Assessing the impact of globalization on stock market in Ukraine

Tetyana Zadorozhna

Kyiv National Economic University named after Vadym Hetman, 54/1 Prospect Peremogy 03057 Kyiv Ukraine

Received: August 11, 2021 | Revised: September 26, 2021 | Accepted: September 29, 2021

JEL Classification: F02, F36, F65.

DOI: 10.38188/2534-9228.21.3.11

Abstract

The article is devoted to studying the impact of globalization processes on the development of national economies. In particular, the indicators of assessing the impact of globalization on financial and non-financial indicators of countries’ development are considered. Attention is paid to the place of Ukraine in the KOF Globalization Index 2020 ranking, namely in terms of economic, social, and political globalization. The author has formed three groups of indicators that allow assessing the influence of globalization on the securities market of a country. The first group includes indicators that help determine the degree of integration of the national securities market into the global one. The second group includes indicators that determine the extent to which domestic securities legislation and principles of securities market regulation are adapted to international standards. The third group of indicators is aimed at quantifying the impact of trends in the global securities market on the national. The article examines the impact of one of the indicators of the third group on the securities market of Ukraine. In particular, the correlation analysis of the relationship between the Ukrainian PFTS index and the indices of American, British, European, and Polish stock markets was conducted. The author made conclusions about the availability of the significant correlation between global stock indices, as well as the weak impact of global securities market trends on the dynamics of the Ukrainian market. It was also revealed during the analysis, that the level of correlation between indices depends on whether the financial market is in crisis. Particularly, the analysis covered three periods: the 2008-2010 financial crisis, the 2020-2021 Covid-19 crisis, and the 2010-2020 period between the crises.

Keywords: globalization, globalization index, financial crisis, securities market, stock index.

Introduction

Globalization affects both non-financial and financial aspects of society, and it can be analysed from both non-financial and financial aspects. Moreover, the indicators need to be investigated in dynamics and comparison. The real aspect of globalization can be assessed by the following indicators:

- external and internal migrations of the population;
- number of border crossings for business and tourism purposes;
- number of international telephone calls and postal items;
- the intensity of the ideas and information exchange (difficult to assess, especially quantitatively);
- number of ratified and signed intergovernmental agreements, etc.

Among the indicators that can be used to assess the dynamics and development of globalization in the financial aspect, the following are usually distinguished:

- the ratio of foreign trade (exports and imports) to GDP;
- the share of trade costs in total international trade compared to the cost of trade in domestic trade (includes all costs associated with trade in goods, and except for transport costs and tariffs, this includes direct and indirect costs associated with the difference in languages, currency
exchange, as well as the cost of import or export procedures);
- the size of ad valorem (a percentage of the customs value of goods), export duty rates;
- money and time expenses on border crossing (BIS, 2018).

However, the influence of globalization on the securities market, as on the part of a selected country’s financial market, needs further research.

**Material and methods**

The aims of the research are reached through the following methodology: the method of comparison, grouping, and analogies, synthesis of available information, and the method of graphical analysis. Specific research method – statistical method of correlation analysis – is used for assessing the relationship between the movement of Ukrainian and world stock indices. The methodological basis of the study is the analysis of existing theoretical views on assessing the impact of globalization on the development of the country, in particular the research of such authors, as Cristiana Tudor (2011), Leonidas Sandoval Junior (2015), Kedong YIN (2017), Sepideh Haghi (2015), Yonghong Jiang (2017), Yanhua Chen (2018), William N. Goetzmann (2011).

The information basis of the study is legislative and regulatory documents, data on the dynamics of stock indices (FTSE 100, S&P 500, Euro Stoxx 50, WIG 20, and PFTS Index) for the period from January 2007 to August 2021, information materials of international organizations (BIS, IMF) and economic research institute (Swiss Economic Institute), results of own research.

**Results and discussion**

In recent decades some scientific and research institutions have been trying to measure the degree of integration of individual countries into the global network. The calculations are conducted with the help of various integrated indicators (indices/ratings), which consider a lot of factors of globalization in different fields (usually in social, economic, and political). The KOF Index of Globalization, calculated by the Swiss Economic Institute since 2002, is the most widespread currently. It contains data on economic, political, social, and general globalization of about 200 countries, as well as about separate geographical regions since 1970. The highest value of the index is 100. The so-called de jure and de facto indicators are provided in all KOF globalization indices. De facto globalization indices mostly consider quantitative indicators (cash flows, investment volumes, number of migrants, etc.), while de jure indices - qualitative (policies and conditions) (KOF, 2018).

The Top 10 countries in the world according to the globalization index KOF 2020 (based on 2018 data) include Switzerland (index 90.79), the Netherlands (90.68), Belgium (90.46), Sweden (89.44), Great Britain (89.39), Germany (88.83), Austria (88.56), Denmark (87.96), Finland (87.70) and France (87.69). Ukraine took 44th place among 196 countries, with an index of 74.95. Moreover, according to the quantitative component of the index, Ukraine is 33rd in the list, and according to the qualitative - 53rd (KOF. Ranking, 2020). And although it may seem that Ukraine's place in the ranking is not so low, all European countries, including Eastern European countries, have a higher value of the index. On the other hand, all the CIS-members countries, i.e., Ukraine's closest neighbours from the East and North, have a much lower value of the globalization index KOF 2020.

**Table 1. The place of Ukraine in KOF Globalisation Index 2020 ranking**

| Type of Index              | Total | de facto | de jure |
|----------------------------|-------|----------|---------|
| KOF Globalisation Index    | 44    | 33       | 53      |
| Economic Globalisation Index | 66  | 25       | 96      |
| Social Globalisation Index, | 88   | 91       | 84      |
| Political Globalisation Index | 32 | 40       | 25      |

Source: compiled according to (KOF. Ranking, 2020)
Analysing the place of Ukraine in the world ranking of globalization indices (table 3), and the components of the calculation of certain types of indices allow us to draw the following conclusions:

- According to the Economic Globalisation Index, Ukraine ranks quite high in terms of quantitative indicators that measure the ratio of capital, goods, and services to GDP. But the country ranks poorly in terms of qualitative indicators that essentially reflect the openness of the economy to foreign capital and its investment attractiveness. On the one hand, it may indicate the high share of the shadow sector in the economy, which is not taken into account in GDP. But on the other hand, it may point out the presence of barriers to the movement of capital, goods, and services.

- According to the Social Globalisation Index, Ukraine takes the lowest place among all indices, both on de facto and de jure indicators. It reflects the poor integration of our country into the world community in terms of interpersonal, informational, and cultural interaction.

- According to the Political Globalisation Index, Ukraine takes the highest place in the ranking, which indicates a relatively high level of political liberties and a potential openness and readiness of Ukraine (at least nominally) to international collaboration.

The analysis of KOF Economic Globalisation Index dynamics and rate of Ukraine in terms of the economic globalization in comparison to the world in general, and to some countries and regions in dynamics for the entire period of existence of independent Ukraine (Figure 1) shows the following:

- The constant growth of the level of economic globalization during 1970–2018 is a general trend for all countries in the world;

- The level of economic globalization in Ukraine exceeds the average for the world, the Asia-Pacific region and, for example, China, but is significantly lower than the level of economic globalization in developed countries, including Europe and the United States.

Therefore, the level of economic globalization in Ukraine and around the world has considerably increased over the last decades. On the one hand, it has a good effect on the opportunities for international economic collaboration. But on the other hand, it substantially raises local financial risks of selected countries under the impact of the global crises.

The influence of globalization on securities markets can be explored from three different aspects:

1) from the point of integrating the national securities market into the global market;

2) from the point of adapting the national securities market legislation and principles of securities market regulation to the international standards;

3) from the point of the quantitative impact of the global securities market on the national market.

The three aspects will be considered in more detail on the example of the securities market of Ukraine.

1. To determine the degree of involvement of the securities market of a country in globalization processes, i.e., to establish the degree of integration of the national securities market into the global one, we propose to study such groups of quantitative and qualitative indicators as:

A) qualitative indicators:
- presence/absence of restrictions on investments of residents in securities traded on foreign regulated markets;
- presence/absence of restrictions on placement of securities of domestic issuers on foreign stock exchanges;
- presence/absence of restrictions on placement of securities of foreign issuers on national stock exchanges.

B) quantitative indicators:
- the number of IPOs carried out by domestic companies abroad, and the volume of attracted capital;
- the number of bonds placements carried out by domestic issuers abroad, and the amount of resources involved;
- activity of the government in the Eurobond market: the number of issues of sovereign bonds on the international market;
- the level of investments of the foreign investors;
- the number of foreign brokers who opened offices or subsidiaries in the country;
- the number of international stock exchange or MTF that have the trading platforms in the country.

II. The level of the adaptation of the national securities and securities market regulation principles legislation to the international standards can be assessed with the following indices:
- membership of the national regulator of the securities market in the International Organization of Securities Commissions (IOSCO) and its accession to the Multilateral Memorandum of Understanding (MMoU);
- implementation of international legislation on securities market in the domestic regulatory field. In particular, after the signing of the Association Agreement with the EU in March 2014, the implementation of various Directives of the European Parliament and the Council, which directly or indirectly relate to the securities market, is relevant for Ukraine;
- use of the International Financial Reporting Standard by national companies, and by issuers of securities in particular;
- the compliance of the disclosures standards for the securities issuers, listed on national stock exchanges, with the disclosures standards for the issuers on largest stock exchanges in the world;
- the availability of financial reports on English on the websites of issuers of securities;

III. We consider it relevant to use the following indicators to study the quantitative impact of the world securities market on the national one:
- the impact of trends in the global securities market on the dynamics of the national market. It can be evaluated by assessing the correlation between the dynamics of national and world stock indices;
- the connection between the dynamics of the interest rates in the world financial market and the rates in the domestic market;
- the influence of global financial crises on the share prices of national issuers. It can be assessed by identifying atypical market dynamics, such as a sharp change in the current trend, and a rapid change in the share price of national issuers in response to events in the international capital market (in the absence of internal fundamental factors for such a change);
- a quick decline in prices on the national securities market during the crisis in the world market, which is a consequence of the outflow from the market of foreign investors. It occurs through the rapid sale by foreign investors of shares and bonds of national companies, as well as government debt securities.

We will give an example of the practical use of one of the indicators from the third group. Particularly, we will examine the impact of trends in the global securities market on the dynamics of the national market. To quantify that impact, we conducted a correlation analysis of the relationship between the dynamics of Ukrainian and world stock indices. We have chosen the Ukrainian PFTS Index (calculated by PFTS Stock Exchange) for the analysis, as well as some of the most popular world stock indices to cover the major, most liquid, and most developed financial markets in the world (the
USA, Eurozone, and the UK): the US stock market index (S&P 500), a stock index of Eurozone stocks (Euro Stoxx 50), and a stock index of UK’s top companies on the London Stock Exchange (FTSE 100). We also included the stock index of the Polish stock market, which calculated the Warsaw Stock Exchange (WIG 20) since the Polish stock market is the most similar to the Ukrainian among European countries.

For the analysis we chose the period from January 1, 2007, to August 1, 2021, i.e., the period that covers the last two large-scale financial crises: the crisis of 2008-2010, and the current crisis caused by COVID-19. For calculations, we took data on the dynamics of the above stock indices for the last 14.5 years monthly. Thus, the series of data analysed included the values of stock indices at the beginning of the month for 176 months (Table 2).

Table 2. The value of the correlation coefficient between the dynamics of stock indices for the period from 01.01.2007 to 01.08.2021

|            | FTSE 100 | S&P 500 | Euro Stoxx 50 | WIG 20 |
|------------|----------|---------|---------------|--------|
| PFTS       | -0.1798  | -0.2409 | 0.2690        | 0.6607 |
| FTSE 100   |          | 0.6882  | 0.6234        | 0.1470 |
| S&P 500    |          |         | 0.4976        | -0.3105|
| Euro Stoxx 50 |        |         |               | 0.5234 |

The data provided in the table demonstrates not only the weak linear connection between the Ukrainian PFTS index and the indices of American, British, European, and Polish stock markets but also the not strong connection between the leading world stock indices during the analysing period. At the same time, the lack of a significant link, which would be confirmed by the value of the correlation coefficient of at least 0.7, between the index of the Ukrainian stock market and world stock indices, did not come as a surprise. It is associated with the peculiarities of the securities market in Ukraine. However, we expected more coherence in the movement of European and American stock indices, especially about the relationship between the European stock indices FTSE 100 and Euro Stoxx 50. Besides, the visual analysis of indices dynamics (Figure 2) demonstrated that the indices changed quite synchronously, especially during the crisis of 2008-2010.

Therefore, we assumed that the strength of the correlation between indices is influenced by the crisis in the financial market, and decided to analyse the relationship between stock indices over three periods of time, covering the following periods of development of the global securities market (Table 3):

- crisis of 2008-2010 (analysis of the dynamics of indices was conducted for the period from 01.01.2007 to 01.01.2012);
- the inter-crisis period (the analysis was conducted for the period from 01.01.2010 to 01.01.2020);
- crisis caused by the coronavirus pandemic (analysis was conducted for the period from 01.01.2020 to 01.08.2021).

Based on the data in Table 3, the following conclusions about the relationship between global stock indices, as well as the impact of global securities market trends on the dynamics of the Ukrainian market can be drawn:

- the strongest correlation between American and European stock markets was observed during the financial crisis of 2008-2010, which is confirmed by the high values of the correlation coefficient between stock indices. The availability of such coherence in the changes of stock indices in this period is associated with the facts that: a) the crisis of 2008-2010 had financial reasons; b) the crisis quickly spread to developed countries; c)
governments of developed countries and the
regulators of their financial markets acted quite
synchronously and took similar anti-crisis
measures, so the reaction of the markets was also
similar;

Table 3. The value of the correlation coefficient between the dynamics of stock indices in different
periods of market development

| Index: Period                  | FTSE 100 | S&P 500 | Euro Stoxx 50 | WIG 20 |
|-------------------------------|----------|---------|---------------|--------|
| PFTS: 01.01.2007-01.01.2012   | 0.7823   | 0.7553  | 0.5682        | 0.7388 |
| PFTS: 01.01.2010-01.01.2020   | -0.4554  | -0.2992 | -0.2992       | 0.5980 |
| PFTS: 01.01.2020-01.08.2021   | -0.1257  | 0.1777  | -0.0732       | -0.1093|
| FTSE 100: 01.01.2007-01.01.2012| 0.9766   |         | 0.7930        | 0.9368 |
| FTSE 100: 01.01.2010-01.01.2020|         | 0.9209  | 0.8547        | -0.1731|
| FTSE 100: 01.01.2020-01.08.2021| -0.2161  |         | 0.4695        | 0.8780 |
| S&P 500: 01.01.2007-01.01.2012|         | 0.8105  | 0.9293        |        |
| S&P 500: 01.01.2010-01.01.2020|         |         | 0.8305        | -0.3434|
| S&P 500: 01.01.2020-01.08.2021|         |         | 0.7295        | -0.1729|
| Euro Stoxx 50: 01.01.2007-01.01.2012| |         |         | 0.9196 |
| Euro Stoxx 50: 01.01.2010-01.01.2020| |         |         | -0.0971|
| Euro Stoxx 50: 01.01.2020-01.08.2021| |         |         | 0.4174|

- the weakest correlation between the
  securities markets was observed during the
  COVID-19 crises. On our opinion, it is related to the
  facts that: a) the crisis was of non-financial origin;
  b) the impact of the crisis on the financial markets
  of individual countries was poorly predicted and
  did not depend on the efficiency and quality of
  anti-crisis decisions of market regulators but on
  the speed of coronavirus spread in certain regions
  or countries;

- in the inter-crisis period of 2010-2020, the
  connection between the US, EU and UK stock
  indices dynamics was quite high. But the
  connection between the indices of these countries
  and the stock indices of Ukraine and Poland was
  insignificant. It is partly caused by the fact that
  regulators of developed financial markets carried
  out reforms of the regulatory system, considering
  the lessons they learned from the crisis of 2008-
  2010, during this period. These reforms had a
  similar impact on developed securities markets,
  and therefore their dynamics were similar.
  However, the stock market of Ukraine, apparently,
  stayed away from these processes;

- the analysis of the correlation between the
  PFTS Index and the world's leading stock indices’
  dynamics shows the absence of a significant
  connection between them after 2012. This may be
due to: a) unrepresentative structure of the PFTS
  Index itself, which does not fully reflect the
  situation on the Ukrainian market (for example, if
  in 2012 the structure of the index basket included
  20 issuers, in 2016 their number decreased to 10,
  and in 2021 accounted to only 7 (PFTS, 2021)); b)
  the underdevelopment of the securities market in
  Ukraine, which is characterized by a very low
  number of issuers whose shares are regularly
  traded on the stock exchange, very low exchange
  trading volumes, and very low market liquidity.

Conclusions

Thus, the proposed groups of indicators allow
us to assess the extent to which the securities
market of an individual country is involved in the
world market and is subject to the influence of
globalization processes. Of course, this list is not
exhaustive and can be supplemented and
expanded. For instance, provided that the
country has a highly developed securities
market integrated into the international market, the degree of competition between national and foreign stock exchanges may be one of the signs of such integration. Such competition is justified when issuers and investors are not restricted by national borders in carrying out their financial transactions and will be expressed in a reduction in the cost of services by regulated markets for issuers of securities (in particular, in the form of stock exchange fees) and investors (in the form of transaction fees). In other words, the high level of the national financial market openness in general, and the securities market in particular, will lead to reducing the cost and improving the quality of services of stock exchanges.

The studying of the quantitative influence of the world securities market on the Ukrainian stock market was carried out using correlation analysis of the connection between the Ukrainian stock index and the leading stock indices of the EU, UK, and US. It reveals that after 2012, this impact can be described as very low. The value of the correlation coefficient between the dynamics of the PFTS index and the indices of the US, Eurozone, and UK was calculated on the data on the dynamics of the respective indices for the period from 01.01.2020 to 01.08.2021. The value accounts for less than 0.2 modulo, which indicates that there is no significant quantitative influence of the dynamics of the securities markets of these countries on the dynamics of the organized securities market of Ukraine. So, according to this indicator, the level of impact of globalization processes on the Ukrainian securities market is minimal.

References

Cristiana Tudor (2011). Changes in Stock Markets Interdependencies as a Result of the Global Financial Crisis: Empirical Investigation on the CEE Region. PANOEOconomicus, 2011, 4, pp. 525-543.

Globalisation and deglobalisation (2018). BIS Papers No 100, December 2018. – 369 p. Available from: https://www.bis.org/publ/boppdf/bispap100.pdf

Globalization: Opportunities and Challenges (1997). World Economic Outlook, May 1997, IMF. – 219 p. Available from: https://www.elibrary.imf.org/doc/IMF081/08011-9781557756480/08011-9781557756480/Other_formats/Source_PD F/08011-9781455239511.pdf

Kedong YIN, Zhe LIU, Peide LIU (2017). Trend analysis of global stock market linkage based on a dynamic conditional correlation network. Vilnius Gediminas Technical University (VGTU) Press. Journal of Business Economics and Management, 2017, Volume 18(4), pp. 779–800.

KOF Globalisation Index 2020. Ranking // Swiss Economic Institute. Available from: https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html

KOF Globalisation Index 2018. Variable descriptions // Swiss Economic Institute. Available from: https://ethz.ch/content/dam/ethz/special-interest/dual/kof-dam/documents/Globalization/2018/Variables_2018.pdf

Leonidas Sandoval Junior, Asher Mullokandov, Dror Y. Kenett (2015). Dependency Relations among International Stock Market Indices. J. Risk Financial Management. 2015, 8, pp. 227-265.

PFTS Index Basket History (2021). Available from: https://pfts.ua/trade-info/indexes/shares-indexes

Sepideh Haghi, Sayed Mahdi Mostafavi, Mehdi Behname (2015). The effects of globalization on firm’s stock in the selected Asian countries. Atlantic Review of Economics – 1st Volume – 2015, 13 p.

William N. Goetzmann, Lingfeng Li, K. Geert Rouwenhorst (2011). Long-Term Global Market Correlations. NBER Working Paper
Yanhua Chen, Rosario N. Mantegna, Athanasios A. Pantelous and Konstantin M. Zuev (2018). A Dynamic Analysis of S&P 500, FTSE 100 and EURO STOXX 50 indices under Different Exchange Rates. PLoS ONE, Volume 13, Issue 3, March 2018, pp. 1-40.

Yonghong Jiang, Mengmeng Yu, Shabir Mohsin Hashmi (2017). The Financial Crisis and Co-Movement of Global Stock Markets – A Case of Six Major Economies. Sustainability 2017, 9, 260, pp. 1-18.