Study on the Correlation of Capital Market and Macroeconomic Indicators of Romania

Anca Ioana Troto (Iacob)
University of Craiova, Romania
anca_ioana_iacob@yahoo.com

Abstract

This paper analyzes the capital market and the evolution of Romania's economic growth, examining the correlation between the main indicators of the two economic and financial mechanisms. The purpose of this paper is to examine the relationship between financial development and economic growth in the period 2000-2020, using indicators for the development of the stock market sector and the macroeconomic environment. Most of the existing studies on this topic address the markets of developed economies, but we believe that the degree of correlation may differ in the case of less developed countries. This paper tries to bring its contribution to the specialized literature by studying the indicators in the case of Romania, during the period when this developing market aspires to the status of an emerging market and in the context in which this promotion took place in 2020.

Key words: capital market, macroeconomy, correlations
J.E.L. classification: E60, F62, G10

1. Introduction

The link between the activity of financial markets and especially of capital markets and the evolution of macroeconomic indicators is a subject of continuous interest of the academic environment. Both the theorical literature and empirical studies support differing viewpoints when trying to draw an analogy of the two sectors. It is found a different behavior, depending on the analyzed country, the level of its economic development, as well as the period of time analyzed and the international context.

Through this paper, the main indicators of the capital market and the macroeconomic ones for Romania are analyzed, in the period 2000-2020, in the context in which the time interval includes the transition period from a post-communist economy to an emerging market, passing through the economic and essential political steps – accession to NATO and then to the EU, as well as through legal alignment efforts, economic, financial and not least social to capitalist and European standards and values.

2. Literature review

Most academia shares the view of the classic Schumpeter, stating that production and economic growth boost the impact of services provided by well-developed financial institutions, and the interaction of innovations in both the financial and economic sectors provides a boost to economic growth (Schumpeter, 1911).

On the other side, some researchers share the contrary view of the interdependence between economic growth and the evolution of the financial market, this current being based on Robinson's statements, according to which " finance plays a minor role in economic growth; rather it is determined by growth" (Robinson, 1952)

With the development of technological means, interstate communication and cooperation, as well as the expansion of the phenomenon in integration, the correlation between macroeconomics and stock markets is approached by scientific studies in more complex forms. On the one hand, the diversity of the indicators involved in these correlations and on the other hand, the calculation methodologies develop new estimation methods and increasingly complex conclusions.

The literature includes comparative studies of general indicators. We recall here the work carried out by Barakat, Elgazzar and Hanafy that refers to the market index, the interest rate, the consumer price index, the exchange rate against the USD, the money supply, concluding by a close long-term link between all these indicators (Barakat et. al, 2015). On the other hand, in the study conducted for South Africa, which analyzes the evolution of gross domestic product and growth index of the JSE FTSE, Mpofu concludes from the results obtained that the degree of correlation of the two indicators is not significant enough to be considered a financial market prediction tool, share prices reflecting rather the investor's expectations for the future profit, and only indirectly without economic growth (Mpofu, 2014). Following the same vision, MSCI Barra Research prepared in 2010 a comparative study between gross domestic product and net profit per share, based on which it observed links between the two indicators, but with the mention that the empirical analysis of the alleged link is limited, recalling that the phenomenon of cyclicality of economic and financial evolution cannot be ignored.

We note that the literature of the last two decades is developing increasingly niche studies, comparing groups of similar markets - for example, parallel analysis of emerging markets (Geller, 2010; Winful, 2017; Goldman Sachs, 2021), Est African Economic and Monetary Union (WAEMU) (Zonon, 2021), Southeast Asian Nations (ASEAN) (Haini, 2019) or comparisons of the major economic powers - the US versus the Eurozone or China vs. the USA.

Also, in comparing the evolution of financial markets against economic indicators, recent works detail certain economic sectors or price evolutions, starting from hypotheses of more complex researchers, in which the values of macroeconomic indicators or the values of stock indices depend on indicators with which they are not in a direct connection, but still they are influenced. The most obvious interrelationships refer to the banking sector, recalling here the paper of Abuseridze in which he affirms an interdependence between the competition of the banking sector, financial stability and economic growth (Abuseridze, 2021). Indicators such as currency exchange (Moagăr-Poladian et al., 2019; Luwihono et al., 2021), domestic production, money supply (Camilleri et al., 2019), interest rates (Davis, 2020), the price of energy (Li and Leung, 2021) are introduced in scientific research, starting from the assumption that they represent factors of influence on economic growth and stock market indicators. Moreover, in the specialized literature we find on this topic works that include socio-human or demographic indicators, exemplifying through human capital (Cristescu et al., 2021) or the life insurance market (Dash et al., 2020).

3. Research methodology

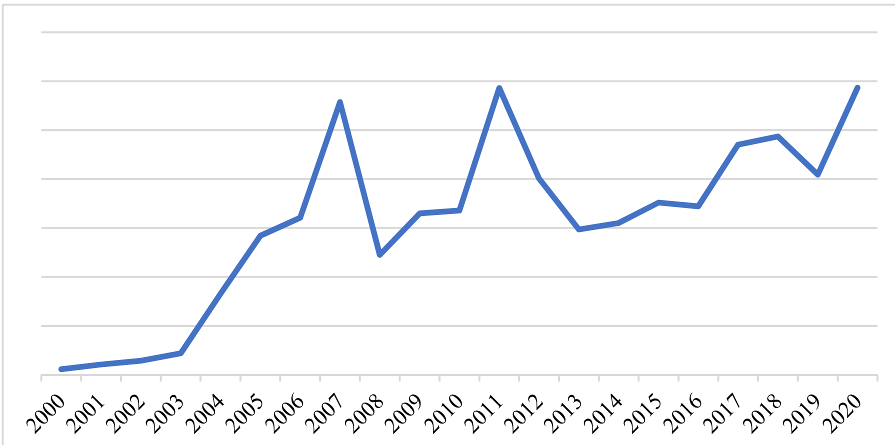
The present study uses as a methodology the descriptive analysis, in order to compare the evolution of macroeconomic and capital markets indicators. For this study, we select the reference period 2000-2020. The descriptive analysis is based on official statistical data, from which linear graphical representations have resulted, in order to highlight the evolution in time of the indicators.

- Indicators of the Romanian stock market:
  - Total value of the shares traded (US$)
  - Market capitalization of listed domestic companies (% of GDP)
  - Local companies listed on the stock exchange
  - Shares traded, in relation to the turnover of domestic shares (%)
- Macroeconomic indicators:
  - GDP per Capita (US$)
  - Evolution of GDP (% annually)
  - Consumer Price Index (% annually)
  - Foreign direct investment, net inflows (US$)
  - Current account balance (US$)

4. Findings

Regarding the total value of the shares traded on the Romanian stock market in the time interval 2000-2020, analyzing as reference moments the beginning and final points of the analysis, we note that the value ascension of the stock exchange transactions recorded a special jump. We note that since 2003, the value of the traded shares has seen a sharp increase, culminating in the year of accession to the European Union. It is noted that its dramatic decrease during the financial crisis period was recovered by 2011, followed by a decrease, but not as sudden as the previous one. In recent years, the total value of the traded shares has registered a significant and constant increase, reaching at the end of the analyzed time interval the maximum value.

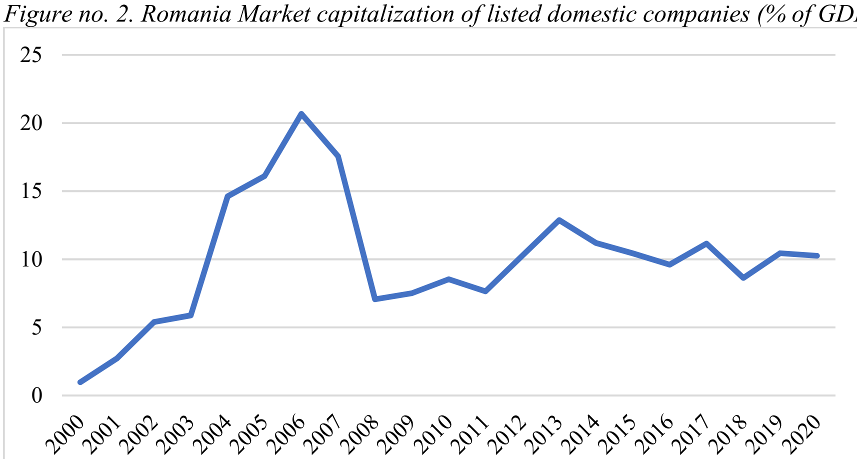
Figure no. 1. Romania Stocks traded, total value (current US$)



Source: Author processing, data from www.worldbank.org

The market capitalization of the Bucharest Stock Exchange, an indicator analyzed in percentage relation to the gross domestic product, recorded with constant evolution, which made the capital market of the last years a stable financial entity. During the period of positional evolution of the international financial markets, which coincided with the pre-accession period to the EU, the market capitalization registered a justified ascent, an increase that suddenly returned in the period 2007-2008 to the level of 2003. The subsequent evolution was balanced, demonstrating a stability of the capital market.

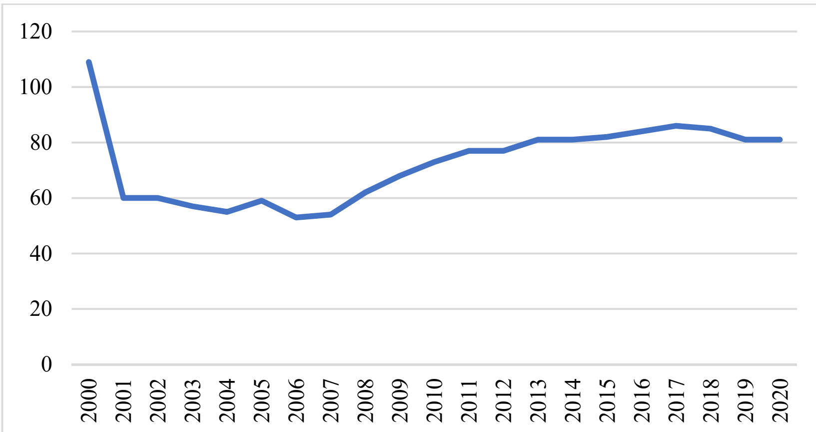
Figure no. 2. Romania Market capitalization of listed domestic companies (% of GDP)



Source: Author processing, data from www.worldbank.org

Regarding the number of domestic companies listed on the stock exchange, we note that this indicator does not follow a trend similar to that of the capitalization values of the stock exchange. There is a steady increase in the EU post-accession year, followed by a capping of this indicator. We interpret this result as a reserved composition of the Romanian entrepreneurship towards the capital market. From our point of view, despite the positive evolution and the constant stock market, the outside environment in Romania still presents a reluctance to list companies. This prudence can have its motivation in a feeling of distrust of the business environment, but also in the retention towards the transparency of the business and the fulfillment of the specific conditions of listing on the stock exchange. Even if financing through bond issues is often a feasible alternative to the bank loan, we note that this option is unfortunately too little known in Romania, this fact being confirmed by the constant number of local companies listed on the stock exchange.

Figure no. 3. Romania Listed domestic companies, total



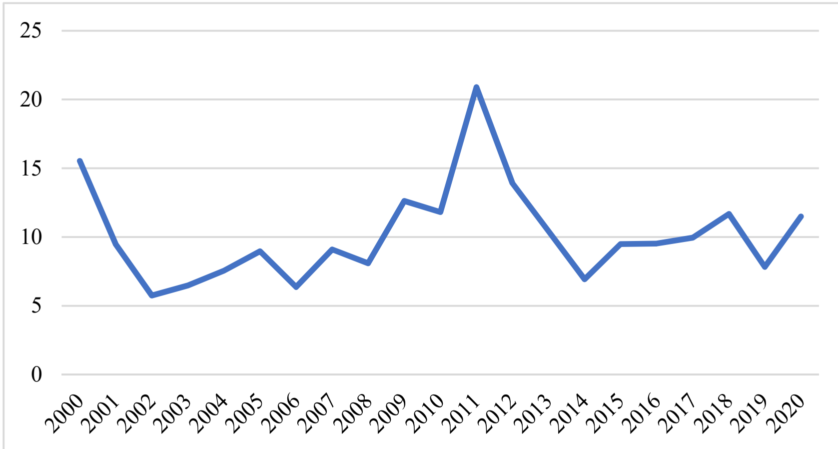
Source: Author processing, data from www.worldbank.org

Analyzing the ratio between the traded shares and the turnover of domestic shares, we observe the same upward trend during the years 2007-2011, but in recent years, the ratio is balanced by the turnover of domestic shares. At the end of the analyzed period, we note that, despite the special events of 2020, the Bucharest Stock Exchange did not register considerable decreases, as a result of which we can consider that the projects dedicated to the expansion of investor communications have worked.

In our opinion, this indicator may be more relevant than the number of companies, given that a market may have a small number of companies listed on the stock exchange, but it can hold a significant capitalization, especially in highly developed countries. We believe that in recent years, important steps have been taken in terms of the technology and transparency of stock exchange operations, but it is necessary to cumulate them with the encouragement of large international companies to invest in the Romanian market.

We estimate that the promotion of the Romanian market to the emerging market level in 2020 is only the first step towards creating a more efficient capital market, with a significant improvement in the liquidity level and with an increasing representation percentage in the gross domestic product. We also consider that "Made in Romania", another important project initiated by the Bucharest Stock Exchange whose purpose is to develop a digital platform for the management of stock exchange mechanisms through issuance of shares and bonds, is a new tool to attract investors, by educating and guiding Romanian entrepreneurs in order to sustainably develop the local business environment.

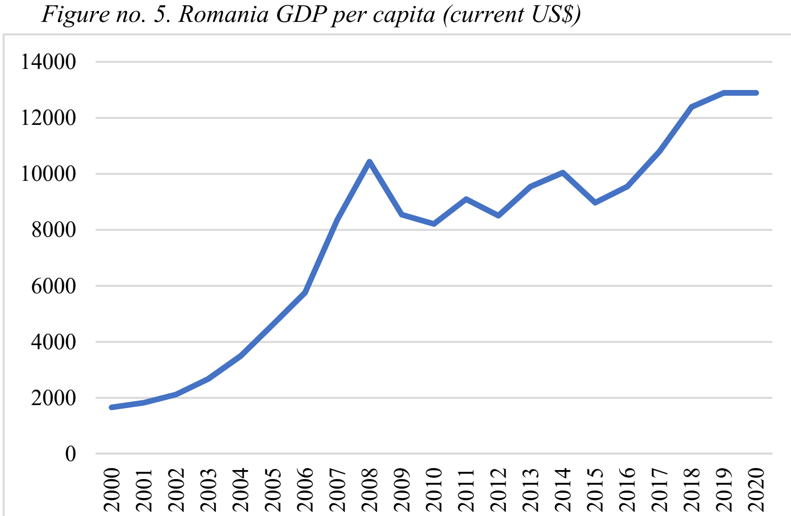
Figure no. 4. Romania Stocks traded, turnover ratio of domestic shares (%)



Source: Author processing, data from www.worldbank.org

As far as the macroeconomic indicators are concerned, we are primarily looking at the gross domestic product per capita, noting an obviously favorable development. Except for the period of economic crisis of 2008-2010, as well as the years 2019-2020 of crisis caused by the Covid-19 pandemic, periods in which Romania's macroeconomic indicators have seen a decrease, as well as the other states, the indicators for quantifying the gross domestic product demonstrate the economic growth of Romania. The value analysis shows the general positive trend of GDP, the two involutions being evident in the analysis of GDP evolution in relation to the values recorded in previous years.

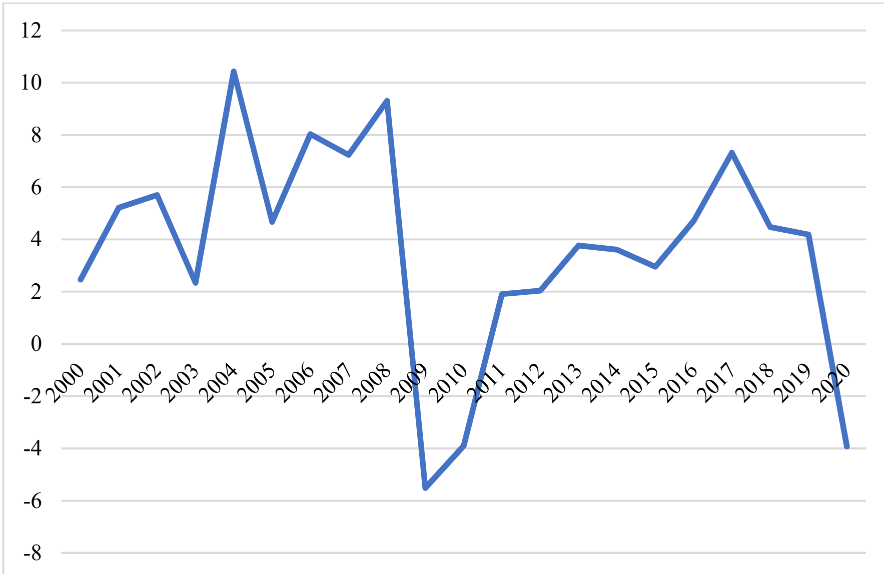
Figure no. 5. Romania GDP per capita (current US$)



Source: Author processing, data from www.worldbank.org

We look at gross domestic product both in the form of GDP per capita and in terms of percentage growth. As expected, at a relatively constant population, those indicators correlate. Thus, GDP per capita experienced a significant and constant growth in the period 2000-2007, the evolution of GDP in this time interval experienced fluctuations between 2 and 10%. Since 2015, we notice an increase in indicators that we translate into a positive evolution of the economy.

Figure no. 6. GDP growth in Romania (annual %)

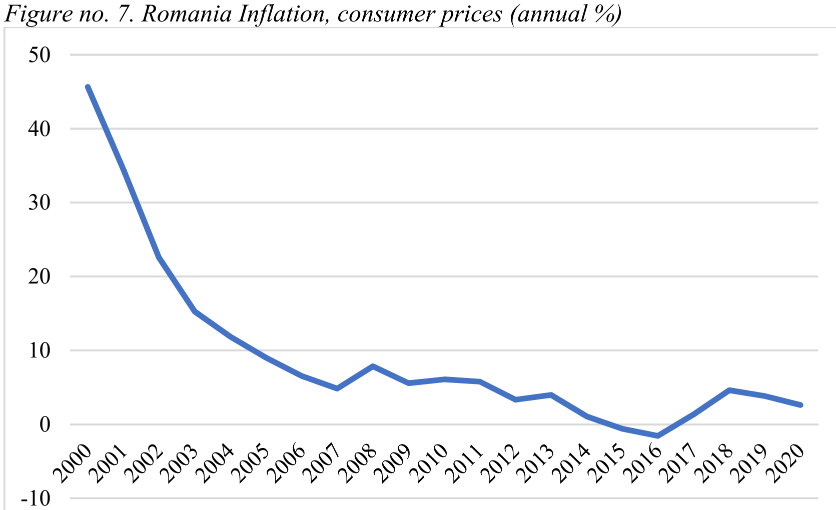


Source: Author processing, data from www.worldbank.org

We analyze the consumer price index, being considered the most used macroeconomic indicator by the business environment, used for the adjustment of the contractual clauses, as well as for the estimation and macro regulation of the economic and financial markets. Analyzing the consumer price index of Romania in the last 20 years, we note that the inflationary trend is decreasing, another positive argument regarding the economic stability and the creation of a stable framework for the business environment and investors.

We also note that the evolution of foreign direct investment correlates with the other macroeconomic indicators. We note that the figures recorded by this indicator confirm that foreign investments are much more sensitive to the international business environment. Thus, the volume of foreign investments made in the years before accession to the European Union demonstrates the openness to integration at international level and anticipates the maximum recorded in 2007-2008. After the sharp drop during the economic crisis, foreign investments were much more weighted, while registering an obvious positive evolution. Unfortunately, however, the Covid-19 crisis has diminished the interest of investors at the level of 2009.

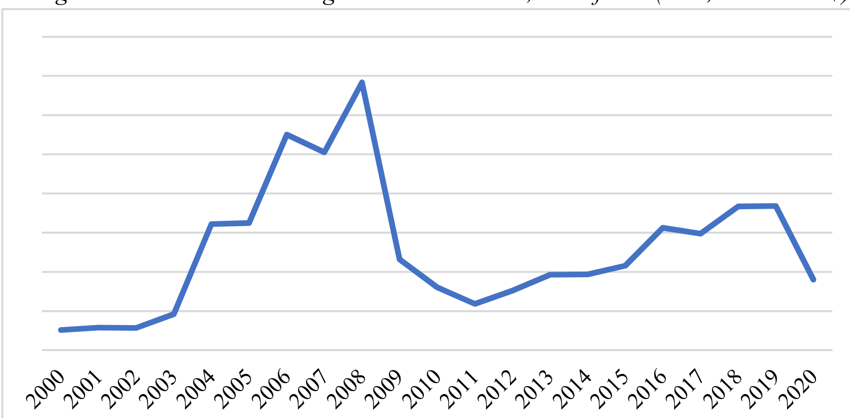
Figure no. 7. Romania Inflation, consumer prices (annual %)



Source: Author processing, data from www.worldbank.org

Interpreting the evolution of foreign investments (FDI), I note that the values recorded in the years prior to Romania's accession to the European Union have increased significantly. The post-crisis recovery was relatively constant between 2011 and 2019, but far from reaching the maximum values of the years 2007-2008. As expected, the Covid-19 health crisis has led to a significant drop in the FDI index. As a result, we can conclude that foreign investments are closely correlated with the economic condition at national level, and negative events significantly impact the interest of foreign investors. From our point of view, investors' sentiment plays a very important role and with immediate effects on the behavior of the investment market, which is also confirmed by the attached graphic representation. Also, it should be mentioned that the processing industry represents one third of the total value of FDI (the largest share being recorded in the industry of means of transport, followed by the processing of crude oil and chemical products), about 20% being located in constructions and real estate transactions, noting that this structure was relatively similar in the analyzed period of time.

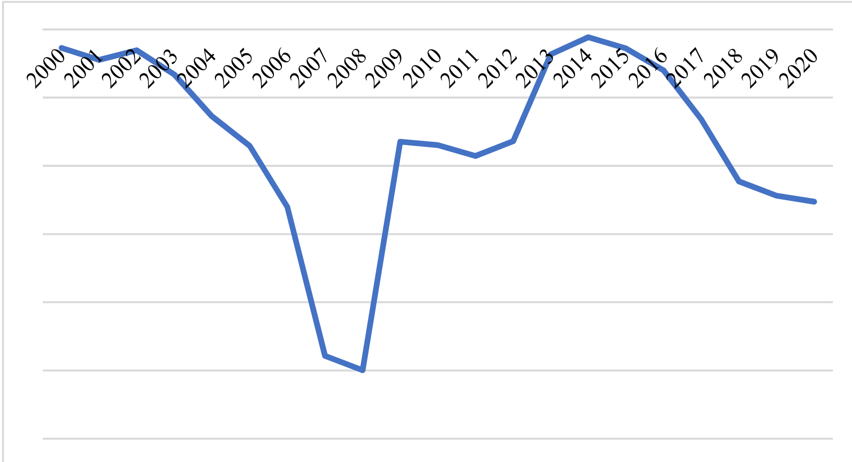
Figure no. 8. Romania Foreign direct investment, net inflows (BoP, current US$)



Source: Author processing, data from www.worldbank.org

The current account balance has recorded negative annual values in the last 20 years. In the years 2000-2003 and 2013-2016, the registered deficit had minimum values, the most unfavorable evolution being correlated with the negative evolutions of the macroeconomic indicators. The current account balance improved substantially between 2013 and 2016. After reaching a minimum in 2008, the current account deficit decreased significantly in two stages: in 2009 there was considerable progress, mainly due to the lower rate of imports. A second improvement was between 2012 and 2013; from our point of view, this positive evolution was determined by the increase of exports and at the same time by stable imports, as well as by a decrease in the deficit in terms of primary incomes.

Figure no. 8. Romania Foreign direct investment, net inflows (BoP, current US$)



Source: Author processing, data from www.worldbank.org

The trend of increasing the current account deficit started in 2015, which we consider to be a result of the deterioration of the balance of goods, that continued in the following years. Despite a positive evolution of the capital account surplus, the increase in the current account deficit was also significant in 2018. The deficient pace eased in 2019, when primary incomes reduced their deficit, being positively influenced by the compensation of employees and the subsidies received from the European Union, while the secondary incomes recorded a consolidation of the surplus, determined by the increase in remittances of Romanian workers from abroad.

5. Conclusions

Analyzing the capital market and macroeconomic indicators, it is noticed that the values recorded by them are correlated only to a certain extent. It is noted that the main events, such as Romania's accession to the EU and the financial crisis, affected all indicators, but the degree of impact and especially the recovery times differ.

We conclude that the macroeconomic indicators are less flexible to the changes of the economic and financial market, in times of crisis the economic sector being more stable than the financial one. On the other hand, we find that the capital market is affected almost instantly by the negative events that occur, but the recovery is carried out more quickly.

We must mention that the reaction of the governments through the economic policies undertaken, as well as the involvement of the National Bank of Romania in the key moments of inflection of the financial market, have determined decisively the evolution of the indicators. Thus, we consider that a synchronization of the governmental apparatus with the National Bank of Romania (BNR) and the other institutions involved is essential in correlating the economic evolution as a whole, as well as in maintaining a stability of the business environment. Here we exemplify the moments when large amounts of capital took place, when fiscal policy was pro-cyclical, which amplified the vulnerabilities associated with the reversal of the current account that occurred in the period 2004-2008. In theory, the policies of the BNR can diminish the negative effects or, on the contrary, to amplify the vulnerability of the market. At such times, the negative impact is intensified because the cyclical components of the gross domestic product, the large infusion of capital and the increase in budget expenditures can mutually join each other.

In conclusion, we note that the collaborations between the financial and macroeconomic indicators of Romania in the period 2000-2020 are limited by the behaviors specific to each index, the influence factors differing. Therefore, we consider that trying to identify an exact typology regarding the correlation of the two types of indicators is very difficult, all the more so as the economic and financial policies, as well as the temperament of investors are unpredictable in the long run.

6. References

- Abuseridze, G., 2021. The Role of the WTO in the Development of International Trade: History, Problems and Perspectives of International Trade Law, Summary of the Doctoral Thesis, Riga Stradiņș University.
- Anghelache, C., 2018. *The economic balance of Romania at one hundred years*. Editura Economică, Bucureşti
- Anghelache, C., Anghel, M. G., Căpușneanu, S., Topor, D.I., 2019. *Econometric model used for GDP correlation analysis and economic aggregates.* Economic Computation and Economic Cybernetics Studies and Research, Issue 1/2019; Vol. 53, pp. 183-197
- National Bank of Romania, *Rapoarte privind Investițiile străine în România [Reports on Foreign Investments in Romania]*, https://www.bnr.ro/PublicationDocuments.aspx?icid=9403
- Barakat, M., Elgazzar, S., Hanafy, K., 2015. *Impact of Macroeconomic Variables on Stock Markets: Evidence from Emerging Markets*. International Journal of Economics and Finance. 8. 195. 10.5539/ijef.v8n1p195.
- Bucharest Stock Exchange, 2020. *Raport consolidat al administratorilor BVB pentru anul 2020 [Consolidated report of BVB administrators for 2020]*. www.bvb.ro
- Camilleri, S.J., Scicluna, N., Bai, Y., 2019. *Do Stock Markets Lead or Lag Macroeconomic Variables? Evidence from Select European Countries*. The North American Journal of Economics and Finance. 48.
- Crstescu, A., Popescu, M.E., Gatea, A., Stanila, L., 2021. *Gender management strategies in response to minimum wage increases in Romania*. Economic Computation and Economic Cybernetics Studies and Research, vol. 1/2021, vol. 55
- Dash, S., Pradhan, R.P., Maradana, R.P., Gaurav, K., Jayakumar, M., 2020. *Impact of banking sector development on insurance market-growth nexus: the study of Eurozone countries*. Empirica, Springer; Austrian Institute for Economic Research, Austrian Economic Association, vol. 47(2), pp. 205-243
- Davis, E.P., Karim, D., Noel, D., 2020. *Macroprudential Policy, Monetary Policy and the Bank Interest Rate Margin*. Brunel University London, Department of Economics and Finance, worksheet paper no. 2013.
- Dias, A., 2013. *Market Capitalization and Value-at-Risk*. Journal of Banking & Finance, 37(12), pp. 5248- 5260
- Geller, G., 2010. *Investor Protection, Equity Markets and Economic Growth in Emerging Economies: A Study of the Bullish Period between 2003 and 2007*, available at SSRN: https://ssrn.com/abstract=1728084
- Goldman Sachs Asset Management, 2021. *2021 Emerging Markets Equity Outlook*, available on https://www.gsam.com/content/gsam/us/en/individual/market-insights/gsam-insights/2021/Emerging-Markets-Outlook-2021.html
- Haini, H., 2019, *Examining the relationship between finance, institutions and economic growth: evidence from the ASEAN economies*, Economic Change and Restructuring, November 2020
- Hamdan, A., Al-Sartawi, A., and Jaber, R., 2013. *The Effect of Corporate Governance on the Financial and Operational Performance and of Stock Performance in Kuwait Stock Exchange*. Arab Journal of Administrative Sciences, 20(2), pp. 255-302
- ILO/IMF/OECD/UNECE/Eurostat/The World Bank, 2004. *Consumer price index manual: Theory and practice*, Geneva, International Labour Office
- Kurihara, Y., 2006. *The Relationship between Exchange Rate and Stock Prices during the Quantitative Easing Policy in Japan*. International Journal of Business, 11, pp. 375-386.
- Li, R., Leung, G.C.K., 2021. *The relationship between energy prices, economic growth and renewable energy consumption: Evidence from Europe*. Energy Reports, vol. 7/2021, pp. 1712-1719
- Luwihono, A., Suherman, B., Sembiring, D., Rasyid, S., Kalbuana, N., Saputro, R., Prasetyo, B., Taryana, T., Suprihartini, Y., &Asih, P, 2021. *Macroeconomic effect on stock price: Evidence from Indonesia*. Accounting, 7(5), pp. 1189–1202.

- Odogunde, A. O., Elumilade, D. O. and Asaolu, T. O., 2006. *Stock Market Capitalization and Interest Rate in Nigeria: A Time Series Analysis*. International Research Journal of Finance and Economics, 4, pp. 154-166
- Moagăr-Poladian, S., Clichici, D., Stanciu, C.V. 2019. *The Comovement of Exchange Rates and Stock Markets in Central and Eastern Europe*. Sustainability, vol. 11, issue 14, pp. 1-22
- Mpofu, T.P.Z., 2014, *The Growth and Development of the European Union*. Lap Lambert Academic Publishing
- MSCI Barra Research, 2010. *Is There a Link Between GDP Growth and Equity Returns?,* MSCI Barra Research Bulletin, May 2010
- Pantea, M., Gligor, D. and Anis C., 2014. *Economic Determinants of Romanian Firms' Financial Performance*. Procedia. Social and Behavioral Sciences, 124, pp. 272-28.
- Pavone, P., 2019. *Market Capitalization and Financial Variables: Evidence from Italian Listed Companies,* International Journal of Academic Research Business and Social Sciences, 9(3), pp. 1356–1371.
- Qurashi, M., Zahoor, M., 2016. *Impact of profitability, bank and macroeconomic factors on the market capitalization of the Middle Eastern banks*. International Journal of Business and Management Invention, 5(11), pp. 56-62
- Robinson, J., 1952. *The generalization of the general theory*. The Rate of Interest and Other Essays, Macmillan, London
- Schumpeter, J, 1911. *The Theory of Economic Development*. Cambridge: Harvard University Press
- Spulbăr, C., Birău, R., 2019. *Emerging Research on Monetary Policy, Banking, and Financial Markets.* Business Science Reference
- Spulbăr, C., Niţoi, M., 2013. *Monetary policy transmission mechanism in Romania over the period 2001 to 2012: a BVAR analysis*. Scientific Annals of the Alexandru Ioan Cuza University of Iasi, Economic Sciences Section, vol. 60(2), pp. 387-398
- Winful, C.E., 2017. *Determinants of stock market development in emerging economies,* PhD Thesis,University of Cape Coast Institutional Repository
- Zonon, P., 2021. *Regional Stock Exchange Development and Economic Growth in the Countries of the West African Economic and Monetary Union (WAEMU),* Economies, 9(4), pp. 181.