

BUCHAREST STOCK EXCHANGE DEVELOPMENT BETWEEN 1995 AND 2020. FROM FRONTIER TO SECONDARY EMERGING MARKET

CORNELIA POP¹

*Article history: Received 24 January 2022; Revised 28 February 2022; Accepted 21 March 2022;
Available online 30 May 2022; Available print 30 May 2022.*

©2022 Studia UBB Negotia. Published by Babeş-Bolyai University.



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License

ABSTRACT. The current paper presents and discuss the evolution of Bucharest Stock Exchange over the past 25 years since the re-establishment of this institution. The study also discuss the upgrade and re-classification of the Romanian capital market as a secondary emerging market by the index provider FTSE Russel. Further, it presents Bucharest Stock Exchange position among the security exchanges of the former communist countries, which became member of the European Union. Also, some influences resulting from the implementation of European Union directives in financial sector are discussed The paper concludes showing that Bucharest Stock Exchange still has a long road ahead until it will fulfill the conditions to be re-classified as a full emerging market by the other two global index providers, MSCI Barra and Standard and Poor's.

Key Words: security market, frontier market, secondary emerging market

JEL Classification: G10, G19

Recommended citation: Pop, C., *Bucharest Stock Exchange development between 1995 and 2020. From frontier to secondary emerging market*, Studia UBB Negotia, vol. 67, issue 1 (March) 2022, pp. 71-112, doi: 10.24193/subbnegotia.2022.1.04

¹ Prof. dr., Faculty of Business, Babeş-Bolyai University, Cluj-Napoca, Romania,
cornelia.pop@ubbcluj.ro

Introduction

Over a decade ago, the implementation of MiFID I (Market in Financial Instruments Directive I) raised a lot of debate regarding the future of smaller and younger security exchanges within the European Union (EU). The possible dangers were perceived to be represented by the development of alternative trading venues as new competitors (Skinner, 2007) and by the potential need, for the security exchanges, to increase their critical size in order to attract and retain liquidity, combined with the need to generate the indispensable revenues for investment in new technologies (Haas, 2007). The relevance of smaller and less liquid EU security markets was questioned by Iorgova & Ong (2008).

Nonetheless, the presence of an operating security exchange in an economy proves the existence of a functioning market economy (Harrison & Paton, 2004) which is still an important validation for the former communist countries, now EU members, including Romania. Furthermore, a functional security exchange might represent an important source for raising capital for the development of local and/or regional companies and for domestic government institutions (Andritzky, 2007; Stulz, 2009; Bayraktar, 2014). In addition, the respective security exchange might offer access to capital at a potential lower costs and also a listing platforms for companies and government institutions financial instruments with lower fees than those presumed by foreign listings in combination with other administrative and cultural factors (Pop, 2011). Moreover, an active national security market offers investment alternatives (and liquidity for these investments) for domestic small investors who cannot afford and/or do not have the necessary knowledge to be present in multiple (foreign) markets. The importance of a functional domestic security market is also supported by the fact that the phenomenon of home bias² remains strong across countries (Kho et al., 2009; Ardalán, 2019) and is even stronger in emerging and frontier markets (Ardalan, 2019; Hu, 2020). Besides all the reasons presented above, an important

² Home bias is shows the preference of domestic investors to channel an important amount of their available financial resources towards the securities issued and traded in their own home country, despite the potential benefits of diversification provided by foreign markets. Among the main causes for home bias are mentioned: the risks related to foreign exchange rates, problems related to transaction costs in foreign markets, different legal frameworks and tax treatment, specific factors requiring in-depth knowledge and the familiarity with the local security market (Ardalan, 2019; Schumacher, 2018)

series of studies have shown the relationship between the existence of a national security exchange, the development of financial services (known most recently as financialization) and the economic growth of a country, mainly in the cases of emerging and frontier markets (Ang, 2008; Minier, 2009; Masoud & Hardaker, 2012; Bayraktar, 2014; Petry, 2020). Last, but not least important, the presence of a security market in an emerging and/or a frontier economy represents a source of national pride (O'Hara, 2001).

MiFID I enactment since the end of 2007 generated two important outcomes (Schwartz et al., 2015; Aghanya et al., 2020): i) an increase in the cross-border investments (a situation confirmed by Ardalán, 2019 which specify that home bias across European countries is lower than the world average); ii) increased competition among various trading venues, generating a fragmentation of the market for these trading venues.

MiFID I was revised and extended through MiFID II. MiFID II implementation started across Europe since January 3, 2018. MiFID II is based on the same three pillars as MiFID I: transparency of the trading venues, investor protection, and competition among the trading venues. Currently, it is expected that MiFID II to continue the developments triggered by MiFID I within EU countries. These developments seem to favor the presence of smaller security exchanges since they enhance the investors' rights to choose among various trading venues. Nonetheless, there are concerns that this will generate too much competition which might lead to adverse selection costs and 'cream-skimming' by informed investors (Aghanya et al., 2020).

On the other hand, MiFID I and MiFID II enhance the EU emerging and frontier markets growth potential through the development of trading sectors dedicated to SMEs (Pop et al., 2016a), also called 'junior' markets (Granier et al., 2017).

The classification of countries in developed, emerging, and frontier was triggered by the introduction, in 1992, by the International Monetary Fund, of the expression 'frontier markets' for describing a subset of smaller, illiquid, less accessible, yet investable (financial) markets (Pop et al., 2016a). First to offer this type of classification was the global index provider Standard & Poor's by the end of 2007, followed in 2008 by MSCI Barra and FTSE (Pop et al., 2016a). These classifications are used to inform the potential investors about the level of development of the respective markets and the associated investment risks. An upgrade in the market status is considered to be beneficial by attracting more

foreign investors like various (and larger) investment funds, other index tracking institutional investors and individual investors (Saidi et al., 2012). An upward re-classification for a country is perceived, by the international investor community, as a signal for a stronger policy commitment toward market reforms and liberalization; it also indicates a recognition from global index providers viewpoint that market reforms were undertaken and markets improvements were registered (Saidi et al., 2012).

The present paper looks at Bucharest Stock Exchange developments over the last 25 years, since the institution re-opening in 1995. The paper also discuss the path Bucharest Stock Exchange followed to be upgraded from frontier to secondary emerging market, the position of the institution withing the group of security exchanges of other 10 former communist countries that joined the EU, and also discuss some of the future perspectives for Bucharest Stock Exchange. To the best of author's knowledge no such analysis has been published until present.

BVB main developments

Bucharest Stock Exchange (BVB3 henceforth) was re-established⁴ in 1995: the official opening took place on April 21, while the first trading session was held on November 20⁵ as specified by Pop & Dumbrava (2006). BVB was re-started as a non-for-profit public institution, based on membership and managed by Bucharest Stock Exchange Association (Pop & Dumbrava, 2006). This was the most frequent legal status for stock exchanges around the world at the mid 1990s when, traditionally, security exchanges were founded, owned and managed by brokers and dealers associations, as non-for-profit organizations (Fleckner, 2006).

BVB was among the latest exchange to re-open in the Central and Eastern European region (Pop & Dumbrava, 2006). Also, due to a delayed privatization process, the number of listed companies was small (8 in November 1995) and therefore the trading activity at BVB was shallow, as shown by Pop & Dumbrava (2006), specifying that BVB was open for business only once a week between November 1995 and March 1996, increasing to twice a week between March 1996 and March 1997, then extended to three trading sessions per week from March 1997 to May 1997. Since May 5, 1997 BVB started to trade 5 days a week, except for national holidays.

During 1997, RASDAQ market was established in order to offer a trading venue for the majority of the privatized Romanian companies not fulfilling the listing conditions imposed by BVB. Details regarding the evolution of RASDAQ market can be found in the series of 3 papers of Pop et al. (2014), Pop et al. (2015), and Pop et al. (2016b). Also in July 1997, a derivative market was opened at Sibiu, under the (Romanian) name Bursa Monetara Financiara si de Marfuri Sibiu (Sibiu Monetary Financial and Commodities Exchange), which later became SIBEX. To the best of the author's knowledge, no academic paper discussing the evolution of SIBEX was yet published.

Neither of these two exchanges launched in 1997 represented direct competitors for BVB. In the end, both RASDAQ (in 2005) and SIBEX (in 2018) were absorbed by BVB.

Table 1, below, presents the main development steps of BVB as institution. As can be observed, during the first decade, BVB registered few important developments, except the increase in number of listed companies. Pop & Dumbrava (2006) present a number of causes for the problems faced by BVB between 1995 and 2005, among which it is interesting to mention the low level of transparency for the listed companies and the two crisis (1996 and 2000) of Romanian mutual funds which, up to a point, affected BVB's activity also. Filip & Raffournier (2010) also stressed out that, during the first decade, BVB image have been negatively influenced by a low number of liquid companies which generated low trading volumes and also suffered due to few and disputable transparency requirement. Furthermore, the political decisions of that period had too often negative influences over the entire economic environment (Popescu et al.2014). more details about the financial and economic environment of BVB during the first decade can be found in Harrison & Paton (2004), Skully & Brown (2006), Stefanova (2014).

To address the problem of listed companies transparency, in 2008 BVB launched the first Code of Corporate Governance for these companies. The Code of Corporate Governance was updated and upgraded in 2015 and included new important requirement for the listed companies in terms of disclosure and transparency. The implementation of the 2015 Code (since January 2016) started to have a positive influence on BVB listed companies' transparency (Stanciu, 2019; OECD, 2021) which improved significantly between 2015 and 2021.

More details, regarding the main developments of BVB trading system, complementing the information provided in Table 1 can be find in Annex 1.

Table 1. The main developments for BVB

1995	<p>April 21: BVB was re-established as a public non-profit institution based on the National Securities Commission Decision no.20/1995; in this capacity, BVB was under the administration of the trading members' association; the 24 to 28* trading members created the Bucharest Stock Exchange Association; the number of member was not limited, providing the new members fulfilled a minimum set of requirements.</p> <p>June 23: the official inauguration</p> <p>November 20: the first trading session</p>
2003	BVB becomes an affiliated member of the Federation of European Securities Exchanges (FESE).
2005	<p>BVB changes the legal status and becomes a for profit public joint stock company based on the decision taken by the Bucharest Stock Exchange Association. The members of the respective association became the BVB shareholders.</p> <p>The absorption of the RASDAQ Electronic Exchange was approved and the process was completed in December 2005. RASDAQ became an unregulated market under BVB management.</p>
2006	<p>The merger negotiations with the Sibiu Monetary Financial and Commodities Exchange failed.</p> <p>BVB became a member of the World Federation of Exchanges</p>
2007	BVB becomes full member of FESE since Romania's accession to European Union.
2010	<p>June 8: BVB start listing its own shares within the regulated market under the symbol BVB.</p> <p>The Alternative Trading System (ATS) is launched and Daimler AG is the first international company to be dually listed within this market segment.</p>
2013	August: Ludwik Soboleski was appointed as BVB's CEO (Chief Executive Officer)
2014	The introduction of a new website for BVB in December reflecting the various changes implemented on the trading system and practices.
2015	<p>February: AeRO is launched as a new ATS segment dedicated to small domestic companies.</p> <p>October 27: RASDAQ, the unregulated segment, is closed and over 200 companies were transferred on AeRO.</p> <p>BVB became a partner exchange and a member of the United Nations Sustainable Stock Exchanges Initiative</p>
2016	<p>April: A new series of negotiations are initiated with SIBEX (former Sibiu Monetary Financial and Commodities Exchange) having as goal the merger of the two security exchanges.</p> <p>June: An agreement with SIBEX was reached and considered as a first step for the future merger.</p> <p>September: FTSE Russel announced the inclusion of Romanian capital market in the watch-list for upgrading to secondary emerging status within a short or medium time interval.</p> <p>December: BVB shareholders formally approved the merger with SIBEX and the legal process for the merger to be acknowledged began.</p>

BUCHAREST STOCK EXCHANGE DEVELOPMENT BETWEEN 1995 AND 2020

2017	<p>August: Ludwik Soboleski CEO's contract with BVB came to an end. Soboleski continued as CEO until October when he resigned and was replaced by his Romanian deputy.</p> <p>December: Bucharest Court of Law approved the merger (through absorption) of SIBEX by BVB and the merger became effective starting with January 1, 2018. The 12 companies listed on SIBEX will be transferred on AeRO segment at BVB.</p>
2018	<p>January: a new Romanian CEO is appointed for BVB</p> <p>September: FTSE Russel Report on Romanian capital market shows improvements on Romania's road toward a secondary emerging market.</p>
2019	<p>October: FTSE Russel announced that starting with September 2020 Romanian capital market will be promoted to the status of secondary emerging market.</p>
2020	<p>April: FTSE Russel confirms Romania will be included in the group of secondary emerging markets as of September 2020.</p> <p>September 21st: FTSE Russel includes Romania in the group of secondary emerging markets.</p> <p>November: BVB celebrates 25 years of activity since its first trading after re-opening on November 20, 1995.</p>

Note: The number of trading members varies depending on the sources (Anghelache 2006, Skully & Brown 2006, and BVB 2001 Annual Report) due to the fact that it probably increased from 24 to 28 between April and November.

Sources: Pop(2015); <http://www.bvb.ro/aboutus/mediacenter/pressitem/20-de-ani-de-la-primatranzactie-pe-Bursa-de-Valori-Bucuresti/4164>; http://www.bvb.ro/press/2015/2015.05.05_BVB%20Rez%20fin%201Q15_EN.pdf; 2001 and 2003 Annual Reports available at: <http://www.bvb.ro/AboutUs/Publications>, OECD (2021)

After absorbing the RASDAQ market in 2005, BVB followed the international trend of other exchanges around the world³ and incorporated, becoming a joint-stock public company at the end of 2005 and the beginning of 2006. BVB also made a first trial to absorb SIBEX (by then still called Sibiu Monetary Financial and Commodities Exchange) during 2006, but the negotiations failed. It is interesting to mention that after this event, SIBEX announced that it will launch a new trading platform for shares in order to diversify its trading products (futures and options on futures), while BVB announced the launch of its derivative sector, which included only futures contracts on various underlying assets (exchange rates, indices, shares, commodities). Therefore, BVB and SIBEX became direct competitors, but the more prominent and established position of BVB overshadowed SIBEX and, in the end, absorbed the smaller security exchange from Sibiu.

³ Due to the deregulation process, advances in the field of information technology, and increasing globalization, security exchanges were under pressure to give up their former status and became for-profit, publicly traded, companies. This process is known as demutualization and, for the main security exchanges around the world, took place between 1997 and 2006 (Fleckner, 2006)

After incorporation, BVB also created the BVB Financial Group which comprises four companies in which BVB is holding a majority shareholder position (for details see Annex 2a). All these companies were either acquired or created in order to enhance and help the future development of BVB. More details regarding BVB Financial Group can be found in Stanciu (2019).

Since June 2010, BVB started listing its own shares on the trading platform under the same symbol, BVB, as the used abbreviation. The gap between BVB incorporation and the listing of its own shares can be explained by the fact that for the period 2006-2008 the shareholder structure included also preferred shareholders composed of mix of individual (natural) persons and legal entities which had an ambiguous status and needing re-authorization for functioning as financial service companies due to changes in Romanian regulatory framework. Since 2009, all the shares became ordinary shares. In order to prevent share concentration, no shareholder or declared group of shareholders is allowed to control more than 20% of BVB shares (Stanciu, 2019). Some details regarding BVB shareholder structure are presented in Annex 2b and in Stanciu (2019).

In order to support Romania's capital market upgrade from frontier to emerging market, in August 2014 Romanian Financial Supervisory Authority (FSA) launched the project STEAM (**S**et of **A**ctions **T**owards **E**stablishing and **A**cknowledgment of the **E**mergent **M**arket **S**tatus). In 2015 the project was updated and it was set to review the regulatory framework for the Romanian capital market, to improve the capital market infrastructure, to support the (further) development of bond market, to increase the number of issuers, to expand the retail market and the financial literacy through financial education. By October 3, 2019, after FTSE Russell announcement that Romania will become a secondary emerging market since September 2020, the Romanian FSA considered that it reached its main objective within STEAM project. Nonetheless, the FSA announced that it will continue the actions within this project for a potential future reclassification of Romania as emerging market by MSCI Barra and Standard & Poor's (source: <https://asfromania.ro/en/a/510/asf-a-atins-obiectivul-fundamental-al-proiectului-strategic-steam>).

Tables 2a and 2b, below, present more details regarding the developments within the BVB main/regulated market and BVB alternative trading system (currently named multilateral trading system or MTS). One must note that after the absorption of RASDAQ market, between

2006 and 2010 this was considered the unregulated market at BVB. However, RASDAQ legal status was complicated and generated endless disputes between BVB and the supervisory body (currently FSA) and consequently the alternative (multilateral) trading system was introduced in order to replace, in time, the RASDAQ market segment.

Table 2a. The main steps in developing BVB regulated/main market

Nov.1995 to Oct.2001	Only domestic equities were listed and traded.
2001	November: the launch of the municipal bond market sector.
2003	May: the launch of the domestic corporate bond market sector
2005	The first rights are traded
2006	September: the introduction of international (corporate) bonds
2008	February: the first dual listing of Erste Group Bank AG (also listed in Vienna and in Prague) within the section International equities/shares. April: the launch of the derivative markets; only futures contracts on offer. August: the launch of the <i>Government bond market sector</i> . September: start trading of the first UCITS.
2010	July: The introduction of the first certificates within the <i>Structured products'</i> segment
2011	June: The listing of the first REIT4 (symbol NEP, registered in the Isle of Man) at BVB within the regulated equity market under the section Other international securities. the REIT was delisted at the mid of July 2017 due to changes in shareholder structure.
2012	August: The introduction of the first ETF under the symbol TVBETETF. To the present (December 2021) this remains the only ETF listed at BVB.
2015	June: The first retail Government bonds start listing within Government bond sector. These retail bonds were issued for individual investors (general population) only.
2016	January: The derivative market segment (futures contracts only) was closed after registering no trading activity since mid 2013. June: Warrants are introduced to BVB under the section <i>Structured products</i> .
2017	May: the second international company (symbol DIGI) is dually listed within the section International equities/shares. July: the instruments named "Other international bonds" were introduced. This category of securities includes bonds issued by real estate companies.
2018	February: a third international company (symbol WINE) is dually listed within the section International equities/shares.
2019	June: under the name "Other bonds" the first issue of mortgage bonds started listing.

Source: Author's compilation based on the Annual Reports available at: <http://www.bvb.ro/AboutUs/Publications> and on <http://www.bvb.ro/aboutus/mediacenter/pressitem/20-de-ani-de-la-prima-tranzactie-pe-Bursa-de-Valori-Bucuresti/4164>

Table 2b. The main steps in developing the ATS/MTS at BVB

2010	October-November: The Alternative Trading System (ATS) is launched and Daimler AG is the first international company to be dually listed within this market segment.
2015	February: The launch of the AeRO segment and the start of domestic equity trading; all the shares were included in the <i>standard</i> category. July: The introduction of the first corporate bond and the launch of <i>ATS bond segment</i> ; the second corporate bond starts trading in December 2015. August: The introduction of the first UCITS, transferred from RASDAQ (XFOA symbol)
2016	February: The <i>premium</i> category is introduced for AeRO. December: The first rights start trading on AeRO.
2018	November: The <i>base</i> category is introduced at AeRO in order to include the companies transferred from SIBEX, as agreed when the merger of the two security exchanges was negotiated.

Source: Author's compilation based on the information available at:
<http://www.bvb.ro/AboutUs/Publications>,
<http://www.bvb.ro/AboutUs/MediaCenter/PressReleases>

The way BVB diversified its trading offer is presented in Table 3a for the regulated market and Table 3b for MTS & AeRO (for Romanian shares) segments.

As Table 3a presents, mainly after 2005, BVB showed a constant effort to diversify the type of securities offered for trading on the main/regulated market. Nonetheless, the shares (only common shares were and are traded on the regulated market) constantly represented the most important component of BVB turnover. However, the importance of share turnover decreased since 2018 due to an increased number of bond public offerings registered through BVB main market platform. The bond public offerings comprised mainly corporate bonds and retail government bonds (dedicated to retail/individual investors only). Further, one can observe that the certificates (structured products) have a relative level of popularity among investors given their hybrid characteristics, combining flexible hedging positions with speculative trading. The other products seem to be less popular either due to a relative lack of investors level of sophistication or to other causes: i.e. the marginal interest or lack of interest (in the case of investment funds and ETFs); high nominal values⁴, out of the range of an average retail investor (mainly in the case of corporate bonds, other international bonds, and other bonds). Each of these securities or group of securities deserve more dedicated attention and they will not be investigated in any detail within this paper.

Table 3a. BVB main/regulated market structure (%) by turnover of the listed securities

Year	Shares	Municipal bonds	Corporate bonds	International bonds	Government bonds	All bonds' public offerings	Rights	Futures	Investment funds	Funds' public offerings	Structured products	ETFs	Warrants	Other intl. bonds	Other bonds
1995	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1999	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2001	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2002	99.89	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-
2003	98.23	0.13	0.01	-	-	1.63	-	-	-	-	-	-	-	-	-
2004	89.22	0.20	1.79	-	-	8.79	-	-	-	-	-	-	-	-	-
2005	98.34	0.03	1.33	0.00	-	0.26	0.04	-	-	-	-	-	-	-	-
2006	90.81	0.07	0.86	0.82	-	7.43	0.01	-	-	-	-	-	-	-	-
2007	94.00	0.07	0.34	2.97	-	2.06	0.56	0.00	-	-	-	-	-	-	-
2008	96.29	0.44	0.59	1.42	0.27	0.00	0.66	0.26	0.07	-	-	-	-	-	-
2009	78.74	0.30	0.94	2.88	14.12	1.66	0.00	1.04	0.04	0.28	-	-	-	-	-
2010	67.04	0.27	0.00	0.17	27.46	2.90	0.05	1.28	0.13	0.15	0.55	-	-	-	-
2011	90.03	0.08	0.00	0.67	3.30	0.91	0.00	0.93	0.08	0.00	4.00	-	-	-	-
2012	77.42	0.00	0.00	0.11	12.19	2.61	0.00	0.42	0.05	0.00	7.20	0.00	-	-	-
2013	84.83	0.02	0.30	0.00	3.19	7.36	0.22	0.02	0.04	0.00	4.01	0.01	-	-	-
2014	91.58	0.02	0.28	0.00	0.80	5.64	0.00	0.00	0.06	0.00	1.60	0.02	-	-	-
2015	73.01	0.62	0.79	0.03	2.27	19.87	0.00	0.00	0.04	0.00	3.34	0.03	-	-	-
2016	83.89	1.06	0.49	0.25	1.01	9.39	0.00	0.00	0.02	0.00	3.85	0.01	0.03	-	-
2017	86.52	1.77	0.07	0.00	0.26	9.37	0.00	0.00	0.06	0.00	1.85	0.04	0.08	0.00	-
2018	81.90	0.04	0.13	0.02	0.93	14.48	0.00	0.00	0.05	0.00	2.40	0.02	0.00	0.00	-
2019	81.57	0.35	0.61	0.01	0.03	15.79	0.00	0.00	0.02	0.00	1.57	0.04	0.00	0.00	0.00
2020	66.94	0.02	0.31	0.05	1.66	26.42	0.00	0.00	0.02	0.00	4.54	0.06	0.00	0.00	0.00
2021	55.19	0.03	0.36	0.01	4.39	35.42	0.02	0.00	0.03	0.00	4.33	0.20	0.03	0.00	0.00
Avg.	80.94	0.29	0.41	0.46	3.37	11.68	0.08	00.16	0.04	0.01	2.51	0.04	0.01	0.00	0.00

Source: Based on the data available at www.bvb.ro

Table 3b presents the market structure for the MTS & AeRO market. The MTS was dominated by international companies listed in dual way until 2014. The international shares have the main (listing) market in Germany, USA, and Euronext France. A cumulative number of 31 international shares was dually listed on MTS. However, during February 2015, 4 French companies and 1 German company were withdrawn from MTS mainly due to the pull back of their market makers. For the same reason, all the 11 American companies were withdrawn during August 2016, decreasing the number of international shares at 15, all German companies. This number (15) remained unchanged until present (December 2021).

The segment for Romanian shares was also called MTS between 2012 and 2014. The name was changed in AeRO in 2015 when the transfer of over 260 companies from RASDAQ took place. The new listings (companies not previously listed on RASDAQ) on Romanian share segment was low: 11 companies between 2012 and 2015, with 6 of them starting listing during 2015; and 6 companies between 2016 and 2020, with 3 of them starting listing during 2020. For AeRO, the period between 2015 and 2020 was dominated by a high number of companies being delisted (51 companies). Only one company (BNET symbol) was transferred on BVB main/regulated market. During 2021, the tide was changing with only 10 delisted companies and 20 new listings, increasing the investors interest for AeRO market as the data show. One must mention that within AeRO segment only two issues of preferred shares were listed. By 2021 one of these preferred share issues was delisted and one remained, though no trade for the preferred shares was registered between 2015 and 2021.

The bond sector on MTS includes only Romanian corporate bonds and, while the turnover is not high, the trades have a daily frequency, averaging around EUR 30,000 daily (public offerings excluded) for the period 2015-2021. The number of (the retail) investors in these corporate bonds is relatively low, due to the fact that an important number of these bonds were issued through private offerings. Nonetheless, these bonds are more attractive for the retail investors due to their low nominal value (RON 100 or EUR 100, rarely RON 500 or EUR 500).

Table 3b. BVB MTS & AeRO market structure (%) by turnover of the listed securities

Year	International shares	Romanian shares	Corporate bonds	Bond offerings	Rights	Investment funds
2010	100.00	-	-	-	-	-
2011	100.00	-	-	-	-	-
2012	100.00	-	-	-	-	-
2013	92.36	7.64	-	-	-	-
2014	99.56	0.44	-	-	-	-
2015	37.80	57.60	2.53	2.02	-	0.05
2016	27.46	68.98	3.46	0.00	0.08	0.02
2017	18.82	77.20	3.93	0.00	0.03	0.03
2018	14.66	76.58	4.50	4.12	0.14	0.00
2019	17.59	62.51	4.96	12.94	0.00	0.00
2020	27.64	46.06	7.84	17.11	1.35	0.00
2021	5.12	70.09	7.41	16.12	1.27	0.00
Avg.	53.42	38.93	2.89	4.36	0.24	0.01

Source: Based on the data available at www.bvb.ro

The rights offering takes place occasionally, therefore the interest for these products is related to the investors following them. Also a low interest is attached to the only investment fund (or at least the only one listed in a separate section) offered on MTS. Unfortunately, this fund is related to the 1996 mutual fund crisis in Romania. While, as in the case of regulated market, MTS & AeRO deserve special attention, they will not be analyzed within the present paper.

In Table 4 and 5, below, the number of active intermediaries, active investors, and the general ownership of BVB securities are presented, in relation with the country's long term rating. It must be highlighted that the number of active investors and the security owners at BVB are available only after the creation BVB Financial Group, with the component institutions providing information regarding the active investors (Investors Compensation Fund) and security owners (the Central Depository).

Some comments are opportune regarding the evolution presented in Table 4 and 5.

The number of active intermediaries was at its highest in 1998, when the trading activity generated by the privatization process was intense. Nonetheless, this intense activity was accompanied with unlawful tradings (mainly on RASDAQ market, causing its poor reputation and, in

the end, this market demise; for more details see Pop & al., 2014) which decrease as a more stable ownership of privatized listed companies emerged and as a higher number of illicit tradings were reported to and/or discovered by the supervisory authority. Between 2000 and 2004 an important number of intermediaries were either fined or closed due to their wrongful activities; this is shown by the important decrease in their number compared to the pick year 1998.

While BVB registered several of its best years between 2002 (when the announcement that Romania was accepted as NATO member) and the mid of 2007 (when the first signs of the looming financial crisis started to show due to the withdrawal of foreign investors), the number of intermediaries remained relatively constant, suggesting a relative low number of domestic investors and an important dealing activity. The consequences of the financial and economic crisis of 2008 – 2012 are visible on the number of intermediaries at BVB, their count decreasing due to either closure and concentration activities (mergers & acquisitions).

It is interesting to note that the number of active investors, though very low compared with the number of security owners, increased during the volatile period of 2008 – 2009, only to decrease constantly for the next 10 years. The announcement of FTSE Russell regarding the upgrade in status to secondary emerging market for Romania seems to have triggered an increase in the number of active investors. However, since this number increased during 2020 and 2021, years affected by the world pandemic of SARS-CoV-2 virus, a certain level of influence in this increase should be allocated to the changes in work habits and time spent in front of a computer imposed by lock-downs.

On another note, the number of security owners constantly decreased since 2007. To the best of author's knowledge there are no important studies on the causes of this decrease. One cause can be represented by the delisting of companies, another can be the withdrawal/divestment of individual investors for various reasons. Nonetheless, the evolution of foreign investors followed an opposite trend, their number increasing constantly, mainly after the upgrade to BBB- of Romania's long term sovereign rating. It seems that the FTSE Russell upgrade to secondary emerging market for Romania had no important impact on the number of foreign investors.

Table 4. Intermediaries, investors and security owners at BVB as the end of the year and Romania's long term rating (end of the year)

Year	No. of active intermediaries			Number of active investors	Total number of security owners	Of which foreign owners	S&P' rating	Moody' s rating	Fitch 's rating
	BVB main market	RASDAQ	MTS & AeRO						
1995	28	-	-	n/a	-	-	n/a	n/a	n/a
1996	62	85	-	n/a	-	-	BB-	n/a	BB-
1997	133	168	-	n/a	-	-	BB-	Ba3	BB-
1998	173	202	-	n/a	-	-	B-	B3	B
1999	150	167	-	n/a	-	-	B-	B3	B-
2000	120	101	-	n/a	-	-	B-	B3	B
2001	110	86	-	n/a	-	-	B	B2	B
2002	75	69	-	n/a	-	-	B+	B1	BB-
2003	73	63	-	n/a	-	-	BB	Ba3	BB
2004	67	65	-	n/a	-	-	BB+	Ba3	BBB-
2005	70	68	-	n/a	-	-	BBB-	Ba1	BBB-
2006	73	73	-	65,304	-	-	BBB-	Baa3	BBB
2007	73	73	-	87,664	9,526,228	4,024	BBB-	Baa3	BBB
2008	76	76	-	92,865	9,542,394	5,095	BB+	Baa3	BB+
2009	71	71	-	94,545	9,397,467	5,077	BB+	Baa3	BB+
2010	65	65	45	86,453	9,321,234	5,303	BB+	Baa3	BB+
2011	61	61	48	88,143	9,188,180	5,567	BB+	Baa3	BBB-
2012	54	54	45	81,218	9,090,167	5,586	BB+	Baa3	BBB-
2013	43	43	36	85,381	9,090,042	5,718	BB+	Baa3	BBB-
2014	40	40	34	74,571	8,922,797	5,847	BBB-	Baa3	BBB-
2015	38	38	33	71,108	8,470,471	5,839	BBB-	Baa3	BBB-
2016	38	-	32	66,493	8,522,505	5,897	BBB-	Baa3	BBB-
2017	34	-	28	59,467	8,561,928	6,114	BBB-	Baa3	BBB-
2018	27	-	22	53,981	8,502,369	6,199	BBB-	Baa3	BBB-
2019	27	-	20	53,550	8,433,856	6,259	BBB-	Baa3	BBB-
2020	27	-	20	65,637	8,411,975	6,177	BBB-	Baa3	BBB-
2021	22	-	18	81,793	n/a	n/a	BBB-	Baa3	BBB-

Source: <https://www.bvb.ro/TradingAndStatistics/Publications/MonthlyReports>,
<http://www.fond-fci.ro/>, <https://mfinante.gov.ro/ro/web/trezor/rating-de-tara>,
<https://www.roclear.ro/DespreNoi/RapoarteAnuale>

The detailed information in Table 5 are in line with the idea that the new status of secondary emerging market for Romania did not have an important impact on the number of foreign investors. However, when one looks at the percentage of securities owned by the foreign investors,

one can see an important decrease in value. This might be due to the increase in the number of Romanian active investors, as reflected by Table 4 and the divestment of foreign investors. This is an unexpected evolution, since the upgrade to secondary emerging market status is supposed to generate, in the mind of many Romanian analysts, an awaited increase in foreign investors and their security ownership at BVB.

It is also interesting to note that the following countries have a continuous investing activity in Romania since 2007: Austria (on the 1st place since 2007 to 2020), followed on various ranks by France, USA, UK, Netherlands, and Luxembourg.

Table 5. Details regarding security owners at BVB

Year	Romanian security owners		Foreign security owners		Percentage (%) of securities owned by foreigners *
	Individuals	Legal persons	Individuals	Legal persons	
2009	9,383,994	8,396	4,461	616	45.00%
2010	9,307,723	8,208	4,653	650	45.00%
2011	9,175,429	7,184	4,856	711	49.00%
2012	9,078,086	6,495	4,889	697	48.00%
2013	8,996,889	6,435	4,947	771	42.00%
2014	8,910,642	6,308	5,027	820	42.00%
2015	8,459,522	5,110	5,077	762	43.00%
2016	8,511,411	5,197	5,085	812	44.00%
2017	8,550,572	5,242	5,288	826	42.00%
2018	8,490,890	5,280	5,342	857	42.00%
2019	8,422,404	5,139	5,480	779	40.00%
2020	8,401,211	4,587	5,458	719	34.00%

Note *: based on the securities' value calculated using the last price at the end of each year

Source: <https://www.rocstar.ro/DespreNoi/RapoarteAnuale>

Selected evolution at BVB

Table 6, below, presents the equity market evolution at BVB, including the regulated market, RASDAQ market and MTS/AeRO market. As it can be observed, the main market capitalization had an overall upward trend, with two disruptions: one in 1998-1999 caused by the Asian crisis and the second in 2008-2011 caused by the financial and economic crisis. The 2021 capitalization is the highest reached so far by the

regulated market. The RASDAQ market reached a pick in capitalization in 2007 (one of BVB's best years), only to enter on a downward trend until its closure in October 2015. The RASDAQ capitalization decrease was triggered by the 2008-2011 crisis and deepened further by its uncertain legal status, the relative poorer quality of listed companies, and by continuous companies delisting (for more details see Pop et al.2014, 2015, 2016b). The capitalization for AeRO segment (for Romanian shares) within MTS evolved slowly between its opening in 2015 and 2020, only to increase 2 times in 2021, reaching its highest capitalization as yet, similar to BVB main/regulated market. One cause of this 2021 increase might be represented by the 20 new listed companies.

While BVB main market capitalization grew relatively steadily, the total turnover had an oscillating evolution, with a pick reached in 2007, never to be attained again until the end of 2021, despite the fact that 2021 is considered the best year for BVB in various reports and news announcements. In the case of RASDAQ market, the turnover followed the trend of its capitalization and AeRO segment turnover also followed the respective capitalization trend.

Similar with the observation made by Pop et al.(2016a), there is a high level of trading concentration around a relative small number of listed companies. It is worth to note that between 1999 and 2010, the five investment companies (closed-end funds, called SIFs) concentrate on average about 41.00% of daily turnover; while SIFs importance decreased between 2011-2021 to an average of 11.25% of the daily turnover, the closed-end fund Fondul Proprietatea (FP symbol) end up aggregating on average 23.47% of the daily turnover over the same period (2011-2021). The calculations were made based on the daily data available on BVB website.

BVB main market liquidity followed the oscillating evolution of turnover, reaching the highest values so far between 1997 and 2000 mainly due to the low capitalization. Since 2002 until 2021, BVB main market liquidity did not pass over 17%. The relative modest liquidity can be related to the relative low number of active investors. In the case of RASDAQ market, the liquidity reached its pick in 2007 (18.43%), only to decrease as the activity on this market dwindled. On the other hand, on AeRO, as the trading activity grew gradually, the liquidity followed the same trend; though it remained low, despite the increase in 2021.

Table 6. BVB equity market structure by capitalization and turnover (EUR/ECU mil.)

Year	Capitalization				Turnover			Liquidity (%)*		
	BVB main market	RASDAQ**	MTS/AeRO	Total % of GDP	BVB main market	RASDAQ	MTS/AeRO	BVB main market	RASDAQ	MTS/AeRO
1997	77.61	Not part of BVB	-	0.28	0.95	Not part of BVB	-	1.22	Not part of BVB	-
1996	48.53	Not part of BVB	-	0.16	4.13	Not part of BVB	-	8.51	Not part of BVB	-
1997	560.28	Not part of BVB	-	1.81	240.50	Not part of BVB	-	42.92	Not part of BVB	-
1998	317.82	Not part of BVB	-	0.85	184.85	Not part of BVB	-	58.16	Not part of BVB	-
1999	298.09	Not part of BVB	-	0.89	84.07	Not part of BVB	-	28.20	Not part of BVB	-
2000	450.51	Not part of BVB	-	1.11	93.24	Not part of BVB	-	20.70	Not part of BVB	-
2001	1,361.08	Not part of BVB	-	2.99	148.54	Not part of BVB	-	10.91	Not part of BVB	-
2002	2,646.45	Not part of BVB	-	5.42	222.43	Not part of BVB	-	8.40	Not part of BVB	-
2003	2,991.02	Not part of BVB	-	5.65	268.64	Not part of BVB	-	8.98	Not part of BVB	-
2004	8,818.82	Not part of BVB	-	14.37	598.07	Not part of BVB	-	6.78	Not part of BVB	-
2005	15,311.35	Not part of BVB	-	19.10	2,152.05	Not part of BVB	-	14.06	Not part of BVB	-
2006	21,414.91	3,126.44	-	24.93	2,801.71	241.11	-	13.08	7.71	-
2007	24,600.75	6,985.67	-	24.57	4,152.44	1,287.71	-	16.88	18.43	-
2008	11,629.77	3,079.08	-	10.07	1,895.44	426.49	-	16.30	13.85	-
2009	19,052.65	2,937.67	-	17.60	1,203.80	136.32	-	6.32	4.64	-
2010	23,892.21	2,526.45	n/a	21.04	1,338.29	144.56	0.14	5.60	5.72	n/a
2011	16,385.91	2,366.93	n/a	14.22	2,349.04	136.21	2.62	14.34	5.75	n/a
2012	22,063.37	2,008.28	n/a	18.13	1,674.20	48.92	3.76	7.59	2.44	n/a
2013	29,980.44	1,774.47	n/a	22.10	2,543.57	68.34	4.72	8.48	3.85	n/a
2014	28,986.52	1,668.52	n/a	20.34	2,930.76	47.73	4.56	10.11	2.86	n/a
2015	32,240.80	502.25	851.07	20.97	1,980.07	14.21	20.23	6.14	2.83	2.38
2016	32,271.86	-	934.05	19.53	2,010.27	-	46.60	6.23	-	4.99
2017	35,276.13	-	1,333.91	19.49	3,005.80	-	36.18	8.52	-	2.71
2018	30,658.06	-	1,585.02	15.77	3,004.31	-	46.24	9.80	-	2.92
2019	37,847.36	-	1,868.26	17.81	2,499.10	-	49.04	6.60	-	2.62
2020	31,668.60	-	1,998.06	15.43	3,770.36	-	70.09	11.91	-	3.96
2021	46,291.58	-	4,001.50	e20.99	2,242.27	-	248.45	4.84	-	6.21

e: estimated data based on estimated GDP as announced by NIS.

Note *: Liquidity is calculated as ratio between turnover and market capitalization

Note **: The market capitalization for RASDAQ is reported for 22nd of October 2015, the last day of trading on the respective market segment.

Source: Based on the data available at www.bvb.ro and

<https://www.bvb.ro/TradingAndStatistics/Statistics/GeneralStatistics>

One must note that BVB does not report (in General Statistics section) neither the outstanding value for listed bonds, nor the bond capitalization. Therefore, within this paper it was chosen not to report these values based on own author's calculation since they can not be verified by BVB reports. Hence, for the bond sector at BVB no information similar with that presented in Table 6 (for equity sector) is provided.

BVB indices

Annex 3 presents the 9 indices dedicate to BVB main market equity segment as of December 2020. It must be added that two new indices⁴ were introduced for BVB main market segment since October 11, 2021.

For an equity main market segment with less than 100 listed companies, the number of dedicated indices is (very) high. Though justifications exist: the first index, BET (introduced in 1997), was initially dedicated to the top 10 most liquid companies; the Romanian investment companies/closed-end funds (SIFs) were listed starting with November 2001 and a dedicated index was created (BET-FI, considered a sector index); however, there was always a feeling that a combination of these two indices should exist and in 2008, BET-XT was introduced, combining the then portfolios of BET and BET-FI. Further, in 2008, a second sector index was introduces for the energy companies and energy sector related companies, BET-NG. In 2012 a new index, BET-BK was introduced in order to represent a benchmark index for the managers of Romanian investment funds; the portfolio constituents of this index are almost similar with the constituents of BET-XT, though the constituents' weight is more balanced for BET-BK portfolio. Additional to the above mentioned indices, in 2014-2015 the total return version of BET and respectively BET-XT indices were launched (called BET-TR and BET-XT-TR), following the international trend preference for this type of index. ROTX index is seldom followed by Romanian investors, thus an investment fund based on ROTX portfolio is offered by a specialized investment management company; this index is calculated and reported by Vienna Stock Exchange, is designed as a tradable index and is used as underlying asset for structured products.

⁴ The two new indices are called BET-TRN (Bucharest Exchange Trading Net Total Return) and BET-XT-TRN (Bucharest Exchange Trading Extended Net Total Return). Their introduction was considered necessary to complete the information regarding the share performances based on net return.

Another justification for such a high number of indices is given by the continuity of the older indices, allowing various analyses. Nonetheless, for individual investors, this high number of indices might be confusing without an in depth study of their profiles, portfolio constituents and structures.

In Annex 4 (Annex 4a, 4b, and 4c), three graphs describe the nine BVB indices evolution.

Table 7a. BVB equity market oldest indices annual performance compared to inflation rate, bank deposit interest rate and DIVY (%)

Year	BET return	BET-C/Plus return	BET-FI return	ROTX return	Inflation rate	Bank deposits' rate	DIVY
1998	-49.40	-	-	-	59.10	38.30	10.66
1999	15.21	-4.99	-	-	45.80	45.40	7.84
2000	18.25	7.39	-	-	45.70	32.44	7.48
2001	35.71	-6.47	109.92	-	34.50	26.16	6.70
2002	117.52	124.02	113.14	-	22.50	18.39	4.97
2003	27.13	22.62	24.72	-	15.30	10.78	2.00
2004	93.15	98.29	106.94	-	11.90	11.34	1.45
2005	42.47	31.63	151.32	-	9.00	8.34	0.94
2006	18.09	25.07	24.66	20.16	6.56	6.51	1.72
2007	16.29	26.27	14.95	15.73	4.84	6.70	2.18
2008	-69.68	-69.68	-83.62	-68.70	7.85	9.55	8.57
2009	57.21	34.62	83.33	42.22	5.59	11.89	2.81
2010	10.89	13.49	-10.09	10.85	6.09	7.29	1.87
2011	-19.18	-16.73	-13.52	-27.09	5.79	6.29	5.46
2012	18.57	6.29	29.63	28.46	3.33	5.50	6.94
2013	21.87	16.25	19.88	20.49	3.98	4.54	4.79
2014	9.21	-6.11	-3.83	10.43	1.07	3.02	6.11
2015	0.48	0.24	0.52	8.64	-0.59	1.89	5.35
2016	2.59	3.18	-0.99	2.68	-1.55	1.11	6.95
2017	8.23	9.55	31.80	10.91	1.34	0.89	7.22
2018*	-6.66	-6.63	-14.19	-5.85	4.63	1.30	10.11
2019	33.55	32.75	37.53	34.65	3.83	1.79	6.79
2020**	-1.17	-1.17	-8.90	-0.98	2.63	1.93	6.49
2021**	32.69	32.48	21.81	35.69	8.19	1.58	4.47

Note *: During December 2018 a Government Order was issued regarding the taxation of Romanian registered banks' assets; the reason given for this tax was that most banks reported losses, hence no profit to tax. The reaction of BVB investors was swift and BET lost over 900 points on December 19th 2018 (a decline of -11.21% in one single day). All the other BVB equity indices followed the same trend.

Note **: Since March 2020 and until December 2021 the BVB performances were influenced by the SARS-CoV-2 virus pandemic⁵.

Source: Based on the data available at www.bvb.ro and at www.bnro.ro

⁵ Some interesting results regarding SARS-CoV-2 pandemic influence on BVB can be found in Gherghina et al., 2021.

Table 7a and 7b present the annual returns of BVB indices versus the annual inflation rates, bank deposit rates (for non-banking sector), and BVB reported annual dividend yield. As both tables show, most of the time, after 2002, BVB companies offered interesting returns (especially BET constituents) while the dividend yield compensates for low or negative annual returns.

Table 7b. BVB equity new indices annual performance compared to inflation rate, bank deposit interest rate and DIVY (%)

Year	BET-XT return	BET-NG return	BET-BK return	BET-TR return	BET-XT-TR return	Inflation rate	Bank deposits rate	DIVY
2007	9.63	18.99	-	-	-	4.84	6.70	2.18
2008	-74.67	-71.71	-	-	-	7.85	9.55	8.57
2009	61.54	63.99	-	-	-	5.59	11.89	2.81
2010	0.30	27.96	7.60	-	-	6.09	7.29	1.87
2011	-15.25	-21.51	-18.21	-	-	5.79	6.29	5.46
2012	13.45	2.51	13.03	-	-	3.33	5.50	6.94
2013	19.64	2.65	15.55	26.79	28.24	3.98	4.54	4.79
2014	6.44	5.84	3.70	14.64	11.23	1.07	3.02	6.11
2015	1.16	-12.60	3.13	4.80	6.38	-0.59	1.89	5.35
2016	1.81	-2.19	1.35	11.26	9.83	-1.55	1.11	6.95
2017	13.10	8.11	21.00	17.77	22.31	1.34	0.89	7.22
2018	-9.29	-9.49	-12.86	2.23	-1.33	4.63	1.30	10.11
2019	33.21	29.29	28.47	45.01	44.08	3.83	1.79	6.79
2020	-4.20	-11.58	-0.97	3.97	0.57	2.63	1.93	6.49
2021	30.69	27.58	34.66	39.46	36.67	8.19	1.58	4.47

Source: Based on the data available at www.bvb.ro and at www.bnro.ro

One must mention that the AeRO segment was associated with a dedicated index, BETAeRO, since October 11, 2021. This index was also excluded from this paper due to its very short history.

Unfortunately, the bond segment at BVB did not received the same attention. While the MTS bond segment includes only corporate bonds, the BVB main/regulated market includes at least three broad segments: municipal bonds, corporate bonds (domestic and international), and government bonds. Therefore, a general bond index for BVB main market would have been welcomed. Though, the relative low frequency trading and relative low trading values (as shown in Table 3a) might be a reason for the absence of a bond index. It must be noted that between 2010 and 2012 the main market corporate bond segment did not registered any trading activity and for at least 2 years there were no

listed corporate bonds. Furthermore, the government bond segment went through a low trading period between 2016 and 2020 due to the government attitude toward the listing of its bonds. Only since August 2020, after a change in government composition, government bond public offerings for population were launched on a larger scale and the respective bonds were listed at BVB, boosting this bond segment trading.

In the absence of a bond index, Table 8 provides the annual average coupons of the outstanding bonds listed at BVB and compare these coupons with the inflation rates, bank deposit rates, BET annual return and annual dividend yield.

Table 8. BVB main market and MTS bond coupons compared to inflation rate, bank deposit rate, BET return, and DIVY (%)

Year	Municipal bonds	Corporate bonds	International bonds	Government bonds	MTS corporate bonds	Inflation rate	Bank deposit rate	BET return	DIVY
2001	36.50	-	-	-	-	34.50	26.16	35.71	6.70
2002	31.71	-	-	-	-	22.50	18.38	117.52	4.97
2003	19.39	-	-	-	-	15.30	10.78	27.13	2.00
2004	20.16	19.74	-	-	-	11.90	11.34	93.15	1.45
2005	12.38	12.36	-	-	-	9.00	8.34	42.47	0.94
2006	9.20	8.25	6.50	-	-	6.56	6.51	18.09	1.72
2007	8.77	9.08	6.65	-	-	4.84	6.70	16.29	2.18
2008	11.22	10.03	6.78	7.31	-	7.85	9.55	-69.68	8.57
2009	13.25	12.92	8.09	7.58	-	5.59	11.89	57.21	2.81
2010	8.31	n/a	9.13	7.55	-	6.09	7.29	10.89	1.87
2011	6.85	n/a	9.13	7.41	-	5.79	6.29	-19.18	5.46
2012	6.18	7.40	9.13	7.01	-	3.33	5.50	18.57	6.94
2013	5.57	6.95	9.13	6.59	-	3.98	4.54	21.87	4.79
2014	3.55	6.14	10.36	6.32	-	1.07	3.02	9.21	6.11
2015	2.44	5.91	10.36	5.91	11.33	-0.59	1.89	0.48	5.35
2016	1.84	5.79	6.84	5.05	9.79	-1.55	1.11	6.95	6.95
2017	1.81	5.00	6.11	4.49	9.12	1.34	0.89	7.22	7.22
2018	3.29	4.82	5.70	4.35	9.04	4.63	1.30	10.11	10.11
2019	4.00	4.86	4.41	4.59	9.00	3.83	1.79	6.79	6.79
2020	3.42	4.71	4.00	4.39	8.68	2.63	1.93	6.49	6.49
2021	2.62	4.14	3.60	4.06	8.62	8.19	1.58	32.69	4.47

Note: The bond coupons are calculated as the annual average of the listed bonds within the respective year and reported only for the bonds denominated in RON

Source: Based on the data available at www.bvb.ro and at www.bnro.ro

As it can be observed (and expected), bond coupons do not match BET annual returns, mainly when combined with DIVY. Of course, exceptions exist for negative return years for BET returns. On the other hand, the corporate bonds, mainly the MTS corporate bonds, are better (however riskier) investment alternatives versus bank deposits and providing a hedge against inflation. Also the government bonds offered a reasonable protection against inflation between 2011 and 2020 and, for the same period, a far better investment alternative than the bank deposits. While more in depth analyses of bond sector might reveal more interesting facts, the present paper is not dedicated to these analyses.

BVB position within the security exchanges of the former communist countries, members of the European Union (EU)

BVB position is discussed in two circumstances: the country position (frontier/emerging) combined with the country overall rank according to Global Competitiveness Reports, and the Romanian security exchange position in comparison with the 10 securities exchanges of the former communist countries, now members of EU.

Annex 5 presents the positions of 11 former communist countries (including Romania), currently EU members. These positions are allocated by three global index providers and the information is important for various groups of institutional and individual investors regarding the associated risks, the expected returns, and the diversification opportunities for their investments (for more details see Pop et al. 2016a).

As it can be observed, between 2007 (when this classification was introduced along with dedicated indices to each group of countries) and 2020, only FTSE Russell carried out upgrades within this group of former communist countries: Czechia progressed from secondary emerging to advanced emerging in 2012, Poland moved up from advanced emerging to developed status in 2020, and Romania which was promoted from frontier to secondary emerging, also in 2020. Nonetheless, the other two global index providers (MSCI Barra and Standard & Poor's) did not follow FTSE Russell upgrades since they do not have the emerging market category split in secondary and advanced emerging market and therefore the requirements and limits for any country to be upgraded as emerging are more demanding and higher. While for Romania the upgrade from

frontier to secondary emerging was considered by officials and analysts an important step ahead, it is important for BVB authorities and the supervisory authority to continue the improvements that can provide a further upgrade by FTSE Russell and upgrades by MSCI Barra and Standard & Poor's. Some analysts associated with EBRD and OECD suggest that an upgrade for Romania made by MSCI Barra might represent an important advance since the emerging indices provided by MSCI Barra are used as benchmark by an important number of passive investment funds.

One must note that Standard & Poor's, in August 2012, included Romania in the watch list for a potential upgrade from frontier to emerging; by 2014 Romania was removed from the list of countries under review. In August 2019 Romania was re-included in the watch list for a potential upgrade from frontier to emerging; in August 2020 was still on the watch list, while for August 2021 no watch list was provided.

Table 9, below, presenting the ranks offered by World Economic Forum, show that Romania has to improve not only its capital market but the entire financial system since the rankings show the country on low positions, next to last. This situation suggest a relative lack of Romanian investor sophistication which might be one of the causes for the (temporary, hopefully) closure of derivative segment at BVB.

The OECD (2021) report on Romanian financial sector support the low rank of Romania for 2019/2020 for financial development. Furthermore, the OECD (2021) report also mentions the low number of public offerings that were hosted through BVB platform and the fact that they raised the lowest amount of capital among the peer European countries. In addition, the same report (OECD, 2021) stresses the situation that less than 10% of corporate bonds issued by Romanian non-financial companies are listed at BVB. All this information is in line with the low number of Romanian active investors, indicating also several other factors for this situation, ranging from a relative small amounts of capital available for investments at the level of retail investors to a lack of confidence that still persist among these investors in relation with the financial sector, and from limited knowledge regarding the investment alternatives available to limited time allocated to investment activity. These factors also influence the investment through open-end (mutual) funds and influencing the amount of capital available via this pool of money for investing at BVB, though the number of investors in Romanian (mainly) mutual funds increase between 2000 and 2019.

Table 9. Countries' rank based on Global Competitiveness Reports data

Country	Country overall rank		Financial development rank*	
	2008/2009 134 countries	2019/2020 141 countries	2008/2009 134 countries	2019/2020 141 countries
Bulgaria	76	49	74	73
Croatia	61	63	63	63
Czechia	33	32	47	47
Estonia	32	31	28	52
Hungary	62	47	61	66
Latvia	54	41	39	85
Lithuania	44	39	56	75
Poland	53	37	68	57
Romania	68	51	60	86
Slovakia	46	42	31	56
Slovenia	42	35	46	61

Note*: Financial development rank is based on the data regarding the 8th pillar (Financial market sophistication) of Global Competitiveness Report 2008-2009 and the 9th pillar (Financial system) of Global Competitiveness Report 2019-2020

Source: Global Competitiveness Report 2008-2009 and 2019-2020 available at <https://www.weforum.org/>

Table 10 and 11, below, present BVB in the context of the other 10 former communist countries' security exchanges. The starting year 2008 was chosen since the majority of these countries were classified by the global index providers either in 2007 or 2008. From both perspectives, average turnover and average equity market capitalization, BVB ranks 5th. BVB lags well behind Poland, Czechia, and Hungary in both cases. The 4th place is occupied by Slovakia, in the case of average turnover, and by Croatia in the case of average market capitalization.

Based on average turnover, the financial product structure show that only four security exchanges offer the entire array of identified products: Zagreb Stock Exchange, Budapest Stock Exchange, Warsaw Stock Exchange, and BVB. While this diversification represents a positive aspect since it allow to attract a wider range of investors, BVB turnover remains dominated by equity trading (over 89%), compared with more balanced structures like in the cases of Polish, Hungarian, and Czech security markets. This information also points toward a relative lack of Romanian investor sophistication.

Table 10. Average turnover for 2008-2020 and structure based on turnover of offered financial products

Country & Security Exchange	Total turnover (EUR mil.)	% shares	% bonds	% ETFs & UCITs	% structured prod., derivatives & other contracts	Max. turnover (EUR mil.) & year	Min. turnover (EUR mil.) & year
Bulgaria Bulgarian Stock Exchange	470	83.53	15.77	0.70	0.00	1,458 (2008)	169 (2019)
Croatia Zagreb Stock Exchange	959	67.35	32.04	0.02	0.59	4,302 (2008)	382 (2018)
Czechia Prague Stock Exchange	19,720	53.32	46.61	0.00	0.07	59,641 (2008)	4,711 (2019)
Estonia Tallinn Stock Exchange/ NASDAQ Tallinn	220	99.30	0.70	0.00	0.00	618 (2008)	127 (2014)
Hungary Budapest Stock Exchange	15,324	73.00	3.05	0.20	23.75	31,005 (2008)	7,990 (2014)
Latvia Riga Stock Exchange/ NASDAQ Riga	96	24.82	75.15	0.00	0.00	274 (2017)	32 (2010)
Lithuania Vilnius Stock Exchange/ NASDAQ Vilnius	217	66.36	33.64	0.00	0.00	499 (2008)	96 (2019)
Poland Warsaw Stock Exchange	118,426	47.39	0.58	0.06	51.97	163,253 (2011)	92,177 (2019)
Romania Bucharest Stock Exchange	2,036	89.32	6.69	0.10	3.89	2,764 (2020)	931 (2009)
Slovakia Bratislava Stock Exchange	8,441	0.96	99.04	0.00	0.00	24,343 (2008)	191 (2020)
Slovenia Ljubljana Stock Exchange	604	85.35	11.66	2.99	0.00	2,005 (2008)	279 (2019)

Source: author's calculations based on the data available at FESE & individual exchanges' websites

Since BVB main (equity) market is the dominant one from the capitalization viewpoint, this main market was compared with the other 10 former communist countries' main markets. Considering the average number of listed companies, BVB ranks 5th, the same rank as for turnover and capitalization. Though it should be mention that BVB authorities are constantly preoccupied to attract new companies for listing; their success was moderate so far but this is a long term project that might be successful in the years to come. Market capitalization percentage of GDP places BVB only on the 9th position; this suggest two things: the diversification of Romanian economy, but also that there is room for improvement in BVB market capitalization. Liquidity (calculated as the ratio between turnover and market capitalization) ranks BVB on the 4th place, at a wide lag behind Budapest Stock Exchange, Warsaw Stock Exchange, and Prague Stock Exchange. However, BVB's liquidity is higher than the liquidity of the other frontier exchanges. Nonetheless, for liquidity too there is room for improvement and an increased number of active investors might have a positive influence in this respect.

Table 11. Main market listed companies, capitalization, percentage of (market cap.) GDP, and liquidity (averages 2008-2020)

Country & Security Exchange	Listed companies	Market capitalization (EUR mil.)	Percentage of GDP (%)	Liquidity (%)
Bulgaria Bulgarian Stock Exchange	353	7,941	15.81	6.50
Croatia Zagreb Stock Exchange	187	18,076	38.35	3.50
Czechia Prague Stock Exchange	32	25,865	14.96	38.40
Estonia Tallinn Stock Exchange/ NASDAQ Tallinn	16	2,032	9.92	12.06
Hungary Budapest Stock Exchange	47	19,459	16.91	62.46
Latvia Riga Stock Exchange/ NASDAQ Riga	28	972	4.17	2.43
Lithuania Vilnius Stock Exchange/ NASDAQ Vilnius	32	3,423	9.40	4.37
Poland Warsaw Stock Exchange	780	129,950	30.92	44.75
Romania Bucharest Stock Exchange	79	15,352	9.28	12.12

Country & Security Exchange	Listed companies	Market capitalization (EUR mil.)	Percentage of GDP (%)	Liquidity (%)
Slovakia Bratislava Stock Exchange	110	3,935	5.13	2.11
Slovenia Ljubljana Stock Exchange	52	6,251	15.73	7.77

Source: author's calculations based on the data available at EUROSTAT, FESE & individual exchanges' websites

In Annex 6 are presented the main market indices annual returns for the 11 selected stock exchanges. The indices were chosen to include the largest number of constituents, when possible. The information is presented only to give a general idea regarding the respective security exchanges' performances over the period 2008-2020. Based on the index with the largest portfolio, BET-C/BET-Plus, BVB ranked 1st in 2019 and 2nd in 2013. BVB index registered the poorest return in 2008 under the influence of the financial crisis and the second poor performance in 2011 under the influence of European sovereign crisis, though Romania sovereign position suffered no changes.

All the information presented in this section is in line with the idea expressed by OECD (2021) considering that the level of development of the Romanian security market, despite all improvements, is still lagging behind regional countries like Czechia and Hungary.

Discussions and conclusions

Over the past 25 years, celebrated on November 20, 1995 since the re-establishment, BVB have gone through a development process which allowed the upgrade to the secondary emergent market status, an important achievement, as highlighted by OECD (2021), increasing BVB's visibility and opening the gates toward a wider range of (international) investors.

On the long road it traveled, BVB came from an inefficient market (between November 1997 and December 1999) to one that diminished the level of inefficiency by 2000 (Harrison & Paton, 2004). The level of BVB efficiency and its trends were improved as specified by Dragota & Oprea (2014).

On the other hand, BVB had to deal with low trading volumes, low liquidity (which still persists), and low capitalization for almost two decades. The study of Bayraktar (2014) included Romania in the category

called low capitalization/low effort for improving capitalization; nonetheless, the author also consider this category to have more room for the development of the respective security market. The assumption, in Romania's case, was correct. As Table 6 showed, BVB capitalization increased constantly since 2015 and reached its pick one year after Romania was upgraded to the status of secondary emerging market.

Also during these 25 years BVB had to face problems related to a high level of bureaucracy which did not encouraged the presence of (foreign) institutional investors, combined with complicated taxation procedures, as specified by Stefanova (2014). Furthermore, BVB had to struggle with a relatively indifferent, at best, to unfriendly political environment which did not understand the important role a security market plays within an economy. Among the most recent such attitudes one can mentions the constant reluctance of Romanian government of 2017-2019 to allow new Treasury bond listings at BVB. In addition, in December 2018, a Government Order regarding the taxation of Romanian banks assets generated a sharp decrease in BET (-11.21%) in a single day, on December 19, 2018. This decline was over-passed only by the drop in BET during the financial crisis (-12.29% on January 7, 2009). While much can be said regarding these problems, a direct observation shows that the relationship between the Romanian government members and BVB depends on their political orientation.

BVB provides liquidity for the domestic investors through its trading platform and allowed to numerous shareholders to liquidate their investments as the decrease in shareholders number shows (Table 5). The importance of BVB is further given by a very strong home bias as shown by Hu (2020) combined with the low number of active investors at BVB (under 100,000, see Table 4). According to Hu (2020), the home bias (HB) index for Romania is 0.998, almost close to 1 which means almost full home bias. The same study indicates strong home bias for Poland (HB index = 0.939) and for Slovenia (HB index = 0.809), while for Hungary the HB index is 0.418 showing a moderate home bias⁶ (Hu, 2020). Based on the study of Hu (2020), the average HB index for 12 developed EU countries⁷

⁶ No other former communist country, no member of EU, was included in the sample of the study. For more details see Hu (2020), Table A1, page 16.

⁷ The countries from Hu (2020), Table A1, considered for this average were: Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, and Sweden.

is 0.341. With such a strong home bias, BVB functioning is paramount in ensuring a trading platform for the domestic investors, though they low number have an impact on BVB's liquidity.

Considering BVB's role in assisting the local companies and government institutions to raise capital, there are mixed results. As OECD (2021) report shows, the number of public offerings made by corporations through BVB platform was relatively low and raised among the lowest amount of capital compared to EU peer countries. OECD (2021) reports also notes that among the 5 largest public offerings hosted by BVB between 2000 and 2019, 4 were made by state-owned companies from utility and energy sectors. Furthermore, the same report (OECD, 2021) specifies that only a small fraction of the bonds issued by non-financial Romanian companies (about 8%) are listed through BVB; the majority of these bonds are listed mainly in Luxembourg. Moreover, while between 2003 and 2011 BVB platform was used by various municipalities to raise money for their public projects (a cumulated estimated value of EUR million 115, based on the data available at www.bvb.ro), this activity abruptly stopped in 2012 for a range of reasons⁸: the influence of sovereign crisis in several European countries, changes in regulatory framework, the absence of credit enhancements, and the relative lack of popularity of municipal bonds instruments among individual investors. All the information above show that BVB has still room to grow via attracting new active (retail) domestic investors, an activity which might increase BVB's capacity to respond quickly and adequately to the financial requirements of issuers. In order to address this situation, BVB started, since 2015, more visible campaigns promoting various publications (various guides for investors and issuers), but also other publications discussing the experience of various investors when they start investing at BVB.

On the other hand, BVB has a positive image when considering the MiFID I and MiFID II implementation, as shown by OECD (2021) and Petry (2020).

Pop (2011) and Pop (2015) discussed the problems BVB might face by not being part of a security exchange alliance and the potential challenge represented by the CEESEG (Central and Eastern European Stock Exchange Group) which included the security exchanges from Vienna, Prague, Budapest, and Ljubljana. However, by the end of 2015 this group started to break down: Budapest Stock Exchange was took over by Hungarian National Bank and removed the exchange from CEESEG (suggesting a clear example of security exchange representing a source of

national pride). Further, during 2016, Zagreb Stock Exchange (Croatia) took over Ljubljana Stock Exchange (Slovenia) and also removed the security exchange from CEESEG. By the end of 2016 CEESEG (created in 2010) included only Vienna Stock Exchange and Prague Stock Exchange. CEESEG merged in 2020 with Vienna Stock Exchange, as the press release of Vienna institution show (<https://www.wienerbourse.at/en/news/vienna-stock-exchange-news/vienna-stock-exchange-to-simplify-group-structure/>).

While an important challenge (CEESEG) has been removed from BVB's path and MiFID I and II rather favor the market fragmentation, with various trading platforms in order to host competition, the road ahead BVB will continue to be difficult despite reaching the secondary emerging market status within FTSE Russell classification. As shown above, the upgrade in classification for Romania (and BVB) did not bring the expected increase in number of foreign investors, at least at 2020 level, as Tables 5 display. Though, the upgrade had the reverse effect, that of an increase in number of active domestic investors (Table 5), which might be considered a positive evolution. However, it is not clear if this increase was generated by the re-classification as a secondary emerging market or by the changes in behavior triggered by SARS-CoV-2 pandemic. It remains to be seen what the future will bring, considering the threat of the war that might be initiated by Russian president Putin against Ukraine.

BVB has to improve further in order to be upgraded as an emerging market by the other two global index providers, MSCI Barra and Standard & Poor's. The difficult path ahead is confirmed by the position held by BVB compared mainly with the security exchanges from Poland, Czech Republic (from viewpoint of capitalization and liquidity), and from Hungary (mainly liquidity), a lagging position also highlighted by OECD (2021) report. Furthermore, BVB has not a functioning derivative segment, and while the structured products segment (including certificates and warrants) might provide to some extent a hedging alternative, these products are mainly speculative. Hence, BVB has to deal with further internal diversification and constant development.

Nonetheless, the challenges BVB has to face come mainly from outside. First, FSA declared in October 2019 that the fundamental objective of the STEAM project was reached since FTSE Russell declared that BVB (Romania) will become a secondary emerging market starting with September 2020. While FSA continues to promise support for the further development toward the full status of an emerging market, the declaration

regarding the fundamental objective is a bit worrying and one can only hope that the promised support will not be relinquished. Second, the financial sector overall development is not at the level to become a strong pillar in supporting BVB further evolution, at least on short-term horizon. OECD (2021) report highlight the preference of the non-financial corporation sector from Romania toward seeking financing alternatives (mainly through bonds) on foreign markets. This situation relates to the third challenge represented by the domestic investors investment power and culture, and domestic companies' and government institutions' culture in using BVB as a source for the needed capital. Last, but not least, BVB has to struggle with the political aspects whenever changes in government take place (a little bit too often) combined with the lack of interest, and frequently with the lack of appropriate knowledge, of government members regarding the role BVB plays within Romanian economy.

REFERENCES

- Aghanya, D., Agarwal, V., Poshakwale, S., 2020, Market in Financial Instruments Directive (MiFID), stock price informativeness and liquidity, *Journal of Banking and Finance*, 113, 105730, <https://dx.doi.org/10.1016/j.jbankfin.2019.105730>
- Andritzky, J. R., 2007, Capital market development in a small country: the case of Slovenia, IMF Working Paper, WP/07/229, International Monetary Fund, Washington, USA
- Ang, J. B., 2008, A survey of recent developments in the literature of finance and growth, *Journal of Economic Surveys*, 22 (3), 536-576, <https://doi.org/10.1111/j.1467-6419.2007.00542.x>
- Anghelache, G., (2006), The evolution of the Romanian capital market – limits and performances, *Theoretical and Applied Economics*, 1(496), 52-59.
- Ardalan, K., 2019, *Equity home bias in international finance: A place-attachment perspective*, Routledge, London
- Bayraktar, N., 2014, Measuring relative development of stock markets: Capacity and effort of countries, *Borsa Istanbul Review*, 14, 74-95, <https://doi.org/10.1016/j.bir.2014.02.001>
- Dragota, V., Oprea, A.S., 2014, Informational efficiency tests on Romanian stock market: a review of literature, *The Review of Finance and Banking*, 6(1), 15-28
- Filip, A., Raffournier, B., 2010, The value relevance of earnings in a transition economy: The case of Romania, *The International Journal of Accounting*, 45(1), 77-103, <https://doi.org/10.1016/j.intacc.2010.01.004>
- Fleckner, A.M., 2006, Stock exchanges at the crossroad, *Fordham Law Review*, 74(5), 2541-2620, available at: <https://ir.lawnet.fordham.edu/flr/vol74/iss5/2>

- Granier, C., Revest, V., Sapio, A., 2017, How do financial markets adapt? An institutional comparison between European and Japanese junior stock markets, Innovation-Fueled, Sustainable, Inclusive Growth, working paper, 11/May 2017, available at: http://www.isigrowth.eu/wp-content/uploads/2017/06/working_paper_2017_11.pdf
- Gherghina, S.C., Armeanu, D.S., Joldes, C.C., 2021, Covid-19 pandemic and Romanian stock market volatility: A GARCH approach, *Journal of Risk and Financial Management*, 14, 341, <https://doi.org/10.3390/jrfm14080341>
- Haas, F., 2007, The Market in Financial Instruments Directive and the Transformation of Europe's Capital Markets. IMF Country Report 07/ 259, International Monetary Fund, Washington, DC, USA
- Harrison, B., Paton, D., 2004, Transition, the evolution of stock market efficiency and entry into EU: The case of Romania, *Econ Change*, 37, 203, <https://doi.org/10.1007/s10644-005-5060-y>
- Hu, C., 2020, Industrial specialization matters: A new angle on equity home bias, *Journal of International Economics*, 126, 103354, <https://doi.org/10.1016/j.jinteco.2020.103354>
- Iorgova, S., Ong, L.L., 2008, The capital markets of emerging Europe: institutions, instruments and investors, IMF Working Paper WP/08/103, International Monetary Fund, Washington, DC, USA
- Kho, B.C., Stulz, R.M., Warnock, F.E., 2009, Financial globalization, governance, and the evolution of home bias, *Journal of Accounting Research*, 47(2), 597-635, <https://doi.org/10.1111/j.1475-679X.2009.00323.x>
- OECD, 2021, *OECD Capital Market Review of Romania 2021: Mapping Report*, OECD Capital Market Series. <http://www.oecd.org/corporate/OECD-Capital-Market-Review-Romania.htm>
- O'Hara, M., 2001, Designing markets for developing countries, *International Review of Finance*, 2(4), 205-215 <https://doi.org/10.1111/1468-2443.00026>
- Masoud, N., Hardaker, G., 2012, The impact of financial development on economic growth: Empirical analysis of emerging market countries, *Studies in Economics and Finance*, 29(3), 148-173, <http://dx.doi.org/10.1108/10867371211246830>
- Minier, J., 2009, Opening a stock exchange, *Journal of Development Economics*, 90(1), 135-143, <https://doi.org/10.1016/j.jdeveco.2008.10.002>
- Petry, J., 2020, Securities exchanges: subjects and agents of financialization, in Mader, P., Mertens, D., van der Zwan, N. (eds), *The Routledge International Handbook of Financialization*, Routledge, London, 253-264, <https://doi.org/10.31235/osf.io/5emgs>
- Pop, C., Dumbrava, P., 2006, Bucharest Stock Exchange evolution November 1995 – November 2005, in *Interdisciplinary Management Research*, Josip Juraj Strossmayer University of Osijek, Faculty of Economics, Croatia, vol. 2, 349-367
- Pop, C., 2011, Bucharest Stock Exchange position within the Central and Eastern European region, *Studia UBB Negotia*, 56(2), 21-54

- Pop, C., Balint, C., Georgescu, M-A., 2014, Was RASDAQ doomed from the start? A preliminary investigation, *Theoretical and Applied Economics – Special Issue/ Supplement TAE: International Finance and Banking Conference – FI BA 2014 (XII Edition)*, 55-189
- Pop, C., 2015, Bucharest Stock Exchange development between 1995 and 2015, *Studia UBB Negotia*, 60(4), 23-55
- Pop, C., Balint, C., Georgescu, M-A., 2015, Was RASDAQ doomed from the start? Further investigations, *Theoretical and Applied Economics – Special Issue/ Supplement TAE: International Finance and Banking Conference – FI BA 2015 (XIII Edition)*, 2015, 191-210
- Pop, C., Bozdog, D., Calugaru, A., Georgescu, M.A., 2016a, An assessment of the real development prospects of the EU 28 frontier markets, in Andrikopoulos, P., Gregoriou, G.N., Kallinterakis, V.(eds), *Handbook of frontier markets: The African, European and Asian evidence*, vol.1, Elsevier, London, 117-146
- Pop, C., Balint, C., Georgescu, M-A., Nistor, I.A., 2016b, RASDAQ: The final curtain, *Theoretical and Applied Economics XXIII (3(608))*, 5-40
- Popescu, O.M., Stancu, S., Naghi, L.E., Constantin, A.M., Stancu, A.M., 2014, Metode clasice de evaluare a gradului de cointegrare la nivel de burse, *Studii si cercetari de calcul economic si cibernetica economic*, 1-4, 08
- Saidi, N., Prasad, A., Naik, V., 2012, From frontier to emerging: Does market reclassification matter?, *Economic Note 19*, Dubai International Financial Centre, <http://dx.doi.org/10.2139/ssrn.1994623>
- Schumacher, D., 2018, Home bias abroad: Domestic industries and foreign portfolio choice, *The Review of Financial Studies*, 31(5), 1654-1706, <https://doi.org/10.1093/rfs/hhx135>
- Schwartz, R.A., Byrbe, J.A., Wheatley, L. (eds), 2015, *The economic function of a stock exchange*, Springer, Switzerland, <https://doi.org/10.1007/978-3-319-10350-1>
- Skinner, C., 2007, *The Future of Investing in Europe's Markets after MiFID*. Wiley Finance Series. John Wiley & Sons, Chichester, West Sussex, England, UK.
- Skully, M., Brown, K., 2006, Romanian Financial Markets, in Batten, J.A., Kearney, C. (eds.) *Emerging European Financial Markets: Independence and Integration Post-Enlargement*, *International Finance Review*, 6, 281-321
- Stanciu, C.V., 2019, New Developments in the Evolution of the Bucharest Stock Exchange, *Revista de Stiinte Politice*, 63, 82-95, available at: http://lfv.ucv.ro/revistadestiintepolitice/files/numarul63_2019/8.pdf
- Stefanova, J., 2014, Stock exchanges development: the cases of Bulgaria and Romania, *Journal of Financial Monetary and Economics*, Centre of Financial and Monetary Research Victor Slavescu, 1(1), 194-201.
- Stulz, R. M., 2009, Securities law, disclosure and national capital markets in the age of financial globalization, *Journal of Accounting Research*, 47(2), 349-390, <https://doi.org/10.1111/j.1475-679X.2009.00327.x>

Annexes

Annex 1. BVB trading systems – main developments

1995	November 20th : The trading system STEA was implemented. The clearing and settlement system was integrated within STEA. The settlement period was T+5 days.
1996	October : The clearing and trading system Equator was launched, integrated with the trading system STEA.
1997	The cross transactions are introduced in order to speed up the tradings for the listed companies from the Mass Privatization Program.
1998	Direct custody services are introduced.
1999	The implementation of the trading system HORIZON™ The settlement period was reduced at T+3 days. Trading blocks are introduced: 100 or any multiples of 100 for regular lots and the odd lots for less than 100. Several exceptions existed of 10 or 1 for regular lots based on the individual price of the shares.
2001	ARENA trading system is used for bond transactions
2003	ARENA trading system replaces completely the HORIZON system.
2006	The possibility to use margin accounts was introduced for investors
2009	The trading blocks within the regulated markets were increased at 500 or any multiple of 500 for the majority of the traded shares for regular lots. Exceptions were allowed and lots of 100, 10 and 1 were accepted as regular lots for the shares with high individual prices.
2011	January 25th : short selling operations became available for Fondul Proprietatea. (As of December 2015, 20 securities can be sold short at BVB: 16 shares and 4 municipal bonds: http://www.bvb.ro/FinancialInstruments/SelectedData/AllowedShortSellSecurities)
2014	The separation between the trading platform and post trading platform is implemented. December : the odd lot orders are eliminated. Any volume is accepted for all the traded securities on the regulated market. The settlement period decreases at T+2 days.
2015	April : the launch of Arena XT Web as the web version of BVB trading platform. July : changes were introduced in market making program in order to enhance the trading activity; one intermediary can either be a <i>classic market maker</i> or a <i>super market maker</i> for a given share, bond or fund unit. July : trade settlement on a gross basis was introduced, having the following settlement periods: T+0, T+1, and T+2; this mechanism complements the existing one offering trade settlement on net basis in T+2. October : the launch of BVB Trading application (app); this app offers online access to BVB trading platform Arena XT. October : a new special section dedicated to Deal transactions was introduced within the daily trading schedule.
2016	May : improvement in short selling and buying on margin operations were introduced in order to increase liquidity. August : a new regulatory framework for short selling and buying on margin operations was implemented. November : a new version of Arena XT Web was launched.

2019	December: the mechanism for volatility interruption was introduced for the constituents of BET index and BET-FI index; this new mechanism replaces the old one (based on the extensions of price variation limits). This new mechanism for volatility interruption is in line with the introduction of MiFID II guidelines.
------	--

Source: Author's compilation based on the information available at: <http://www.bvb.ro/AboutUs/Publications>, <http://www.bvb.ro/AboutUs/MediaCenter/PressReleases>

Annex 2. Data regarding BVB Financial Group and BVB shareholder structure

Annex 2a: BVB Financial Group structure

Group's companies	Percent of the shares owned by BVB				
	Dec.2006	Dec.2007	June 2013	Dec.2015	Dec.2020
<i>Central Depository</i>	53.49%	54.51%	69.00%	69.04%	69.04%
<i>Bucharest Clearing House</i> currently <i>CCP.Ro Bucharest</i>	5.81%	50.90%	52.50%	52.51%	59.52%
<i>The Institute for Corporate Governance</i>	100.00%	100.00%	100.00%	100.00%	100.00%
<i>Investors Compensation Fund</i>	56.92%	56.92%	62.30%	62.45%	63.00%

Note: The former Bucharest Clearing House became CCP.Ro and in July 2020, CCP.RO signed a partnership with CC&G (Cassa de Compensazione & Garanta), one of the leading companies in post trading services within London Exchange Group.

Sources: Annual reports for 2006, 2007, 2015, and 2020; for 2013: https://www.bvb.ro/info/2013_07_24_bvb_ir_presentation_en.pdf

Annex 2b. BVB shareholder structure

Percentage of total capital	2006	2010	2015	2020
Total legal person shareholders	99.85%	87.82%	86.66%	*78.10%
of which nonresident legal persons	n/a	13.10%	14.23%	5.25%
Total individual shareholders	0.15%	12.18%	13.34%	21.90%
of which Nonresident individuals	0.00%	0.17%	0.56%	1.94%

Note *: The figure includes the percentage of 0.68% which represents the own shares held by BVB. Sources: Annual reports for 2006, 2010, 2015, and 2020 available at www.bvb.ro

BUCHAREST STOCK EXCHANGE DEVELOPMENT BETWEEN 1995 AND 2020

Annex 3: BVB main market equity indices

Symbol	Complete name	Launch date	Base/Start value (points)	No. of constituents	Maximum weight/constituent	Weighting	Type of index	Other information
BET ¹⁾	Bucharest Exchange Trading	September 19, 1997	1,000	Initial: 10 Since Oct. 2016: variable between 10 and 15 Since Aug 2018: variable, between 10 and 20 (as of Dec.2020: 17 constituents)	20%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	Does not include SIFs Main criterion: constituents' liquidity Extra criteria: constituents' transparency and quality of reporting
BET-C	Bucharest Exchange Trading Composite	April 16, 1998 <i>Discontinued June 20, 2014</i>	1,000	all BVB traded companies except SIFs and foreign companies	20%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	Replaced by BET Plus
BET Plus	Bucharest Exchange Trading Plus	June 23, 2014	1,000	variable (as of Dec.2020: 42 constituents) does not include the SIFs and foreign companies	20%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	Conditions for the constituents: : minimum liquidity coefficient 0.0002 : minimum free-float market capitalization: EUR.1 mn
BET-FI	Bucharest Exchange Trading - Investment Funds	October 31, 2000	1,000	variable (as of Dec.2020: 6 constituents)	30%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	The first sector index. Tracks the performance of the (closed-end) investment funds
BET-XT	Bucharest Exchange Trading Extended	July 1, 2008	1,000 starts January 2, 2007	Initial: 25 Since Sept 2021: 30 (includes the SIFs)	15%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	Tracks the performance of the most traded 30 domestic listed companies, including SIFs
BET-NG	Bucharest Exchange Trading & Related Utilities	July 1, 2008	1,000 starts January 2, 2007	variable (as of Dec.2020: 10 constituents)	30%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	The second sector index

Symbol	Complete name	Launch date	Base/Start value (points)	No. of constituents	Maximum weight/constituent	Weighting	Type of index	Other information
BET-BK	Bucharest Exchange Trading Benchmark	July 3, 2012	1.000 starts September 18, 2009	Initial: 25 Since Sept 2021: 30	10%	Free-float market capitalization weighting	Price index (not adjusted for dividends)	Designed to be used as benchmark by domestic asset managers and other institutional investors. ⁽³⁾ The first total return index
BET-TR	Bucharest Exchange Trading Total Return	September 22, 2014	4,910.39 starts September 21, 2012	the same constituents as BET	20%	Free-float market capitalization weighting	Total return (adjusted for dividends and similar cash distributions before tax)	The second total return index
BET-XT-TR	Bucharest Exchange Trading Extended Total Return	March 23, 2015	486.44 starts December 28, 2012	the same constituents as BET-XT	15%	Free-float market capitalization weighting	Total return (adjusted for dividends and similar cash distributions before tax)	The second total return index
ROTX	Romanian Traded Index	March 15, 2005	1.000 starts January 1, 2002	Initial: 15 Currently: variable (as of Dec.2020, 8 constituents)*	20%	Capitalization weighting	Price index (not adjusted for dividends)	The constituents are Romanian blue chip stocks. Calculated and disseminated by Vienna Stock Exchange.

Note 1): Considered to be the reference index for the Romanian capital market

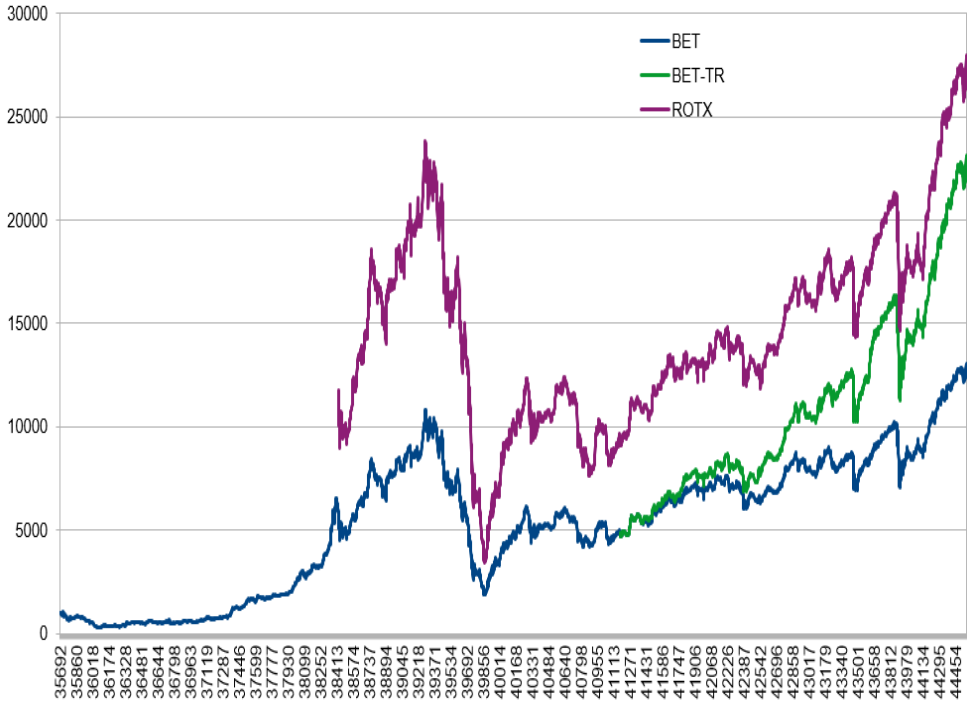
<http://www.bvb.ro/FinancialInstruments/Indices/Overview>

Note 2): The calculation of BET-BK reflects the legal requirements and the investment limits applying to domestic investment funds; fully UCITS compliant index; <http://www.bvb.ro/info/indices/2015/2015.06.30%20-%20BET-BK%20Factsheet.pdf>

Source: Author's compilation based on <http://www.bvb.ro/FinancialInstruments/Indices/Overview> and the respective indices fact-sheets available within the aforementioned link.

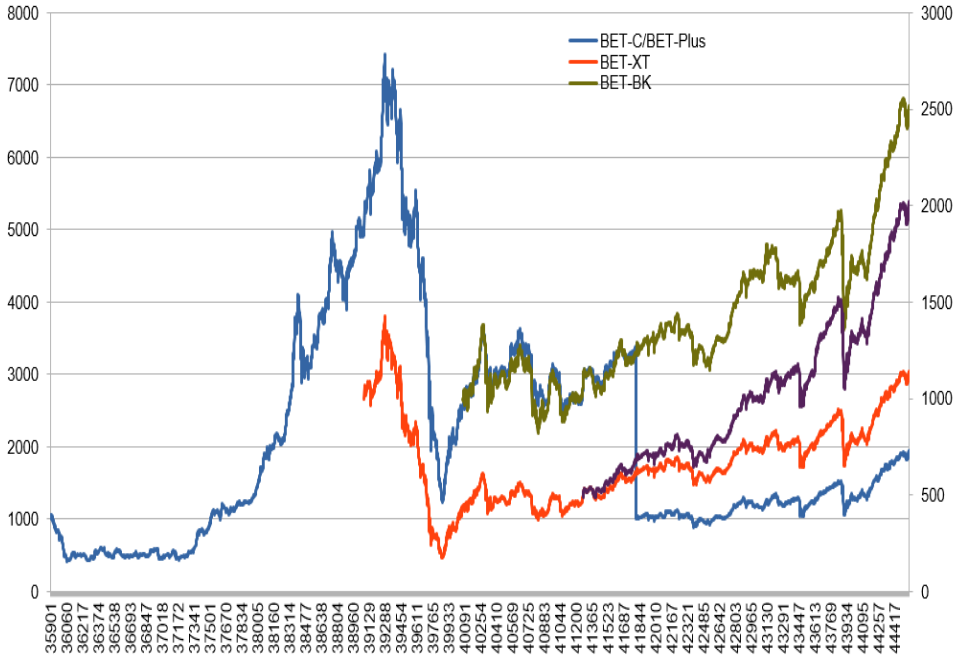
Annex 4. Graphs describing BVB indices evolution

Annex 4a. Graph for BET, BET-TR, and ROTX



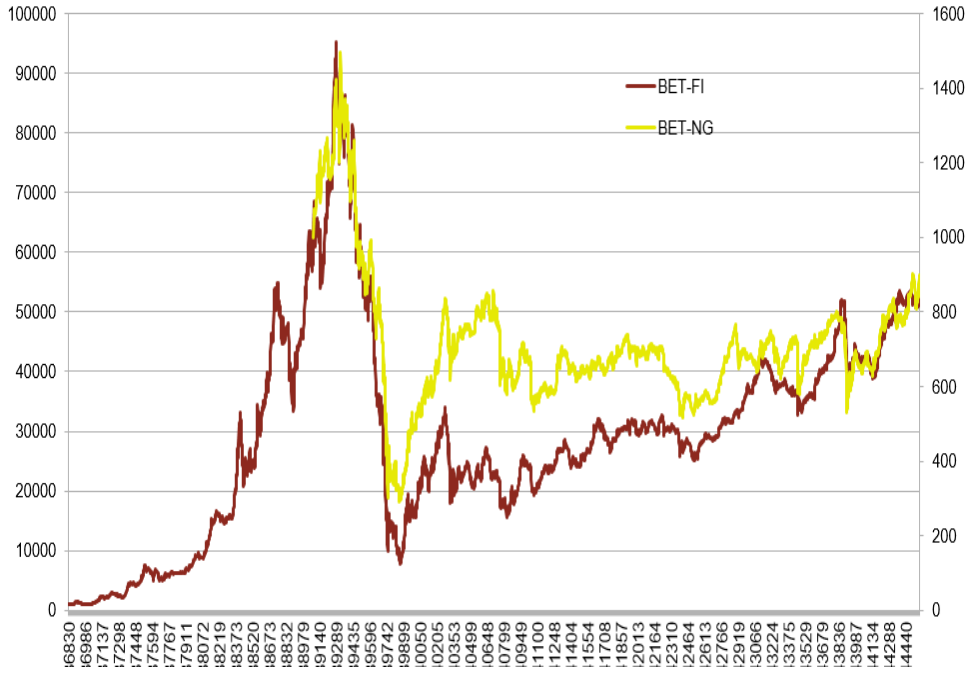
(Source: Author's compilation based on www.bvb.ro data)

Annex 4b. Graph for BET-C/BET-Plus, BET-BK, BET-XT, and BET-XT-TR
 (Note: BET-C/BET-Plus is on the main Y axis; the other 3 indices are on the secondary Y axis)



(Source: Author's compilation based on www.bvb.ro data)

Annex 4b. Graph for BET-FI and BET-NG



(Note: BET-NG is on the secondary Y axis;

Source: Author's compilation based on www.bvb.ro data)

Annex 5. Country classification according to global index providers

FTSE Russell country classification						
Country	Sept.2007	Sept.2008	Sept.2012	Sept.2017	Sept.2020	Sept.2021
Bulgaria	n/a	Frontier	Frontier	Frontier	Frontier	Frontier
Croatia	n/a	Frontier	Frontier	Frontier	Frontier	Frontier
Czechia	Secondary Emerging	Secondary Emerging	Advanced Emerging	Advanced Emerging	Advanced Emerging	Advanced Emerging
Estonia	n/a	Frontier	Frontier	Frontier	Frontier	Frontier
Hungary	Advanced Emerging (effective from June 2008)	Advanced Emerging	Advanced Emerging	Advanced Emerging	Advanced Emerging	Advanced Emerging
Latvia	n/a	n/a	n/a	Frontier	Frontier	Frontier
Lithuania	n/a	Frontier	Frontier	Frontier	Frontier	Frontier
Poland	Advanced Emerging (effective from June 2008)	Advanced Emerging	Advanced Emerging	Advanced Emerging	Developed	Developed
Romania	n/a	Frontier	Frontier	Frontier	Secondary Emerging	Secondary Emerging
Slovakia	n/a	Frontier	Frontier	Frontier	Frontier	Frontier
Slovenia	n/a	Frontier	Frontier	Frontier	Frontier	Frontier
MSCI Barra country classification						
Country	2007	2009	2012	2017	2019	2021
Bulgaria	Frontier	Frontier	Frontier	Frontier	Standalone	Standalone
Croatia	Frontier	Frontier	Frontier	Frontier	Frontier	Frontier
Czechia	Emerging	Emerging	Emerging	Emerging	Emerging	Emerging
Estonia	Frontier	Frontier	Frontier	Frontier	Frontier	Frontier
Hungary	Emerging	Emerging	Emerging	Emerging	Emerging	Emerging
Latvia	n/a	n/a	n/a	n/a	n/a	n/a
Lithuania	Frontier	Frontier	Frontier	Frontier	Frontier	Frontier
Poland	Emerging	Emerging	Emerging	Emerging	Emerging	Emerging
Romania	Frontier	Frontier	Frontier	Frontier	Frontier	Frontier
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	Frontier	Frontier	Frontier	Frontier	Frontier	Frontier
Standard & Poor's country classification						
Country	2007	2009	2014	2018	2020	2021
Bulgaria	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Croatia	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Czechia	n/a	n/a	Emerging	Emerging	Emerging	Emerging
Estonia	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Hungary	n/a	n/a	Emerging	Emerging	Emerging	Emerging
Latvia	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Lithuania	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Poland	n/a	n/a	Emerging	Emerging	Emerging	Emerging
Romania	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Slovakia	n/a	n/a	Frontier	Frontier	Frontier	Frontier
Slovenia	n/a	n/a	Frontier	Frontier	Frontier	Frontier

Sources: Author's compilation based on the information available on FTSE Russel, MSCI Barra and Standard & Poor's websites

Annex 6. Main market indices annual returns (%) for 2008-2020

Country & index	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
Bulgaria SOFIX	-79.71	19.13	-15.19	-11.11	7.25	42.28	12.33	-16.52	27.24	15.52	-12.25	-4.43	-21.23	-2.82
Croatia CROBEX	-67.13	16.36	5.33	-17.56	0.01	3.10	-2.72	-3.18	18.04	-7.62	-5.10	15.36	-13.79	-4.53
Czechia PX-Glob	-51.67	27.82	8.99	-24.02	11.66	-4.34	-4.49	4.83	-3.43	20.99	-7.42	11.61	-6.05	-1.19
Estonia OMX Tallinn	-62.98	47.21	72.62	-23.94	38.22	11.38	-7.53	18.89	19.63	15.49	-6.38	10.05	5.00	10.59
Hungary BUX	-53.34	73.40	0.47	-20.41	7.06	2.15	-10.40	43.81	33.79	23.04	-0.61	17.74	-8.63	8.31
Latvia OMX Riga	-54.43	2.82	41.08	-5.68	6.67	16.22	-10.89	44.96	23.46	35.76	-6.74	11.53	9.67	8.80
Lithuania OMX Vilnius	-65.14	46.04	56.49	-27.06	18.84	18.73	7.32	7.41	14.92	16.97	-5.57	15.44	14.67	9.16
Poland WIG	-51.07	46.85	18.77	-20.83	26.24	8.06	0.26	-9.62	11.38	23.17	-9.50	0.25	-1.40	3.27
Romania BET-C/Plus	-70.34	37.31	14.60	-15.74	6.28	20.04	-6.11	-1.26	1.74	10.72	-4.77	34.26	-1.70	-2.89
Slovakia S&A	-19.40	-25.67	-13.71	-6.48	-10.79	2.89	12.42	31.50	8.97	2.21	2.07	5.65	-1.71	-0.93
Slovenia SIB TOP	-60.43	15.03	-13.47	-30.67	7.79	3.17	19.59	-11.22	3.08	12.39	-0.18	15.03	-2.78	-3.28

Source: Author's calculations based on the data available on FESE & individual exchanges' websites