Methodology

This study takes a mixed-methods approach, combining quantitative analysis with qualitative insights, to evaluate the sensitivity of the stock index rate to the number of listed companies, accumulated executed quantity, and accumulated trading amount. The methodological approach is intended to provide a thorough knowledge of the factors impacting the UCI stock index rate, based on both statistical evidence and nuanced viewpoints from those concerned.

Data gathering:

The history of stock index including all information is searched from websites including World Bank data and UZSE official websites and is gathered.

The categories of data:

- Stock index rate(in 8 years)(index in Stata)
- The number of listed companies(Ncompanies in Stata)
- Accumulated executed quantity(Stocks Quantity in Stata)
- Accumulated trading amount(TradingAmount in Stata)
- The period(1916 days) (daysdate in Stata)

1.2 Data Analysis

Quantitative data are analyzed using statistical software (Stata 15) to identify patterns, correlations between the independent variables (*the number of listed companies, accumulated executed quantity, accumulated trading amount, the period*) and the dependent variable (*the rate of index*). **Descriptive statistics** provide a baseline understanding of the conditions of the all variables, while **inferential statistics**, including regression analysis, are employed to test the

hypotheses.

Analysis and results

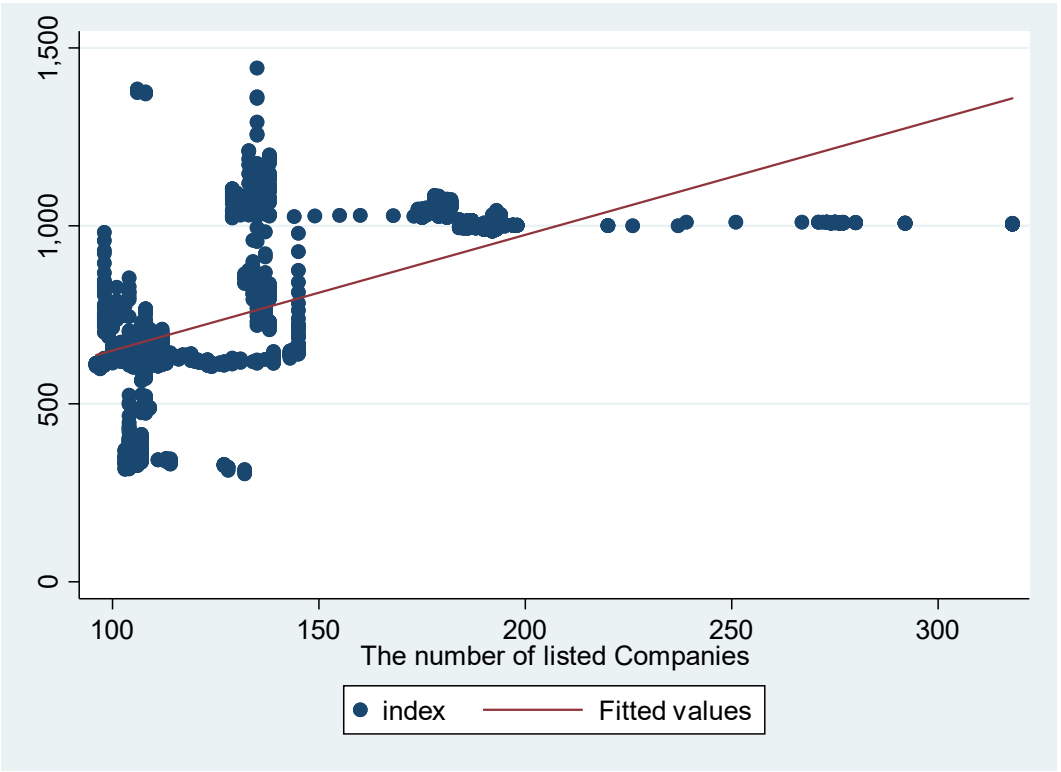
Figure 1 – Descriptive statistics

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Index	1916	781.818	220.886	303.38	1443.53
NCompanies	1916	140.598	45.346	96	318
Quantity stocks	1916	1.005e+08	1.371e+09	0	5.146e+10
TradingAmount	1916	5.204e+09	5.311e+10	0	1.897e+12
Daysdate	1916	958.5	553.246	1	1916

In this table, the summary of information is presented. We have 1916 observations in every variables. Firstly, the index rates include 1916 observations, its minimum and maximum rates are 303.38 and 1443.53. Its average mean equals to 781.818 and it is higher than the index current rate. The next variable is the number of listed companies consisting of 1916 observations. That's mean is 140.59 and minimum number of listed companies on UzSE is 96 and maximum is 318. The average of the accumulated executed quantity variable is 1.005e+08 (which is 100,500,000), Standard Deviation (Std. Dev.) is 1.371e+09 (which is 1,371,000,000), minimum is 0, since, on some days, stocks may not be traded and the maximum number of traded stocks (Max) is 5.146e+10 (which is 51,460,000,000). The next is accumulated trading amount, its mean is 5.204e+09 (which is 5,204,000,000 sum), Minimum is 0, Maximum (Max) is 1.897e+12 (which is 1,897,000,000,000sum). All days are 1916 and this period, the Uzse has been working.

Figure 3 – Trend scatter plot



In this scatter plot, we have a new element: a red line that represents the 'fitted values', or in other words, the best fit line through the data points. It shows us the trend in the relationship between " the number of listed companies on UzSE on the x-axis and 'index rate' on the y-axis. As 'the number of listed companies' increases, the 'the index rate' also tends to increase slightly. The upward slope of the red line indicates a positive relationship between these two variables.

Pairwise correlations

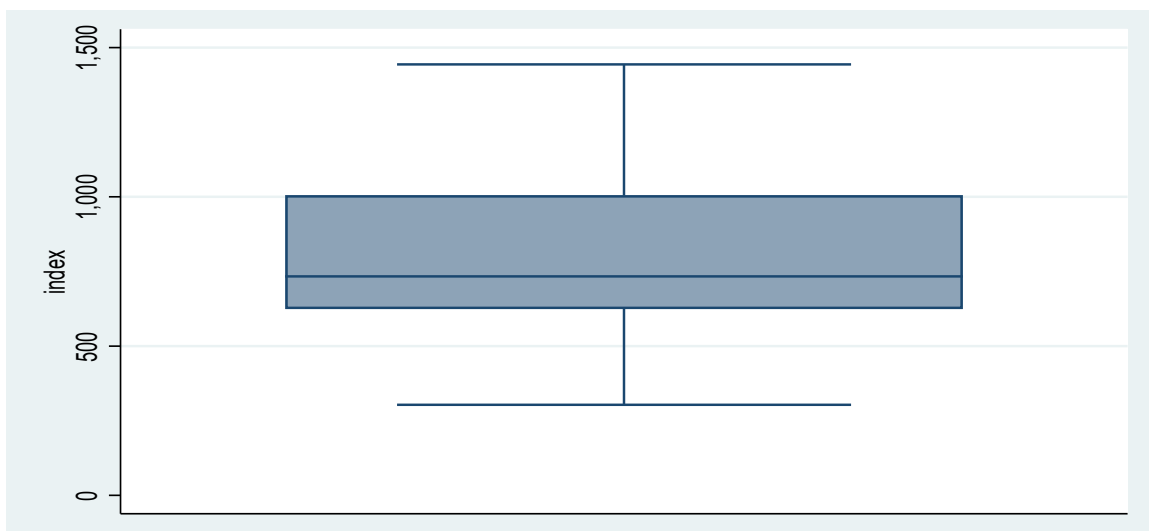
Variables	(1)	(2)	(3)	(4)	(5)
(1) index	1.000				
(2) NCompanies	0.667*	1.000			

	(0.000)				
(3) Quantity_stocks	-0.036	-0.026	1.000		
	(0.117)	(0.251)			
(4) TradingAmount	-0.006	-0.032	0.027	1.000	
	(0.806)	(0.165)	(0.240)		
(5) Daysdate	-0.005	0.008	0.012	0.024	1.000
	(0.815)	(0.731)	(0.599)	(0.295)	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The relationships between the various variables are shown in this table. The correlation between two variables is displayed in each cell, with a range of -1 to 1. A strong positive relationship is indicated by a correlation near 1, which means that when one increases, the other does too. A strong negative relationship is indicated by a correlation near -1, which means that as one increases, the other decreases. There is no linear relationship indicated by a correlation near 0. For instance, variable (1), "the index rate," and variable (2), "the number of listed companies," have a positive correlation of 0.667 that is statistically significant, as shown by the asterisk. This means they tend to increase together. However, variable (3), 'Quantity_stocks', has a negative correlation of -0.036 with variable (1), suggesting they tend to move in opposite directions.

Figure 6 – Boxplot



According to this graph box, 75% of 1916 index rates is about from 600 to 1000. However, on the lowest low and top parts of graph box, about 332 and 1480 index rates are illustrated.

Figure 7 – Linear regression

Linear regression

Index	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NCompanies	3.251	.083	39.15	0	3.088	3.413	***
Quantity_stocks	0	0	-1.09	.276	0	0	
TradingAmount	0	0	0.96	.339	0	0	
Daysdate	-.004	.007	-0.63	.527	-.018	.009	
Constant	328.865	13.857	23.73	0	301.689	356.04	***
Mean dependent var	781.818		SD dependent var	220.886			
R-squared	0.446		Number of obs	1916			
F-test	384.416		Prob > F	0.000			
Akaike crit. (AIC)	24997.020		Bayesian crit. (BIC)	25019.252			

*** $p < .01$, ** $p < .05$, * $p < .1$

Model parameter interpretation

We developed a statistical model to determine what factors influence variable the

index rate. This model takes into account a variety of criteria, including 'Ncompanies', 'number of stocks', and others.

This model has some predictive potential, as seen by the Prob > F value of 0.0000. This suggests there is no probability that the model's outcomes are attributable to random variation, which is good because we want this value to be less than 0.05 in order to be confidence in our model. In addition, the R-squared value is 0.446, indicating that the model can explain around 45% of the variability in our dependent variable.

Model estimation interpretation

“Ncompanies” has a coefficient of 3.251, which is statistically significant, as indicated by a p-value of 0.000 (which is less than 0.05). This means that for each unit increase in “Ncompanies”, “index” is expected to increase by approximately 3.251 units, holding all other variables constant. However, the coefficients of other 2 variables equals to 0 and they are not statistically significant.

Post estimation analysis – Normality

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	Z	Prob>z
index	1,916	0.931	78.203	11.072	0.000
NCompanies	1,916	0.804	224.070	13.745	0.000
Quantity_s~s	1,916	0.041	1093.904	17.772	0.000
TradingAmo~t	1,916	0.062	1070.147	17.716	0.000

Daysdate	1,916	0.955	51.482	10.010	0.000
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Shapiro Wilk test helps us to know the data is normal distributed (the value of W should be close to 1) and realizing statistical significance (H0 hypothesis, if $p > 0.05$). Index rate and Number of companies datasets are normal distributed but their values are not significant and others left are not normal distributed. We realize that in this test, a independent variable is normal distributed but not statistic significant.

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
chat	1,916	0.956	50.266	9.949	0.000
yhat	1,916	0.803	224.743	13.753	0.000

According to this, w is near 1, it means, data is normal distributed, however, if $p < 0.05$, this is not statistical significance.

ESTAT VIF

Variable	VIF	1/VIF
-----+-----		
TradingAmo~t	1.00	0.997748
NCompanies	1.00	0.998271
Quantity_s~s	1.00	0.998501
Daysdate	1.00	0.999218

-----+-----

Mean VIF | 1.00

There is no multicollinearity because of mean vif<10

ALPHA TEST

RELIABILITY

ALPHA TEST

Test scale = mean(unstandardized items)

Average interitem covariance: 0.1575

Number of items in the scale: 7

Scale reliability coefficient: 0.5669

In this alpha test, we can know the percentage of our data reliability. Data Reliability is 56%.

Conclusion

The research mainly focused on analysis of Uzbekistan Composite Index and concluded with some recommendations for increasing the activeness of UCI. However, As UCI includes all listed joint-stock companies on UzSE, the increase in well performing of stock index depends on joint-stock companies, free-float directly, and accumulated executed quantity, accumulated trading amount and other factors influence indirectly the index rate. It should be noted that joint-stock companies occupy a very important place in the system of a market economy. They are one of the most advanced forms of organization of a legal entity among business entities, an important source of investment that attracts free funds in

production, cover wide sections of the population in the formation of a class of owners(Yuldashev, 2023). Therefore, the article analyzed them by using OLS regression method. With OLS regression analysis, we can identify problems and give recommendations for developing and improving the activeness of UCI index. OLS regression analysis showed us **the positive correlation of the number of companies and the index rate**, and the first scatter plots show us that **accumulated executed quantity and trading amount have negative and positive correlations with the index rate**. It means, listing joint-stock companies that has high free-float and high liquidity stocks influences more the index rate and show well performing. And in order to increase the investment attractiveness of large issuing companies of strategic importance, it is necessary to gradually reduce the state share in their share capital structure(Ataniyazov & Sayfullokhon, 2022)

Recommendations

- **Listed more joint-stock companies:** In this research, the number of joint-stock companies and the index rate together has positive correlation, however, we should focus on another part, accumulated executed quantity has negative but accumulated trading amount has positive correlation with the index rate. It means that joint-stock companies that its shares' price are higher should be listed on UzSE. After this, the accumulated executed quantity will be less and accumulated trading amount will be high.

Decreasing the number of state-owned joint-stock companies or their shares:

In Uzbekistan, according statistical information, There are a total of 627 joint-stock companies (JSCs) in Uzbekistan. Of these, 244 JSCs have shares directly owned by the state, making up about 84.7% of all issued stocks based on nominal value. Furthermore, 132 JSCs are owned by state holdings, which are formally known as "Economic Management Bodies." It is required to progressively reduce the state

share in the share capital structure of large issuing companies of strategic importance in order to increase their investment attractiveness.

The companies should perform **IPO** and **SPO**, and their shares should trade on the platforms. That is increasing the activeness of Stock Exchange and it leads to investments to expand the companies.

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