THE IMPACT OF STOCK MARKET DEVELOPMENT ON ECONOMIC GROWTH IN CIS COUNTRIES

1. The proposed study aims to facilitate understanding the importance of stock market development for economic growth in CIS countries.

2. The stock markets and their infrastructures started forming in CIS countries at the 90s almost simultaneously. Moreover, the structure of the main industries in these countries was a heritage of the Soviet Union period while the stock market sector did not have the base and the creating processes were passing parallel mostly. Despite of the commonalities in forming processes, the following features significantly distinguish them: the difference of economic potentials, legislations, political systems, and the financial system maturity level. As a result, the stock markets of CIS countries having a number of commonalities acquired their specific characteristics and problems. Nowadays these markets exist at different development levels. The most developed of them are Russian and Kazakh stock markets while Turkmen and Tajik ones do not have organization structure at all. Almost all CIS countries formed their own market infrastructures. The stock market growth demands high development technologies which notably exceed an economic dynamic of these countries. As a rule, stock markets in CIS countries are highly centralized because the trading is tend to be concentrated on a single exchange.

The stock markets of CIS countries have experienced a rapid growth by the present time. Based on 2012 exchange statistic bulletin of International Association of CIS Countries Stock Exchanges, a number of companies listed on CIS exchanges accounts for 3,652 with overall market cap about 890 bln US dollars. The total trading volume over 2012 year is 376,023,8 mln US Dollars. The measures would be compared to the total number of listed on the WFE exchanges companies: 46,332 with the total market cap about 55 trln US dollars (2012 WFE Market Highlights of The World Federation of Exchanges). The contribution of the emerging markets in the global boom of capital attracting has been noted. The interest of academics and policy makers in it has grown recently. As a result, a number of studies focused on measuring the benefits of globally diversified portfolios have appeared, while many countries initiate regulatory reforms to improve the capital market development in order to attract foreign portfolio investments. Moreover, there is a little of empirical studies which cover the impact of stock market development on the long-term economic growth while none exists regarding the CIS countries.
The study would contribute to the economic policies in CIS countries and investors activities through:

• recommendations for governmental programs aimed to develop stock markets;
• data base aimed to provide financial information on publicly traded companies from CIS countries;
• data set including summary statistics of stock exchanges and the description of their structures aimed to inform potential investors about investment perspectives in CIS countries.

The contributions mentioned above would influence on the factors of resource allocation effectiveness and economic growth in CIS countries.

3. One of the financial market's key roles is the effective resource allocation between economic subjects. Based on how effectively it plays this role, the measure of its impact on a state economic growth is depended. A stock market, being the main part of financial market, contributes to this process greatly. It can influence on economic growth through the different factors.

The impact on resource allocation effectiveness and economic growth can be achieved through the following factors:

a) Financial system liquidity. Investors usually do not wish to lose a control over their savings for the long period of time. A lack of the liquid stock markets can lead to the situation when high profitable project are not enough financed. The liquid stock markets decrease the risks and costs of investments in the projects which do not pay off in the short terms. If investors deal with a liquid market, they are always able to sell off their stakes avoiding big losses. Therefore the more liquid stock markets attract investments in the more perspective projects, improving the capital allocation and the long-term economic growth potential. The main factor that influences on liquidity measure is a trading volume. It leads to liquidity increasing and therefore improving the market effectiveness.

b) Risk diversification. This is the second factor of the stock market impact on economic growth. It is found that stock markets provide the possibilities for risk diversification. The developed models show that a high risk diversification can affect economic growth via overflows of investments into the more profitable projects. Because of the tendency of high riskiness regarding profitable projects, the better risk diversification stimulates an investing in the more perspective projects. The risk diversification is the capital resource allocation between the assets with different risk levels. Therefore, an investor can decrease risks with a well-diversified portfolio. In order to effectively diverse a portfolio, it is necessary to be correctly informed about the risk levels and stock returns. These valuations and the full information
accessibility are related to the market effectiveness level. A more effective market leads to the more successful portfolio diversification, because the company stock price is going to be equal its investment value.

c) Awareness about company activities. A stock market can provide full and qualitative information about companies – stock issuers. The investor awareness level is directly related to the market effectiveness level. An intention to profit from information stimulates investors to select and analyze the information about company activities thoroughly. If investors buy and sell stocks based on such information they lead stock prices to their investment value. A more effective market makes investors to analyze the obtained information in more detail in order to gain an advantage over other market participants. Therefore improving stock market effectiveness means increasing information awareness of its participants that finally leads to the better resource allocation and make the premises to economic growth.

d) Savings mobilization. Considering the impact of stock market on capital attracting conditions, it is found that big, liquid and effective markets lead to the simpler resource mobilization. The stock markets increase a number of investment projects by consolidating savings. Some high profitable projects demand big investments and stock markets provide resource mobilization, decrease the cost of capital and create the conditions for the long-term economic growth. As a rule companies based in developing CIS countries do not use credit organization services to attract capital preferring the stock markets.

e) Corporate governance. This is a mechanism used by investors to guarantee the safety of their investments. The corporate governance mechanisms in CIS countries are not developed enough nowadays. One of the reasons of crisis in 1998 year could be the violations of these mechanisms. The main problem is an “arrogating” the financial resources by management. This is the case when management tends to satisfy its own interests, not shareholders. It can be explained with the free cash flow (FCF) theory that proves that management usually reinvests FCF than pay out dividends to its shareholders. The stock market influences on corporate governance via the following factors: 1) providing a relationship between management and shareholders returns and 2) ensuring a change of management through the merger and acquisition mechanisms. It means that the developed stock market connects the effectiveness of management actions and shareholders' returns. In addition investors can always track the management effectiveness via current stock prices.
The impact of stock market development on corporate governance through a mitigating the principal-agent problems is noted in some studies. For example, it is found that the stock markets help to tie management compensations to the stock returns providing an alignment of the interests of managers and stockholders.\textsuperscript{1}

The positive role of liquid stock markets and their influence on a potential investments size via the common stock issuing is also emphasized. If investors deal with high liquid stock markets they tend to use the common stocks as the main tool for investing. Therefore companies are motivated to go to public for financing their activities.\textsuperscript{2,3}

It is shown that internationally-integrated stock markets contribute to sharing the risks through a resource allocation diversification that leads to an increase of the economic growth rate.\textsuperscript{4}

Moreover the well-developed stock markets can lower the cost of savings mobilization and thereby facilitate an investment in the most productive technologies.\textsuperscript{5}

The Granger-causality tests suggest a strong relationship between stock market activity and the future economic growth in the low and lower middle income countries while it is not related to the higher income countries with the more developed alternative financial mechanisms. Moreover the impact of increased equity market activity on growth in developing economies is not indicated. The reason would be a lack of proper institutional framework (corruption or government interference in financial markets) that hampers the ability of these markets to function.\textsuperscript{6}

In addition, the impact of stock market development on economic growth is discovered in a sample of 14 countries with a dynamic panel data model setting. The study suggests a positive influence of stock market development on economic growth for the countries with upper middle income ranges and indicates a need to grow more and develop their markets to achieve economic gains from stock markets for the low income countries.\textsuperscript{7}

Another study uses a vector autoregressive (VAR) framework based on the endogenous growth model to determine the relationship between stock market, investments and economic growth. A sample consists of four countries (Chile, Malaysia, Philippines and South Korea) covering the period from 1971:Q1 to 1998:Q4. The ratio of market capitalization to GDP and ratio of value-traded to GDP are used as the stock market variables. The significance of causality between stock market components, investment and economic growth is noted in the line with endogenous growth model.\textsuperscript{8}
Foreign portfolio investments in emerging markets over 20 year period are analyzed in order to find the relationship between stock market growth, financial liberalization and economic growth. It is found that these factors stimulate the stock markets growth in emerging markets.  

A strong and positive correlation between stock market development and economic growth is discovered for 24 advanced OECD countries over the period from 1988 to 2002 years. It is also found that stock markets usually emerge and start developing in reasonable sized economies with a high level of capital accumulation.  

In France, a causal relationship between stock market development and economic growth for the period from 1965 to 2007 years using a vector error correction (VEC) model is also analyzed. It is found that economic growth causes stock market development in the country. It means that economic growth affects positively stock market development while interest rate has a negative effect on this process.  

A complex relationship between stock market development, bank development and economic growth for 27 developing countries over the period from 1991 to 2007 years using rigorous panel VAR procedures is examined. The results show that stock market development is an important factor for growth, but banking development contributes to growth more.  

Another example is Germany where the long-run relationship between stock market development and economic growth for the period from 1965 to 2007 years with the Johansen co-integration analysis and a VES model based on the classical unit roots tests is studied. The results of Granger causality tests indicate a unidirectional causality between stock market development and economic growth with the direction to the last.  

The stock market development and economic growth in Nigeria from 1990:Q1 to 2009:Q4 are studied using co-integration and vector error correction method. The indicators used to indicate the stock market development in the country are significant and positively related to economic growth. It is noted that the simplified trading promotes investments, facilitate efficient capital allocation and stimulate the long-term economic growth. The study also suggests that stock market liquidity fosters economic growth.  

The causality relationship between stock market and economic growth based on the time series data is studied in 5 Euronext countries (Belgium, France, Portugal, Netherlands and United Kingdom) over the period from 1995:Q1 to 2008:Q4. The results suggest a positive relationship between stock market and
economic growth for the countries with the liquid and highly active stock markets while it is not related to the countries with the small and less liquid stock markets.\textsuperscript{15}

Another evidence of the causal relationship between stock market development and economic growth arises from Nepal over the period from 1994 to 2011 years. Unit root test, co-integration and VEC models plus NEPSE composite index as an indicator of stock market development are used in the analysis. The results suggest that the stock market development significantly contributes to the country economic growth.\textsuperscript{16}

4. As the results from different CIS countries are going to be compared a data consistency is demanded because some stock exchanges count as a turnover only those transactions that pass through their trading systems while others include all transactions that are a subject to supervision by the market authority including those that take place off-market. In order to make data consistent, the data from the International Finance Corporation (IFC 2013 and earlier editions) is proposed for an analysis. The growth rates and per capita GDP are going to be obtained from International Monetary Fund’s International Financial Statistics (various years). The consistent data for the exchanges from 9 CIS countries for the time period beginning in 1992 and ending in 2013 is going to be analyzed. The covered countries and their exchanges are following - Armenia (NASDAQ OMX Armenia), Azerbaijan (BBVB), Belarus (BCSE), Kazakhstan (KASE), Kyrgyzstan (KSE), Moldova (MOLDSE), Russia (MSE), Uzbekistan (UZSE) and Ukraine (UKRSE).

The stock market development is measured by the following variables:

a) market capitalization over GDP;

b) turnover velocity;

c) change in a number of listed domestic shares.

The reported results interpretation is particularly challenging because efficient markets tend to reflect the future earnings growth in current prices. As earnings growth is related to the overall economic growth, it is critical to get the market development indicators which are independent of stock prices. Based on the fact that the market reallocates capital to the most productive subject, the best indicator of it would be a turnover velocity (the ratio of turnover to market capitalization). Finally, financial deepening is examined through an annual percentage increase in the number of listed companies.
It seems that the impact of stock market development on economic growth would vary across the countries development levels. The causal relationship estimates for studied CIS countries are going to be divided into two groups according to their per capita income. Given that financial markets promote growth it would be better if they are not distorted by government policy. It is reasonable to calculate an indicator of financial market freedom based on the Heritage Foundation 2013 Index of Economic Freedom. The CIS countries are grouped according to their score on the three aspects of economic freedom most closely related to financial markets: capital flows, foreign investment and banking. The countries are also grouped based on a share of domestic credit provided by the banking sector as a percentage of GDP based on the data from the World Bank (2013).

The sample statistics for the key variables, full sample and the income and financial market freedom subgroups is proposed.

Granger causality tests are estimated based on two equations:

\[
Y_t = \alpha_0 + \sum_{i=1}^{k_1} \alpha_i Y_{t-i} + \sum_{i=1}^{k_2} \beta_i X_{t-i} + \varepsilon_t
\]

\[
X_t = \gamma_0 + \sum_{i=1}^{k_3} \gamma_i Y_{t-i} + \sum_{i=1}^{k_4} \delta_i X_{t-i} + \nu_t
\]

where \(X\) is stock market development indicator, \(Y\) is economic growth and the subscripts \(t\) and \(t-i\) denote the current and lagged values. It is suggested searching over the lag lengths (\(k_1\) to \(k_4\)) and applying an information criterion to determine the optimal length of the lag structure. Three most common choices of information criteria would be used but it is found that more than one lag in either \(X\) or \(Y\) is never optimal.

An existence of lagged values of a dependent variable on the right-hand side of equations 1 and 2 in a dynamic panel data framework can lead to inconsistent parameter estimates unless the time dimension of the panel is very large. It is proposed to use twice-lagged levels of the right-hand side variables as instruments. An alternative approach employing the direct calculation of biases and correcting of least squares estimates is suggested.
In the case of CIS countries the balanced panel would result in a considerable loss of data since emerging markets necessarily emerged to the point where data were available at different times.

The simulation results showing that bias problems are almost entirely concentrated in the coefficient on the lagged dependent variables, while biases in the coefficients of independent variables: beta and delta in Equations 1 and 2 are relatively small and cannot be used to distinguish between the estimators including OLS considering the complications and efficiency loss imposed by attempting to correct for bias in estimates of the coefficients in Equations 1 and 2 arising from the dynamic panel nature of the data. Given there is not an interest in the point estimates of these coefficients, that any biases that exist apparently work against finding significant causality, and that correction for biases would result in a significant loss of efficiency that would do more damage to a search for causal relationships than a relative small coefficient bias, bias corrections in the results that follow are ignored.

The next perspective of the study is a forming data base of publicly traded companies from CIS countries that contains the following items: company name in local and English languages, exchange name and ticker, industry group, country, broad group, sub group, sector beta, levered beta, beta, country enterprise resource planning (ERP), cost of equity, total default spread for cost of debt (company + country), pre-and after-tax cost of debt, cost of capital, market capitalization, present value of lease debt, total debt, total debt and leases, firm value, cash, enterprise value, cash/firm value, liquidity ratio (daily trading volume/shares outstanding), book debt to capital ratio, market debt to capital ratio, book debt to equity ratio, market debt to equity ratio, stock price as of Dec, 31 2013, correlation with market, standard deviation in stock price, interest coverage ratio, current, trailing and forward price to earnings ratios (P/Es), P/E to growth ratio (PEG), price to book value ratio, price to sales ratio, enterprise value (EV) to EBIT ratio, EV to EBITDA ratio, EV to invested capital ratio, EV to sales ratio, payout ratio, divided yield, historical growth in net income over last 3 and 5years, historical growth in revenues over last 3 and 5 years, return on equity (ROE), return on capital (ROC), net profit margin, pre-tax operating margin, effective tax rate, percent held by institutions, net income, trailing net income, operating income, revenues, trailing revenues, EBITDA, trailing EBITDA, net debt, reinvestment rate, free cash flows, current book value of equity, current invested capital, dividends, average 10 year net operating income, country marginal tax rate.
The third perspective is a summary statistics of stock markets (exchanges) in CIS countries. The proposed sources of information are stock exchange reports and Federation of Euro-Asian Stock Exchanges (FEAS) bulletins for the latest available data. The measures of market capitalization in USD mil, number of companies, total volume of stocks in USD mil and total volume of bonds are going to be provided over 10 year period.

The market structures of studied exchanges are also to be provided and compared.

The following categories are included:

Panel A (Trading Mechanisms in CIS stock exchanges): trading days, trading hours, market segmentation, system, mechanisms, market maker/specialist, instruments, currency, real time information.


5.


6. No alternative/additional financing sources are envisaged. The proposed study is not related to workplaces.

7. Schedule:

The first stage (casual relationship between stock market and economic growth in CIS countries): by September, 2014.

The second stage (data base of financial parameters and measures for publicly traded companies based in CIS countries): by January, 2014.

The third stage (data set on stock markets (exchanges) based in CIS countries): by October, 2014.