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KEY DEVELOPMENT FACTORS OF THE SECURITIES MARKET IN THE REPUBLIC OF UZBEKISTAN

Olimjon Davronovich Alimov
Researcher of the Department of Corporate Finance and Securities
Tashkent Institute of Finance
E-mail: alim.d.alimov@gmail.com
ORCID: 0000-0001-6133-2349

Abstract

This article presents the key development factors of the securities market in the Republic of Uzbekistan. Both macroeconomic and institutional factors have been identified. The article provides an empirical model of key factors' influence on securities market development in the Republic of Uzbekistan. Panel data for 30 emerging countries of the World Bank and the International Monetary Fund were used. The results show that gross domestic savings and GDP per capita are significant and have a positive impact on the development of the securities market.

Key words: securities market, corporate securities, economic growth, macroeconomic factors, institutional factors, market capitalization, GDP per capita, inflation rate, foreign direct investment, interest rate

КЛЮЧЕВЫЕ ФАКТОРЫ РАЗВИТИЯ РЫНКА ЦЕННЫХ БУМАГ РЕСПУБЛИКИ УЗБЕКИСТАН

Алимов Олимжон Давронович
свободный соискатель кафедры
корпоративных финансов и ценных бумаг
Ташкентский финансовый институт
E-mail: alim.d.alimov@gmail.com
ORCID: 0000-0001-6133-2349

Аннотация

В данной статье представлены основные ключевые факторы развития рынка ценных бумаг Республики Узбекистан. При этом эти факторы определены как макроэкономические, так и институциональные. Приведена эмпирическая модель влияния ключевых факторов на развитие рынка ценных бумаг Республики Узбекистан. Использованы панельные данные по 30 развивающимся странам из источников Всемирного банка и Международного валютного фонда. Результаты показывают, что валовые внутренние сбережения и ВВП на душу населения являются значительными и оказывают положительное влияние на развитие рынка ценных бумаг.

Ключевые слова: рынок ценных бумаг, корпоративные ценные бумаги, экономический рост, макроэкономические факторы,

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институциональные факторы, рыночная капитализация, ВВП на душу населения, уровень инфляции, прямые иностранные инвестиции, процентная ставка.

ЎЗБЕКИСТОН РЕСПУБЛИКАСИДА ҚИММАТЛИ ҚОҒОЗЛАР БОЗОРИ РИВОЖЛАНИШИНИНГ АСОСИЙ ОМИЛЛАРИ

Алимов Олимжон Давронович
корпоратив молия ва қимматли қоғозлар кафедрасининг мустақил изланувчиси
Тошкент молия институти
E-mail: alim.d.alimov@gmail.com
ORCID: 0000-0001-6133-2349

Аннотация

Ушбу мақолада Ўзбекистон Республикаси қимматли қоғозлар бозори ривожланишининг асосий омиллари келтирилган. Шу билан бирга, макроиқтисодий ва институционал омиллар аниқланган. Ўзбекистон Республикаси қимматли қоғозлар бозорининг ривожланишига асосий омиллар таъсирининг эмпирик модели келтирилган. 30 та ривожланаётган мамлакатлар учун Жаҳон банки ва Халқаро валюта фонди манбаларидаги панел маълумотлардан фойдаланилган. Натижалар шуни кўрсатадики, ялпи ички жамғармалар ва аҳоли жон бошига тўғри келадиган ялпи ички маҳсулот муҳим аҳамиятга ега ва қимматли қоғозлар бозорининг ривожланишига ижобий таъсир кўрсатмоқда.

Калит сўзлар: қимматли қоғозлар бозори, корпоратив қимматли қоғозлар, иқтисодий ўсиш, макроиқтисодий омиллар, институционал омиллар, бозор капиталлашуви, аҳоли жон бошига ялпи ички маҳсулот, инфляция даражаси, тўғридан-тўғри хорижий инвестициялар, фоиз ставкаси

INTRODUCTION

The importance of the securities market lies in its ability to reduce the cost of mobilizing savings, promoting investment in the most productive technologies, and improving the allocation of capital, allowing investment projects to be implemented with long-term payback.

The securities market provides liquidity, on the one hand allowing investors to trade financial assets with the least risk, and on the other hand providing companies with optimal access to capital. The development of the securities market directly affects the improvement of corporate governance of companies, solving the problem of relationships between business owners and managers, coordinating mutual interests and motivating managers to strive to maximize the value of companies. Moreover, developed securities markets promote international risk sharing, allowing global investment portfolios to shift from safer low-yield

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capital to riskier high-yield capital.

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LITERATURE REVIEW

Based on a review of the available theoretical literature, the key factors in the development of the securities market can be divided into two groups: (1) macroeconomic factors and (2) institutional factors, which in turn are divided into components (Table 1).

Table 1.

Key factors of the securities market*

Macroeconomic factors	Institutional factors
• Economic growth	• Legal origin
• Development of the banking sector	• Legal protection
• Inflation rate	• Corporate governance
• Interest rate	• Financial market liberalization
• Exchange rate	• Stock market integration
• Private capital	• Trade transparency

*Compiled by the author.

There is general agreement in the theoretical literature that the level of real income and its growth have a positive impact on financial market development,

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including the development of stock markets. Models that relate the level and rate of economic growth to the financial system suggest that the creation of financial intermediaries involves significant fixed costs. As the economy grows, the importance of these fixed costs decreases, allowing more people to participate in financial activities. Consequently, economic development allows more people to access financial services and products [9].

Banks perform better than stock markets in providing financial functions such as gathering information about companies, corporate governance, and sharing intertemporal risks to the economy [4].

The theoretical literature shows that higher inflation rates are associated with less liquid and smaller equity markets. This also shows that there is a non-linear relationship between inflation rates and financial market development [3].

A positive relationship between interest rates and stock prices may exist in small and illiquid stock markets and financial markets where credit flows are highly regulated [1].

Classical economic theory establishes a close relationship between stock market performance and exchange rate behavior. For example, Dornbusch and Fischer (1980) [6] show that stock market movements can be affected by exchange rate fluctuations.

There are two opposing views on the relationship between FDI and stock market development. Some studies argue that FDI is nothing more than a substitute for domestic stock market development [7], while others argue that foreign direct investment is a complement to stock markets [5].

As Pagano [12] argued, the presence of transparency and rules can influence the efficiency of stock markets. For example, mandatory disclosure of reliable information about firms can increase investor confidence and hence investor participation. Rules that increase investor confidence in brokers will also stimulate trading activity in the stock market. According to scientists, better legal protection of the interests of shareholders and creditors will contribute to the influx of investment and the availability of external financing for firms.

Several theoretical studies have documented that financial market liberalization has a positive impact on the development of the stock market. According to Henry [8], stock market liberalization is a decision by a country's government to allow foreigners to buy shares in that country's stock market. Based on the fundamental prediction of standard international asset pricing models, Henry argues that stock market liberalization allows risk to be shared between domestic and foreign investors. Consequently, the cost of equity capital of the liberalizing country will be reduced, which will contribute to the development of

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the stock market.

RESEARCH METODOLOGY

The approach adopted in this study is to model the impact of macroeconomic and institutional factors on the development of the securities market of the Republic of Uzbekistan.

Macroeconomic factors include income levels, savings and investment, banking sector development, macroeconomic stability, and private capital flows. Institutional factors include political risk, quality of bureaucracy, rule of law, corruption, and democratic accountability. A statistical description of all variables is presented in Table 2.

Cross-sections and time series are extracted to accommodate unbalanced panel data for 30 developing countries for the period 2010–2020. from data from the World Bank and the International Monetary Fund. Missing data were imputed using the average of previous periods.

The variables are defined and calculated as follows:

1. STCAP: stock market capitalization as an indicator of development (% of GDP)
2. GDP: real GDP per capita, a measure of a country's economic growth (this variable is used in natural logarithm form)
3. DMIN: domestic investment (% of GDP)
4. DMSAV: Domestic Savings (% of GDP)
5. FDI: foreign direct investment, net inflow (% of GDP)
6. DMC: domestic credit to private sector (% of GDP)
7. INF: inflation per year (%)
8. Z-Score: financial stability of the bank (default)

Institutional quality includes six World Bank governance indicators, defined as follows:

1. Anti-Corruption Control (CNCR) measures perceptions of the extent to which government power is used for personal gain;
2. Government Effectiveness (GEF) refers to the perception of the effectiveness of government services and the level of their independence from political pressure, the effectiveness of policy development and implementation, and the reliability of government commitment to such policies;
3. Political stability and absence of violence/terrorism (PLS) reflects the perception of the likelihood of political instability and/or politically motivated violence, including terrorism;
4. Regulatory Quality (RQU) measures the perception of government

competence in designing, formulating and implementing sound policies and regulations that promote private sector development;

5. Rule of law (RUL) is defined as the perception of the extent to which agents comply with the rules of society, and in particular the quality of enforcement of contracts, property rights, police and courts;

6. Voice and Accountability (VOA) is a measure of the extent to which a country's citizens have the right to choose their government, as well as freedom of expression, freedom of association, and freedom of the media.

These indicators allow the country to be assessed in the range of approximately - 2.5 to 2.5.

Table 2.

Descriptive Data Statistics*

Variable	Mean	Median	Std. deviation	Min	Max
STCAP	54,1	41,3	49,0	3,06	345,
DMIN	26,4	25,5	7,35	9,55	48,9
DMSAV	28,9	27,6	14,7	-21,7	75,5
FRI	3,57	2,56	4,22	-3,99	29,7
INF	6,08	4,07	9,31	-25,1	61,1
CNCR	-0,170	-0,366	0,754	-1,39	2,17
GEF	0,156	0,0708	0,664	-1,19	2,32
PLS	-0,365	-0,449	0,838	-2,21	1,62
RQU	0,111	0,0773	0,709	-1,73	2,26
RUL	-0,0736	-0,213	0,669	-1,45	1,87
VOA	-0,422	-0,391	0,825	-2,12	1,15
L_GDP	9,02	9,13	0,979	6,66	11,4

*Author's calculations based on collected data from the World Bank and the International Monetary Fund

Empirical model

Based on the study of Yartey (2008) [14], the calculation uses the following equation to examine the key factors in the development of the securities market in developing countries:

$$STCAP_{it} = a_0 + a_1 STCAP_{it-1} + a_2 X_{it} + n_i + \varepsilon_{it} \qquad (1)$$

This basic model is modified for testing using the example of Uzbekistan:

$$STCAP_{it} = b_0 + b_1 STCAP_{it-1} + b_2 X_{it} + b_3 DU\_X_{it}\, n_i + \varepsilon_{it} \qquad (2)$$

where STCAP is the dependent variable (securities market capitalization % of GDP); X – independent variables (macroeconomic and institutional); DU_X is a set of variables that is formed by interaction between a dummy variable (D) for Uzbekistan and the X variables; D=1, if i - Uzbekistan, otherwise D=0; i – countries; t – period; ε_{it} *– white noise.*

This study uses a two-stage system Generalized Method of Moments (GMM) to estimate the equations. Indeed, there is a serious estimation difficulty with the

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fixed effects model in the context of a dynamic panel with a lagged dependent variable ($STCAP_{it-1}$). Since ($STCAP_{it-1}$) is a function of STCAP, it is correspondingly correlated with the standard errors.

Serial correlation creates a large sample bias associated with the coefficient estimate of the lagged dependent variable that cannot be mitigated by increasing N (Nickell, 1981) [11]. If the regressors are somewhat correlated with the lagged dependent variable, their coefficients may be seriously biased. Moreover, this is especially problematic in the case of data with a small-time dimension. Cross-sectional estimates will produce bias caused by the correlation between the lagged dependent variable and unobserved individual effects, since the current value of the dependent variable itself will depend on individual effects that may disappear in samples with a larger time dimension.

An alternative is to use any type of fixed effect method that eliminates time-independent effects due to some variation (e.g., first differences, within-group transformations, etc.). By taking first differences, the individual fixed effect is removed because it does not change over time.

However, in this case, the error term will have some lags and hence will be correlated with the lagged dependent variable, resulting in biased estimates.

The instruments include suitable lags of endogenous variables and strictly exogenous regressors. This estimation method easily generates multiple instruments because by period T all previous lags can be treated as instruments separately.

Blundell and Bond (1998) [2] show that first difference estimators have high bias and low precision even in studies with large numbers of participants (N). The system GMM estimator will likely demonstrate the best performance in terms of small samples, but only if the series are moderately to highly constant and the system GMM estimator will demonstrate the least bias and the highest precision (Soto, 2009) [13].

ANALISYS OF RESULTS

This section presents the results of macroeconomic factors in the development of the securities market of the Republic of Uzbekistan. Market development is measured by market capitalization as a percentage of GDP. Since market capitalization is measured at the end of the year and GDP is measured throughout the year, there is an inventory movement issue with this metric. To address this issue, we use the average of two consecutive year-end market capitalizations to estimate the average annual value.

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In order to study the macroeconomic factors of development of the securities market of Uzbekistan, a dummy variable is created and then the relationship between the dummy variable and other variables such as economic growth, domestic investment, foreign direct investment, domestic credit, domestic savings and inflation is tested. The estimation is carried out on six models, each regression having one of six variables. Table 3 presents the results of the evaluation of the dynamic panel data.

Table 3.

Macroeconomic factors of the securities market development of the Republic of Uzbekistan*

Dependent Variable: Stock market capitalization (% of GDP)

Variable	Model 1 (GDP_U)	Model 2 (DMIN_U)	Model 3 (DMSAV_U)	Model 4 (FRI_U)	Model 5 (INF_U)	Model 6 (DMC_U)
Lag of the dependent variable	0,540***	0,556***	0,540***	0,552***	0,532***	0,577***
Logarithm of GDP	−0,019	−0,016	−0,020	−0,008	−0,020	−0,009
Inflation	−0,007***	−0,007***	−0,007***	−0,008***	−0,007***	−0,007***
Gross fixed capital formation	−0,001	−0,001	−0,001	−0,003	−0,001	−0,001
Direct foreign investments	0,008	0,007	0,008	0,006	0,007	0,006
Gross Domestic Savings	0,009***	0,008***	0,009***	0,009***	0,010***	0,008***
Domestic credit to the private sector	0,005***	0,005***	0,005***	0,005***	0,005***	0,005***
Bank default rate Z-score	−0,005*	−0,005*	−0,005*	−0,004	−0,005*	−0,004
Macroeconomic indicators of the Republic of Uzbekistan	**−0,037*** **	**−0,015*** **	**−0,024*** **	**−0,091*** **	**−0,027*** **	**−0,018*** **
Constant	1,377***	1,30***	1,382***	1,242***	1,382***	1,189***
Observations	310	310	310	310	310	310
Number of tools	63	63	63	63	63	63
Number of groups	31	31	31	31	31	31
Autocorrelation 1st order	−3,678 [0,000]	−3,677 [0,000]	−3,671 [0,000]	−3,706 [0,000]	−3,624 [0,000]	−3,697 [0,000]
Autocorrelation 2nd order	−0,203 [0,839]	−0,262 [0,793]	−0,226 [0,821]	0,0218613 [0,9826]	−0,487083 [0,6262]	−0,221 [0,824]
Sargan test	−27,686 [0,598]	27,7886 [0,5983]	27,606 [0,599]	27,651 [0,598]	27,2108 [0,5987]	27,910 [0,598]

*Note: P values are in square brackets; ***, ** and * indicate significance at 1%, 5% and 10%, respectively.*

*Author's calculations based on collected data.

All macroeconomic factors have a significant negative impact on market development. Model 1 examines the impact of economic growth (GDP) on the development of the securities market. A significantly negative economic growth coefficient means that improving economic growth cannot contribute to market development.

Models 2 and 3 examine the role of domestic investment and savings in determining market development, and the results show that the impact is significant and negative. An absolutely identical trend is reflected in model 4, where the role of foreign investment in market development is negative.

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Model 5 highlights the impact of inflation on market development, demonstrating its significant and negative relationship. Model 6 illustrates the impact of financial intermediation on market development. The high level of development of financial intermediation through lending has a significant and negative impact on the development of the securities market.

In fact, the demand for capital in the Republic of Uzbekistan is increasing, while the banking sector does not fully satisfy this need. Thus, the private sector of the Republic of Uzbekistan needs to finance investment projects and relies on raising funds from the securities market.

Table 4.

Institutional factors of the securities market development of the Republic of Uzbekistan*

Dependent Variable: Stock market capitalization (% of GDP)						
Variable	**Model 1 (CNCR)**	**Model 2 (GEF_U)**	**Model 3 (PLS_U)**	**Model 4 (RQU_U)**	**Model 5 (RUL)**	**Model 6 (VOA)**
Lag of the dependent variable	0,534***	0,542***	0,491***	0,525***	0,553***	0,534***
Logarithm of GDP	−0,050	−0,082*	0,004	−0,117***	−0,0584	−0,0234
Inflation	−0,007***	−0,005***	−0,008***	−0,004***	−0,006***	−0,007***
Gross fixed capital formation	−6,92037e-05	0,001	−0,002	−0,002	−0,0001	−0,002
Direct foreign investments	0,003	−0,001	0,009*	−0,003	0,003	0,007
Domestic credit to the private sector	0,004***	0,003***	0,006***	0,004***	0,004***	0,005***
Bank default rate Z-score	−0,005**	−0,006**	−0,004	−0,005*	−0,005*	−0,005*
Gross Domestic Savings	0,007***	0,006***	0,012***	0,009***	0,008***	0,010***
Institutional factors	0,123	0,280***	−0,085	0,255***	0,160**	0,010
Institutional factors of the Republic of Uzbekistan	0,499**	0,915	1,342	0,340***	0,487*	0,234
Constant	1,593***	2,101***	1,161**	2,378***	1,825***	1,420***
Observations	310	310	310	310	310	310
Number of tools	64	64	64	64	64	64
Number of groups	31	31	31	31	31	31
Autocorrelation 1st order	−3,712 [0,000]	−3,783 [0,000]	−3,777 [0,000]	−3,601 [0,000]	−3,704 [0,000]	−3,707 [0,000]
Autocorrelation 2nd order	−0,102 [0,918]	−0,299 [0,764]	−0,034 [0,972]	−0,325 [0,745]	−0,197 [0,843]	−0,178 [0,858]
Sargan test	28,239 [0,597]	27,881 [0,598]	27,150 [0,998]	28,835 [0,997]	28,385 [0,997]	27,263 [0,998]

*Note: P values are in square brackets; ***, ** and * indicate significance at 1%, 5% and 10%, respectively.*

* Author's calculations based on collected data.

Assessing the influence of institutional quality components on market development, the following conclusions can be drawn.

The study of the influence of institutional quality on the development of the securities market of Uzbekistan is carried out by introducing a dummy variable and

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combining it with such variables as control of corruption, government effectiveness, political stability, regulatory quality, rule of law and voting rights and accountability. These combinations generate six new variables by sequentially estimating six models, each regression of which has one of these variables.

The estimated results presented in Table 4 show that Model 1 reveals an effect of corruption control on market development, which is positive and significant and confirms their close relationship. Strengthening control over corruption, accordingly, can improve the efficiency of the securities market in Uzbekistan.

In Model 2, government efficiency is positive, but not statistically significant, and in Model 3, political stability does not have a significant impact on market development, despite its positive value.

The quality of regulation has a positive effect on market development according to Model 4, and is crucial for market development, since it reduces political risks and stimulates demand for securities. Moreover, the effect of the rule of law was significant and positive at the 10% level (Model 5), while in Model 6, voice and accountability had no effect on market development.

CONCLUSION

Thus, we can conclude that the development of the securities market of the Republic of Uzbekistan partly depends on the influence of macroeconomic and institutional factors. In particular, significant macroeconomic indicators are gross domestic savings, GDP per capita, domestic credit to the private sector and foreign direct investment, which directly affect the increase in market capitalization, increased investor confidence and the entry of local companies into the securities market.

When assessing the influence of the components of institutional quality, it should be noted that the influence of government efficiency, regulatory quality and the rule of law are significant. Building the right policies and implementing reforms has a beneficial effect on the investment climate and reduces the risks of illegal influence and interference in private property.

For the development of modern infrastructure of the local securities market, the following is relevant:

1. Integration into international capital markets, by attracting large international investment banks with their software and custodial system;

2. Strengthening regulation of published corporate information of securities market participants to reflect current data on the market state of companies and the relationship with their value;

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3. Permission for commercial banks to use financial instruments in the primary securities market, which will provide additional capital inflow.

These measures will qualitatively and quantitatively increase the trade turnover of the market, establish the necessary infrastructure and increase the attractiveness of the Uzbek market in the global financial arena.

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