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Challenges for the Eurasian Economic Union Stock Markets: Analytical Approach

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ABSTRACT

Strengthening cooperation of the Eurasian Economic Union member-countries is the best solution to mitigate trade wars, unfair competition and worsening of international economic relations. The article reveals the significant correlation of the stock indices based on the analysis of the Eurasian Economic Union (EAEU) stock markets. The objective of the article is to introduce recommendations aimed at optimising cooperation of EAEU member-states and expanding their interaction in the financial sphere. Bloomberg data for 2000–2017 together with Excel tools have been used which allowed to prove the hypothesis of interdependence between the most developed stock markets: Moscow and Kazakhstan. The graphical analysis of the research has showed that a correlation between the indicators of these stock trading floors appeared in 2008, when the effects of the global financial and economic crisis were being overcome. There was no interdependence between the indices of the Moscow and Kazakhstan marketplaces until 2007. The research has showed that the EAEU stock market indices depend significantly on the production of raw materials and commodity prices. In the conditions of the financial relations development, the EAEU has proposed to use the world experience of strengthening the economic cooperation of European countries and their methods to overcome the crisis phenomena of the 1950s. The EAEU has to harmonize financial policies and financial relations, simplify entrepreneur access to lending, improve tax breaks for exporters of manufactured goods and grant subsidies to new sectors of the economy. The European experience can help the EAEU to overcome difficulties and solve cooperation problems.

Keywords: Eurasian Economic Union; stock market; indices; economic cooperation

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Вызовы фондовых рынков Евразийского экономического союза: аналитический подход

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АННОТАЦИЯ

Укрепление сотрудничества стран Евразийского экономического союза — лучшее решение для смягчения последствий торговых войн, недобросовестной конкуренции и ухудшения международных экономических отношений. В статье представлены результаты анализа индексов фондовых рынков Евразийского экономического союза (ЕАЭС), на базе которых выявлена их значительная корреляция. Цель статьи — разработка рекомендаций, направленных на оптимизацию сотрудничества стран — членов ЕАЭС и расширение взаимодействия сторон в финансовой сфере. Использованы данные Bloomberg за период 2000–2017 гг. и технология Excel, что позволило на базе публикуемых индексов торговых площадок ЕАЭС подтвердить гипотезу о взаимозависимости наиболее развитых фондовых рынков: московского и казахстанского. Графический анализ исследования показал, что корреляция показателей указанных

торговых площадок возникла в 2008 г. — в период преодоления последствий глобального финансово-экономического кризиса. До 2007 г. взаимозависимости индексов московской и казахстанской торговых площадок не наблюдалось. Проведенное исследование показало, что индексы фондовых рынков ЕАЭС в значительной степени зависят от производства сырья и цен на сырьевые товары. В условиях развития финансовых отношений ЕАЭС предложено использовать мировой опыт укрепления экономического сотрудничества европейских стран и методы преодоления ими кризисных явлений 50-х гг. XX в. ЕАЭС необходима гармонизация финансовой политики и финансовых отношений, упрощение доступа предпринимателей к кредитованию, совершенствование налоговых льгот экспортерам промышленных товаров и порядка предоставления субсидий новым отраслям экономики. Использование европейского опыта в ЕАЭС может способствовать преодолению проблем и решению задач сотрудничества.
Ключевые слова: Евразийский экономический союз; фондовый рынок; индексы; экономическое сотрудничество

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INTRODUCTION

When establishing the Eurasian Economic Union, the member-states had simple and noble aims. They joined forces, their knowledge and capabilities to protect their sovereignty and independence more efficiently, to strengthen their roles international and global affairs, and to foster their internal economic, political and social development based on mutual respect and recognition of the specificities. These are legitimate, fair and logical tasks, compatible with the aims and principles of contemporary international law. Member-countries have proved that it is possible to achieve these goals. Coordination of efforts, activities and policies of the member-countries on a many issues has had a positive impact on the international economy and finance. However, the results could have been more impressive if the cooperation of the members of the Eurasian Economic Union were stronger.

Today, the Eurasian Economic Union is an economic union consisting of the following states: Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia. The treaty came into force on the 1st January 2015. This Union provides a single market for the 183 million inhabitants of the countries. This region has a gross domestic product of $ 4 trillion according to The World Bank. The single market provides free movement of goods, capital, services and people. It also allows each member to use common policies for their macroeconomic sectors such as transport, industry, technical regulation, agricultural, energy, foreign trade and investment and competition.

Provisions for a single currency and greater integration are envisioned for the future [1]. The daily work of the Union is performed by the Eurasian Economic Commission, similar to the European Commission. The main objective of the Union is to establish economic development between the countries. The great attention is paid to the stock markets and the possible alliances.

According to the experience, development of companies exporting and importing their goods and services to and from of the Eurasian Economic Union countries is the basis for the mutual influence of these countries stock indices. Therefore, we have started with the dynamics assessment of the trade volumes between the EAEU countries and researched how the macroeconomic indicator has changed. Then we compared the stock indices of Russia, Armenia, Belarus, Kazakhstan and Kyrgyzstan. We have started from the year of 2000.This year preceded the creation of the Eurasian Economic Community. Even though Armenia was first not included in the EAEC, we have mentioned it in our statistics. Armenia has the status of the observer from 2003. We wanted to make the statistics more representative. We chose 2017 as the last year for the statistics. The research considers the trade turnover of goods and services between all five EAEU countries. If the data is available, the indices of 2018 will also be presented.

Since there is no data available on the Armenian, Belarus and Kyrgyzstan stock markets, the research paper contains the data of the last two countries; the analysis of one minor Eurasian stock market the KASE (Kazakhstan Stock Exchange, Kazakhstan) and one major stock market the MCX (Moscow). Strengthening relations between the stock markets is important for some reasons. The relationship can have both positive and negative effects on fiscal and monetary policies. According to Gavin, a fast developing stock market can have positive effect on total demand [2]. This proves the relevance of this research.

The two neighbour countries have high trade level with each one another. Russia is the second largest receiver of exports from Kazakhstan consisting of 11.8% while Kazakhstan is the 10th largest receiver of exports from Russia consisting of 3.1%. Furthermore, the market capital size of the MCX index is reported by Bloomberg to be $ 9.97 trillion, while the KASE index (KZKAK: IND) is $ 346.59 billion. It suggests that the MCX is the major index while KASE is the minor index. The study has been conducted to establish the

relationship between the two countries and their interdependence of one another. The stock markets have been compared along with the major groups in each market to understand the structure of the indices and to explain a high correlation between the two markets.

The project begins with a brief literature review to identify previous researches conducted in this area followed by the methodology. Then, there is a graphical analysis containing a detailed analysis of the Eurasian markets. It is followed by a separate external analysis that has used a European and United States index to find external impacts on the Eurasian markets. Further, the calculations have been presented, an economic recommendation for the non-developed markets of Armenian, Belarus and Kyrgyzstan followed by the conclusion.

LITERATURE REVIEW

Researchers, Jochum, Kirchgassner and Platek performed a study on the consequences of the financial crisis of 1998 relating to the Eastern European stock markets, including Russia (ROS). They concluded that there was a striking difference between the stock markets of Eastern Europe and Asian economies. The research has revealed that this happened due to significant influence from political and economic shifts in Russia.

When investigating the volatility of eastern European countries, Rockinger and Urga used stock markets of the Czech Republic (PX50), Poland (WIG), Hungary (BUX) and Russia (ROS) [3]. They used a comparative analysis with FTSE 100 of the United Kingdom as a benchmark. They found out that shocks in FTSE 100 were mostly positively related to the markets in the Czech Republic and Poland. The shocks were not responsive to the Russian or Hungarian markets.

In a more recent study, the long relationship between the stock markets using daily data of the US (S&P), Germany (DAX), Russia (MCX), Hungary (BUX), Czech Republic (PI50) and Poland (WIG) was conducted by Yang, Hsiao, Li and Wang [4]. This study concentrated on the Russian crisis of 1998, where the results showed strengthening of the Russian market afterwards.

A favourable exchange rate can be the cause of increased exports out of a country. Economic theory suggests that when one country exchange rate declines in value against the currency of another country, this may increase the demand for goods from a country with the weakening currency. Therefore, as exports increase, higher revenue intake from exporting companies may reflect higher stock trends due to stronger balance sheet performances. Neih and Lee have explained that exchange rates and stock markets can play an important role in the development of an economy [5]. In case of Russian economy, ruble suffered two major weakening in 2008 and 2014. There exists an argument that external forces were the major factor of this decline as the foreign sanctions had caused a decrease in Russian oil exports. It increased domestic goods prices and declined the country's GDP [6]. Although this study may reveal some interesting developments, it should be noted that some economists have found out that there is no significant relationship between exchange rates and equity prices [7]. Therefore, the exchange rates for each country ought to be excluded from this analysis.

There are many studies available that have previously observed the stock markets of the Eastern European countries and Russia. However, a gap remains in the research of the stock markets of Eurasian countries. As there is no available information for Belarus, this research has focused primarily on the Russian stock market (MCX) and the Kazakh stock market (KASE).

METHODOLOGY

The collected data consist of daily data of the prices on the internal study of Kazakhstan (KASE) and Moscow (MCX) stock indices and include an external study of the German (DAX), United Stated (S&P500) stock indices. The daily data belong to the period of 12 July, 2000 (when the Kazakh stock market started), to November 2017. The combination of the Bloomberg data and the data pooled by Excel tools has produced the most accurate and correct results.

The initial equation for the study is as follows:

$$MCX = \beta_0 + \beta_1 \times KASE + \varepsilon_t. \quad (1)$$

Where:

$\varepsilon = Error\ Term$.

$t = Time\ Series\ Daily\ Data$.

Each variable has been concluded to be stationary in returns. Hence, an Ordinary Least Squares (OLS) regression has not been adequate due to the use of data in levels.

Testing of the hypothesis:

To prove that there is interdependence between the Moscow stock market as the major index and the Kazakh stock market as the minor index*. To prove that this statement is correct, the following condition should be satisfied, where a correlation:

But: Corr (M, K) > 0.7

0.7 is taken as correlation, if the figure above can be deemed to have a strong uphill (positive) linear relationship.

* Sberbank. Credit Ratings. 2017. URL: http://www.sberbank.com/investor-relations/debt-profile/credit-ratings (accessed 16.08.2018).

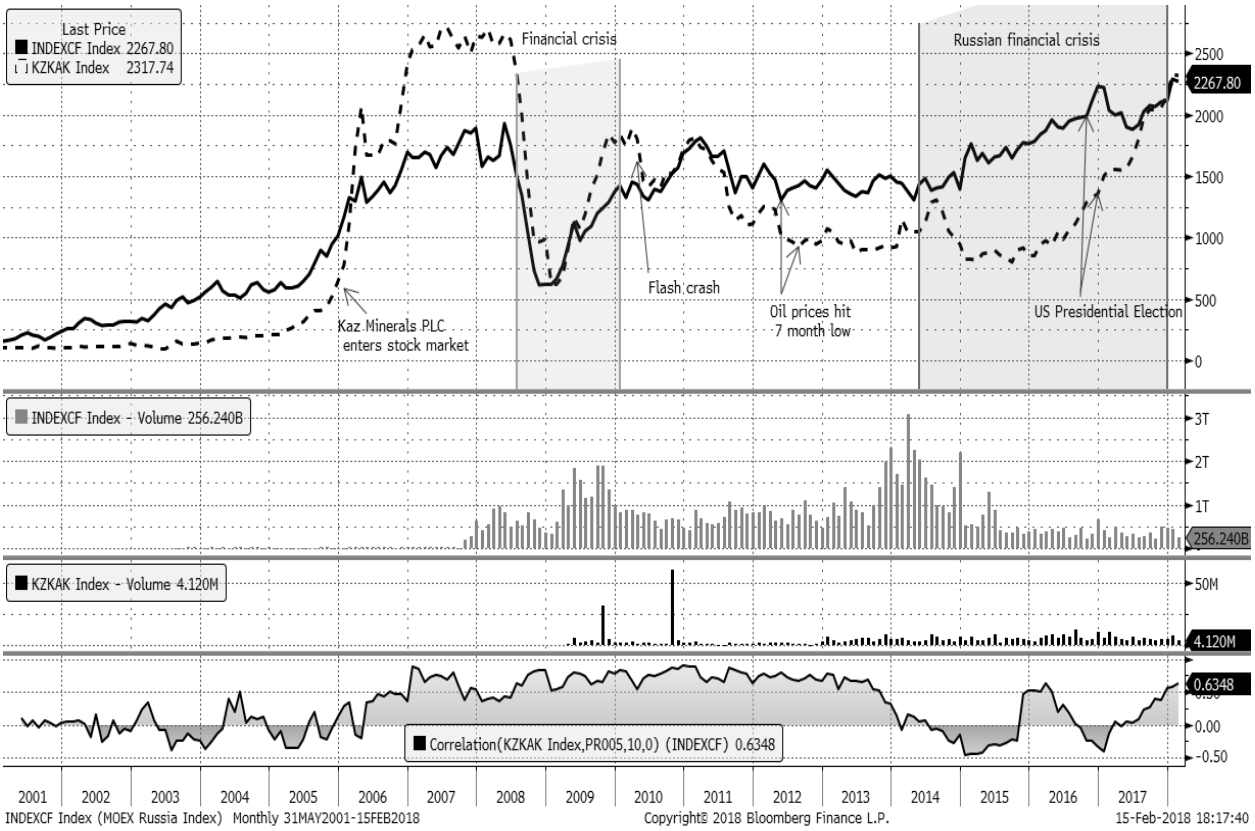

Fig. 1. **Values (prices), traded volumes, the correlation coefficient of Moscow and Kazak stock indices**
Source: Bloomberg terminal.

GRAPHICAL ANALYSIS: INTERNAL ANALYSIS

The first step is to interpret and analyse the graphs used for identifying the behaviour and trends of the data during the chosen period. Graphs are good to get the general idea of data behaviour. Bloomberg provides several types of graphs to identify facts faster and in a more logical way. As the most suitable tool for this kind of data, this research consists of line charts alone (*Fig. 1*).

We have started with the stock indices that are the primary focus othe study between Russia (MCX) in solid and Kazakhstan (KASE) in the long dash. It is clear, that the markets are independent of one another until mid-2016. The major factor of this is the significant fact that the KASE index only consisted of seven company groups before 2006. The initial acceleration of the KASE index is a result of the inclusion of a new group, KAZ Minerals PLC, that now accounts 41.09% of the weighted share of the index (*Tabl. 1*). The indices were at high levels from 2006 until the beginning of the Great Recession in 2008. The high levels corresponded to the global stock markets that went up before their eventual collapse. The global recession had a contagion effect, evident in the North stock markets. In this period, there was a decline in MCX by 73.74% and the KASE by 78.28% as investors lost faith in the markets. After this period, the two indexes remained highly correlated as can be seen in *Figure 1*.

The Flash Crash of 2010 indicated on the above graph is an event that affected stock markets across the world, starting with the US markets. The event had a substantial impact on both the MCX reducing its value by 20% and the KASE by 29.45% [8].

Another significant drop of both indices was hitting lows on 25 May, 2012, when the price of oil hit a 7-month low, two days before [9]. The MCX dropped by 22.94% and the KASE dropped by 23.15% during this period.

The movement of the stock markets from the beginning of the Ukrainian political crisis in February 2014 followed by the sanctions in the beginning of March is of further interest. The events and sanctions of this period have had a long-term impact.

The final peak in each variable on 8 November, 2016, was the response to the result of Trump's victory at the US presidential election. The election result was a response to the potential softening of relations between the US and Russia. It caused the MCX increase by 14.48% and the KASE by 21.23%. Eventually, the optimism seized with the MCX declining in January

Table 1

The industrial structure of the KASE index

Sector	Mining	Oil	Banking	Communications	Electricity
Weight of shares (%)	41.09	21.66	14.24	16.57	6.45

Source: Bloomberg Terminal.

Table 2

The industrial structure of the MCX

Sector	Mining	Oil	Finance	Communications	Retail	Steel	Electricity
Weight of shares (%)	10.23	43.35	20.25	5.23	7.73	3.78	3.3
Sector	Transport	Beverages	Chemical	Construction	Conglomerate	Manufacturing	Agriculture
Weight of shares (%)	2.12	0.88	0.99	0.95	0.44	0.53	0.22

Source: Moscow Stock Exchange.

Table 3

Correlations of price movements

Kazakhstan Groups \ Russian Groups	Nornickel	Gazprom	Sberbank
KAZ Minerals	–0.1124		
KAZ MunaiGas		0.4082	
Halyuk Savings Bank			0.7183

Source: Bloomberg Terminal. Data processed by use of Excel.

2017 and the KASE remained stagnant. Both indexes reacted positively to the election.

The figure above shows the information retrieved from Bloomberg, containing the members of the KASE index. It has revealed interesting facts that help to determine the movements of the stock market. The most interesting fact is that 21.66% of the stock market share depends on oil companies that are mostly privately owned. With the inclusion of the copper mining company Kaz Minerals, the total weight for companies involved in the production of raw materials is 62.75%. This statistic reflects how changes in oil or copper prices impact on the movement of the KASE index, before considering macroeconomic reasons.

Today, the MCX is made up by 50 companies. We present the division of the index by industrial sectors in *Table 2*.

This information has been retrieved from the Moscow Stock Exchange, which released this data on 22 September, 2017 (Moscow Exchange, 2017). From the groups listed above, oil-based groups represent 43.35% of the index. In February 2017, Russia was suggested to be the biggest oil producer in the world [10]. Including the mining industries, this figure further increased to 55.06% of the market weight. This figure was just below 20% of the KASE index but still represented a strong dependence on the production of raw materials where the price changes in commodities might impact the movement of the market.

For relevance, it is important to find the relationship between the largest groups in each index and to compare them by correlation using Excel (*Tabl. 3*). Three largest sectors in each index are oil, finance (banking) and mining. Therefore, the three largest companies in each sector of each index have been used in a comparative study. These companies are the Kazakh mining company KAZ Minerals PLC and Russian Mining company Nornickel, Kazakh oil and

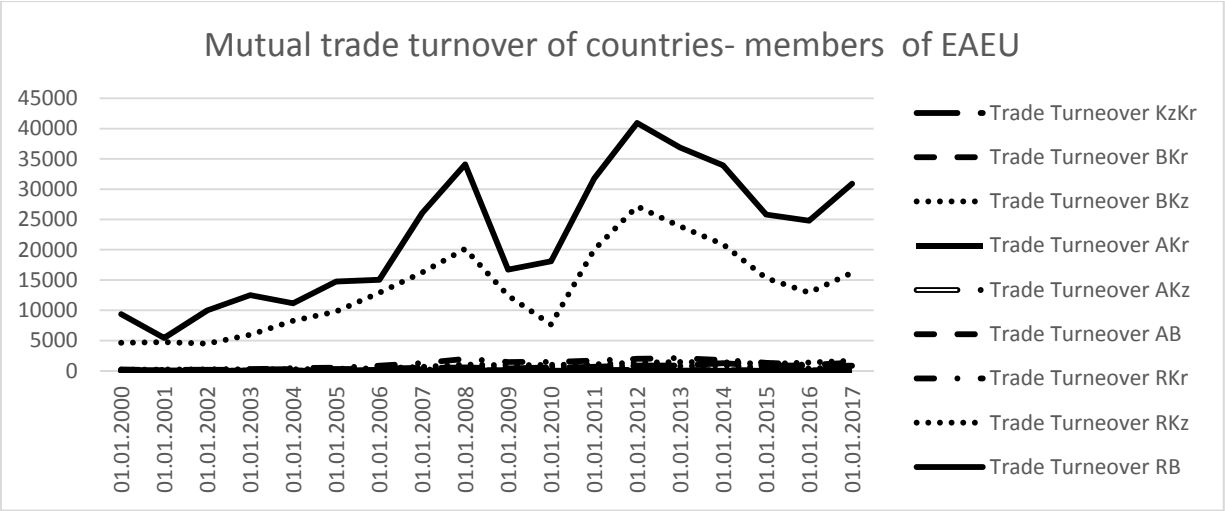

Fig. 2. **Mutual trade turnover of EAEU member-countries**

Source: the authors' calculations based on the Bloomberg data and analytics system. The date of the reference is 01.09.2018.

gas company KAZ MunaiGas and Russian oils and gas company Gazprom, Kazakh banking group Halyuk Savings Bank and Russian banking group Sberbank. It is important that the companies rely on each another. The table below represents the correlation results of the company's price movements from major industrial groups, followed by the analysis.

First, the mining companies KAZ Minerals from the KASE index and Nornickel from the MCX index have been analyzed. As it can be seen from the table, the two groups have a negative correlation. It can be determined by the fact that KAZ minerals is a copper mining operation, while Nornickel is predominately a nickel and palladium mining operation. Although they are in the same operating sector, both companies most likely rely on the price movements of their relevant metal markets for revenue. It explains the negative correlation between these two groups' stock prices.

The second correlation concerns the oil industry. It features KAZ MunaiGas from the KASE and Gazprom from the MCX. The two groups have a moderately positive relationship. It is a consequence of the fact that they both produce oil and gas to the same markets. The reason why they are not as positively correlated as expected may be that each company has different contracts with different countries.

The final correlation is in the banking sector. The groups include Halyuk Savings bank from the KASE index and Sberbank from the MCX. The banks are shown to have a strong linear relationship. The reasoning for this strong correlation can begin by observing the banks credit ratings by the credit agencies. The Halyuk bank has a BB rating, while the Sberbank rating is Ba1. Both ratings fall in the speculative grade with nothing dividing them. It suggests that the investors have no incentives to pick one over the other, regarding a return, which may be the cause for their relatively close price movements.

From this analysis, we have concluded that the largest mining companies are negatively correlated as they produce different raw materials. The two largest oil and gas companies from each market are moderately correlated as they produce the same outputs. The two largest banking groups are strongly correlated as they have the same credit ratings which make them inseparable to each other for investors.

GRAPHICAL ANALYSIS: EXTERNAL ANALYSIS

Our external analyses consider the trade turnover of goods and services of all five member-countries. The graphical result of this study is shown in *Fig. 2*.

Where abbreviation of KzKr means Kazakhstan-Kyrgyzstan, BKr means Belarus-Kyrgyzstan, A means Armenia, R means Russia.

Due to the great difference in the turnovers of the countries (in millions of the US dollars), it is reasonable to consider in one graph only relatively close to each other countries indicators. Thus, the group of RKz and RB trade turnovers has been received (*Fig. 3*).

As it is clear from the figure above, the dynamics of mutual trade between Russia and Kazakhstan, Russia and Belarus was almost the same with a slight difference in magnitude. There are two declines caused by the crisis of 2008 and the introduction of the anti-Russian sanctions in 2014. There is a certain time lag. The EAEU foundation can explain the further rise of considered indicators, but the number of the observations is insufficient for such a conclusion.

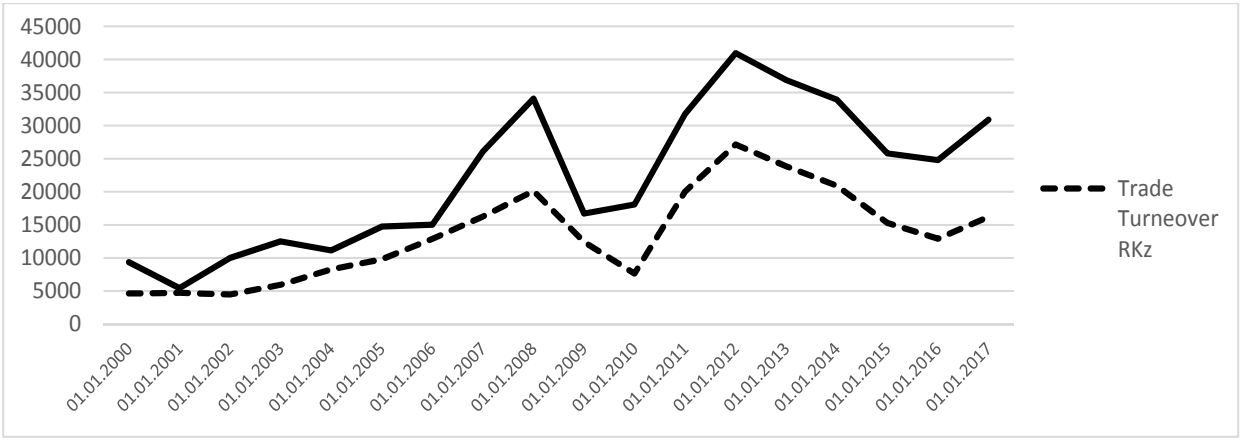

Fig. 3. **The highest trade turnover for the group of countries (mln, $)**

Source: the authors' calculations based on the Bloomberg data and analytics system. The date of the reference is 01.09.2018.

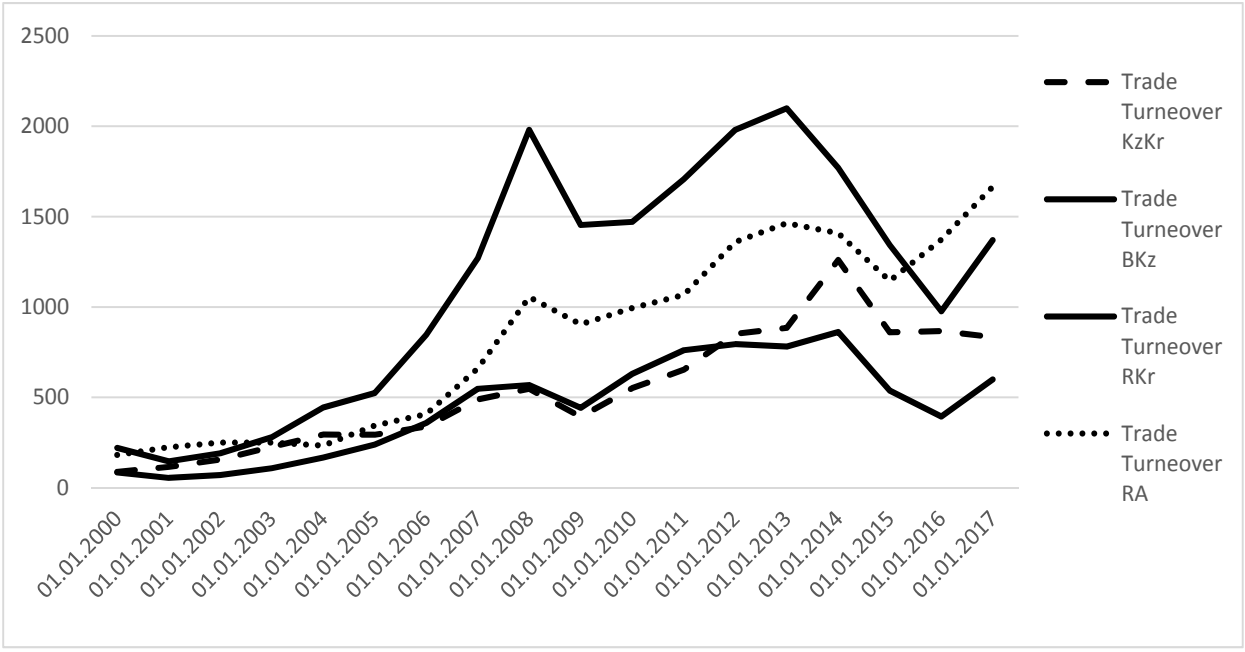

Fig. 4. **The second trade turnover for the group of countries (mln, $)**

Source: the authors' calculations based on the Bloomberg data and analytics system. The date of the reference is 01.09.2018.

Another group of interest is a group, consisting of figures of trade turnover between Kazakhstan and Kyrgyzstan, Belarus and Kazakhstan, Russia and Kyrgyzstan, Russia and Armenia (*Fig. 4*).

The graph shows the same interdependence, the rises and falls and the value growth in the last two years. It is only the relationship between Kazakhstan and Kyrgyzstan that lacks the tendency. As for the turnovers between Armenia and Kyrgyzstan, Armenia and Kazakhstan, there was no correlation in their development.

A position in the list of trading partners has a big growth potential. It is only Russia that holds the first places in its partners' list (except Kyrgyzstan, where Russia is the second in the list). The other countries are on third, or even seventieth places in their trading partners' lists (Kyrgyzstan is the 76th partner for Armenia; Armenia is 80th in the list for Kazakhstan). Of course, it can be partly explained by the size of the countries' economies. However, the positions were higher in previous years.

All indicators show the need for closer cooperation, recovery of the companies' integration level that will lead to a deeper stock indices correlation of the EAEU member-countries.

The analysis of the Eurasian indexes including the two indices from the USA (S&P500) and Germany (DAX) focuses on the events which caused large movements in the external markets and determines if they had a contagion effect on the Eurasian markets. *Figure 5* shows

the MCX in solid line and the S&P500 in long dash line. First, the MCX index had greater fluctuations compared to the S&P while they were heavily correlated at all times. As seen in the first shaded area of the solid lanes graph on the upper screen of *Fig. 5*, the S&P is on a downward trend reflecting the crash of the dot-com bubble, when the stock markets in the US suffered from excessive speculation due to the extreme internet development. The MCX was not affected by this event since it included a few technological companies. It continued going up while the S&P was declining.

Both indices were affected by the financial crisis, which began with the collapse of the Lehman Brothers in September 2008. Initially, the MCX had been on a downward trend before the crisis caused the S&P collapse. This situation is reflected in the second shaded area of the upper screen in *Fig. 5*.

Some economists have determined the recent strong upward trend in the S&P by the American companies buying back their own stock as the borrowing costs were ultra-low [11]. The figure reported from the shares buyback was about $ 4 trillion [12]. It was not the same for the MCX as some of the groups were predominantly state-owned and the borrowing costs were not as cheap. Therefore, it is difficult to analyse the data.

Figure 6 shows the KASE index in solid line and the S&P in long dash line. It is clear that the KASE index was not affected by the dot-com crash as it is a relatively new index and had no technological companies listed on their index. Before the financial crisis, the indices were negatively correlated. This changed, however, as both indexes decreased significantly with global indexes during the financial crisis. The shocks and highs of each index did not follow the significant trend. Except the beginning of 2016, when both indexes fell down due to a drop in Chinese equities and oil prices at 12-year lows [13].

Fig. 7 displays the MCX index in solid and the DAX index in the long dash. The both indices had a similar trend. Their correlation was high throughout the entire period. Similarly, the dot-com crash was observed at the beginning of the period with the DAX in a downward trend and the MCX remaining largely unaffected.

Fears of the US recession (Landler and Timmons, 2008) caused a shock in both indexes in January 2008, before the ultimate decline of both markets which had a greater impact on the DAX. It caused the MCX drop by 18.49% and the DAX by 20.18%.

After the financial crisis, both indices were gradually increasing before they both were impacted by the European sovereign debt crisis. The credit rating agencies then warned about the downgrade of credit ratings in 15 European countries [14]. The MCX dropped by 17.25% and the DAX by 23.57%.

The next significant drop that affected both markets took place in October 2014. As the fears were growing with the falling inflation and disappointing US economic data, the shares were falling across the EU and the US [15]. Again, in August 2015 the indices suffered a contagion effect, when a large drop in Asian Equities caused panic in the markets in Europe and the US [16].

Figure 8 at the previous page presents the data of the KASE index in solid line along with the DAX index in long dash line. The KASE index was not affected by the DAX until January 2006, similarly to the S&P. The correlation was rather weak in the pre-crisis period but it strengthened afterwards.

Both indices suffered from the financial crisis. There were few shocks from the DAX index that went to the KASE index, but for the European sovereign crisis. A significant drop in both affected the KASE by 21.87% and the DAX by 237%.

CALCULATIONS

This section includes the percentage changes obtained for the graph analysis. The equation of the index' value change for the *Tabl. 4*, given below is:

$$\Delta_{MCX} = (Vf - Vi) / Vi \qquad (2)$$

Where:

Vf = *Index value at the end of the considered period*.

Vi = *Index value at the begining of the considered period*.

The calculations show that, when an external shock occurs in any stock market, the markets will decrease at a substantially close level, indicating that there is a strong case for contagion effects between the relevant markets.

The final calculation represents the correlation result of the two main indices, the MCX and KASE. The sought coefficient is 0.785943. As the high correlation is above the hypothesis of 70%, the null hypothesis can be accepted. It indicates that the two stock markets are interdependent. The data values, taken from the Bloomberg, have proved this correlation. Weekends, holidays and non-matching figures have been removed by means of Excel tools. In the research, the daily data has been used. The period under consideration is: from the beginning of the KASE index on 12 July, 2000, until November 2017: the data for 17 years. No lags have been used in the calculation since they are not relevant to this research method. The industries represented in the KASE include energy, banking, electricity and mining companies, while the MCX's — include energy, banking, mining, retail, technology, transport, electricity and steel. The KASE index represents nine groups while the MCX index represents 50 groups.

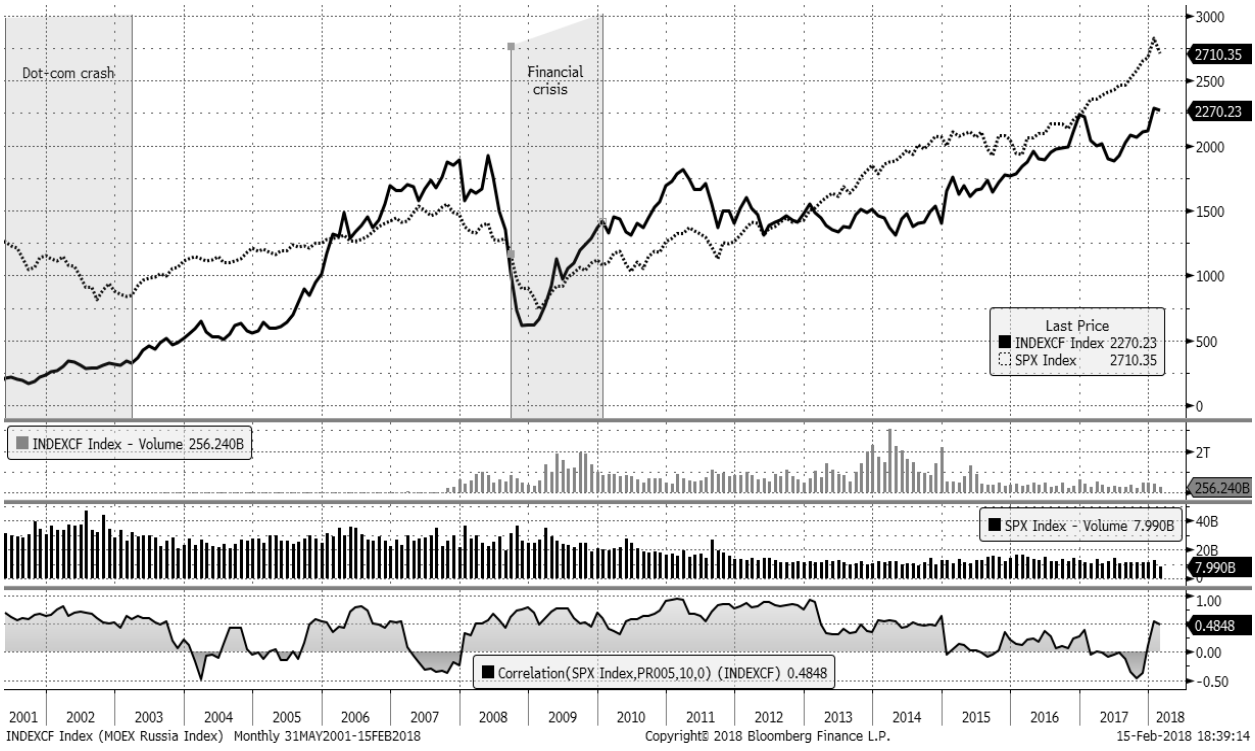

Fig. 5. **The dynamics of the MCX index and S&P500 indices comparison**

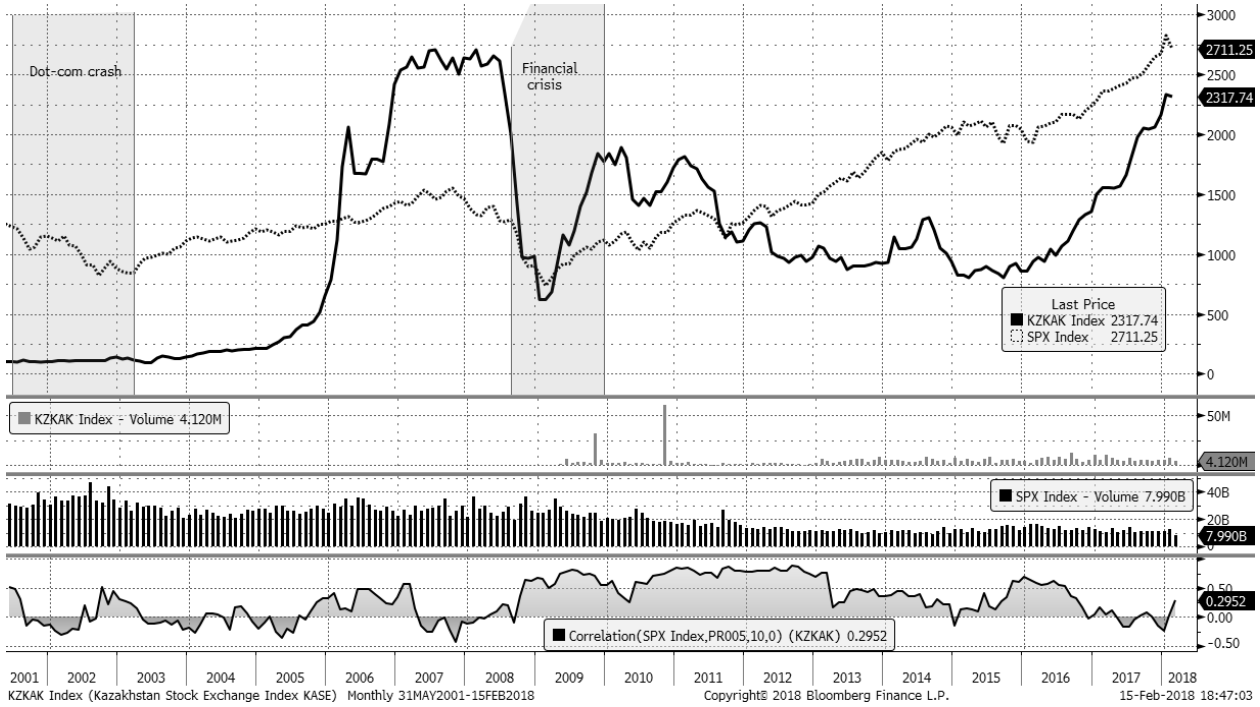

Fig. 6. **The dynamics of the KASE and the S&P500 indices comparison**

Source: Bloomberg Terminal.

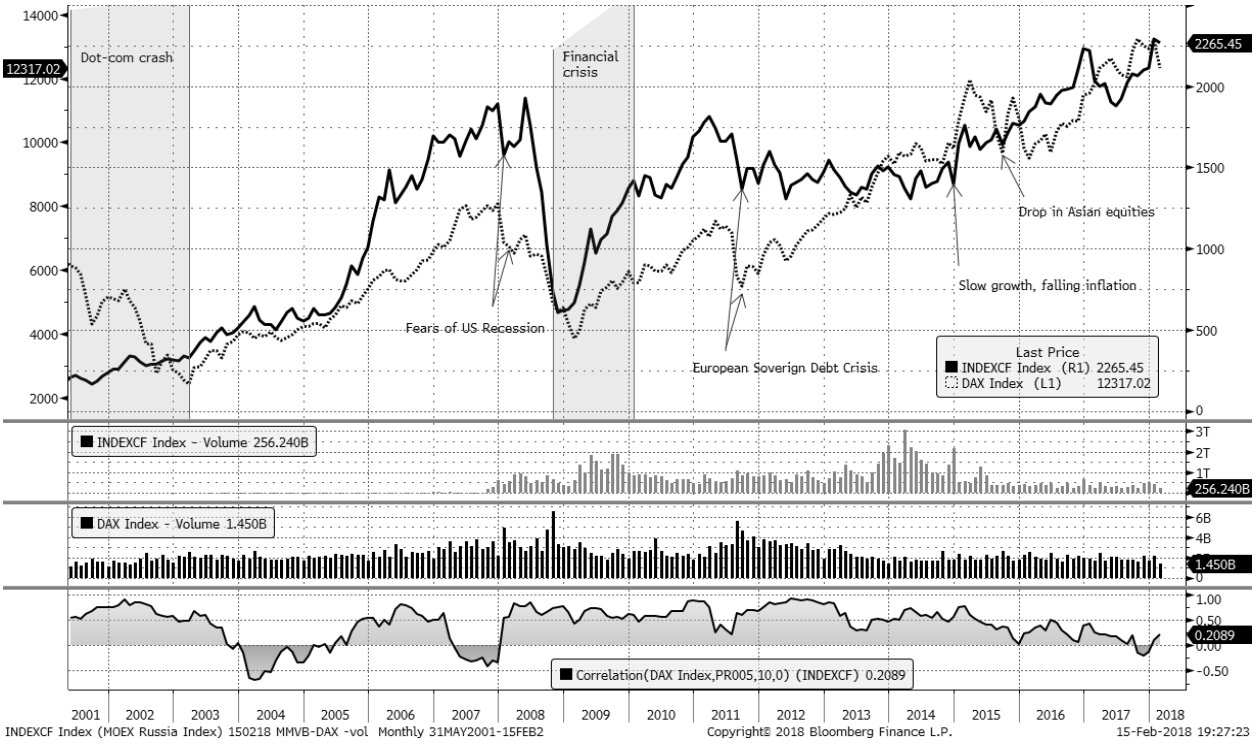

Fig. 7. **The dynamics of the MCX and the DAX indices comparison**

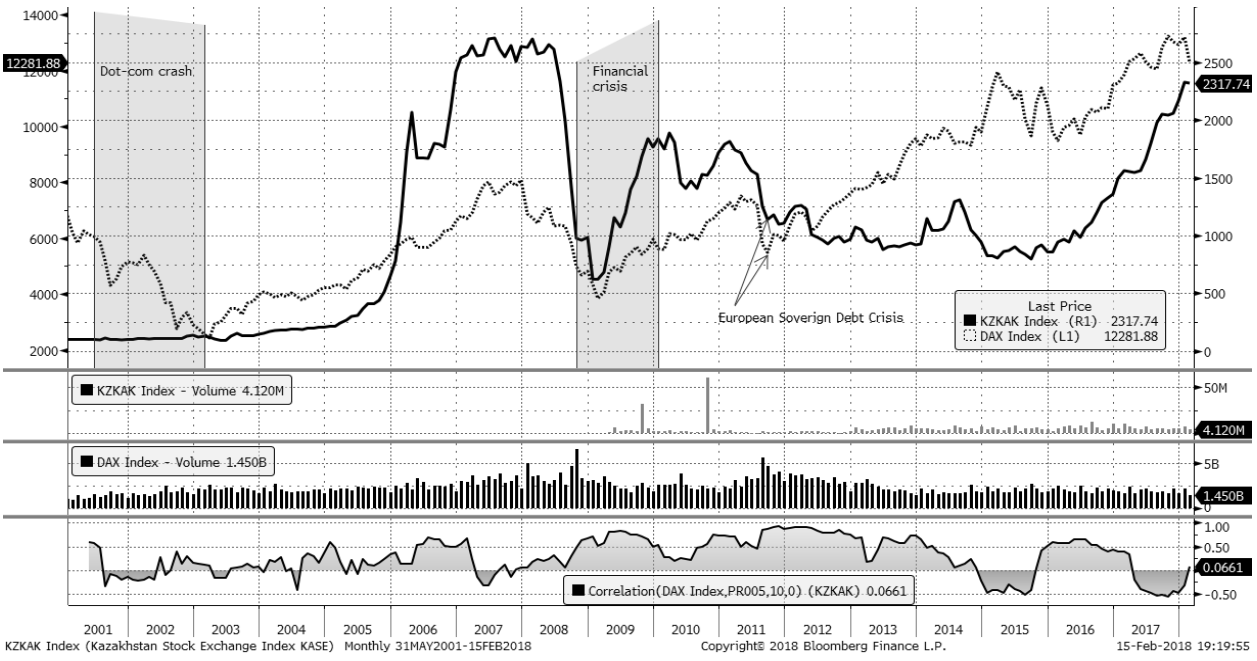

Fig. 8. **The dynamics of the KASE with the DAX indices comparison**

Source: Bloomberg Terminal.

Table 4

Changes of the MCX and KASE indices influenced by the external shocks (%)

External shock / Stock index	Recession decline	Flash crash 2010	Oil price 7-month low	US Presidential Election	Fears of US Recession	European Sovereign crisis
MCX	73.74	20	22.99	14.48	18.49	21.87
KASE	78.28	29.45	23.15	21.23	20.18	23.57

Source: Bloomberg Terminal.

RECOMMENDATIONS FOR DEVELOPING ECONOMIES

It may be reasonable to use the European Union as an example of how countries can work together to strengthen and develop their economies. To be exact, the case study of the Republic of Ireland, that was a very under-developed country in the 1950s. It relied heavily on its agricultural sector which had slow growth. The country was characterized by a closed economy of protectionism and self-sufficiency. Over-dependence, reliance on one economic sector and lack of trade have resulted in a stagnant economy, for example, the position of Belarus and Kyrgyzstan in the Eurasian Economic Union.

To break the economic deadlock, Irish economy, had to introduce many economic policies to turn to the economic development. These policies included the following steps:

- better access to loans for commercial;
- the courting of foreign investment;
- improved government grants to new industries;
- tax relief for manufactured exported goods.

The tax relief facilitated major advances in the industrial sector, responsible for the overall economic growth of 23% by 1963. This new strategy resulted in 80% of investment coming through foreign capital by 1965. During the 1960s, this attracted 350 new foreign companies. It helped to raise employment with well-paid jobs which also increased domestic demand. A critical factor of the Eurasian Economic Union is the free trade that enables the development of involved countries. Not being the EU member, Ireland would have been of little interest to investors.

Similarly, an economic union for the EU members may be a vital component of the future development. A part of the Irish economy development was the mass turnover of public enterprises into private sector. The commercialisation of 21 state-owned enterprises helped to increase efficiency of operations and general competition in the companies and their markets.

Another important factor for the development of Ireland was the loosening of structural rigidities including trade unions, farming interests and government wage levels. O'Donnell (1998) described in details how the government determined that moderate wage growth was important for international competitiveness and how to achieve control of public finances. These factors, along with free secondary education, were the foundation of the 1950's underdeveloped economy that transformed into a developing economy in the 1960s and a developed economy by the 1990s.

CONCLUSION

The graphical analysis of this research concludes that the Kazakh index had a relatively weak relationship with the Moscow Index until 2007. The financial crisis, affected both indices, resulted in their high correlation. The correlation results are reflected in the graphical analysis. Moreover, we have discovered that the Moscow index has a stronger relationship with external indices, including the DAX and the S&P500. It can be the reflection of the high volumes of export to European countries. Germany is the second largest recipient of Russian goods. It can represent a contagion effect which may occur in the European stock market and spread to the MCX stock market. At the same time, the KASE index may be more dependent on the MCX, due to a large number of exports going to Russia. The analysis shows that the two Eurasian countries depend significantly on raw materials production, while the S&P500 is a diversified index including a strong mix of technology, construction, pharmaceutical and energy companies.

Thus, the integration of the countries in the new Eurasian Union will have to develop a harmonised economic policy to create growth in economic sectors. The development of new branches along with deregulation will stimulate growth. For Armenia, the support that they receive from the International Monetary Fund, World Bank and European Bank for Reconstruction and Development helps to stabilise

their heavily inflated currency and develop private business. The support is currently upgrading various branches, including, energy, agricultural, food processing, transportation, health and educational sectors. The research presented in this analysis can be further developed by some econometric modelling to determine the short run and long run relationships of the KASE and MCX, and also to find out which index leads the other. The research has revealed that both indexes still rely heavily upon the production of raw materials and depend on the price movements of commodities more than any other factor. A further study could discover the relationship between the KASE market and the oil and copper price movements. It could determine if the KASE index also depends on the price movements of commodities more than any other factor.

Finally, it is worth mentioning, that the EAEU members face the world changes and possess the power to make it better. Thus, it is appropriate to consider international experience in improving efforts to solve mutual problems and meet challenges.

REFERENCES

1. Shuvalov I. Eurasian Economic Union to have a common currency in 5–10 years. TASS. 25 July 2014. URL: http://tass.com/economy/742323 (accessed 16.08.2018).
2. Gavin M. The stock market and exchange rate dynamics. *Journal of International Money and Finance*. 1989;8(2):181–200. DOI: 10.1016/0261–5606(89)90022–3
3. Rockinger M., Urga G. A time-varying parameter model to test for predictability and integration in stock markets of transition economies. *Journal of Business & Economic Statistics*. 2001;19(1):73–84. DOI: 10.1198/07350010152472634
4. Yang J., Hsiao C., Li Q., Wang Z. The emerging market crisis and stock market linkages: Further evidence. *Journal of Applied Econometrics*. 2006;21(6):727–744. DOI: 10.1002/jae.889
5. Nieh C–C, Lee C-F. Dynamic relationship between stock prices and exchange rates for G-7 countries. *The Quarterly Review of Economics and Finance*. 2001;41(4):477–490. DOI: 10.1016/S 1062–9769(01)00085–0
6. Kuzmin A. Exchange rate modelling: The case of the ruble. *Review of Business and Economics Studies*. 2015;3(3):39–48. URL: http://www.robes.fa.ru/docs/articles/robes-3–2015_39–48.pdf (accessed 12.11.2018).
7. Griffin J., Stulz R. International competition and exchange rates shocks: A cross-country industry analysis of stock returns. *The Review of Financial Studies*. 2001;14(1):215–241. DOI: 10.1093/rfs/14.1.215
8. Treanor J. The 2010 'flash crash': How it unfolded. *The Guardian*. 22 Apr. 2015. URL: https://www.theguardian.com/business/2015/apr/22/2010-flash-crash-new-york-stock-exchange-unfolded (accessed 16.08.2018).
9. Riley C. Oil prices slide to 7-month low. *CNN*. 23 May 2012. URL: http://money.cnn.com/2012/05/23/investing/oil-prices/index.htm (accessed 16.08.2018).
10. Slav I. Russia tops world's biggest oil producers list. Oilprice.com. 21 Feb. 2017. URL: https://oilprice.com/Latest-Energy-News/World-News/Russia-Tops-Worlds-Biggest-Oil-Producers-List.html (accessed 16.08.2018).
11. Kawa L. U.S. stock buybacks are plunging. *Bloomberg*. 14 Aug. 2017. URL: https://www.bloomberg.com/news/articles/2017–08–14/corporate-america-isn-t-buying-back-shares-the-way-it-used-to (accessed 16.08.2018).
12. Byrne J. A. US companies spent $ 4T buying back their own stock. *NYPost*. 19 Aug. 2017. URL: https://nypost.com/2017/08/19/us-companies-spent-4t-buying-back-their-own-stock/ (accessed 16.08.2018).
13. Valetkevitch C. Dow, S&P off to worst four-day Jan start ever as China fears grow. *Reuters*. 7 Jan. 2016. URL: https://www.reuters.com/article/us-usa-stocks/dow-sp-off-to-worst-four-day-jan-start-ever-as-china-fears-grow-idUSKBN 0UL1BD 20160107 (accessed 16.08.2018).
14. Dean M., Livesey B. S&P places 15 Euro nations on warning for credit downgrade. *Bloomberg*. 6 Dec. 2011. URL: https://www.bloomberg.com/news/articles/2011–12–05/s-p-said-to-place-all-17-euro-nations-on-downgrade-watch-over-debt-crisis (accessed 16.08.2018).
15. Wearden G. FTSE 100 hits 15-month low as stock markets slide. *The Guardian*. 15 Oct. 2014. URL: https://www.theguardian.com/business/live/2014/oct/15/uk-unemployment-wages-china-inflation-shire-business-live (accessed 16.08.2018).
16. Pisani B. What happened during the Aug 24 'flash crash'. *CNBC*. 25 Sept. 2015. URL: https://www.cnbc.com/2015/09/25/what-happened-during-the-aug-24-flash-crash.html (accessed 16.08.2018).

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