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Analysis Of The Interconnection Of World Stock Market Trading Systems In The Conditions Of Financial Globalization

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Annotation. This article focuses on the interconnection of stock market trading systems in the context of financial globalization. This article analyzes trends and dynamics of indicators for the securities market based on the data of the World Federation of Exchanges. Correlation analysis was performed to determine the interrelationship between these trends.

Key words: Securities market trading systems, World Federation of Exchanges, share sale, stock exchange, investment flows, stock exchanges, indices, correlation analysis

Introduction

Financial globalization is the process of integrating national and regional markets into a global, open and internationally global financial market. Accordingly, the majority of the global financial markets are occupied by the securities market in terms of its size and role in international financial relations, and the world securities market is part of the process of financial globalization.

At present financial globalization of the national financial markets is intensifying. Their level of interconnection and synchronicity (a timeliness and similarity of activity, their overarching), and the growth of capital inflows are increasing.

Under the conditions of financial globalization, the interconnection of the securities market trading systems is characterized by the tendencies in the world economy. In addition, the changes in the trading system of the securities market of a particular country result in similar changes in the trading system of another country, which is directly integrated to it.

Literature analysis

One of the researchers Kwadwo Boateng Prempeh (2016), a researcher in this field, has experimentally examined the interactions between the variables selected by the stock market as a macroeconomic indicator in the stock market using the annual periodic data for 1990-2014. The macroeconomic variables used in this study include the inflation rate, real GDP growth rates and interest rates. The Granger causality test was used to identify the nylon link between Ghana stock markets and macroeconomic variables. The results of this test show that the cost of the stock is at the level of 10%, and the impact on real production is not determined. Therefore, real growth rates of real GDP have only one side effect on the stock price. Other variables, such as the inflation rate and the interest rate, have not been disclosed to the stock price. At the same time, it was noted that the real GDP growth would affect the fluctuations in the value of shares in Ghana. It is worth mentioning the factors affecting the stock price fluctuation in the Ghana Stock Exchange. Moreover, in order to stabilize the stock price movement, the growth rate of gross domestic product should be considered as one of the key factors in the liquidity and stock market volumes considering other liquidity factors affecting liquidity. In order to protect the interests of buyers and sellers in the stock market, conclusions have been drawn that the laws and regulations governing the operations of the stock exchange should be strengthened, which increases the confidence of investors, enhances the participation of domestic investors and extends the ownership of shares in the economy [1].

In a similar study, the existence and nature of long and short term relationships with equity markets and foreign investment was examined by Vladimir Arčabić (2013) in Croatia. The main hypothesis of the research is that the

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movement of long-term direct foreign investment should be defined as movement of the stock market within the directions of economic growth. However, high growth rates on the stock market in the short term have a positive impact on direct foreign investments in Croatia, as the existing stock market conditions determine the investment climate of the domestic market and are the sources of information for foreign investors. There are two approaches in long-term relationships: the results of both models have led to the conclusion that long-term relationships have not been studied in the study variables, which is due to the lack of linkages between foreign investment and economic growth in Croatia. Short-term relationships are analyzed by a VAR model of two variables and the results are consistent with theoretical assumptions because the stock market is a crucial short-term determinant of direct foreign investment in Croatia [2].

There are positive and negative aspects of the financial globalization process [3,4,5,6]. One of the good or bad results will lead one to the same result.

The following hypothesis is based on what has been said: "Since the tendency of exchanges has been almost synchronized, the developed stock exchanges have interconnected the international architecture of an internationally integrated world trade system. This architecture is one of the major forms of global financial globalization. "

A systematic analysis of the global trading system should be carried out on the basis of the Statistical Database of the World Federation of Exchanges (WFE) to verify the relevance of this hypothesis.

Analysis and results

During the global financial crisis in the world, the indexes of the major stock exchanges, which are the main components of the global securities market and the list of securities of different issuers that are listed on the face of one another have been observed to decline. The situation in recent years has stabilized.

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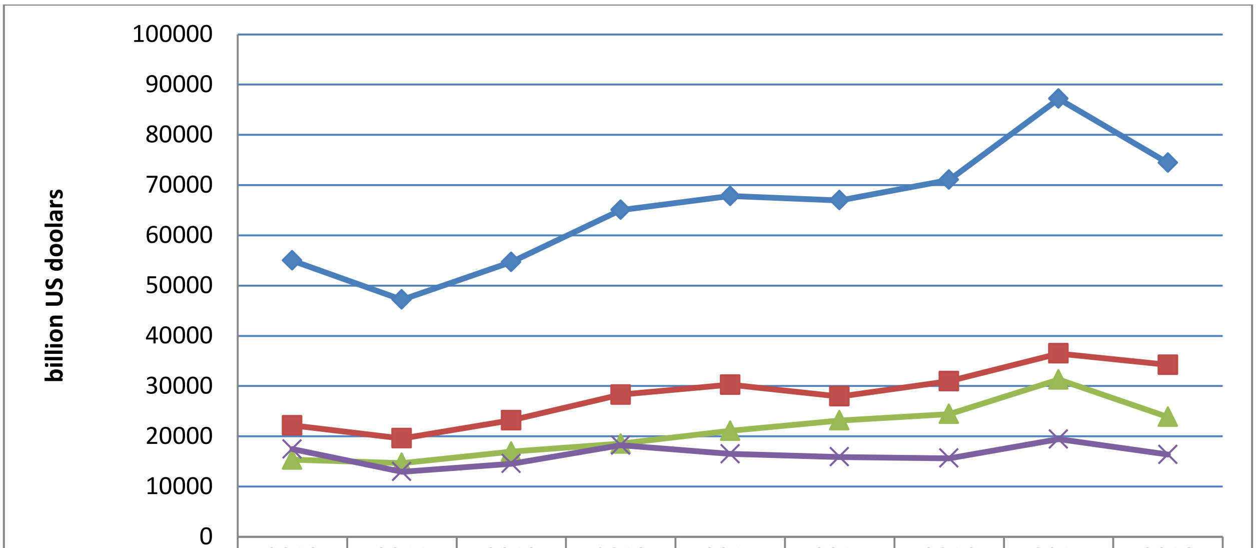
Using graphical analysis of the dynamics of the internal capitalization of the World Federation Exchanges and its three regions, it is synchronized with the following graphic, showing that the changes are uniform and overlapping (Figure 1.1).



	2010	2011	2012	2013	2014	2015	2016	2017	2018
WFE Total	54954	47199	54672	65044	67828	66960	71046	87161	74432
Americas	22173	19587	23193	28299	30269	27943	30964	36486	34206
Asia-Pacfic	15346	14670	16929	18521	21082	23141	24442	31266	23860
EAME	17435	12942	14550	18224	16477	15876	15640	19409	16366

Figure 1.1. Total capitalization of territories of the World Federation of Exchanges, bn. US dollars [7]

While analyzing the data of WFE and its regions, the WFE internal capitalization increased from $ 54954 billion to $ 74432 billion in 2010-2018, up from $ 22173 billion in the Americas to $ 34206 billion, Asia -Pacific $ 15346 billion to $ 23860 billion, Europe-Africa-Middle East has grown from $ 17435 billion to $ 16366 billion. The concept of correlation coefficient is used to determine the relationship between two random numbers. That is, the correlation coefficient of two indicators (X and Y) is the ratio of the reduction of these quantities to the ratio of the average square footprint of these quantities [8].

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This formula is expressed as follows:

$$R_{xy}=\sum(X_i-X)(Y_i-Y)/\sqrt{\sum(X_i-X)^2\sum(Y_i-Y)^2}$$

In the correlation analysis of the above chart data, we consider regions (X) and other region indicators (Y). Here we define the coefficient R^2, which represents the degree of interaction of these zones.

Table 1.1

Correlation of GFBF and its territorial capitalization

№	Regions	Americas	Asia-Pacific	Europe-Africa-Middle East	Average WFE
1	**Americas**	1	+ 0.92	+ 0.64	+ 0.98
2	**Asia-Pacific**		1	+ 0.56	+ 0.96
3	**Europe-Africa-Middle East**			1	+ 0.71
4	**Average WFE**				+ 0.88

The table above shows the interconnection of the WFE and all regions within its structure with an average of +0.88. When analyzing the territory, the correlation of the American territory with the Asia-Pacific region is very strong and at +0.92 (the region's correlation with the Europe-Africa-Middle East region is somewhat weaker than the previous one +0.64). Accordingly, the correlation between the Asia-Pacific region and the Euro-Africa-Middle East region is + 0.56. The mutual correlation of WFE with regions has been much stronger than the correlation of regions.

In practice, one of the main indicators of trading on securities is the sale of shares. In practice, in all countries, the stock market consists mainly of the securities market, which is the main chain of the securities market trading system. Almost all of the stock transactions are made over stock exchanges.

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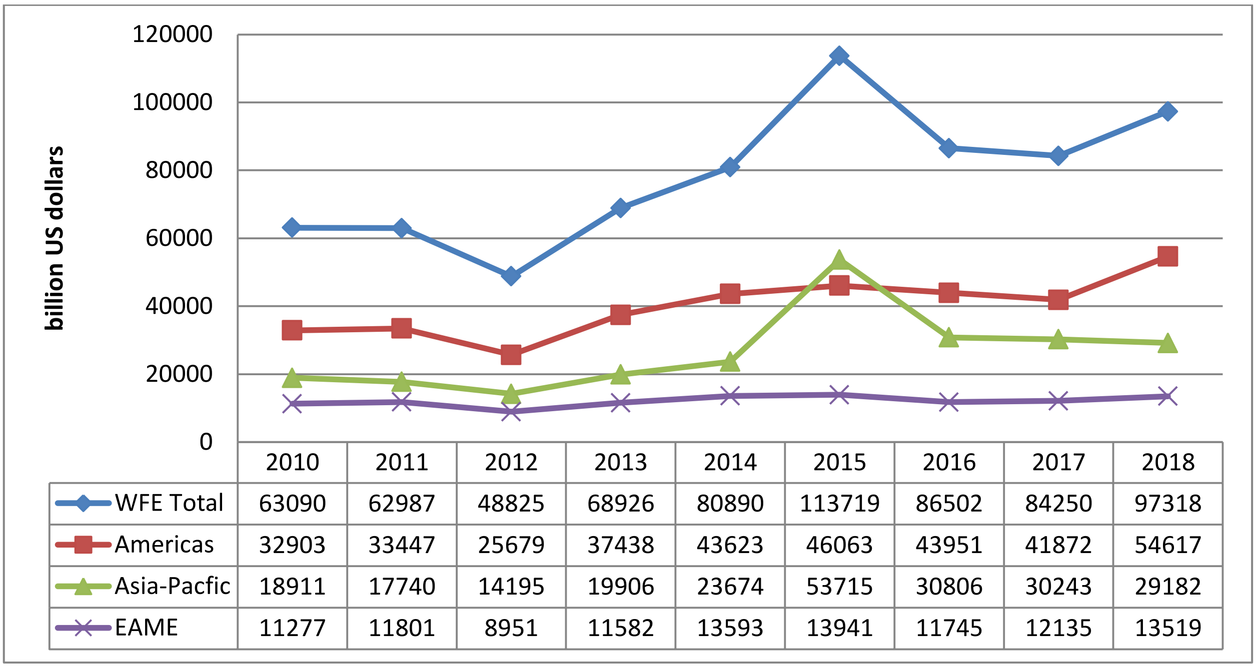


	2010	2011	2012	2013	2014	2015	2016	2017	2018
WFE Total	63090	62987	48825	68926	80890	113719	86502	84250	97318
Americas	32903	33447	25679	37438	43623	46063	43951	41872	54617
Asia-Pacfic	18911	17740	14195	19906	23674	53715	30806	30243	29182
EAME	11277	11801	8951	11582	13593	13941	11745	12135	13519

Picture 1.2. Volume of sale of shares in the territory of the World Federation of Exchanges, bn. US doll [7]

According to Figure 1.2 above, the share of stock markets in the world stock exchanges for 2010-2018 has risen from $ 63090 billion to $ 97318 billion. Accordingly, the share sale in the United States rose from US $ 32903 billion to $ 54617 billion in the Asia Pacific region, from $ 18911 billion to $ 29182 billion in the Asia-Pacific region, and from Europe to the Middle East to $ 11277 billion to $ 13519 billion.

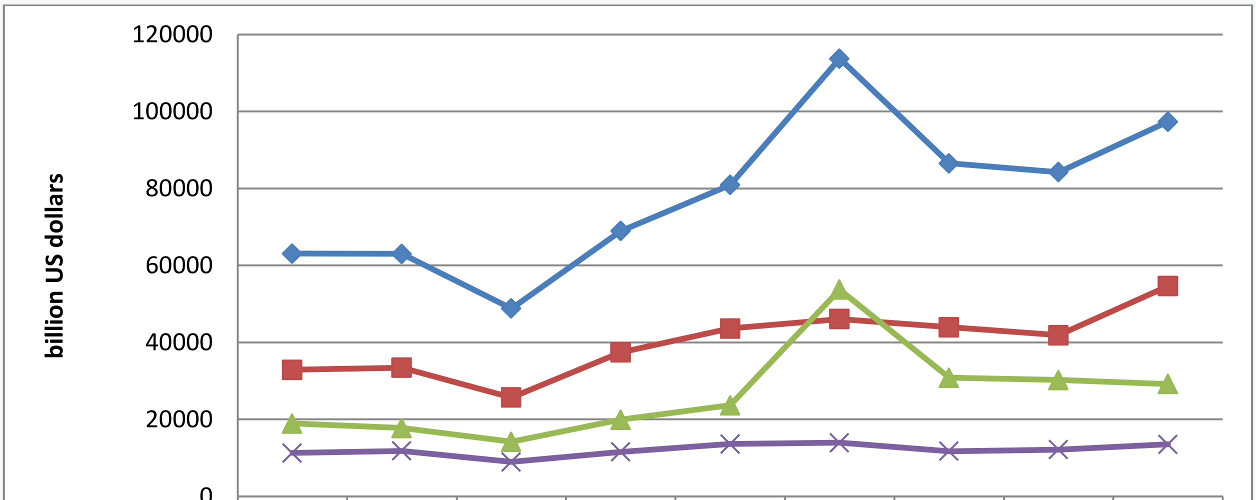
Table 1.2

Correlation of stock trade in the GFBF and its regions

№	Regions	Americas	Asia-Pacific Ocean	Europe-Africa-Middle East	Average WFE
1	Americas	1	+ 0.64	+ 0.86	+ 0.88
2	Asia-Pacific		1	+ 0.68	+ 0.92
3	Europe-Africa-Middle East			1	+ 0.85
4	Average WFE				+ 0.88

According to Table 1.2 above, the WFE and its regions have a +0.88 mutual cross-selling relationship stocks turn over. When analyzing the area, the correlation of the American territory with the Asia-Pacific region is somewhat weaker and at +0.64 (a zone-Europe-Africa-Middle East corridor is slightly stronger than the previous one +0.84). Accordingly, the correlation between the Asia-Pacific region and the Euro-Africa-Middle East region is + 0.68. The results of the analysis revealed that the correlation between the WFE and the regions with the share sale was stronger than the correlation of the regions.

Another important indicator in the analysis of securities trading systems is the sale of bonds.



	2010	2011	2012	2013	2014	2015	2016	2017	2018
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EAME	11277	11801	8951	11582	13593	13941	11745	12135	13519

Picture 1.3. Volume of sale of bonds in the territory of the World Federation of Exchanges, bn. US doll [7]

According to Figure 1.3 above, stock markets on the world stock markets for 2010-2018 fell from $ 23811 billion to $ 13835 billion. Accordingly, sales of bonds in the Americas fell from $ 1351 billion to US $ 633 billion and from $

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21,707 billion to US $ 9862 billion in the Europe-Africa Middle East in the same period. Rise of sales of bond in 2010-2018, analyzed only in the Asia-Pacific region, increased from $ 753 billion to $ 3340 billion. However, given that the total volume of trading in bonds has been tend to decline in recent years, we can say that there is instability in lending-related operations, which means that the interest rates of bonds are not satisfied by investors. At the same time, interest rates of banks' deposits can be the main competitor to the percentage rate of bonds.

Another important indicator in the trading system analysis of the securities market is the flow of investments.

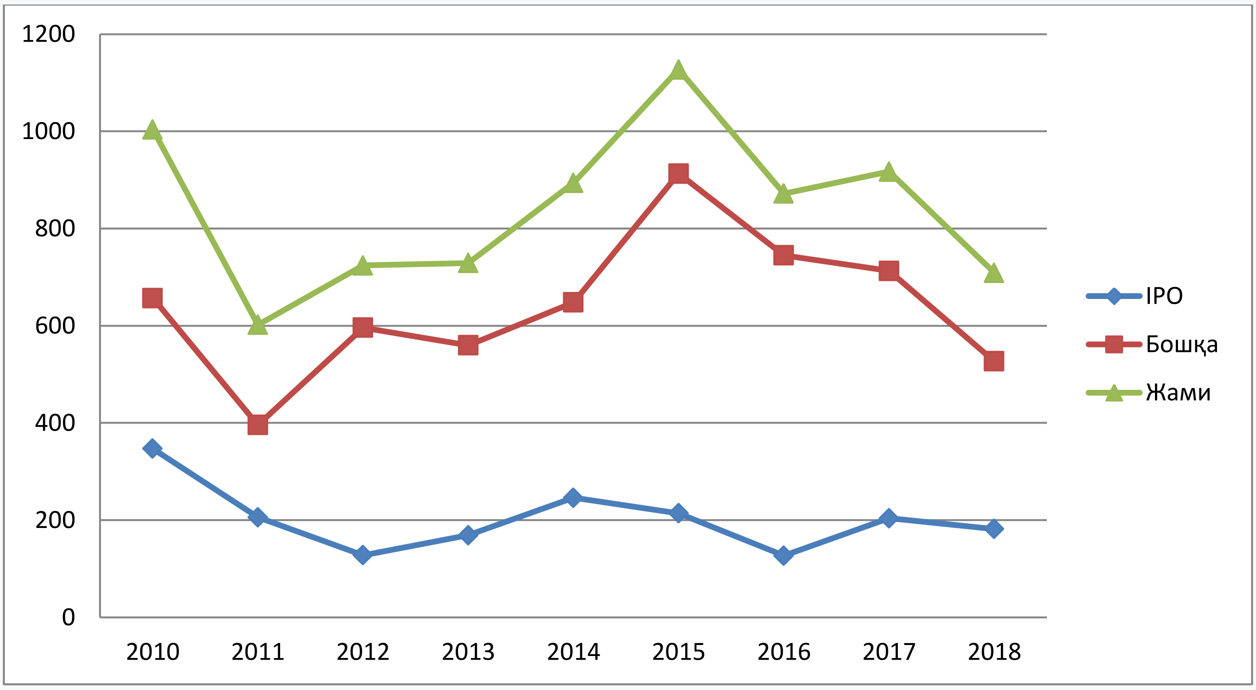

Figure 1.5. The flow of investment in the world stock exchanges, billion US dollars [7]

Figure 1.5 illustrates that in recent years, global stock exchanges have been largely invested mainly at the secondary market. However, the flow of gaps in the analyzed 2010-2018 was unstable and reached $ 1004 billion in 2010, and by 2018 it dropped to $ 709 billion. This tendency, respectively, shows that, in 2010, investments in the secondary market fell from $ 657 billion to $ 527 billion, while

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investments in the IPO decreased from $ 347 billion in 2010 to $ 182 billion in 2018.

We analyze the changes in the indices of stock market and non-trading systems to see the interconnection of trading systems in the securities market.

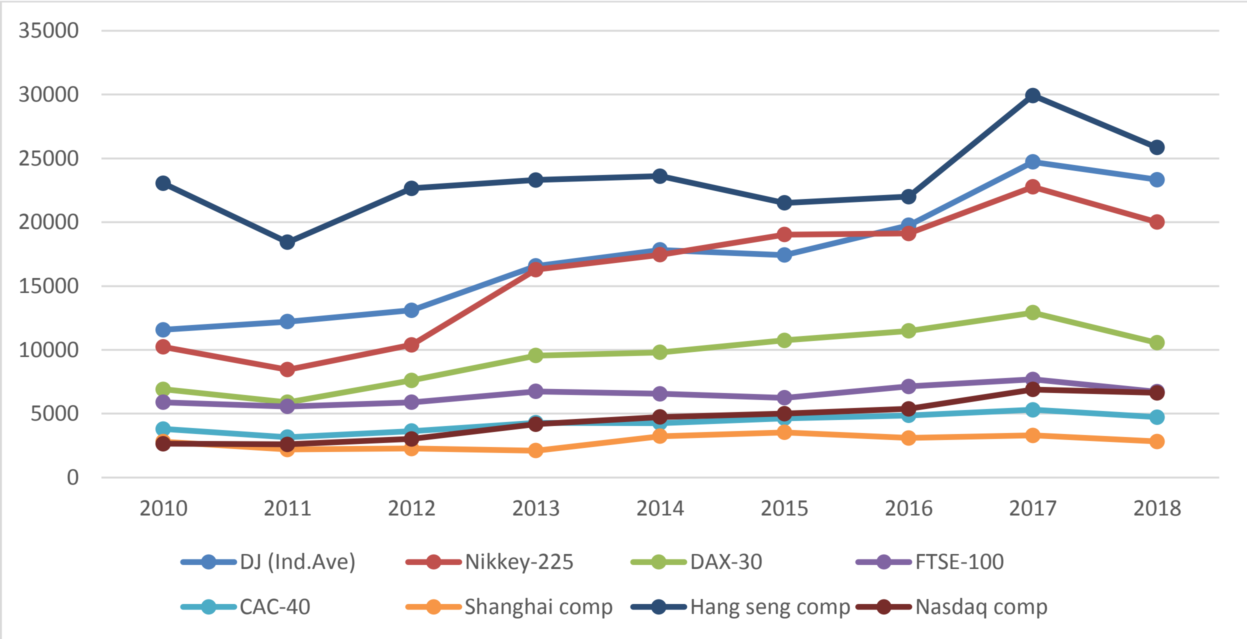

Figure 1.6. The dynamics of the largest trading system index in the world [9,10]

Figure 1.6 shows the change in the volume of trading of large stock exchanges and non-stock exchange trading systems. The Hang Seagase Composite Index of the Hong Kong Stock Exchange, the Dow Jones Industrial Index of the New York Stock Exchange, and the Nikkei-225 index of the Tokyo Stock Exchange can be observed.

The graph shows that the DAX-30 index of the Frankfurt stock exchange, the FTSE-100 index of the London stock exchange, the SAS-40 index of the Paris stock exchange, the Shanghai composite index of China and the dynamics of the Nasdaq composite index are synchronized.

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Conclusions and Suggestions

Based on the information gathered above, the following conclusions can be made.

First of all, financial globalization is a process of transformation of national and regional markets integration into the world financial market, both open and internationally. Accordingly, the majority of the global financial market is occupied by the securities market with its size and role in international financial relations, so the world securities market is one of the key aspects of the financial globalization process.

Secondly, the process of financial globalization has positive and negative aspects. The globalization process creates conditions for the development of systemic risks and leads to the occurrence of this risk as a periodic crisis. At the same time, it encourages countries to become competitive and encourages innovative development of their economy.

Thirdly, because of the tendency of the trading system to be almost synchronized with the indicators reflecting the stock market activity, the developed stock exchanges have interconnected the entire international system of integrated international trade systems architecture. In particular, there is a strong correlation between the capitalization of three global zones, which include the GFBF membership. As it can be seen, this architecture is one of the major forms of financial globalization.

Fourthly, the level of economic growth, the volume of investments and the level of development of the securities market are crucial. At the same time, the volume of trade turnover and investment in organized trading systems of securities is determined by macroeconomic conditions and investment environment.

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