Bucharest Stock Exchange and M&A valuation multiples

Content

Introduction

Foreword

The PwC Valuation and Economics team is delighted to publish the sixth edition of its analysis on the Bucharest Stock Exchange listed companies

- The PwC study presents a comprehensive analysis of the multiples trends spanning a 16 year period, from 2007 to 2022, focused on the **82 companies primarily listed on the Bucharest Stock Exchange (BSE)** and their sector specific performance (seven analysed sectors: Consumer, Oil & Gas, Financial Services, Healthcare, Industrial, Materials and Electricity). The study excludes the analysis of Erste Group Bank AG that is primarily listed on Vienna Stock Exchange and secondarily on the BSE.

- Starting this year, the study has expanded its coverage to include **the analysis of 49 companies listed on the Multilateral Trading System (MTS)/AeRO - Premium category.** Recognizing the growing importance of the MTS as a platform for companies seeking alternative listing options, the study aims to provide an analysis of the valuation multiples recorded by these companies in 2022. The inclusion of MTS listed companies adds a new dimension to the study, allowing for a broader assessment of the Romanian valuation landscape for listed companies.

- According to the latest data provided by the International Monetary Fund - World Economic Outlook (WEO) Database in April 2023, the global economy decelerated markedly from 6.3% in 2021 to 3.4% in 2022 due to (a) the military conflict in Ukraine that started in February 2022 and (b) an economic context that was still struggling with the consequences of the pandemic crisis. Looking ahead, the trajectory of global economic growth will depend on the macroeconomic challenges (inflationary pressures, supply chains disruptions, monetary policies, fiscal measures, etc.) and geopolitical dynamics, however the baseline forecast for global economic growth is expected to fall to 2.8% in 2023 before settling at 3.0% in 2024.

- The study is centered on the analysis of valuation multiples and the BSE's response to a series of significant events that occurred since 2007. These events include the global financial crisis of 2007-2008, the COVID-19 pandemic from 2020 to 2021, and the ongoing war of aggression against Ukraine. By examining the multiples' trend and the BSE's reaction to these events, we aim to gain insights into the market dynamics and investor sentiment during challenging times. Despite the global economic deceleration in 2022, the Romanian economy showcased resilience, achieving a growth rate of 4.7%. This positive economic performance is noteworthy considering the challenging global landscape marked by various crises and uncertainties. Simultaneously, in 2022 the local capital market, encompassing both the Regulated Market and MTS, recorded a total traded value (excluding IPOs) of RON 13.4 billion (12% increase compared to 2021) – this level came close to the all-time high recorded in 2007, indicating robust market activity and investor participation.

- The study seeks to gain insights of:
  - the overall performance of the Romanian equity market during 2007-2022 and in Quarter 1, 2023 (Q1 2023) along with the BET and Bucharest Exchange Total Return Index (BET-TR) performance against the return on the Romanian government bonds as a proxy for Risk-free assets;
  - the trend of valuation multiples across different sectors based on the analysis of companies listed on the Regulated Market;
  - the trading multiples of companies listed on the MTS/AeRO - Premium category in 2022;
  - the evolution of valuation multiples derived from local transactions over the period 2007-2022.

With each edition, PwC Romania strives to enhance the content of the study by incorporating the latest research and industry trends on the valuation multiples of companies listed on BSE. We express our commitment to updating this study on an annual basis in order to provide value added for our readers.

Valuation and Economics

PwC Romania, Advisory - Deals

Executive summary

Macroeconomic outlook & Stock market performance

- The Romanian economy has been among the most exposed economies in 2022 due to its geographical proximity to the Ukrainian conflict zone and its trade linkages with both Russia and Ukraine. Despite the difficult economic context, Romania boasted the fourth-strongest economic growth (+4.7% YoY) in Central and Eastern Europe in 2022, after Croatia (+6.2%), Slovenia (+5.4%) and Poland (+5.1%). The growth resilience displayed by the Romanian economy was mainly attributable to strong private consumption and robust investments (inflows from the Recovery and Resilience Plan and other EU funds).

- In Q1 2023, the economic landscape improved slightly, with the inflation rate decreasing to 14.5% in March 2023 from 16.4% in December 2022, the first contraction posted in the last nine quarters. This decrease is mainly explained by a strong drop in fuel and electricity prices as a result of the change made to the energy price capping and compensation scheme starting January 2023.

- Romania's equity market capitalisation to GDP ratio was close to 15% at the end of 2022, thus lagging behind regional markets such as Czech Republic, Greece, Croatia and Bulgaria. The local equity market performance over the period 31 March 2022 – 31 March 2023 was closely linked to the military conflict in Ukraine and the volatile economic context that was still struggling with the consequences of the pandemic crisis. Other BSE market highlights:

  - the market capitalisation (regulated and MTS segment) decreased by 4.6% in the one-year period from RON 229 billion at 31 March 2022 to RON 218 billion as at 31 March 2023;

  - the BET index level displayed in March 2023 (i.e.12,112 points) was 4.7% below the one recorded during the same period 2022 (i.e. 12,712 points);

  - the BET-TR index (reflecting also dividends of BET constituents) posted an increase of only 2.7% in March 2023 (i.e. 23,561 points) compared to the same period in 2022 (i.e. 22,950 points).

Most notable events on BSE during 2022

- No IPOs were concluded on the Regulated Market in 2022, while on the MTS segment 11 listings were successfully completed;

- The number of investors on the BSE continued to grow, from below 100,000 in 2021 to 133,000 in 2022, a new all-time high for the local capital market;

- Following a strong start, with BET index closing the trading session on 14 January 2022 at 13,682 points (all-time high since 1997), BET index closed in December 2022 in decline (11,664 points) compared to previous year (-10.7%), amid the shock on interest rates and the geopolitical crisis in the region. Nevertheless, BSE demonstrated a certain degree of resilience compared to other international equity markets given that BET decline was below the one shown by the S&P 500 in the US or the STOXX 600 in the EU (10.7% decline posted by BET in 2022 vs 2021, whereas S&P 500 and STOXX 600 decreased by 19.7% and respectively 12.9%);

- In 2022, BSE received an important international (re) confirmation when 13 Romanian companies were included in the FTSE Russell's Emerging Markets indices – namely the Global All Cap indices that included Banca Transilvania, MedLife, Nuclearelectrica, OMV Petrom, One United Properties, TeraPlast, and the Global Micro Cap indices that included Aquila, Bittnet Systems, Bucharest Stock Exchange, Conpet, Purcari Wineries, Sphera Franchise Group, Transport Trade Services.

- Green and social financing gained more visibility on the local capital market lately - between June 2022 and February 2023, Raiffeisen Bank reaffirmed its commitment to support sustainable investments and listed four tranches of green/sustainable bonds (RBRO27, RBRO27A, RBRO27B, RBRO27C).

Investments in the stock market always require a long-term perspective: the median return of the BSE indices in excess of the Risk-free Rate over the 11.3 year period starting 31 December 2012 to 31 March 2023 was approximately 1% for BET and 10% for BET-TR. In 2022, neither BET nor BET-TR provided investors with positive returns over the Risk-free rate.

BSE milestone – IPO Hidroelectrica

- In July 2023, Hidroelectrica was successfully listed on BSE's main market under the ticker "H2O". The total proceeds raised in the initial public offering reached RON 9.3 bn, thus marking a new record on BSE after Electrica listing in 2014 that raised nearly RON 1.6 bn.

- Hidroelectrica ranks the first largest IPO in Europe and the third largest at the global level during the period covering January – July 2023.

- H2O listing, which sgnificantly increased market capitalization, is an important step for BSE given that more foreign investors may be attracted to invest in the local capital market.

Valuation multiples – companies listed on the BSE

Valuation multiples – listed companies on Regulated Market and MTS

This study focuses on the performance of the underlying seven industries analysed on the Regulated market and respectively on the MTS Premium segment. The main conclusions on the sectorial performance of the analysed listed companies in 2022 are:

Regulated market

- Only the **Materials** sector, often perceived as defensive, posted an increase of the average market capitalisation as a result of Chimcomplex' transfer from the MTS to the main market; the top performers of this sector were Chimcomplex, Teraplast and Alro;

- The **Electricity** sector recorded the highest median market capitalisation whereas the **Industrial sector** posted the lowest median;

- The highest P/E multiple was displayed by the **Consumer** and **Healthcare** sectors (14.5x and 9.9x), whereas the lowest P/E was observed for companies operating in the **Electricity** sector (4.7x);

- The **Oil & gas** sector recorded a slight decrease of the average market capitalisation in 2022; the main listed companies in this sector (i.e. Transgaz, Romgaz and OMV Petrom) closed 2022 on a very positive note in terms of financial performance;

- The P/E multiple of the **financial services** sector was close to the last 15-year median level;

- The **Consumer** and **Healthcare** sectors experienced the highest decline in average market capitalisation in 2022 (over 20%);

MTS Premium

- In 2022, the MTS Premium category included 49 companies with a market capitalisation ranging between RON 3m and 741m. The average market capitalisation of those companies was RON 89m at the end of 2022, significantly below the median market capitalisation of companies listed on the main market.

- The median EBITDA multiple recorded by the companies listed on MTS Premium category is significantly above the level observed on the main market for all analysed sectors;

- The top 3 companies by market capitalisation are from IT, Materials and Agribusiness: AROBS Transilvania Software (RON 741m), Brikston Construction Solutions (RON 673m) and Grup Serban Holding (RON 305m). Their market capitalisation falls within the median and the third quartile of the market capitalisation of companies on the Regulated market.

ESG initiatives on BSE

- In the last couple of years, BSE was committed to promote sustainability and ESG initiatives in order to develop a healthy framework for all listed companies and increase its visibility and attractiveness among local and international investors. As part of these initiatives, nine companies listed on the Regulated Market published their ESG score in 2022 for the first time, while in 2023 the number increased to 21 companies, of which 19 listed on the Regulated Market, one on MTS and one company with sustainability-linked bond rating.

M&A multiples

- The analysis of the M&A market was based on a set of 510 selected transactions completed over the period 2007–2022, with publicly available information. Of those transactions, 131 were successfully closed during 2022. Based on the analysis performed, the highest EBITDA multiple of 13.1x was recorded in 2019, whereas the lowest EBITDA multiple was 2.6x, recorded 13 years ago.

- In 2022, the average EBITDA multiple derived based on completed transactions (9.6x) was above the median EBITDA multiple observed on the BSE' main market (6.0x) and MTS Premium category (8.2x). The gap might be explained by the fact that companies listed on the BSE market are generally perceived as more stable, whereas private transactions often refer to companies with lower profits but higher growth prospects.

Scope and methodology

Equity market return

Romanian capital market performance is an indicator of prosperity and economic outlook stability. The increasing investment appetite for the companies listed on the Romanian capital market has enabled growth in one of the most important BSE indices, namely Bucharest Exchange Trading (BET) index, which reflects the growth of the most liquid shares listed on the BSE.

The purpose of this study is to provide a comprehensive analysis of the Romanian capital market from a valuation perspective focusing on both Regulated market and MTS/AeRO – Premium category.

In addition to the analysis of the multiples recorded by the listed companies on BSE, the study also covers the multiples derived based on local closed transactions (M&A).

Valuation multiples of listed companies on Regulated market

Valuation multiples of listed companies on MTS, Premium category
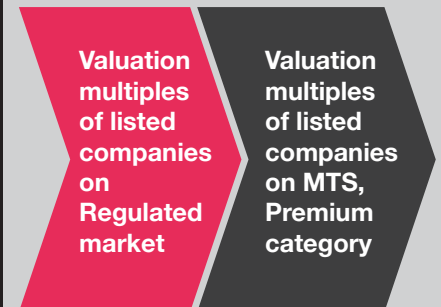
Consumer

Industrial
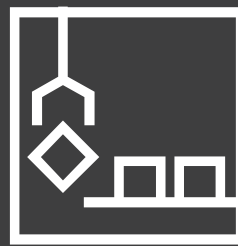
Materials

Financial Services

Oil & Gas

Electricity

Healthcare
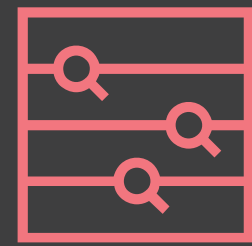
Aggregated

Agribusiness

Real Estate

IT

Common sectors for Main/MTS - Premium category

Sectors only Main market

Sectors only MTS - Premium category

Understanding the results

- All the financial data used in this study was sourced from the BSE official website/ Research Hub, Sustainalytics, Bloomberg, S&P Capital IQ platform, ISI Emerging Markets, Mergermarkets and PwC internal database. While every care was taken in compiling this study, no responsibility is taken for errors or omissions. The data selected and used by PwC within its analysis was collected in a professional manner and best efforts were applied with a view to offering accurate and complete results; PwC has not verified, validated or audited the data compiled for public sources. Therefore, PwC will not be held liable for any damage or loss from the use of the information contained herein.

- The time frame selected for our analysis covers the 16-year period from 2007 to 2022 and the first quarter 2023.

Valuation multiples

- **Regulated market segment**

Following an initial screening of the **83 companies listed on the BSE Regulated Market** (80 local companies and 3 international - i.e. Erste Group Bank AG, Digi Communications N.V., Purcari Wineries Public Company Ltd.), Erste Group Bank was excluded because its primary market is Vienna Stock Exchange while BSE is its secondary market.

In the above context, the analysis presented for 2022 is focused on **82 companies** that operate in the following sectors: Consumer, Industrial, Materials, Financial Services, Oil & Gas, Electricity and Healthcare (according to S&P Capital IQ industry classification).

Compared to 2021, the pool of the 82 companies subject to our analysis in 2022 includes in addition Chimcomplex S.A. Borzesti (transferred from the MTS to the Regulated market in January 2022) and UCM Resita (started trading in February 2022 after being suspended for more than 11 years).

- **Multilateral Trading System (MTS or AeRO), Premium category**

With the sixth edition, the study expands its coverage to include the performance and valuation multiples analysis for **49 companies listed on the MTS** under the Premium category. This analysis expands the study's scope, thus providing insights on the performance and sector-specific dynamics of smaller companies listed on MTS in 2022.

M&A valuation multiples

From a total of 1,556 transactions closed in Romania during 2007 – 2022, we selected a set of 510 transactions for which reliable financial information was publicly available. 25% of those deals were closed during 2022.

Disclaimer

- The Content of this study is for informational purposes only, therefore you should not construe any such information as an investment, financial, or any other consulting advice/ recommendation. Nothing contained within the study constitutes a recommendation with respect to any investment in shares, bonds and other type of securities.

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Valuation based on market approach

- Market multiples are valuation metrics widely used to value businesses. Assuming that the selected peer companies have similar valuation multiples, appraisers may conclude that, by applying the industry multiple to a specific company's financial metrics, they can arrive at the company's market value (enterprise value or equity value, depending on the selected multiple).

EV Enterprise Value

1 EV/Sales

2 EV/EBITDA

3 EV/Total Assets

Price Market capitalisation

1 P/BV

2 P/E
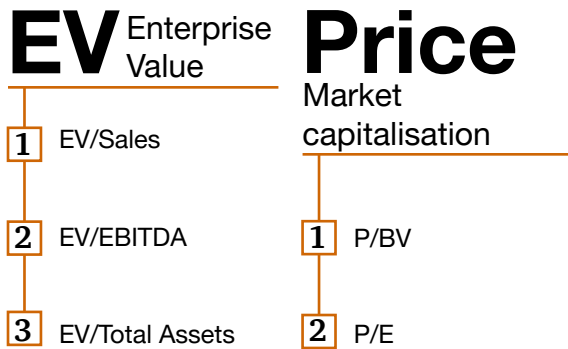
- Within the listed companies' multiples analysis, we considered the following statistical measures:

(a) **Quartiles** – 1st, 2nd (median) and 3rd – are statistical metrics describing a division of observations into four defined intervals based on the values in the sample. Each quartile contains 25% of the total observations.

Quartiles have been determined by sorting the data from the lowest to the highest values and taking the data point at ¼ of the sequence for the 1st quartile, at ½ for the 2nd quartile (median) and at ¾ for the 3rd quartile.

(b) **Mean** is the sum of the values divided by the total number of the companies included in the data set. It is one of the most commonly-used measures of central tendency and it is the preferred multiples proxy when the distribution is set to be normal. Otherwise, the median is the preferred central tendency measure, as it is not influenced by outliers.

(c) **Coefficient of variation** equals the standard deviation divided by the mean and it is a measure of the dispersion of a data set from its own mean. The more spread out the data, the higher the deviation. When the deviation is too high, the mean multiple is not relevant.

- The multiples selection considers the robustness of the data available within the data set while focusing on the multiples that best represents the sector/subindustries.

Given the exhaustive analysis of the seven sectors, the selection of the best indicator from the median and the mean considers the dispersion test. Outliers, defined for the purpose of this report as multiples exceeding 50, were excluded from our analysis.

- Various methods can be used to value a company. In practice, business valuation is often a combination of different approaches. The market approach (comparable listed companies and comparable transactions) is generally used in addition to other valuation approaches, mainly as a cross-check of the applied estimation procedures. Put simply, within the market approach, a company's sales or profits (or other financial indicator) are multiplied by an industry average/median multiplier as basis for estimating the Market Value of the business or the market value of the equity.

Current financial multiples include historical multiples based on standardized financials for the last completed fiscal period: Last Twelve Months (LTM). Current multiples based on per-share metrics (such as P/E or P/BV) are calculated using the last closing equity price, whereas current multiples based on company-level metrics (such as net sales, EBITDA or Total assets) are calculated using the Enterprise Value (EV).

- It must be stressed, however, that any conclusions derived from using such multiples could be misleading and would need to be thoroughly reviewed, primarily for the following reasons:

  - In reality, there is no such thing as 'twin-security', e.g. a perfect comparable company with the same risk exposure as the valuation target. In essence, that means that companies with risk profiles different from that of the valuation target are used to estimate its value;

  - There are usually a number of strategic reasons for acquiring a particular company in a specific market. Such considerations lead to prices that are not aligned with the typical values of the most frequently used multiples such as price-to-earnings ratio (P/E) and the price-to-book value of equity ratio (P/BV).

Chapters

Macroeconomic outlook

At the beginning of 2022, the global economy was still adjusting to the consequences caused by the COVID-19 pandemic when it was shattered again in February 2022 by the Russia's war of aggression against Ukraine. This war changed the priorities of many nations, generated fear among people and triggered a humanitarian, financial and political crisis. The surge in food, fuel, energy and other commodity prices coupled with double-digit inflation rate eroded the household's income and savings and, as a result, the global economy advanced at a weaker peace in 2022, by only 3.4% compared to the 6.3% growth recorded in 2021. According to the IMF, the baseline forecast for global economic growth is expected to fall to 2.8% in 2023 and than to settle at 3.0% in 2024.
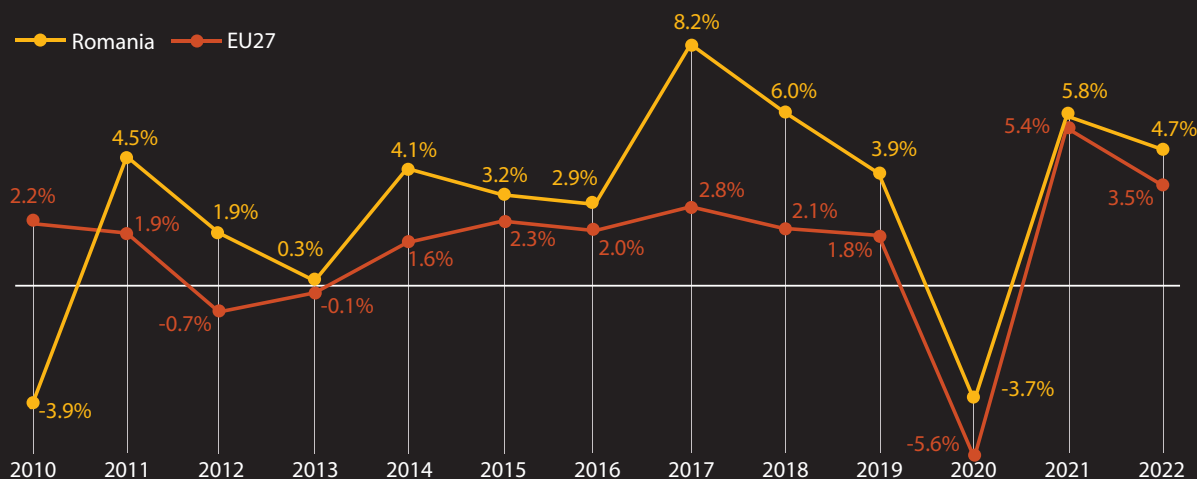
Romania is a large European market with an economy size of EUR 285.9 billion in GDP terms in 2022 and a population estimated at 19.0 million people. The diversified and competitive industrial landscape, low unit labour costs, significant agricultural potential and low energy dependence can ensure a stable long term path of growth and development. Despite these favourable premises, the context changed twice in recent years, namely in the spring of 2020 due to COVID-19 outbreak which led to lockdown and reduced economic activity, and once's again in February 2022 when the Russian Federation's army invaded Ukraine, adding instability and threats close to Romania's northern border.

The geographical proximity of Romania to the conflict zone and its trade linkages with both Russia and Ukraine have exposed the Romanian economy to various challenges. Despite these difficulties, in 2022, Romania's economic growth exceeded market expectations, with a real GDP growth rate of 4.7%. The growth resilience displayed by the Romanian economy was mainly attributable to strong private consumption and robust investments (inflows from the Recovery and Resilience Plan and other EU funds). According to the European Commission's estimate (European Economic Forecast, Spring 2023) Romania's real GDP is expected to grow by 3.2% in 2023 and 3.5% in 2024.

Historically, Romania has demonstrated a consistent track record of achieving higher GDP growth rates compared to the average of the EU27 countries. This pattern has created favourable conditions for economic convergence, indicating progress towards narrowing the gap between Romania's GDP per capita and the EU27 average. Over the past ten years, Romania's GDP per capita, measured in purchasing power standards (PPS), has experienced significant improvement. In 2013, Romania's GDP per capita stood at 55% of the EU27 average and by 2022, this level had risen to 77%, reflecting notable progress in economic development and convergence with the European Union.

According to Eurostat, the unemployment rate in Romania, based on a revised methodology, demonstrated a slight decrease from 6.1% in 2020 to 5.6% in 2021. This decline occurred in the context of economic revival and the easing of pandemic restrictions. In 2022, the unemployment rate remained unchanged at 5.6%, thus maintaining the same level as the previous year. Furthermore, Romania has consistently maintained lower unemployment rates than the average rate observed in the European Union. However, the gap between Romania's unemployment rate and the EU average has been narrowing over the years, from approximately a 2.2 percentage points difference during the period of 2012 to 2019 to less than 1.1 percentage points in the last three years.

Real GDP growth rate (%): Romania vs. the EU27

Source: Eurostat

Inflation Rate (%) – Romania vs. the EU27

Legend: EU27, Romania

Year	Romania	EU27
2010	6.1%	1.8%
2011	5.8%	2.9%
2012	3.3%	2.6%
2013	4.0%	1.4%
2014	1.1%	0.4%
2015	-0.6%	0.1%
2016	-1.6%	0.2%
2017	1.3%	1.6%
2018	4.6%	1.9%
2019	3.8%	1.4%
2020	2.6%	0.7%
2021	5.0%	2.9%
2022	13.8%	9.3%

Inflation target 2.5%
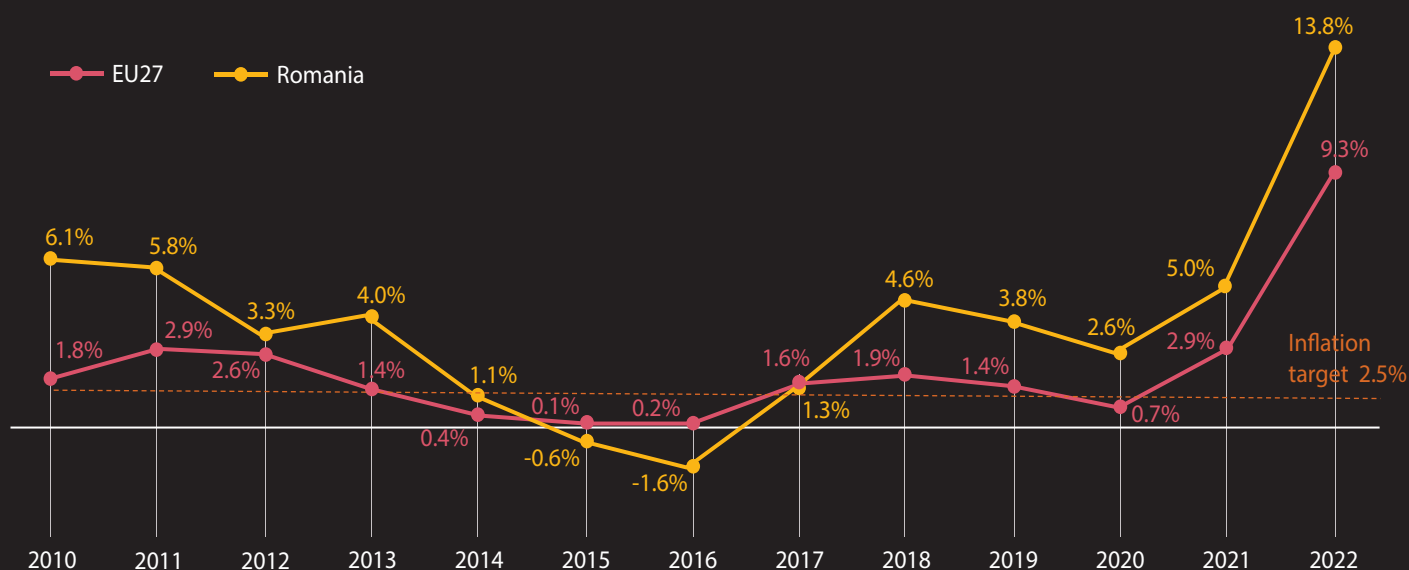
Source: IMF World Economic Outlook – April 2023

- **Gross fixed capital formation** (investments), expressed as percentage of GDP, experienced a slight growth from 23.0% in 2019 to 24.9% in 2022. This increase indicates the importance of investments as a driver of economic growth in Romania. In fact, investments played a significant role in supporting the achieved real GDP growth in 2022. Looking ahead, investments are expected to continue growing in the coming years, further contributing to economic development. One of the factors supporting this anticipated growth is the inflow of funds from the European Union recovery funds. These funds provide a significant opportunity for Romania to attract investment, stimulate economic activity, and finance projects that promote sustainable development and innovation.

- **Private consumption**, the main driver of growth in the recent period, posted a 20.3% increase in 2022, after the 11.8% increase in the year before. Over the past decade, private consumption in Romania has more than doubled, demonstrating remarkable expansion - from EUR 87.7 billion in 2013, private consumption reached EUR 181.1 billion in 2022. Moreover, this growth is almost three times higher than the average growth observed in the European Union during the same period.

- In 2022, Romania's **exports** experienced an increase of 9.6% compared to the previous year. This growth in exports contributed to an expansion in their share of GDP, gaining 2.4 percentage points and reaching 43.0% of GDP. The increase in exports signifies the competitiveness of Romanian goods and services in international markets and highlights the country's ability to tap into global trade opportunities. However, **imports** also advanced in 2022, by 9.9% compared to 2021, thus outpacing the growth rate of exports. Imports accounted for 49.8% of GDP in 2022, indicating a significant level of foreign goods and services being brought into the country. As a result, net exports had a negative contribution to GDP growth, resulting in a trade balance gap of 6.8% of GDP in 2022.

- According to the IMF, Romania experienced an upward trend in average **inflation rate** in 2021 and 2022, following a period of declining inflation during 2018-2020. In 2021, the average inflation rate reached 5.0%, and it further increased to 13.8% in 2022 (the last time
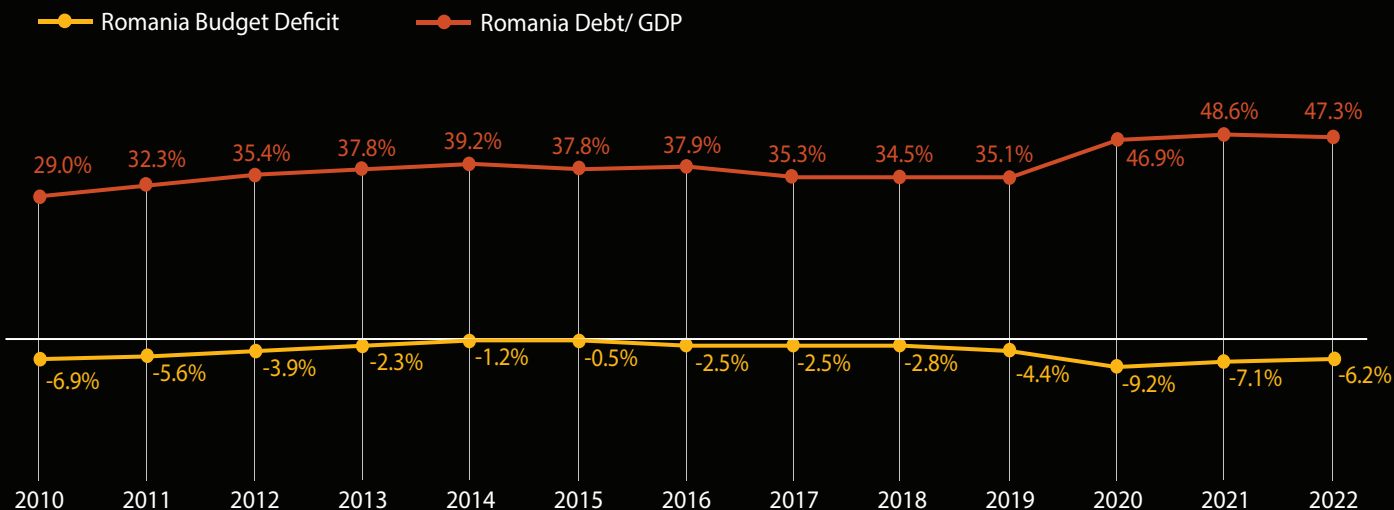
inflation reached a double-digit was in 2004, i.e. 11.9%).

- This inflationary trend from 2022 was observed not only in Romania but also in many other EU member states, primarily driven by surges in energy, food, and raw material prices, as well as bottlenecks in supply chains. In Romania, the inflationary trend was additionally influenced by nominal wage increases exceeding the EU average - higher wages lead to increased consumer spending and potentially contribute to inflationary pressures.

- To address the rising inflation, the National Bank of Romania (NBR) took several measures in 2022, including raising the monetary policy interest rate multiple times. By increasing interest rates, the NBR aimed to limit consumption and indirectly curb the inflation rate.

- Looking ahead, it is projected that the inflation rate in Romania will reach 10.5% in 2023 before declining to 5.8% in 2024 (based on IMF World Economic Outlook – April 2023). While inflation is expected to fluctuate in the near term, Romania's long-term objective is to stabilize the inflation rate at 2.5%, in line with the NBR's target rate.

- In 2022, Romania's **budgetary deficit** amounted to 6.2% of GDP, a decrease from the previous year's deficit of 7.1%. However, it still exceeded the Maastricht Treaty limit of 3.0%

for the fourth consecutive year. The budgetary deficit represents the gap between government expenditures and revenues, indicating the extent to which a country is borrowing to finance its activities.

- According to Eurostat, Romania's general **government consolidated gross debt** stood at 47.3% of GDP in 2022. Although this represents an increase in absolute terms compared to previous years, it is still below the Maastricht Treaty's public debt limit of 60.0%. In contrast, the EU27 average public debt was 84.0% of GDP, indicating that Romania's debt burden was comparatively lower.

- Over the last decade, Romania's **gross public debt** has increased significantly, by c. 2.8 times in absolute amounts. Based on the data provided by the Ministry of Finance in 2022 (report "Debt of the public administration according to the EU methodology", issued in October 2022), the gross public debt reached RON 667.3 billion, reflecting the cumulative impact of budget deficits and borrowing over time.

Romania's Debt/ GDP and government budget deficit evolution (%)

Legend: Romania Budget Deficit, Romania Debt/ GDP

| Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Romania Debt/ GDP	29.0%	32.3%	35.4%	37.8%	39.2%	37.8%	37.9%	35.3%	34.5%	35.1%	46.9%	48.6%	47.3%
Romania Budget Deficit	-6.9%	-5.6%	-3.9%	-2.3%	-1.2%	-0.5%	-2.5%	-2.5%	-2.8%	-4.4%	-9.2%	-7.1%	-6.2%

Source: Eurostat

- The risk-free rate (RfR) represents the return expected by an investor from investing in a risk-free asset. The common proxy used for RfR in Romania is the yield to maturity of a liquid long-term Romanian Government Bond. The domestic government debt (including issuance, redemption, interest payments, etc.) is handled by the Ministry of Finance (MF). The National Bank of Romania (NBR) acts as the MF's agent overseeing the management of government securities, in both national and foreign currencies, on the domestic market.

- According to the latest information from NBR, at the beginning of June 2022, there were 28 outstanding government bonds denominated in local currency with (a) issuance date during the period 2012 – 2023 and (b) maturity dates ranging from 3.5 to 15.5 years. Based on December 2022 report published by the MF Public Debt Management Office, the most traded government bond, denominated in the local currency, is the bond with ISIN number ROJ0LNOCKHR8 issued in October 2021, with an initial maturity of 4.1 years. The yield to maturity

of this bond as at 31 December 2022 was 7.3% based on the data provided by the S&P Capital IQ platform. However, the analysis conducted over the period 2011-2022, indicated that a seasoned bond issue, namely the bond with ISIN number RO1227DBN011 (traded since 2012 and maturing in 2027) is one of the most traded bonds denominated in the local currency.

- The analysis conducted over the period 2011-2022 reveals that the risk-free rate (RfR), approximated by the yields to maturity of government bonds, has shown fluctuations in response to the economic and geopolitical context. Prior to 2018, government bonds offered investors positive real returns, meaning that the returns exceeded the inflation rate, providing a risk-free investment option with additional value.

Risk free rate evolution for selected bonds denominated in RON vs. inflation rate (%)
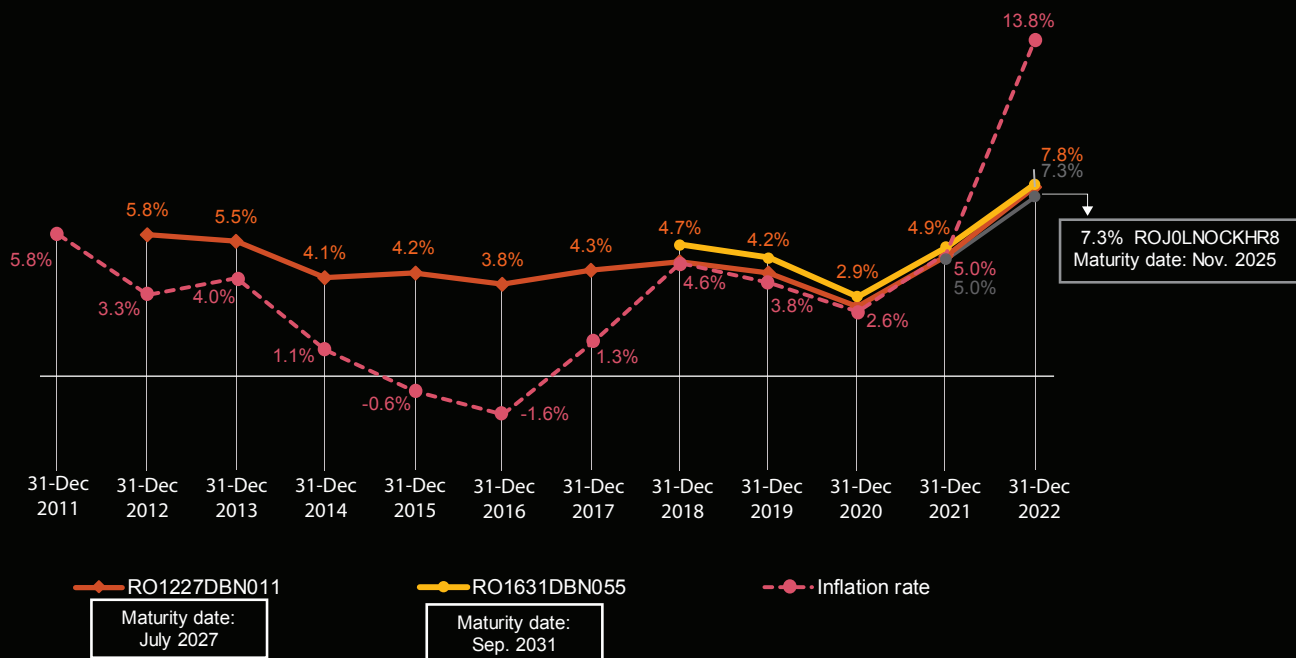
Note: Risk free rate depicted in the graph was approximated by the yield to maturity at the end of each year and is a proxy for the bond' return if held until maturity

Source: S&P Capital IQ, PwC Analysis

- However, during the period from 2018 to 2021, the situation changed, and the real returns on government bonds decreased. This reduction was particularly evident for bonds with shorter remaining maturities. As a result, the yields to maturity of these instruments approached zero, implying that investors were not earning a real return on their investments. In 2022, the bond market experienced high volatility, primarily driven by several factors including double-digit inflation rates,

increased interest rates, and surging energy prices. These factors had a rapid impact on bond prices, resulting in their decline, while simultaneously causing yields to rise sharply, surpassing the threshold of 7.5%. Despite the elevated yields from 2022, the inflation-adjusted or real yields remained negative, indicating that bond investors were not earning a positive real return after accounting for inflation.

- The monthly analysis of selected bonds' returns reveals a gradual increase in the risk-free rate (RfR) over the period from 31 December 2021 to 30 June 2022. This increase in the RfR can primarily be attributed to the high inflationary context and the rise in interest rates during this period. Overall, the risk-free rate fluctuated over the analysed period, from approximatively 5% (December 2021) to 9% (October 2022), thus indicating higher expected return on risk-free assets (such as government bonds) demanded by investors to offset the effects of inflation and interest rate changes. In comparison, the inflation rate rapidly expanded during the same period, by c. 7 pp (from 8% in December 2021 to 15% in October 2022). This significant increase in the inflation rate further contributed to the rise in the risk-free rate.

- The volatile economic context observed in 2022 can be attributed primarily to the military conflict in Ukraine, which created a commodity shock and additional inflationary pressures. The ongoing conflict disrupted supply chains and affected global commodity prices, leading to inflationary pressures in many countries, including Romania. In response to this economic shock and the resulting inflationary pressures, the National Bank of Romania (NBR) took measures to maintain control over money market liquidity and manage the existing levels of minimum reserve requirement ratios. One of these measures was raising the monetary policy rate over this period, from 1.8% in December 2021 to 6.8% p.a. in December 2022 and further to 7.0% p.a. in March 2023. This increase in the monetary policy rate aimed to manage inflation expectations and stabilize the economy.

- In Q1 2023, the inflation rate in Romania showed a downward trend compared to the level recorded in December 2022 (March 2023: 14.5% vs. December 2022: 16.4%) - this contraction marked the first decline in the last nine quarters. The decrease in inflation during this period can primarily be attributed to the significant drop in fuel and electricity prices. This drop in prices was a result of changes made to the energy price capping and compensation scheme, implemented starting in January 2023.

- Over the entire analysed period, the returns on risk-free assets, such as government bonds, were not sufficient to compensate for the effects of inflation. Investors faced a situation where their investments in risk-free assets did not maintain their purchasing power over time due to inflation eroding the real value of those investments.

Monthly evolution of RfR, monetary policy rate and inflation rate (%)

Legend: Inflation rate — Monetary policy rate — RO1227DBN011 — ROJ0NOCKHR8
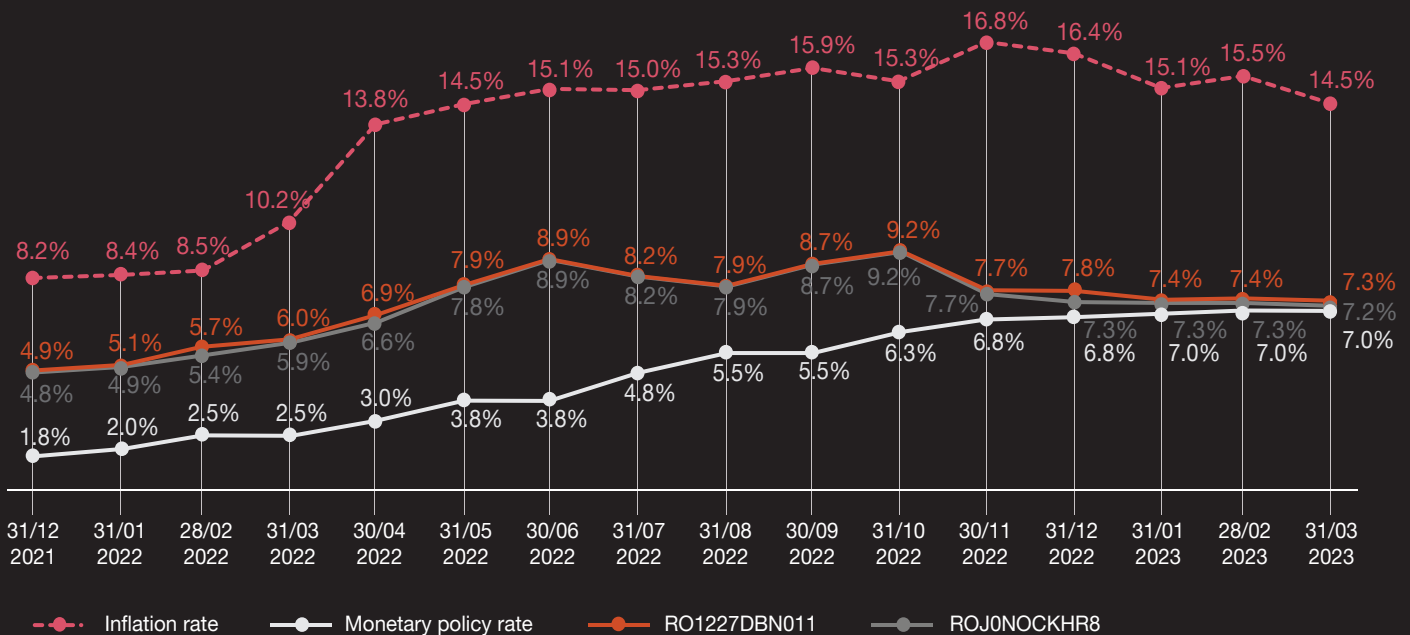
Note: RfR (or yield to maturity) for each of the bonds included in the analysis was calculated in the last day of the month.

Source: S&P Capital IQ, NBR, PwC Analysis

Bucharest Stock Exchange (BSE) – at a glance

Key events 2022 – Q1 2023

1. Legislative context

On 20 April 2022, the Chamber of Deputies adopted the legislative bill to simplify the taxation of investors' gains from the capital market. The bill provides for withholding tax on capital gains for individual investors to be retained at source, with two tax levels - namely 1% for holdings for more than one year and 3% for holdings of less than one year (the initial tax rate was 10%). The main objectives of this initiative are (a) to increase the attractiveness of BSE and (b) to encourage investors to invest in local companies listed on the BSE in order to increase their financing capacity. On 20 May 2022, the bill was approved by the Romanian President and is expected to enter into force on 1 January 2023.

On 15 July 2022, the Government Ordinance no. 16/2022 was published in the Official Gazette which brings major changes regarding the abrogation of some normative acts and other financial-fiscal measures. One of the key amendments refers to dividend tax that is increased from 5% to 8% for all beneficiaries (individuals and legal entities, from Romania and abroad) starting with dividends distributed from 1 January 2023.

2. BSE performance

- The local capital market (Regulated and MTS segment) reached RON 211 billion in market capitalization on 31 December 2022, displaying a 15.3% contraction compared to the level recorded one year before. Even though no IPOs were concluded on the Regulated Market in 2022, the situation was different on the MTS segment where 11 listings were successfully completed.

- On 14 January 2022, BSE flagship index - BET closed the trading session at 13,682 points, reaching a new all-time high since 1997. Despite the strong growth posted at the begging of the year, BET index closes 2022 in decline (-10.7%) compared to previous year amid the shock on interest rates and the geopolitical crisis in the region due to the war in Ukraine (13,061 points on 30 December 2021 vs. 11,664 points in 2022). Nevertheless, BSE demonstrated a certain degree of resilience compared to other international equity markets given that BET decline was below the one shown by the S&P 500 in the US or the STOXX 600 in the EU. On 31 March 2023, BET advanced by 3.8% compared to the closing level recorded in 2022, reaching 12,112 points; however, the level displayed in March 2023 was below the one recorded during the same period 2022 (-4.7%).

- The BET-TR index, which reflects in addition to BET the dividends granted, closed 2022 at 22,686 points thus displaying a contraction of 1.9% compared to the performance from 2021. The situation has changed during Q1 2023, when BET-TR index closed the last trading session on 31 March 2023 at 23,561 points (3.9% increase from the level recorded at 31 December 2022).

- Based on the latest publicly available data from the Investor Compensation Fund, the number of investors on the BSE continued to grow in 2022 when it reached 133,000 investors - a new all-time high for the capital market in Romania. By comparison, at the end of 2021 there were approx. 95,000 investors.

- In 2022, BSE received an important international (re)confirmation based on the inclusion of 13 Romanian companies in FTSE Russell's Emerging Markets indices – namely the Global All Cap indices that

included Banca Transilvania, MedLife, Nuclearelectrica, OMV Petrom, One United Properties, TeraPlast, and the Global Micro Cap indices that included Aquila, Bittnet Systems, Bucharest Stock Exchange, Conpet, Purcari Wineries, Sphera Franchise Group, Transport Trade Services.

### 3.Growing perspectives for bonds market

- During 2020 and 2022, the bond market saw some dynamics as a result of the listing of the Government Bonds programme Fidelis which had been considered a flagship program of the Romanian State. Given the significant success of the previous six offers, the Ministry of Finance carried out five new public offers for the sale of Fidelis government bonds BSE between March to April 2023 (three of which are in local currency and two in euro). Moreover, one of the five new issues under Fidelis programme was dedicated to blood donors.

- Green and social financing gained more visibility on the local capital market in the last period and became increasingly attractive for local and international investors as well as for companies and local authorities as a result of Romania's climate agenda. Between June 2022 and February 2023, Raiffeisen bank reaffirmed its commitment to support sustainable investments and listed four tranches of green/sustainable bonds (RBRO27, RBRO27A, RBRO27B, RBRO27C), pursuing EUR 1.5 billion per tranche. The proceeds raised will be used to finance (a) social projects such as financing small and medium-sized enterprises in underdeveloped regions at the national level, affordable housing, access to essential health services, education, infrastructure and (b) projects supporting the green transition - green buildings, renewable energy projects, energy efficiency projects, ecological transport and agriculture, pollution prevention and control projects.

Overview

Based on an FTSE Russell review, equity markets are classified as: Developed, Advanced Emerging, Secondary Emerging or Frontier.

For a more comprehensive analysis of the BSE's regional position, we looked at similar capital markets in terms of their volatility and the correlation between economic growth and indices value. The stock exchanges selected in our analysis are: (a) **Advanced Emerging markets** – Greece, Hungary and Czech Republic (b) **Frontier markets** – Bulgaria, Croatia, Slovakia, Slovenia and Cyprus. Bucharest Stock Exchange is included in Secondary Emerging market since September 2020.

Romania's equity market capitalisation to GDP ratio was 14.9% at 31 Dec 2022, yet lagging behind regional markets such as Greece, Croatia, Czech Republic and Bulgaria. The market capitalisation (including main segment and MTS) decreased by approximately 15% in 2022 vs. 2021, reaching EUR 43 billion (equivalent of RON 211 billion) amid adverse market developments. For all the analysed exchanges except Prague Stock Exchange, we considered the total market capitalisation both on the main and alternative stocks trading segments, although each stock exchange has a different structure.

A. Slovenia
B. Croatia
C. Bosnia & Herz.
D. Montenegro
E. Serbia
F. Albania
G. Kosovo
H. Macedonia
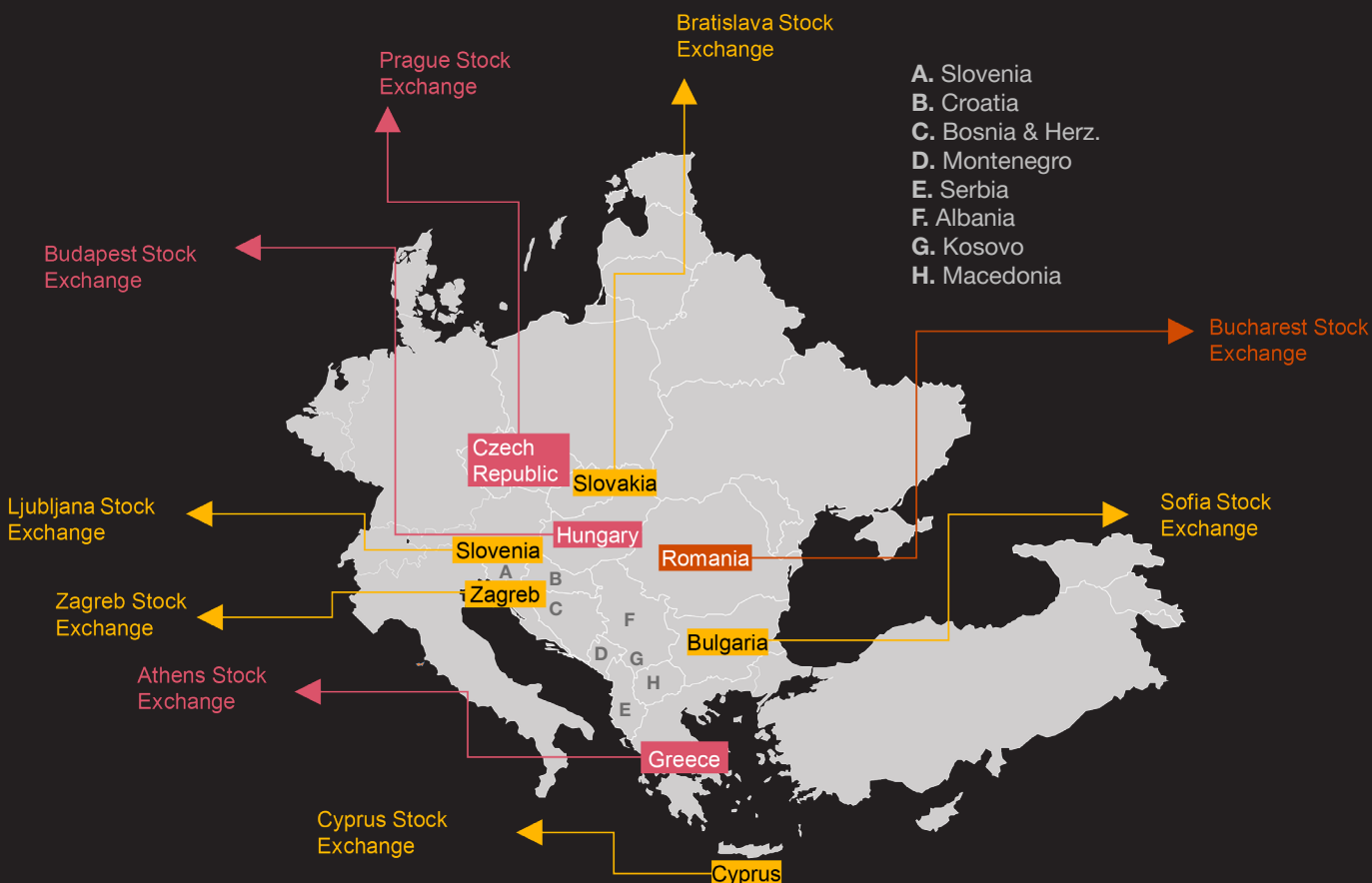
Country	Stock Exchange	GDP per capita (EUR), 2022	Market cap. (EUR million)	Capitalisation 31 Dec 2022 (% GDP 2022)	No. of companies
Croatia	Zagreb Stock Exchange	17,130	18.016	26.9%	92
Greece	Athens Stock Exchange	19,670	65.512	31.5%	145
Bulgaria	Sofia Stock Exchange	12,400	15.260	18.0%	82
Czech Republic	CEESEG - Prague	25,870	44.223	16.0%	29
Hungary	Budapest Stock Exchange	17,580	25.104	14.7%	65
Romania	**Bucharest Stock Exchange**	**15,010**	**42.598**	**14.9%**	**371**
Slovenia	Ljubljana Stock Exchange	27,980	7.632	12.9%	24
Cyprus	Cyprus Stock Exchange	29,590	2.506	9.3%	52
Slovakia	Bratislava Stock Exchange	19,930	2.001	1.8%	34

Note: The market capitalisation for Prague Stock Exchange does not include free market. Market capitalisation for Prague and Bucharest stock exchanges includes also Erste Group, which is primary listed on a different stock exchange

Source: Eurostat, S&P Capital IQ, Official website for each stock Exchange.

With a significantly higher number of listed companies and an average market capitalisation of EUR 115 million, companies listed on BSE seem to be smaller as compared to those listed on other regional exchanges, except Slovakia and Cyprus.

Since the pandemic outbreak in 2020, the Romanian economic context was volatile, underpinning uncertainty among investors and across various sectors. However, in 2022 the local capital market did not record any new listing on the main segment. The

MTS continued to be attractive to investors and small/ medium companies looking for finance via BSE - a total of 11 listings were successfully completed on MTS in 2022, with agribusiness sector as best represented.

The MTS market capitalisation at the end of 2022 decreased by 31% as compared to end of 2021 (EUR 2.7 billion at 31 Dec 2022 vs. 4 billion 31 Dec 2021).

BSE Milestones

Stock exchange activity in Romania traces back to 1839, when commodities exchanges were established. The Bucharest Stock Exchange was first opened on 1 December 1882, but it was seriously affected by social and political instability until it was suspended in 1948 under the communist regime. Almost 50 years later, it was re-established as a public not-for-profit institution in June 1995.

1882	1995	1996	1997	2002	2005	2010	2014	2015	2017	2020	2021

1996 — **RASDAQ platform set up**

2002 — **BSE** Becoming Federation of European Security Exchanges (FESE) member

2010 — **BSE listing on its own Regulated Market**

2014 — **RASDAQ dissolving**

2015 — **Launch of AeRO,** BSE's Alternative Trading System

2020 — **BSE promotion to Secondary Emerging market status** effective September 2020

2021 — **BSE** Launching the first index for the AeRO market, BET AeRO, in October 2021

1995 — **BSE re-established as a public interest institution** 1st trading session on 20 November 1995

BSE official opening

1997 — **First IPO(financial services)**
BET BSE launching its first index

2005 — **BSE becoming a Joint-stock company** RASDAQ absorption by BSE

2017 — **Sibex absorption by BSE**

Source: BSE Official Website

BSE operates two markets:

1. Regulated Market/Main market, where the following financial instruments were traded at 31 December 2022:

• Equities of 83 companies, of which three included in the International tier (Erste Group Bank AG, Purcari Wineries Public Company Limited and Digi Communications NV), 28 included in the Premium segment and 52 in the Standard segment. To be included in the Premium segment, the minimum free-float required is EUR 40 million.

• Debt instruments (corporate, municipal and government bonds issued by Romanian entities and international corporate bonds) - 102 bond issues were listed and traded on the BSE regulated market as at 31 December 2022, i.e. 36 government bonds, 29 municipal bonds and 37 corporate bonds.

• UCITs (shares and fund units), structured products, tradable UCITS (ETFs) - very few alternative products were listed on the BSE as at 31 December 2022: Patria-Tradeville ETF, STK Emergent, and BET-FI Index Invest.

2. The MTS (also known as AeRO) segment, launched in February 2015, following the closure of RASDAQ, with the purpose of accommodating the trading of early stage companies, such as start-ups and SMEs. RASDAQ was the unregulated segment of the BSE, launched in 1996, where Romanian entities resulting from the mass privatisation programme were listed. It was dissolved based on a parliament decision in October 2014. As a consequence of RASDAQ's closure, the companies listed on that segment had one year to decide whether to migrate to the regulated market or to the MTS, or go private. The last trading day for the RASDAQ-listed companies was in October 2015. According to information published by BSE, a total of 288 companies were operating on the MTS segment as at the end of 2022.

The Bucharest Stock Exchange (BVB) calculates and distributes in real-time **11 indices** – BET, BET-TR, BET-TRN, BET-XT, BET-XT-TR, BET-XT-TRN, BET-BK, BET-FI, BET-NG, BET Plus, BET AeRO – and one index developed together with Vienna Stock Exchange – ROTX index.

BET, the first index developed by BSE in 1997, represents the reference index for the local capital market, including Blue Chip Companies; the BET index reflects the performance of the top 20 most-traded companies listed on the BSE, with the most recent change being Aquila Part Prod Com S.A. Part Prod Com's inclusion in the index as of 31 March 2022. Other changes in BET's composition were the addition of TTS (Transport Trade Services) S.A. and One United Properties SA during 2021. The main selection criterion for constituents' inclusion in the BET index relates to the liquidity coefficient. BET index constituents are adjusted quarterly to update their weights as a result of corporate events (share capital increases, splits, consolidations, etc.), changes of the index composition following the inclusion / exclusion of a company, index constituents' shares market price evolution.

Symbol	BET Constituents	Weight in BET, 31 Dec 2022	Weight in BET, 31 March 2023
FP	Fondul Proprietatea	20.0%	20.0%
TLV	Banca Transilvania S.A.	20.0%	20.0%
SNP	OMV Petrom S.A.	17.4%	17.9%
BRD	BRD - Groupe Société Générale S.A.	7.6%	7.0%
SNG	S.N.G.N. Romgaz S.A.	9.4%	9.0%
SNN	S.N. Nuclearelectrica S.A.	5.3%	5.4%
M	Medlife S.A.	3.2%	3.1%
DIGI	Digi Communications N.V.	2.6%	2.6%
EL	Societatea Energetica Electrica S.A.	2.2%	2.2%
TGN	S.N.T.G.N. Transgaz S.A	3.4%	3.6%
TRP	Teraplast S.A.	1.6%	1.4%
ONE	One United Properties	1.9%	1.8%
TEL	C.N.T.E.E. Transelectrica	1.3%	1.4%
AQ	Aquila Part Prod COM	0.5%	0.6%
WINE	Purcari Wineries Public Company Limited	0.6%	0.6%
ALR	Alro S.A.	0.7%	0.8%
TTS	TTS (Transport Trade Services)	1.0%	1.0%
COTE	Conpet S.A.	0.5%	0.5%
BVB	BURSA DE VALORI BUCUREŞTI S.A.	0.6%	0.7%
SFG	Sphera Franchise Group	0.4%	0.5%

Source: BSE

The evolution of the BET index in the period 2018 - Q1 2023
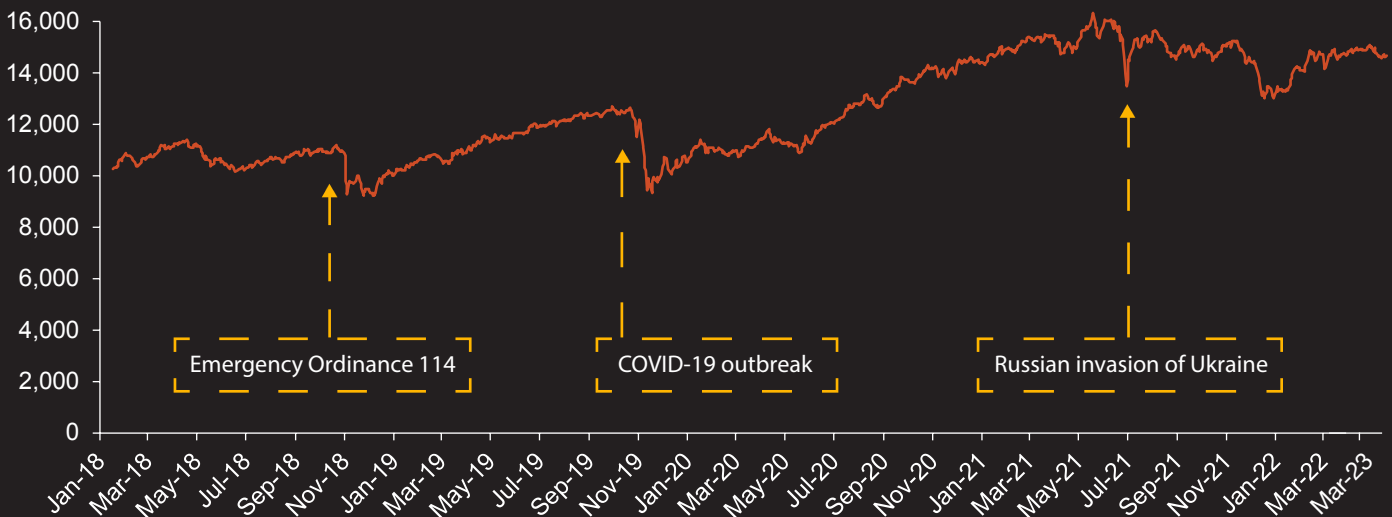
BET-TR is the first total return index launched by the BSE based on the BET structure. This index tracks price changes of component shares and is adjusted to reflect the dividends paid by its constituent companies. BET-TR includes the 20 most-traded companies listed on the BSE and has the same constituents as the BET.

In addition to BET and BET-TR, other indices are available. Those include: BET-XT and BET-XT-TR, which track the price changes of the 30 most-traded companies listed on the BSE's Regulated Market, including financial investment companies, and the corresponding total return; three sectorial indices (BET-FI for financial investment companies, BET-NG for energy and utilities, and BET-BK a benchmark index for asset managers and other institutional investors), BET-Plus that is a free float market capitalisation-weighted index of the Romanian companies excluding investment companies and ROTX, which is an index developed by BSE together with Vienna Stock Exchange for all "blue chip" shares traded on the regulated market.

In 2021, BSE launched three new indices, namely **Bucharest Exchange Trading Net Total Return** (BET-TRN - net total return version of market reference index BET), **Bucharest Exchange Trading Extended Net Total Return** (BET-XT-TRN - net total return version of BET-XT index), respectively **Bucharest Exchange Trading AeRO (BET-AeRO)** that reflects the price performance of companies listed on the AeRO market that meet the free-float, market capitalization and liquidity criteria. The last index was designed as a benchmark for AeRO listed companies. BET-AeRO

is reviewed quarterly on March, June, September and December.

- As it can be observed on the graph, BET index quickly responded to the challenging mix of events that took place over 2018 - Q1 2022. The three main events identified as causing a sudden fall in the BET index are:

  - Emergency Ordinance 114 issuance at the end of December 2018, affecting the profitability of local companies, especially those operating energy, telecom and banking sectors - BET index saw a 15% decrease during the month of December 2018, triggered by the negative news about increased taxation;

  - COVID 19 outbreak, leading to restrictions and worldwide panic - BET index lost 26% during 30 January – 1 April 2020;

  - Russian invasion of Ukraine in February 2022, causing instability and fear - BET index dropped by 17% during the period 23 February - 7 March 2022;

  - By the end of 2022, the BET index has recovered 6.4% from the decrease suffered between the period 23 February and 7 March.

Liquidity analysis – BSE regulated market

- During 2013 – 2022, the total market capitalisation on the regulated market (including domestic and international tiers) ranged between RON 130-229 billion, while the value traded as percentage of market capitalisation stayed within the 1%-10% range. Before that period, the capital market evolution and trading activity was less predictable, with higher fluctuations observed.

- After reaching a record high of RON 247 billion on 17 January 2022, the BSE market capitalisation dropped by 11% to RON 204 billion by 31 March 2023. The strong decrease attributable to the war in Ukraine was partially recovered by the end of March 2023, thus reflecting market confidence and strong investors' appetite.

- The number of companies listed on the regulated market (including Erste Group) slightly changed from 82 companies as at 31 December 2022 to 83 as at 31 December 2022 and 31 March 2023, following the transfer of Chimcomplex from MTS to main market. Of the 83 currently listed companies on BSE regulated segment, one company has been suspended for more than 10 years (UCM Resita) but resumed trading in 2022.

- BSE market capitalisation as at 31 March 2023 reached RON 204 billion, posting 5% year-on-year decrease, whereas the average monthly traded value in Q1 2023 almost halved as compared to the same period in 2022.

- BSE's weakest performance in the last 15 years was recorded in 2008 during the financial crisis when market capitalisation almost halved. The RON 46 billion market capitalisation recorded at the end of 2008 represents only 23% of the market capitalisation recorded as at the end of 2022.

- In the last couple of years, BSE consolidated its position and became more attractive to investors after the promotion to the Secondary Emerging market status. Thus, while BSE response to the financial crisis in 2008 was quite intense, with BET index losing 70% during January – December 2008, the reaction to the war affecting Romania's neighbour was moderate, with BET index decreasing and partially recovering by the end of March 2023 (BET index at 31 March was only 11% below the pre-war level).

Evolution of market capitalisation and traded value on BSE main segment, 2007 - Q1 2023 (end period)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Q1 2023
Market capitalization	86	46	80	102	71	98	134	130	146	147	164	143	181	154	229	197	204
Value traded on BSE % of market capitalization	15%	15%	6%	5%	14%	8%	8%	10%	6%	6%	7%	8%	5%	8%	5%	6%	1%

Source: BSE
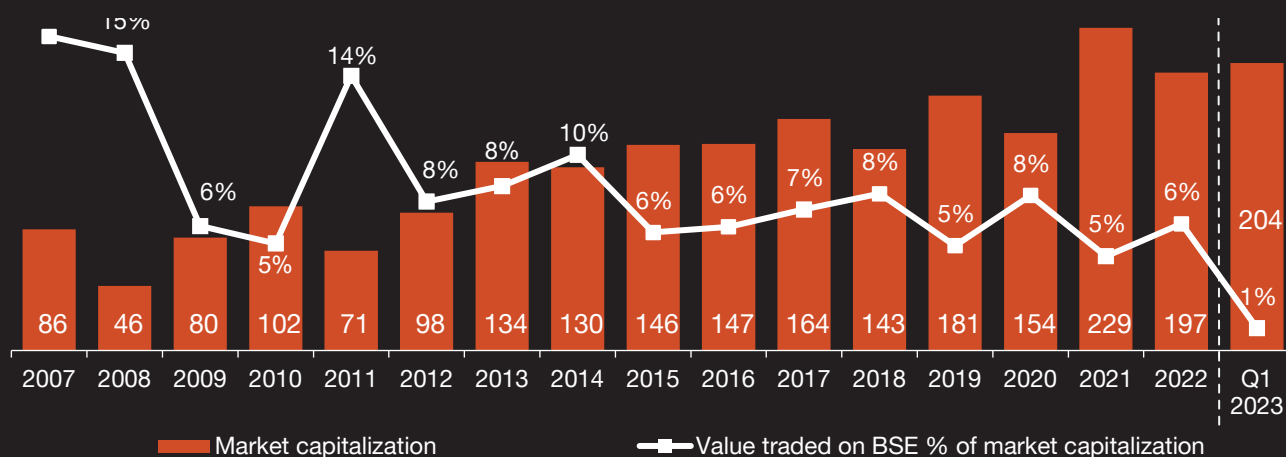
- The traded value on the BSE regulated market increased by 16% in 2022 compared to the previous year (2022: RON 12.8 billion vs. 2021: RON 11.0 billion). In the last 15 years, the lowest traded value was recorded in 2009 (RON 5.1 billion), when investor confidence was strongly affected by large corrections from 2008, while the highest level had been reached in 2007 (RON 13.8 billion) before the financial crisis.

- The top five most traded shares on the regulated market in 2022 contain companies included in Oil & gas and Financial services sectors, i.e. OMV Petrom S.A. (BVB: SNP), Fondul Proprietatea (BVB: FP), Banca Transilvania S.A. (BVB: TLV), BRD Group Societe Generale (BVB:BRD) and Romgaz (BVB: SNG). In 2021, Teraplast S.A. ranked among the top 5 most traded companies, however BRD took its place in 2022 as a result of a 10% dividend yield distribution.

Company	Sector	Ticker	Traded value in 2022 (RON)
OMV Petrom S.A.	Oil & Gas	BVB:SNP	3,429,475,462
Fondul Proprietatea S.A.	Financial Services	BVB:FP	2,282,569,451
Banca Transilvania S.A.	Financial Services	BVB:TLV	1,987,894,067
BRD - Groupe Société Générale S.A.	Financial Services	BVB:BRD	813,932,109
SNGN Romagaz S.A.	Oil & Gas	BVB:SNG	616,345,735

Source: S&P Capital IQ, PwC Analysis

Overview of Romanian IPOs – a retrospective analysis

- The scarcity of IPOs in Romania might be explained by the low appetite for transactions in the context of global uncertainties, especially in the period 2008-2012, the postponing of public listings for state-owned companies and the lack of experience regarding raising financing via primary capital markets. The mass privatization process from 1995-1996 was preferred for accelerating the privatisation of state-owned companies and helping to build the foundation of local IPO culture. In the context of alternative equity providers (e.g. private equity and venture capital equity funds), some companies decided not to go public on the BSE, thus keeping the number of domestic IPOs at low levels. In recent years, the BSE has been committed to holding financial seminars and campaigns to increase awareness regarding trading on a capital market and the inherent advantages.

- The timeline presents all successful IPOs of companies listed on the regulated segment of the BSE during 2006-2023, along with the value obtained and an estimated P/E ratio calculated at the IPO price and as at 31 December 2022.
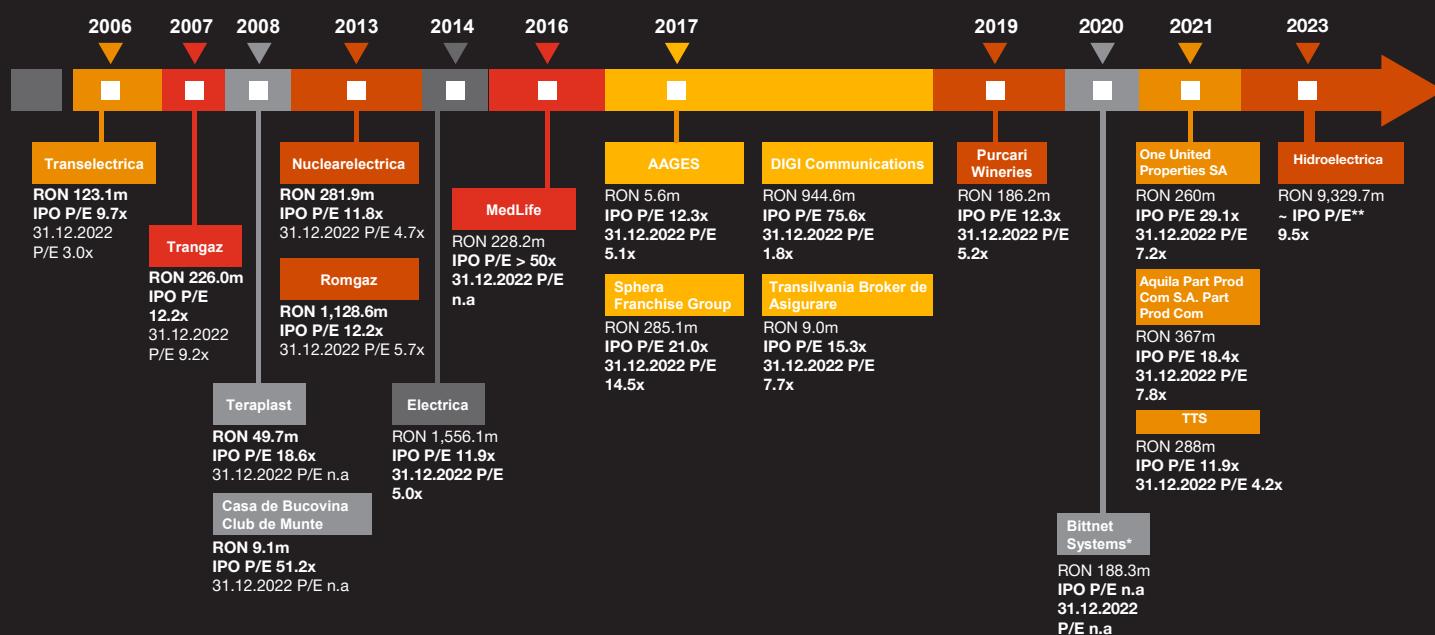
Overview of new listings on BSE

- In 2022, no IPOs were concluded on the Regulated Market, however in July 2023, Hidroelectrica's IPO was successful.

IPO Hidroelectrica: Hidroelectrica, the Romanian leader in green electricity production, was successfully listed on BSE's main market in July 2023 under the ticker "H2O" following Fondul Proprietatea's decision to exit (19.94% equity interest). Once admitted to trading, Hidroelectrica's shares had been included in the BSE's BET index.

- The total proceeds raised in the initial public offering reached RON 9.3 bn (EUR 1.9 bn), thus marking a new record on BSE after Electrica listing in 2014 (the proceeds raised by H2O were 6 times higher compared to those raised by Electrica in 2014).

- Hidroelectrica listing is an important step for BSE given that more foreign investors will be attracted to invest in the local capital market, which will result in an increased market capitalization (higher liquidity and visibility).

- Hidroelectrica is the largest initial public offering ever made on the Bucharest Stock Exchange and ranks the first largest IPO in Europe and the third largest at the global level during the period covering January – July 2023.

- The successful listing of Hidroelectrica brings BSE closer to a potential promotion to the status of Emerging Market by MSCI.

- H2O shares will be included, starting 19 July 2023 in FTSE All-World Index, FTSE Global Large Cap Index and FTSE Emerging Index and starting 26 July 2023 in MSCI indices according to FTSE Russell and MSCI announcements.

Retrospective analysis of IPOs on the Regulated BSE market

2006
Transelectrica
RON 123.1m
IPO P/E 9.7x
31.12.2022
P/E 3.0x

2007
Trangaz
RON 226.0m
IPO P/E 12.2x
31.12.2022
P/E 9.2x

2008
Teraplast
RON 49.7m
IPO P/E 18.6x
31.12.2022 P/E n.a

Casa de Bucovina Club de Munte
RON 9.1m
IPO P/E 51.2x
31.12.2022 P/E n.a

2013
Nuclearelectrica
RON 281.9m
IPO P/E 11.8x
31.12.2022 P/E 4.7x

Romgaz
RON 1,128.6m
IPO P/E 12.2x
31.12.2022 P/E 5.7x

2014
Electrica
RON 1,556.1m
IPO P/E 11.9x
31.12.2022 P/E 5.0x

2016
MedLife
RON 228.2m
IPO P/E > 50x
31.12.2022 P/E n.a

2017
AAGES
RON 5.6m
IPO P/E 12.3x
31.12.2022 P/E 5.1x

Sphera Franchise Group
RON 285.1m
IPO P/E 21.0x
31.12.2022 P/E 14.5x

DIGI Communications
RON 944.6m
IPO P/E 75.6x
31.12.2022 P/E 1.8x

Transilvania Broker de Asigurare
RON 9.0m
IPO P/E 15.3x
31.12.2022 P/E 7.7x

2019
Purcari Wineries
RON 186.2m
IPO P/E 12.3x
31.12.2022 P/E 5.2x

2020
Bittnet Systems*
RON 188.3m
IPO P/E n.a
31.12.2022 P/E n.a

2021
One United Properties SA
RON 260m
IPO P/E 29.1x
31.12.2022 P/E 7.2x

Aquila Part Prod Com S.A. Part Prod Com
RON 367m
IPO P/E 18.4x
31.12.2022 P/E 7.8x

TTS
RON 288m
IPO P/E 11.9x
31.12.2022 P/E 4.2x

2023
Hidroelectrica
RON 9,329.7m
~ IPO P/E** 9.5x

Source: BSE website (www.bvb.ro)

Romgaz and Electrica were both listed on the Bucharest Stock Exchange and the London Stock Exchange; The above timeline displays the IPO value raised only on the Bucharest Stock Exchange, regardless of global depositary receipts traded on London Stock Exchange.
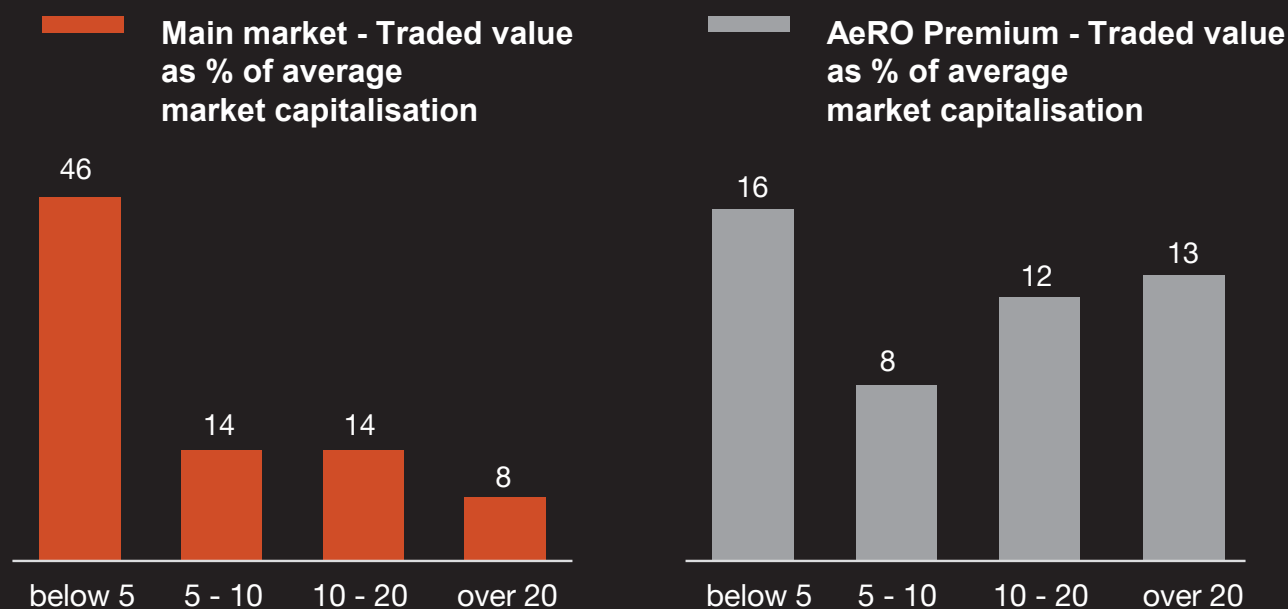*Bittnet Systems was initially listed on MTS and in June 2020 migrated on the BSE main segment.
**Hidroelectrica P/E was estimated based on LTM EPS to 31 March 2023.

Overview of MTS market

- As at 31 December 2022 on the MTS market were traded equities of 288 companies, of which 14 included in the International segment, 49 included in the Premium segment and 52 in the AeRO Standard segment. Of the 288 currently listed companies on AeRO market, 20 companies has been suspended from trading during December 2022, 2 companies were delisted on 14 December 2022 and one company delisted on 27 February 2023.

- The companies listed on MTS market operates in the following sectors: Industrial (78 companies), Consumer (67 companies), Real estate (37 companies), Materials (36 companies), Agribusiness (17), IT (14 companies listed on Premium segment) and Financial (3 companies).

- MTS traded value (excluding IPOs) in 2022 decreased by 32% as compared to end of 2021 (RON 600.6m at 31 Dec 2022 vs. 887.6m at 31 Dec 2021). However, the value traded of all 49 companies included in the Premium segment accounted for 67% of total value traded recorded on the BSE MTS market.

- In 2022, the liquidity of shares listed on BSE AeRO premium segment seem to be higher as compared to companies on the BSE main market – of the 49 companies, for 25 companies the traded value is higher than 10% of average market capitalisation.

■ Main market - Traded value as % of average market capitalisation

■ AeRO Premium - Traded value as % of average market capitalisation

Main market values: below 5 = 46, 5 - 10 = 14, 10 - 20 = 14, over 20 = 8

AeRO Premium values: below 5 = 16, 5 - 10 = 8, 10 - 20 = 12, over 20 = 13

Source: BSE monthly bulletins for MTS and BVB 2022, PwC Analysis

Note: Average market capitalisation was computed considering the market capitalisation as at 31 December 2021, respectively 31 December 2022.

New listings on MTS

With only 16 IPOs concluded on the Regulated segment during 2006 – 2021 (Bittnet Systems migrated in June 2020 from MTS to regulated segment), MTS proved more dynamic, given the 41 listings taking place since its launch in 2015. During 2022 - H1 2023, 12 new listings were concluded on the MTS market, of which eleven companies were included in the Premium segment.

Financial Servies	Roca Industry Holdingrock1 / Meta Estate Trust / Millenium Insurance Broker
Agribusiness	DN Agrar / Group Serban / Chromosome Dynamics
Consumer	ABN Systems / Bento / Dr Fischer Dental
Materials	Brikston Construction Solution / Sipex
Industrial	SKT Properties

Romanian stock market performance

Stock market indices performance vs. Romania's Credit Default Swap (CDS)

A country-specific CDS is an indicator for the default risk perception of sovereign debt instruments issuers, its evolution being driven by the changes in local economic fundamentals. A country's stock market has long been viewed as an economic barometer.

- Stock market returns were analysed based on the performance of the BET and BET-TR indices, compared with the Risk Credit Default Swap (CDS). The development of BET, BET–TR and CDS, as depicted in the graph, shows that the BSE indices are sensitive to the country risk, which also influences foreign capital investments.

- In July 2007, when the BET index reached a new high of 10,813.59 points, the CDS for Romanian government bonds reached a new low of 30 basis points. Once the financial crisis had started to take its toll, the CDS recorded a historic high of 762 points in February 2009, whereas the BET index reached a new low of 1,887.14 points following an 80% collapse from its 2007 high.

- Between 2010 and 2011, the CDS recorded an average level of 300 points and fewer fluctuations. The beginning of 2012 brought some tensions and, amid worsening economic

conditions in the EU28 zone, Romania's CDS jumped to approximately 500 points. The context had improved by the end of 2012, with the CDS dropping by about half to approximately 260 points. In April 2014, the CDS was around 160 points, with BET index growth showing investors' increasing appetite for the Romanian capital market.

- The data depicted in the graph indicates an inverse correlation between Romanian 10-year CDS and BET and BET-TR indices over a period with a challenging mix of events: (a) financial crisis in 2008 and (b) pandemic context in 2020 and (c) the military conflict in Ukraine in Q1 2022.

- From 2015 to 2019, CDS volatility was lower, thus presenting a downward trend. During 2018 and 2019, the CDS averaged 135 points, although Romania was considered riskier than other countries in the region. On 19 December 2018, the BET dropped by 11.2%, thus wiping out the entire growth achieved during 2018. The BET decrease in December 2018 was the second largest fall after 2009, when Romania entered recession, and was associated with rumours regarding additional taxation in banking, energy and telecom sectors, as well as changes in the Pillar II pension system, whereas the developments in 2020 were triggered by the pandemic and the BSE's promotion by FTSE Russell.

Stock market performance vs. Romania's CDS evolution (%)

Romania CDS 10-yr (basis points)   BET (% change, y-o-y)   BET-TR (% change, y-o-y)
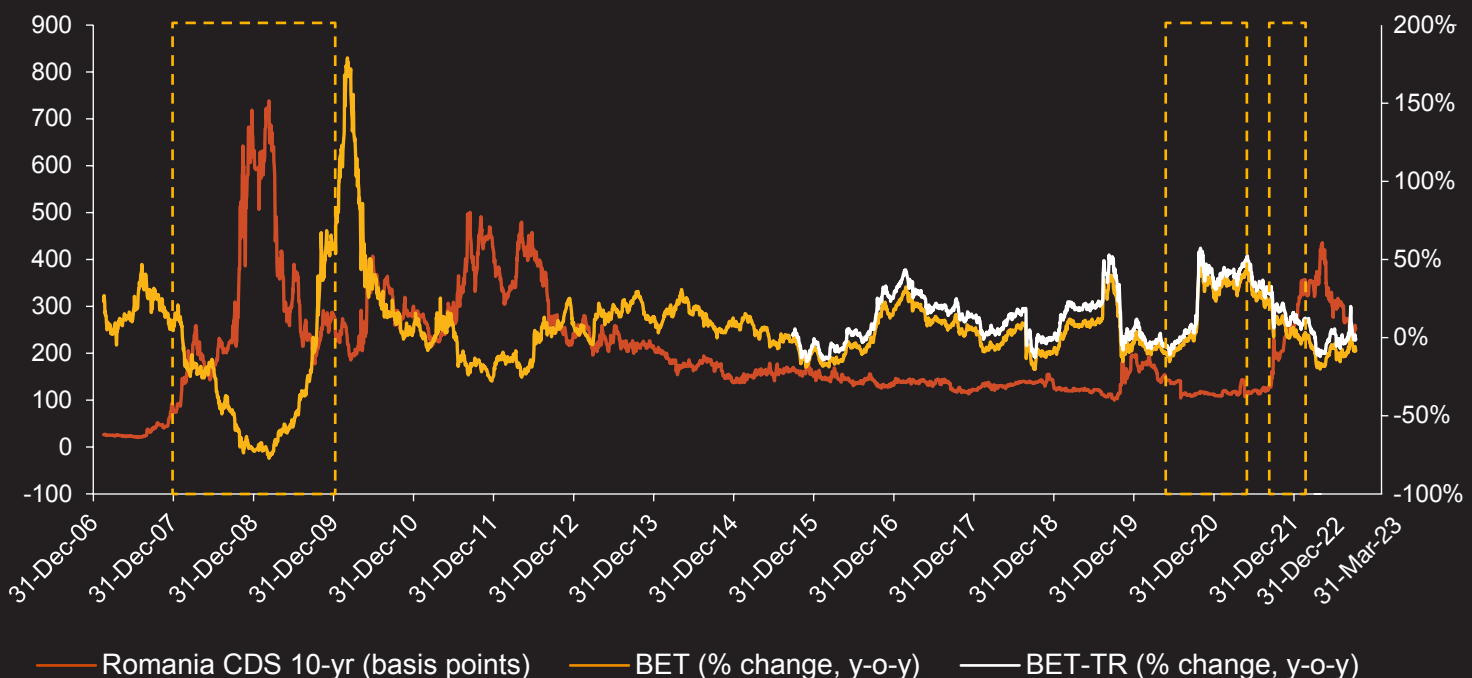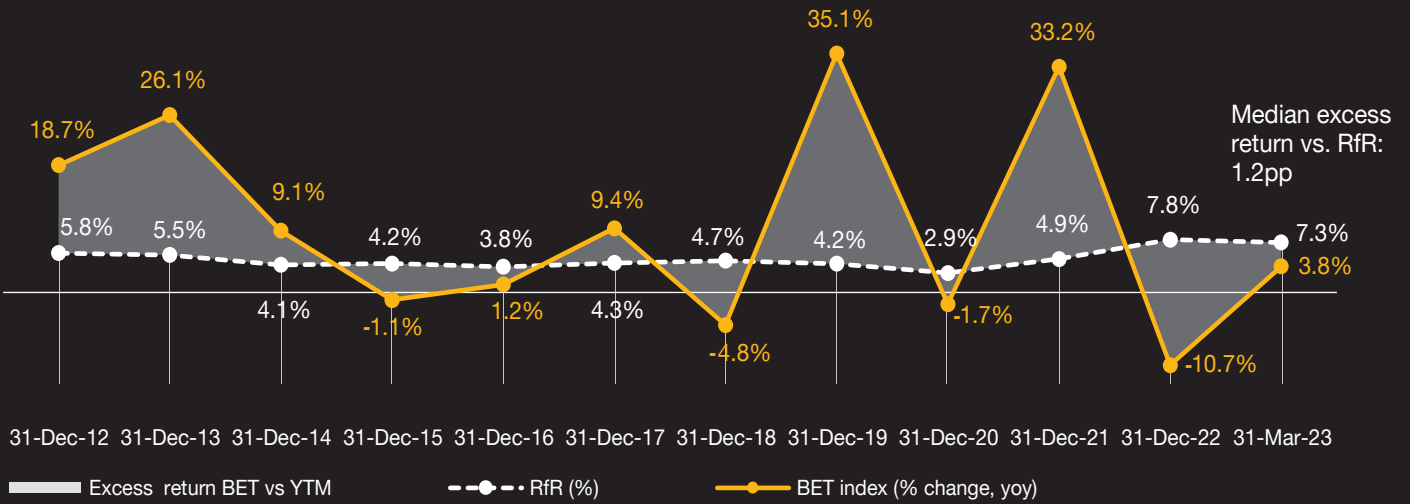
Source: S&P Capital IQ

- In order to ensure that its indices are representative and relevant to the stock market, the BSE launched the BET-Total Return index (BET-TR) in September 2014. This index provides investors with more information about the capital market; accounting not only for capital gains but also for the total return of its constituents. According to publicly available data on the BSE, the average dividend yield for the BET index was approximately 4.6%, in 2022, compared to the 4.5% recorded in 2021.

- The performance of BET and BET-TR indices decreased significantly in February and March 2022, while the CDS (insurance against non-payment of Romania's debt) increased – thus, the indices and CDS evolution was opposite. Based on the information regarding the 10-year CDS, available on the S&P Capital IQ platform, the average insurance cost for Romania's debt was USD 31.048 (310 basis points) in 2022, but decreased to USD 26.353 (264 basis points) at 31 March 2023. In spite of the 7% decrease (average CDS in 2022 vs. end of Q1 2023 CDS), current level is still lagging behind the level recorded during the financial crisis in 2009, i.e. 700 basis points.

- The Romanian CDS dynamic has been closely linked to the CDS evolution in the region over the period 1 December 2007 – 31 March 2023. Risk premiums have increased considerably in 2008, after the onset of the financial crisis, both in countries with Frontier stock exchanges and in those with Emerging stock markets. In 2019 and 2020, the CDS of many analysed countries, including Romania, hovered at reduced levels compared to years before, but still above the levels recorded until 2007, prior to the financial crisis outbreak. After reaching a 10-year minimum in February 2020 (108 basis points), Romania's CDS (ten years term, mid-price) grew in the pandemic context up to a maximum of 208 basis points in May 2020, but decreased by the end of 2021 to 121 basis points. After the outbreak of the Ukrainian war,

Romania's CDS ramped up to 452 basis points in October 2022.

- The analysis of CDS for a few countries in the region shows that as at 31 March 2023 Romania is perceived riskier than Greece, Slovakia, Czech Republic, Bulgaria, Croatia, Cyprus, Slovenia, Kazakhstan and Hungary, less risky than Serbia. This relative analysis underlines a worsening of Romania's risk perception as compared to Slovakia, Slovenia and Czech Republic during 31 December 2021 – 31 March 2023.

- In light of the above, we performed an analysis of the returns on capital invested in bonds market vs. equity market, focusing on the evolution of the Risk-free Rate (RfR), as approximated by the yields on long-term Romanian Government Bonds denominated in local currency and main BSE indices. The two graphs display the evolution of the yield to maturity of one of the most-traded Romanian bonds (i.e. RO1227DBN011) in comparison with the performance of the two most representative indices, i.e. BET and BET-TR, during the period 2012 – Q1 2023. After reaching a low at the end of 2020 (2.9%), the RfR increased recovered by the end of March 2023, reaching 7.3% (by 2.6 times higher compared to the low level observed in 2020). With annual returns between -10.7% and 35.1% displayed by BET, respectively -1.9% and 46.9% by BET-TR, the local equity market provided superior returns as compared to RfR during 2012 – 2014, 2017, 2019 and 2021.

- This analysis covering a timespan of 11.3 years (2012 – Q1 2023) shows that the period median excess return over the Risk-free Rate was 1.2pp for the BET index and 9.8pp for the BET-TR index. These levels can be regarded as proxies for the return surplus associated with stock market investment vs. the investment in government bonds, thus compensating investors for taking on the relatively higher risk of equity investing. The size of the premium varies depending on the level of risk in a particular portfolio.

Evolution of BET index vs. RfR (%)

Median excess return vs. RfR: 1.2pp

| | 31-Dec-12 | 31-Dec-13 | 31-Dec-14 | 31-Dec-15 | 31-Dec-16 | 31-Dec-17 | 31-Dec-18 | 31-Dec-19 | 31-Dec-20 | 31-Dec-21 | 31-Dec-22 | 31-Mar-23 |

Excess return BET vs YTM — RfR (%) — BET index (% change, yoy)

Source: S&P Capital IQ, BSE, PwC analysis

Evolution of BET-TR index vs. RfR (%)

Median excess return vs. RfR: 9.8pp

| | 31-Dec 2012 | 31-Dec 2013 | 31-Dec 2014 | 31-Dec 2015 | 31-Dec 2016 | 31-Dec 2017 | 31-Dec 2018 | 31-Dec 2019 | 31-Dec 2020 | 31-Dec 2021 | 31-Dec 2022 | 31-Mar 2023 |

Excess return BET-TR vs YTM — RfR (%) — BET-TR index (% change, yoy)
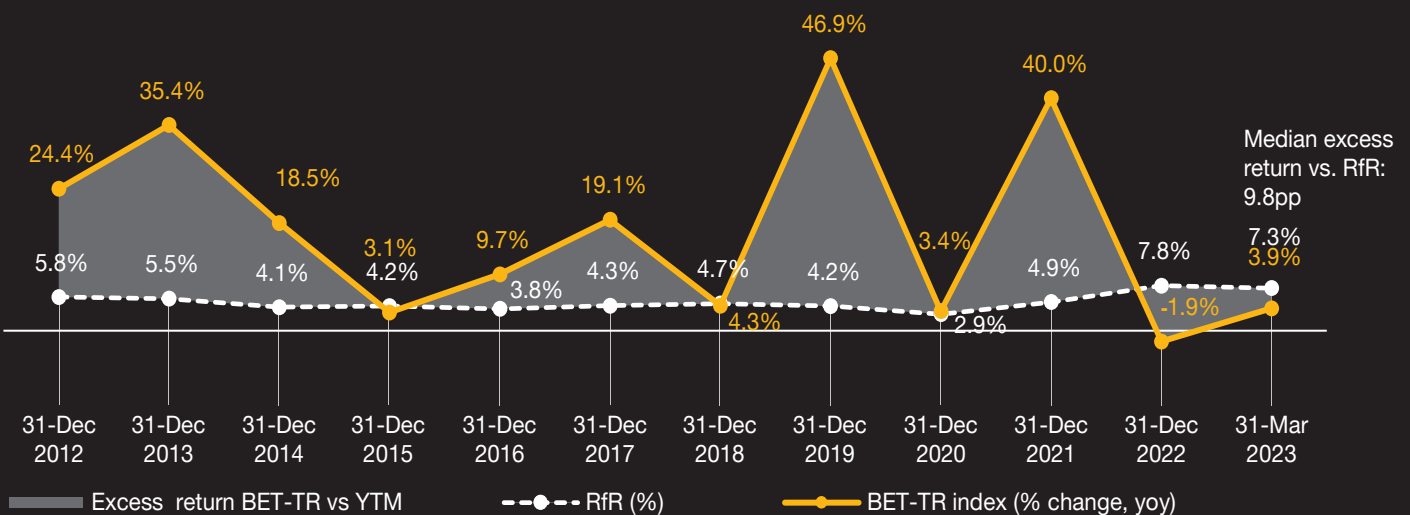
Source: S&P Capital IQ, BSE, PwC analysis

ESG factors – investment perspective

In the last couple of years, traditional investment approaches have shifted towards sustainable investments that incorporate Environmental, Social and Governance (ESG) factors. Although ESG has become a "buzzword" in finance and some investors have already decided to apply these non-financial metrics, the ESG factors are not mandatory metrics in financial reporting statements.

ESG factors have gained more importance in recent years for several reasons:

- They help in identifying and mitigating risks that a company may face and provide better indications compared to traditional financial metrics related to companies able to generate superior returns;

- They promote a sustainable business model as companies and investors look at society and the environment in a more responsible way;

- As economies are changing very fast, so too are the business models – in this respect, investors and companies must shift their vision/strategy/objectives from short-term perspectives of risks and returns to sustainable, long-term sustainable business models that generate profitability.

ESG factors are incorporated within a wide range of investing approaches, each including a different set of financial indicators and social metrics. The traditional investment approach takes into account only the financial indicators intended to maximise shareholder profit or value. However, as a result of modern economic dynamics, new approaches have been considered by investors which are now more focused on ESG and societal investments – this type of investments provide returns that are linked to environmental or social benefits (including human and employee rights, gender equality, race, age, social background, etc.).

Incorporating ESG factors in valuing a company has evolved considerably over the past couple of years, with a Value Creation Ecosystem factoring in ESG drivers being developed as a result.

ESG investing is an approach that seeks to incorporate Environmental, Social and Governance factors into asset allocation and risk decisions with the intention of generating sustainable, long-term financial returns. There are several publicly available studies indicating a positive correlation between ESG factors and a company's share price increase.

Why integrate ESG in investment strategy?

Macro level

- Mitigate risk
- Apply fiduciary duty
- Consider economic perspective
- Assess the impact and apply ethics
- Analyse client demand perspective
- Apply regulatory perspective

Financial materiality

- Efficiency and productivity
- Reduced risk of fines and state intervention
- Reduced negative externalities
- Improved ability to benefit from sustainability megatrends

ESG Challenges

- Data availability - disclosure, limited understanding of ESG information
- Modelling - ESG factors have a long term financial impact and are difficult to quantify and to include in a financial model
- Valuation techniques - adjusting discount rate or cash flows for ESG risks
- Estimating societal challenges, environmental issues and externalities is difficult and at a certain extent may rely only on professional judgement

- IVSC has published a "Perspectives paper – ESG and Business Valuation", "Perspectives paper – A Framework to assess ESG Value Creation" and "Perspectives paper – ESG and Real Estate valuation"
- The updated 2024 IVS draft valuation standards include specific requirements for consideration of ESG factors in IVS 104 "Data and Inputs"
- ESG analysis is often qualitative in nature, requiring complex analysis and calibration between the methods used, input data, etc.

ESG initiatives on BSE

Equity markets play a strategic role in the shift towards a more comprehensive ESG reporting framework. Well functioning equity markets enable economic growth via the mobilisation of financial resources and brings together those who need capital for growth with those wanting to invest. In order to have a financial market that is secure, transparent and equitable, regulators should encourage transparency and require listed companies to fulfil ESG requirements. In the last eight years, the BSE has been committed to invest in sustainability and ESG initiatives in order to develop a framework for all listed companies and increase its visibility and attractiveness among local and international investors.

BSE – key ESG milestones

March 2015 — BSE has become a member of Sustainable Stock Exchanges Initiative

September 2020 — BSE launched the first Environmental, Social and Governance focused initiative using Sustainalytics' flagship ESG Risk Ratings

February 2022 — First nine companies provide ESG risk score

April 2022 — BSE first ESG report guidelines for listed companies, drafted in collaboration with EBRD

2023 — 21 listed companies have publish their ESG risk score based on 2022 performance

ESG initiative

- On **March 2015, BSE became a partner exchange to the United Nations Sustainable Stock Exchanges (SSE) initiative**, ranking the 19th member to join the initiative globally and the 4th EU exchange alongside Deutsche Borse, London Stock Exchange and Warsaw Stock Exchange.BSE made the first step towards ESG commitment on **15 September 2020 when it launched the Environmental, Social and Governance focused initiative using Sustainalytics' flagship ESG Risk Ratings**. This initiative aims encouraging all listed companies to align their business models with ESG practices in order to increase their value for all stakeholders.

- **Listed companies on BSE with ESG risk score**

  - **2022:** 9 companies published their score based on 2021 data (all listed on the Regulated market);

  - **2023:** 21 companies published their score based on 2022 data (19 listed on the Regulated market, one listed on MTS, i.e. Norofert and one company with sustainability-linked bond rating on the Regulated market, i.e. Autonom Service).

- The data provided on the BSE Research Hub is centred on five ESG scoring levels based on Sustainalytics methodology, i.e.:

ESG Risk Score - measures the magnitude of a company's unmanaged risks.

Interpretation: a lower score corresponds to a smaller amount of unmanaged ESG risks.

ESG Risk Ranking Score – presents the ranking of the company among other players in the same sub-industry.

Interpretation: a higher ranking means better ESG performance compared to similar companies in the Sustainalytics-covered universe.

Exposure - assesses the extent to which a company is exposed to different material ESG issues.

Interpretation: a higher score shows that the company has more exposure to material ESG issues.

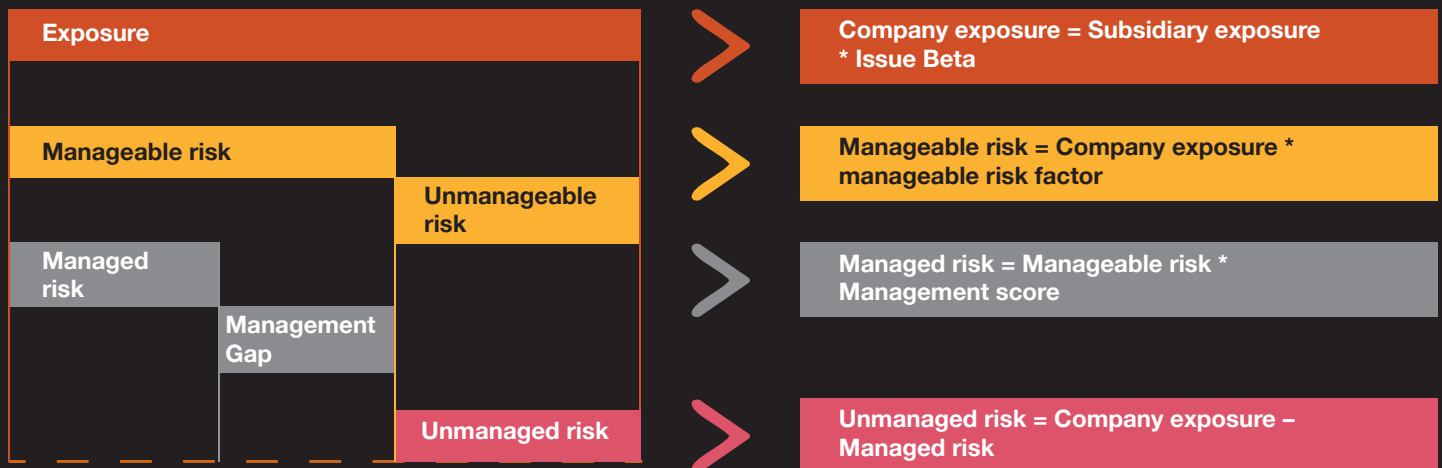**Management -** management refers to how well a company is managing its relevant ESG issues (programmes, policies, etc)

Interpretation: a higher score shows a better performance in managing ESG risks.

Momentum - measures the evolution of the ESG Risk Score compared to the report issued for the previous period.

Interpretation: a negative momentum score shows an improvement of the ESG risk assessment.

ESG risk rating - Sustainalytics methodology

- Based on Sustainalytics methodology, the ESG Risk Ratings scores are a measure of unmanaged risk (defined as material ESG risk that has not been managed by a company).

- The unmanaged risk includes: (1) unmanageable risk, which cannot be addressed by company initiatives and (2) the management gap which refers to those risks that could potentially be managed by a company.

- The ESG Risk categories based on the scores provided by Sustainalytics falls in the following five categories:

  - negligible (score between 0-10)

  - low (score between 10-20)

  - medium (score between 20-30)

  - high (score between 30-40)

  - severe (score above 40).

- Each category captures a level of material financial impacts driven by ESG factors.

- The ESG ratings published by Sustainalytics are designed to provide the relevant data on financially material ESG risks; there ratings are further analysed by inventors and embedded in their decision-making process.

- The ESG Risk rating provides an overall company score based on an assessment of how much of a company's exposure to ESG risk is unmanaged. When a company has a greater risk that is unmanaged, then its ESG Risk score will be higher.

Exposure	**Company exposure = Subsidiary exposure * Issue Beta**
Manageable risk / **Unmanageable risk**	**Manageable risk = Company exposure * manageable risk factor**
Managed risk / **Management Gap**	**Managed risk = Manageable risk * Management score**
Unmanaged risk	**Unmanaged risk = Company exposure – Managed risk**

Source: ESG Risk Ratings - Methodology Abstract Version 2.1, January 2021

- A company's risk rating is updated annually by Sustainalytics based on the review of:
  - corporate publications and regulatory filings (e.g. Annual Reports and Corporate Sustainability Reports);
  - news and other media;
  - NGO reports/websites;
  - multi-sector information sources (e.g. Global Reporting Initiative, Carbon Disclosure Project reports);

- company feedback;
- assessment of management indicators o Includes a review of ESG controversies;
- processing any issuer feedback on draft ESG report;
- Quality and peer review.

BSE listed companies with ESG score – only Regulated Market

2021 Performance

Note: Ratings are sourced from Sustainalytics and are classified into five risk levels: negligible (0-10), low (10-20), medium (20-30), high (30-40) and severe (40+);
The sub-industry includes the total number of companies, with an industry-wide ESG score, selected by Sustainalytics as comparable to the subject company.

	Sector	ESG Risk Score	Risk category	Rank	#companies (industry)
OMV Petrom S.A.	Oil & Gas	22.4	Medium	3%	146
Antibiotice S.A.	Healthcare	25.4	Medium	4%	442
S.N. Nuclearelectrica S.A.	Electricity	19.4	Low	6%	295
BRD - Groupe Société Générale S.A.	Financial services	19.2	Low	7%	377
Teraplast S.A.	Materials	22.0	Medium	24%	131
S.N.T.G.N. Transgaz S.A.	Oil & Gas	27.3	Medium	24%	112
S.C. Farmaceutica REMEDIA S.A.	Healthcare	16.7	Low	33%	46
Sphera Franchise Grup S.A.	Consumer	29.5	Medium	49%	124
Bursa de Valori București	Financial services	16.9	Low	66%	113

Source: BSE Research HUB, PwC Analysis

Conclusion - ESG Ranking

- 2021: 4 of 9 Romanian companies ranked in top 10% firms included in the specific sub-industry;
- 2022: 6 of 19 Romanian companies ranked in top 10% firms included in the specific sub-industry.

2022 Performance

Note: [1] ESG risk score evolution between 2022 and 2021
[2] Real Estate sector has a very low degree of representation on the local capital market, with only two companies listed - One United Properties S.A and Impact Developer & Contractor S.A.; due to the reduced number of listed companies on this sector, the aforementioned companies were considered part of the industrial sector

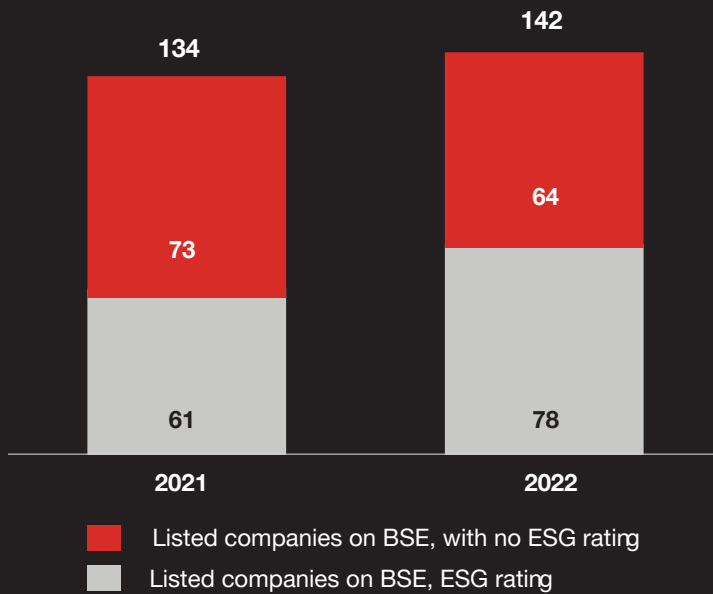|	Sector	ESG Risk Score	Risk category	Evolution vs. 2021[1]	Rank	#companies (industry)
Sphera Franchise Group S.A.	Consumer	18.7	Low	∨	2%	125
Antibiotice S.A.	Healthcare	24.5	Medium	∨	5%	473
OMV Petrom S.A.	Oil & Gas	22.5	Medium	∧	5%	55
BRD - Groupe Société Générale S.A.	Financial services	15.4	Low	∨	6%	409
SC Rompetrol Well Services S.A.	Oil & Gas	19.2	Low	n.a	8%	84
Banca Transilvania S.A.	Financial services	17.0	Low	n.a	10%	376
S.N. Nuclearelectrica S.A.	Electricity	23.0	Medium	∧	13%	302
S.N.T.G.N. Transgaz S.A.	Oil & Gas	27.3	Medium	No change	24%	112
Teraplast S.A.	Materials	22.7	Medium	∧	25%	143
Alro S.A.	Materials	29.4	Medium	n.a	28%	36
Societatea Energetica Electrica	Electricity	29.9	Medium	n.a	28%	302
One United Properties S.A.	Industrial	20.0	Medium	n.a	28%	280
Impact Developer & Contractor S.A.	Industrial	18.7	Low	n.a	29%	87
SC Farmaceutica REMEDIA S.A.	Healthcare	16.7	Low	No change	33%	46
S.C. Romcarbon S.A.	Materials	17.6	Low	n.a	44%	63
Aquila Part Prod Com S.A.	Industrial	22.4	Medium	n.a	54%	95
TTS (Transport Trade Services) S.A.	Industrial	24.8	Medium	n.a	62%	95
Bursa de Valori București	Financial services	23.1	Medium	∧	69%	49
Electromagnetica S.A.	Industrial	18.1	Low	n.a	76%	139

Source: BSE Research HUB, PwC Analysis

Listed companies with ESG risk score – representation on BSE's Regulated market

Market capitalization of all listed companies on Regulated market, split by ESG Risk score (RON bn)
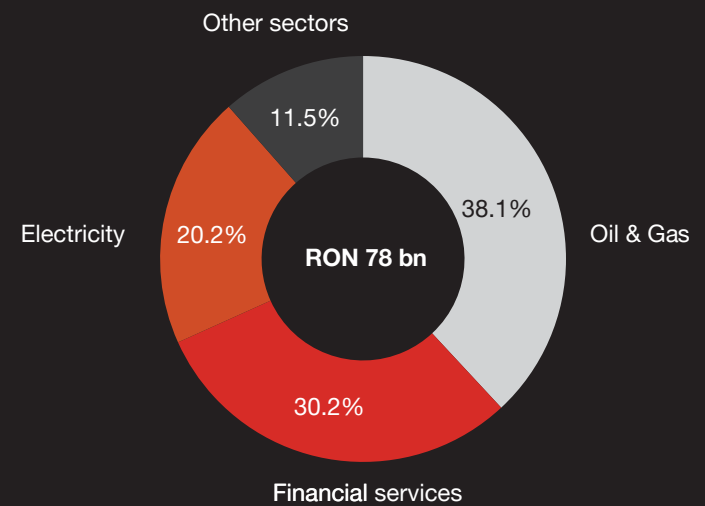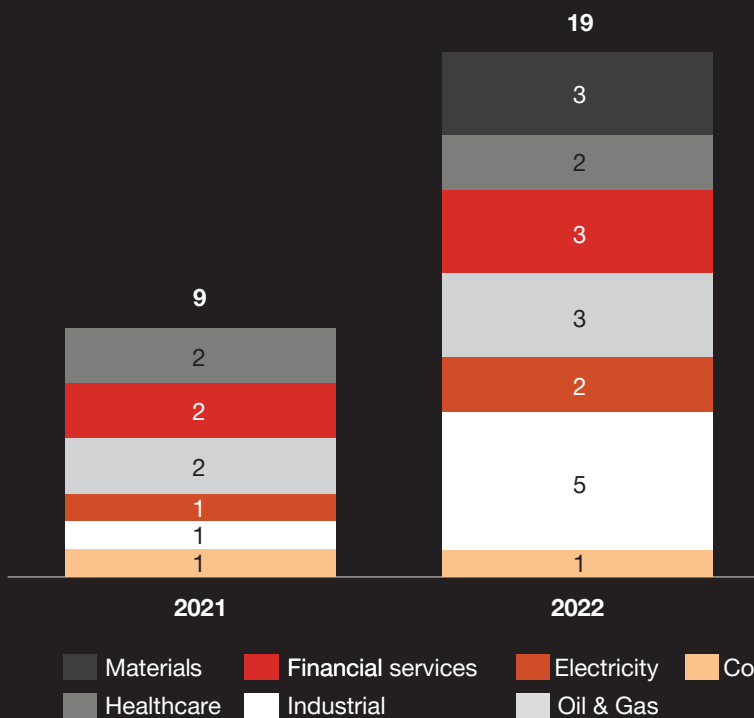
Note: Market capitalisation sourced from BSE official website; Erste Group was excluded because is listed primary on Vienna Stock Exchange

Source: BSE official website, BSE Research HUB, PwC Analysis

2021: 134 (73 no ESG rating, 61 ESG rating)
2022: 142 (64 no ESG rating, 78 ESG rating)

- 🟥 Listed companies on BSE, with no ESG rating
- ⬜ Listed companies on BSE, ESG rating

Sectorial representation, all listed companies with ESG risk score

2021: 9 (Materials 2, Financial services 2, Oil & Gas 2, Electricity 1, Industrial 1, Consumer 1)

2022: 19 (Materials 3, Healthcare 2, Financial services 3, Oil & Gas 3, Electricity 2, Industrial 5, Consumer 1)

- ⬛ Materials
- 🟨 Healthcare
- 🟥 Financial services
- ⬜ Industrial
- 🟧 Electricity
- ⬜ Oil & Gas
- 🟧 Consumer

Top sectors, % market capitalization of companies with ESG score 2022

RON 78 bn

- Other sectors: 11.5%
- Oil & Gas: 38.1%
- Financial services: 30.2%
- Electricity: 20.2%

Key remarks - 2022

- The market capitalization of all 19 companies with ESG score accounted for c. 55% of total market capitalization recorded on the BSE Regulated Market (excluding Erste Group);
- ESG rated companies operating in Oil & Gas, Financial and Electricity contributed by 89% to the total market capitalization recorded by all ESG listed companies (i.e. RON 78 bn) – this is mainly explained by the fact that these sectors are highly regulated and ESG factors are a key concern.

Listed companies valuation multiples

Although the number of analysed companies slightly increased compared to the previous year, the total market capitalisation as at 31 December 2022 decreased by 5.3% as compared to the level achieved at the end of 2021. The BET index posted a 10.7% decrease during 2022, as a result of the increased economic and geopolitical uncertainties (e.g high inflation and interest rates, war in Ukraine, increase in energy prices).

Key facts

- The analysis conducted on the BSE regulated segment indicated a high concentration of listed issuers, with the top five companies accounting for 60% of the total market capitalisation as at 31 December 2022. The top five companies are active in the Oil & Gas (e.g. OMV Petrom, Romgaz), Financial Services (e.g. Banca Transilvania and Fondul Proprietatea) and Electricity (e.g. Nuclearelectrica) sectors. Those economic sectors' degree of representation on the local capital market is therefore low in the absence of several industry leaders.

- BSE flagship index, BET, is a barometer for the capital market performance, as confirmed by the strong correlation coefficient of 0.9 between total market capitalisation and the index performance over the last 16 years. As at 31 December 2022, the BET index decreased to 11,664 points, posting a 10.7%

decrease compared to previous year.

- The number of analysed listed companies fluctuated over the period 2007 – 2022 as a result of the suspension and / or delisting of some of the companies included in the study but also new listings (IPOs). The current edition covers the analysis of 82 companies that are primarily listed on the BSE main segment (Erste Group was excluded from the analysis as its primary listing is on a different exchange - Vienna Stock Exchange).

- The market capitalisation of the 82 companies analysed for 2022 was RON 134 billion, down by 5% vs. 2022 (the highest level recorded in the past 16 years).

Top 3 sectors by market capitalisation (% of total market cap) as at 31 December 2022
- Oil & Gas (35%);
- Financial Services (31%);
- Electricity (13%).

Top 3 sectors by value traded (% of value traded) as at 31 December 2022
- Financial Services (48%);
- Oil & Gas (34%);
- Electricity (5%).

Market cap as at 31 December 2021 and value trade in 2021 - by sectors

Sector	No. of Companies	Market Cap. (RON m)	Total value traded (RON m)	Value Traded % of market cap.
Oil & Gas	9	46,942	4,248	9.1%
Financial	12	41,477	6,051	14.6%
Electricity	3	17,304	632	3.7%
Consumer	9	4,566	355	7.8%
Healthcare	6	4,737	394	8.3%
Materials	13	11,100	398	3.6%
Industrial	30	8,004	500	6.2%
Total	**82**	**134,130**	**12,579**	**9.4%**

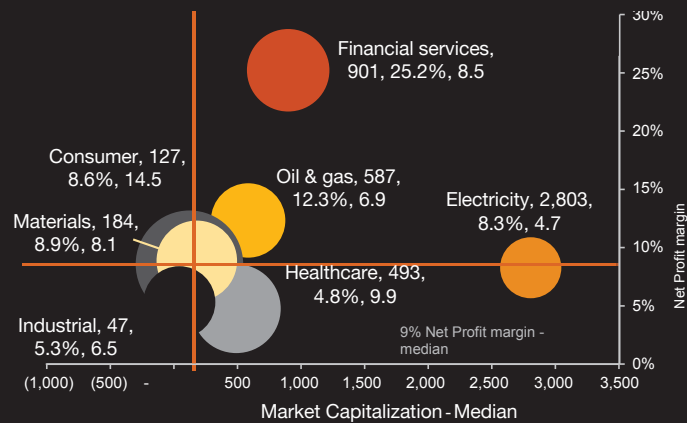Source: S&P Capital IQ, PwC analysis

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Number of analysed companies, evolution of market cap growth and BET performance over 2007-2022
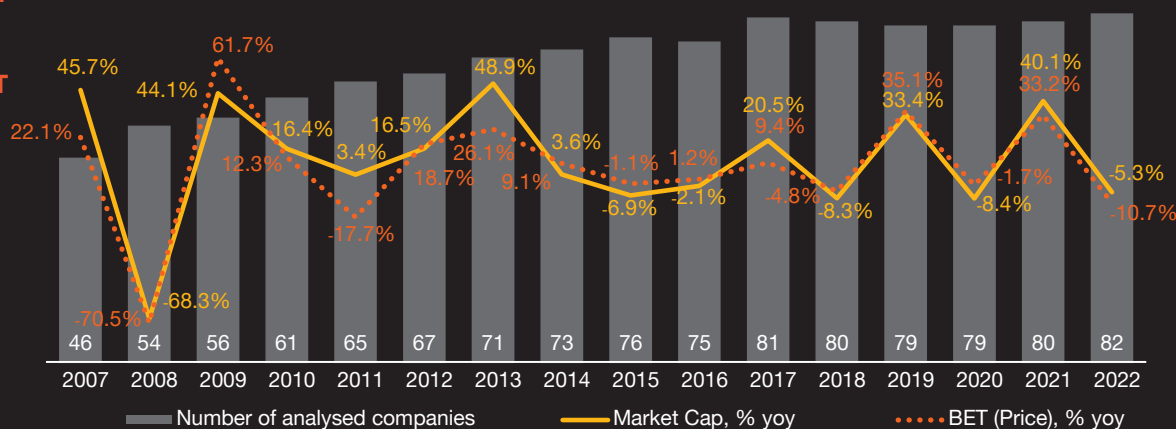
Note: Market capitalisation as per S&P Capital IQ for 2016 – 2020 and as per BSE, for the period 2007 – 2015, and 2021-2022, respectively.

Number of analysed companies — Market Cap, % yoy — BET (Price), % yoy

In 2022, the Oil & Gas sector recorded the highest market capitalisation (RON 47 billion), followed closely by the financial sector (RON 41 billion). The highest median market capitalisation (RON 2.8 billion) was recorded by the electricity sector, while the lowest by the Industrial sector (RON 47 million). The highest median P/E multiple was reported by the Healthcare and Consumer sectors (P/E of 10x) while lowest by the Electricity sector (P/E of 5x).

2022 sector snapshot

Financial services, 901, 25.2%, 8.5
Consumer, 127, 8.6%, 14.5
Oil & gas, 587, 12.3%, 6.9
Electricity, 2,803, 8.3%, 4.7
Materials, 184, 8.9%, 8.1
Healthcare, 493, 4.8%, 9.9
Industrial, 47, 5.3%, 6.5
9% Net Profit margin - median

Net Profit margin

Market Capitalization - Median

Note: label information: Sector, Market Capitalisation median (RON million), Net profit margin, P/E median

Source: S&P Capital IQ, BSE website, PwC analysis

The BSE market capitalisation as at 31 December 2022 ranged from RON 0.6 million (Compania Energopetrol S.A.) to RON 26,171 million (OMV Petrom S.A.), with a median value of RON 160 million.

Net profit margin observed on the local capital market ranges from 4% (first quartile) to 18% (third quartile), with a median value of 9%.

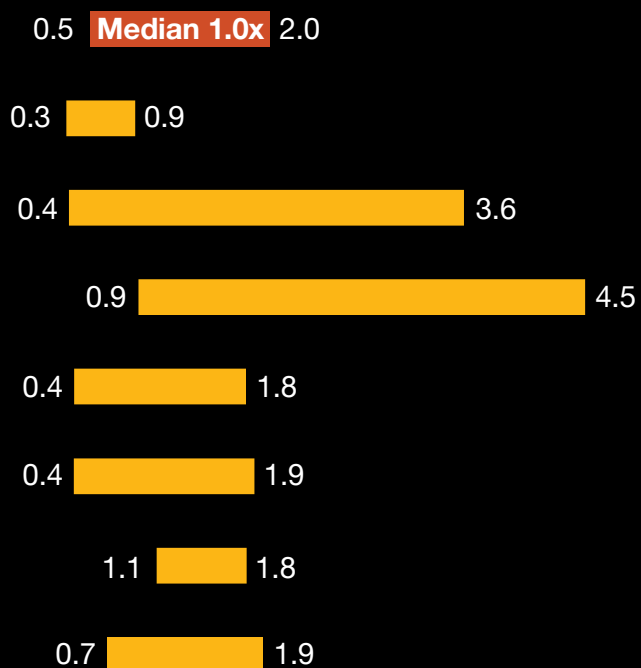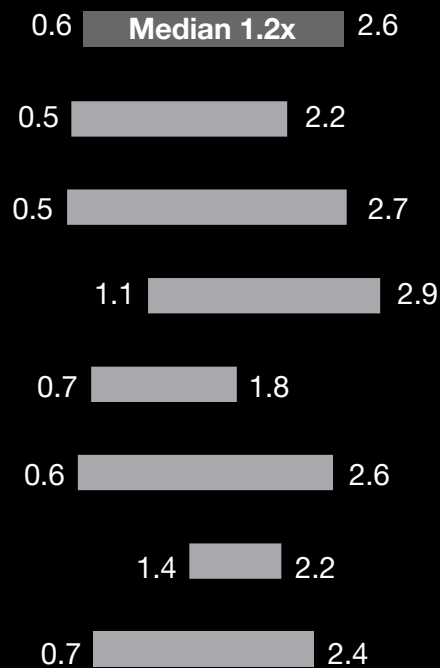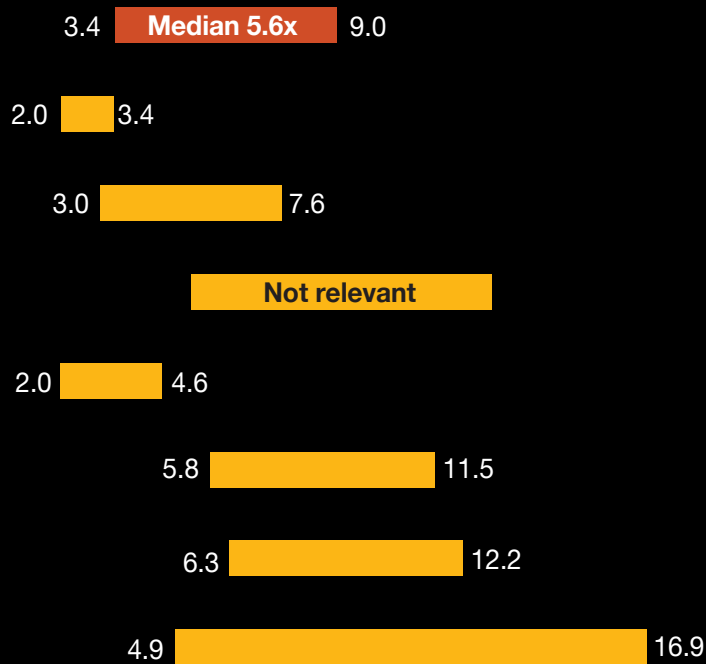| Analysed sectors and number of companies	Top listed companies by market capitalisation as at 31.12.2022	Sector net profit margin and P/E multiple
Oil & Gas (9 companies)	**OMV Petrom S.A.** **SNGN Romgaz S.A.** **SNTGN Transgaz**	**Net profit margin: 4% – 16% (quartiles), median 12%** **P/E multiple: 5x – 9x (quartiles), median 7x**
Financial services (12 companies)	**Banca Transilvania S.A.** **Fondul Proprietatea S.A.** **BRD - Groupe Société Générale S.A.**	**Net profit margin: 13% – 37% (quartiles), median 25%** **P/E multiple: 6x – 13x (quartiles), median 9x**
Healthcare (6 companies)	**Medlife S.A.** **Zentiva S.A.** **Biofarm S.A.**	**Net profit margin: 1% – 12% (quartiles), median 5%** **P/E multiple: 9.7x – 10.4x (quartiles), median 9.9x**
Consumer (9 companies)	**Digi Communications N.V.** **Sphera Franchise Group S.A.** **Purcari Wineries**	**Net profit margin: 4% – 15% (quartiles), median 9%** **P/E multiple: 5x – 15x (quartiles), median 14x**
Industrial (30 companies)	**One United Properties S.A.** **Aerostar S.A.** **Impact Developer & Contractor S.A**	**Net profit margin: 3% – 17% (quartiles), median 5%** **P/E multiple: 4x – 9x (quartiles), median 6x**
Materials (13 companies)	**CHIMCOMPLEX S.A. BORZESTI** **Teraplast S.A.** **Alro S.A.**	**Net profit margin: 4% – 12% (quartiles), median 9%** **P/E multiple: 5x – 16x (quartiles), median 8x**
Electricity (3 companies)	**S.N. Nuclearelectrica S.A.** **Societatea Energetica Electrica S.A.** **CNTEE Transelectrica S.A.**	**Net profit margin: 6% – 26% (quartiles), median 8%** **P/E multiple: 4x – 5x (quartiles), median 5x**

Revenue multiple by sector, 2022

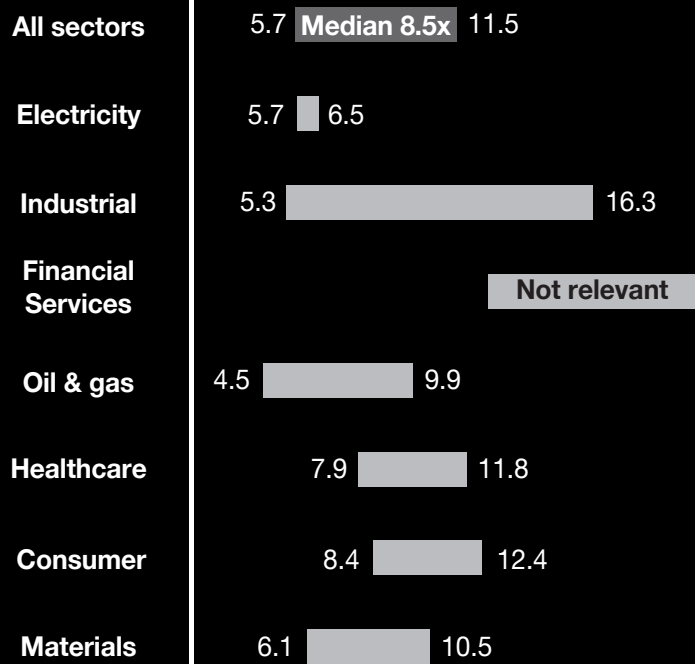|		Revenue multiple by sector, 2021		
0.5 **Median 1.0x** 2.0	All sectors	0.6 **Median 1.2x** 2.6
0.3 0.9	Electricity	0.5 2.2
0.4 3.6	Industrial	0.5 2.7
0.9 4.5	Financial Services	1.1 2.9
0.4 1.8	Oil & gas	0.7 1.8
0.4 1.9	Healthcare	0.6 2.6
1.1 1.8	Consumer	1.4 2.2
0.7 1.9	Materials	0.7 2.4

Revenue multiple

- The aggregated median for Revenue multiple in 2022 is 1.0x, slightly lower than the level observed in 2021

- Both in 2021 and 2022, the top-performing sector was Financial Services with a median multiple of 2.1x and respectively 1.7x, whereas the lowest revenue multiple was recorded by Electricity sector, with a median of 0.6x and 0.5x, respectively.

- The upper limit of Revenue multiple strongly increased for Industrial and Financial sectors, while for Electricity, Healthcare, Consumer and Materials sectors decreased

- Revenue multiple is quite a reliable metric as it is less volatile than P/E or EBITDA multiples and less susceptible to accounting manipulation; it is highly used by distressed, start-up and small companies with a low or negative EBITDA. Yet, it should be used with caution in cases where some products / services intermediaries could count revenue as either the commission charged or the value of products / services they intermediate.
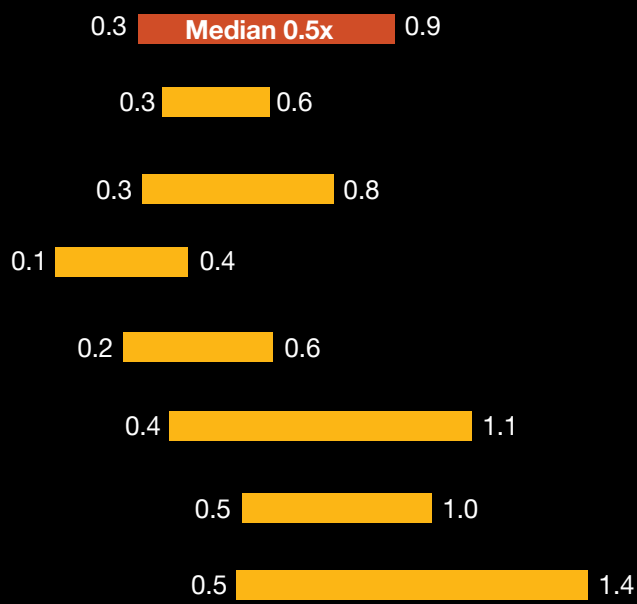
EBITDA multiple by sector, 2022 — EBITDA multiple by sector, 2021

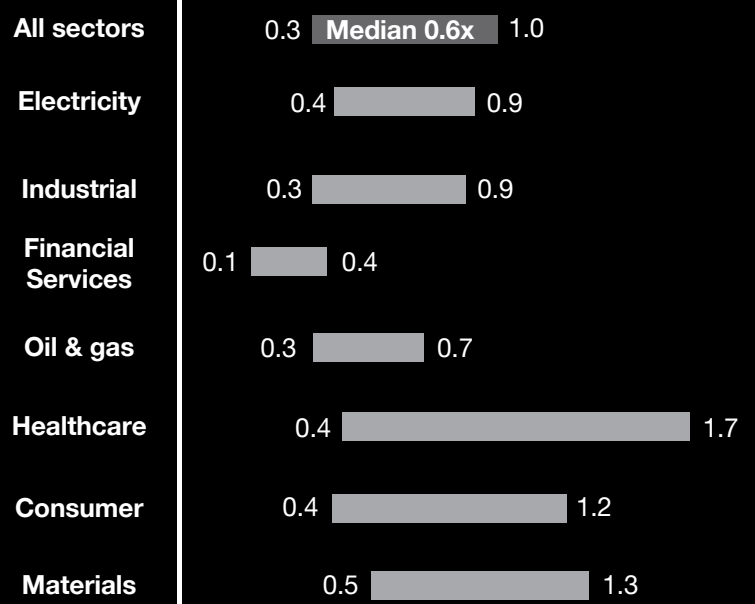| Sector	2022 (low – high)	2021 (low – high)
All sectors	3.4 — Median 5.6x — 9.0	5.7 — Median 8.5x — 11.5
Electricity	2.0 – 3.4	5.7 – 6.5
Industrial	3.0 – 7.6	5.3 – 16.3
Financial Services	Not relevant	Not relevant
Oil & gas	2.0 – 4.6	4.5 – 9.9
Healthcare	5.8 – 11.5	7.9 – 11.8
Consumer	6.3 – 12.2	8.4 – 12.4
Materials	4.9 – 16.9	6.1 – 10.5

EBITDA multiple

- EBITDA multiple for companies listed on BSE main market decreased in 2022 vs. 2021, with Electricity, Oil & Gas and Materials sectors posting the highest volatility.

- In 2022, the top-performing sectors were Healthcare and Consumer, with median multiples of 8.1x, respectively 7.6x, whereas the lowest EBITDA multiple was recorded by the Electricity and Oil & Gas sectors, with a median of 2.4x and 3.6x, respectively.

- The upper limit of EBITDA multiple steeply declined for Electricity, Industrial, Oil & Gas and grew only for Materials sector

- This multiple is not meaningful for the Financial Services sector as it is difficult to isolate the financing requirements of a financial institution from its wider operational activities

- It can be used to directly compare companies operating in the same industry, regardless of their debt level, and it is not affected by accounting choices regarding amortisation and depreciation

- EBITDA is a good proxy for cash, but its main drawback is that it cannot be used for comparisons across industries, given the variations in capital expenditure requirements
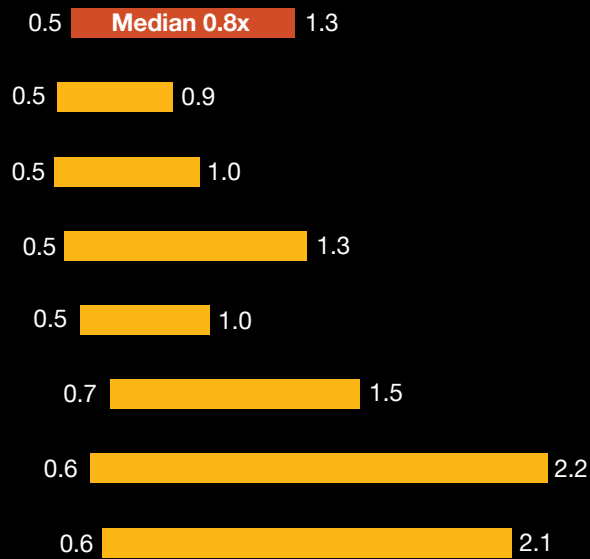
Total assets multiple by sector, 2022

Sector	Low	Median/Bar	High
All sectors	0.3	Median 0.5x	0.9
Electricity	0.3		0.6
Industrial	0.3		0.8
Financial Services	0.1		0.4
Oil & gas	0.2		0.6
Healthcare	0.4		1.1
Consumer	0.5		1.0
Materials	0.5		1.4

Total assets multiple by sector, 2021

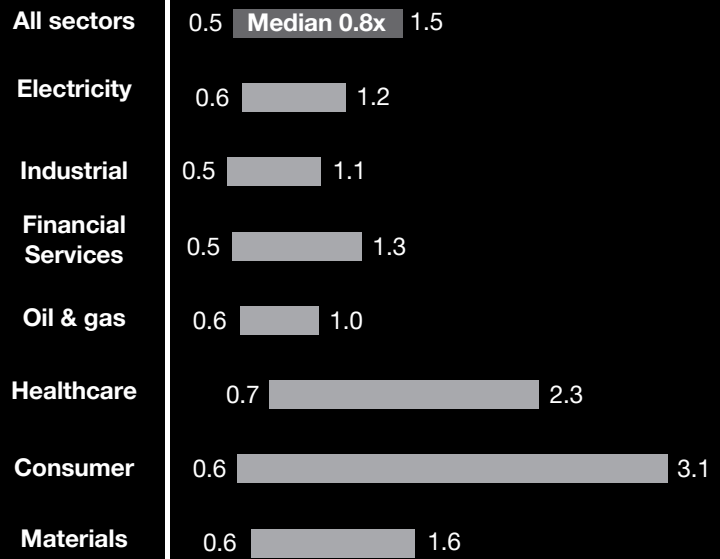| Sector	Low	Median/Bar	High
All sectors	0.3	Median 0.6x	1.0
Electricity	0.4		0.9
Industrial	0.3		0.9
Financial Services	0.1		0.4
Oil & gas	0.3		0.7
Healthcare	0.4		1.7
Consumer	0.4		1.2
Materials	0.5		1.3

Total assets multiple

- The aggregated median for Total assets multiple in 2022 is 0.5x, slightly below the level observed in 2021 (0.6x)

- In 2022, the top-performing sectors were Consumer and Healthcare, with a median multiple of 0.8x whereas in 2021 was the Healthcare sector (median multiple 1.1x)

- Both in 2021 and 2022, the lowest multiple was recorded in the Financial Services sector, with a median of 0.2x and, respectively of 0.1x

- The upper limit of Total assets multiple increased for Materials sector and considerably decreased for Electricity and Healthcare sectors

- Total assets multiple is especially relevant for capital-intensive sectors, but should be applied with caution in the case of companies with significant intangible assets, as presumably they do not fully capture the future growth opportunities

Net assets multiple by sector, 2022   **Net assets multiple by sector, 2021**

Sector	2022 low	2022 high	2021 low	2021 high
All sectors	0.5	Median 0.8x — 1.3	0.5	Median 0.8x — 1.5
Electricity	0.5	0.9	0.6	1.2
Industrial	0.5	1.0	0.5	1.1
Financial Services	0.5	1.3	0.5	1.3
Oil & gas	0.5	1.0	0.6	1.0
Healthcare	0.7	1.5	0.7	2.3
Consumer	0.6	2.2	0.6	3.1
Materials	0.6	2.1	0.6	1.6

Net assets multiple (P/BV)

- The aggregated median for Net assets multiple in 2022 was 0.8x, similar to the level observed in 2021

- In 2022, only Healthcare and Consumer sector had P/BV higher than 1.0x, but their multiples decreased as compared with 2021

- In 2022, the lowest Net assets multiple was recorded by the Electricity sector, with a median multiple of 0.5x, similar with 2021

- The upper limit of Net assets multiple clearly grew for Materials sector and decreased for Electricity, Healthcare and Consumer

- Net assets multiple is especially relevant for the financial services and real estate sectors. This multiple can be used to compare companies operating within the same industry and should be used with caution for the companies with significant intangible assets.

Listed companies on BSE AeRO premium segment valuation multiples

AeRO Premium segment of BSE includes 49 companies with market capitalisation as at 31 December 2022 between RON 3m and 741m, and an average of RON 89m, significantly below companies on the BSE's main market. The top 3 companies by market cap are from IT, Materials and Agribusiness: AROBS Transilvania Software (RON 741m), Brikston Construction Solutions (RON 673m) and Grup Serban Holding (RON 305m).
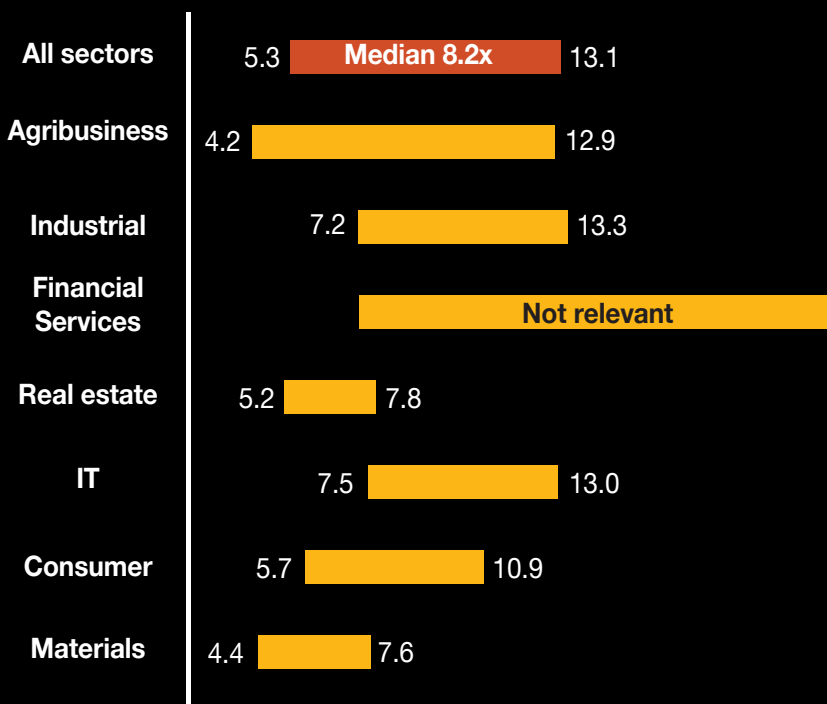
In 2022, the companies listed on BSE AeRO premium segment seem to trade at higher multiples as compared to companies on the BSE main market.
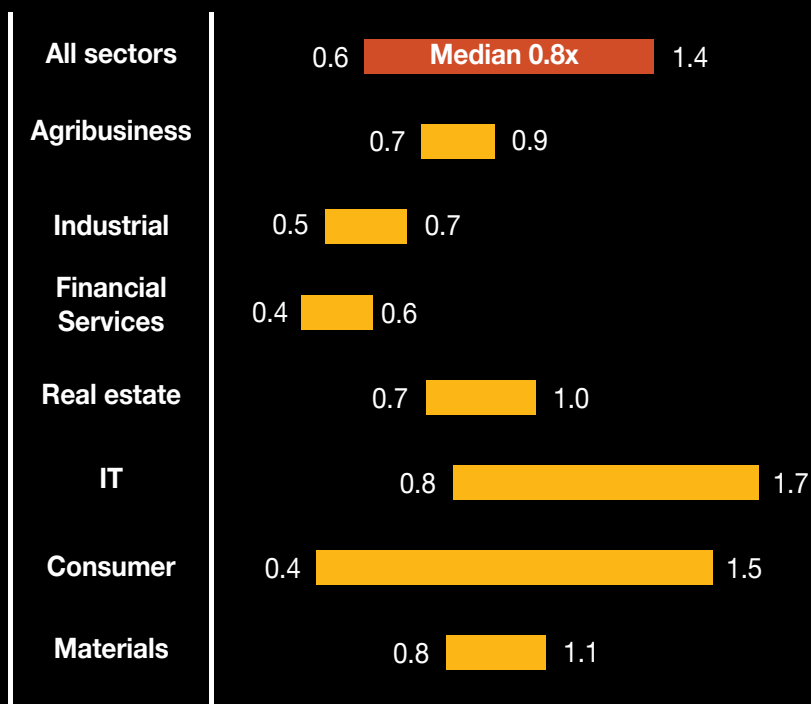
Revenue multiples by sector, 2022

	Low	Median	High
All sectors	0.6	Median 1.1x	1.7
Agribusiness	0.5		1.2
Industrial	0.7		1.1
Financial Services	0.9		2.5
Real estate	1.7		2.7
IT	0.8		2.4
Consumer	0.6		2.2
Materials	0.5		1.7

EBITDA multiples by sector, 2022

|	Low	Median	High
All sectors	5.3	Median 8.2x	13.1
Agribusiness	4.2		12.9
Industrial	7.2		13.3
Financial Services		Not relevant	
Real estate	5.2		7.8
IT	7.5		13.0
Consumer	5.7		10.9
Materials	4.4		7.6

- **In 2022, the aggregated median for Revenue multiple was 1.1x**

- The Real estate Sector was the top performer, with a median revenue multiple of 2.1x

- The lowest revenue multiple was recorded by the Agribusiness sector, with a median of 0.6x

- **In 2022, the aggregated median for EBITDA multiple was 8.2x, significantly above the aggregated median multiple of companies on BSE main market**

- The top performing sector was Industrial, with a median multiple of 13.1x

- The lowest EBITDA multiple was recorded by the Materials sector, with a median of 5.0x

Total assets multiple by sector, 2022

Sector	Low	Range	High
All sectors	0.6	Median 0.8x	1.4
Agribusiness	0.7		0.9
Industrial	0.5		0.7
Financial Services	0.4		0.6
Real estate	0.7		1.0
IT	0.8		1.7
Consumer	0.4		1.5
Materials	0.8		1.1

- **In 2022, the aggregated median for Total assets multiple was 0.8x, above the aggregated median multiple of companies on BSE main market**
- Top-performing sector was IT, with a median multiple of 1.3x
- The lowest multiple was recorded by the Industrial sector, with a median multiple of 0.5x
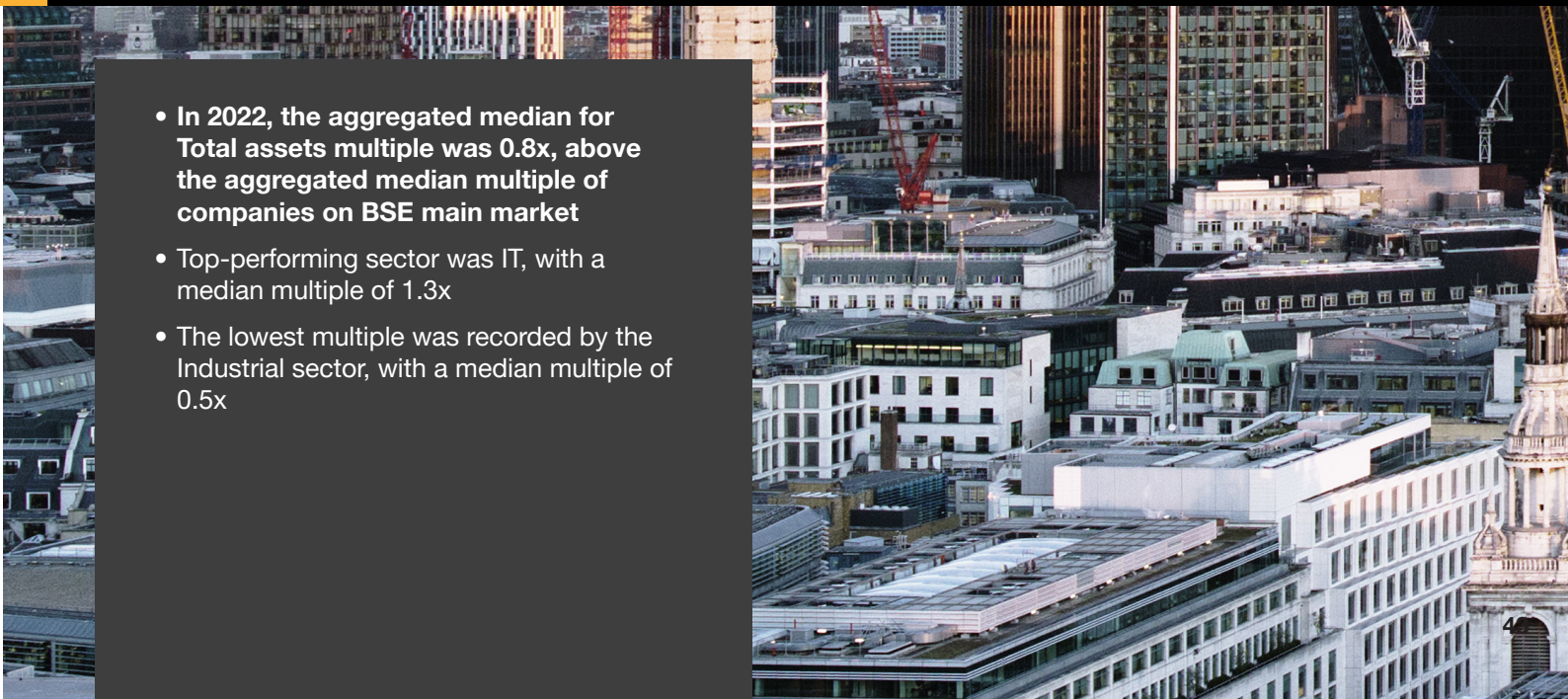
In 2022, the P/E multiples recorded decreases for most sectors and even reached their 5-year minimums, with Electricity sector most affected.

Sector	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Volatility 2008 - 2022	Minimum 2018 - 2022	Maximum 2018 - 2022
Consumer	17.2	11.8	13.3	16.8	11.9	17.3	20.4	20.8	13.5	14.9	13.3	13.4	13.2	12.6	14.3	14.5	19%	12.6	14.5
Financial services	18.0	3.6	7.0	12.5	5.4	7.1	11.4	10.4	8.9	12.5	9.3	7.6	7.5	15.2	8.8	8.5	33%	7.5	15.2
Oil & Gas	16.4	8.1	10.3	8.8	6.8	6.1	10.3	9.3	8.8	9.5	11.7	7.5	10.0	15.4	14.4	6.9	28%	6.9	15.4
Healthcare	25.4	10.2	18.1	12.8	11.0	10.1	11.9	12.1	18.4	11.5	10.8	12.1	15.5	16.2	13.6	9.9	22%	9.9	16.2
Industrial	33.8	7.6	8.6	9.8	15.3	6.9	12.1	7.8	6.9	8.9	10.2	7.8	8.1	9.3	9.9	6.5	25%	6.5	9.9
Materials	24.1	5.8	34.5	16.5	9.6	11.4	8.4	7.3	5.7	10.7	9.8	9.0	8.9	9.7	16.8	8.1	62%	8.1	16.8
Electricity	38.4	9.1	2.7	25.0	9.3	19.4	5.6	13.3	11.6	12.5	15.9	14.3	12.9	11.0	13.7	4.7	47%	4.7	14.3
All sectors	25.4	7.0	10.3	12.7	9.5	8.0	11.6	9.8	9.6	10.9	11.2	9.0	10.5	10.9	13.2	7.8	17%	7.8	13.2
GDP growth	7.2%	9.3%	-5.5%	-3.9%	1.9%	2.0%	0.3%	4.1%	3.2%	2.9%	8.2%	6.0%	3.9%	-3.7%	5.8%	4.7%	165%	-3.7%	6.0%
Industrial production growth	10.1%	1.9%	-5.0%	4.9%	7.9%	2.6%	7.4%	6.3%	3.0%	3.1%	7.9%	3.5%	-2.3%	-9.2%	7.1%	-1.8%	205%	-9.2%	7.9%

P/E Multiple – 2022
- The aggregate median P/E was 7.8x in 2022 – the minimum of the last 10 years.
- P/E multiples for Oil & Gas, Healthcare, Industrial, Materials and Electricity reached their 5-year minimum in 2022
- The Consumer and Healthcare sectors had the largest median P/E multiple, 14.5x and 9.9x in 2022
- Electricity Sector had the smallest median P/E multiple, 4.7x
- P/E is a very popular multiple among investors
- One limitation of the P/E multiple is that income is subject to non-monetary effects such as depreciation and amortization, which may vary depending on the chosen accounting policy

Main findings

- The Consumer and Healthcare sectors seem to be the most stable once, with a lowest P/E multiple volatility (deviation from the average), while the Materials and Electricity sectors recorded the highest volatility of the P/E multiple (consideration given to rising prices for electricity and materials in 2022).

- The financial sector P/E multiple was close to the median of the last 15 years (8.8x).

- The financial multiples reached their highest levels in 2007, reflecting the general optimism of the market; in the volatility analysis, the year 2007 was excluded.

Key highlights

The median EBITDA multiple for companies listed on AeRO Premium segment is significantly above the level observed in BSE main market

The largest listed companies on the BSE main market are from Oil & Gas, Financial services and Electricity sectors, while the smallest are from Industrial sector.

On the AeRO Premium market the main segments of interest for Romanian investors are agribusiness and IT with 21 companies out of 49 listed on this market.

On the BSE main market, the highest median cross-sectorial P/E ratio in 2022 but also the less volatile was recorded by the Consumer sector (14.5x).

The top 3 companies by market capitalisation from AeRO Premium are between the median and third quartile of market capitalisation observed in BSE main market.
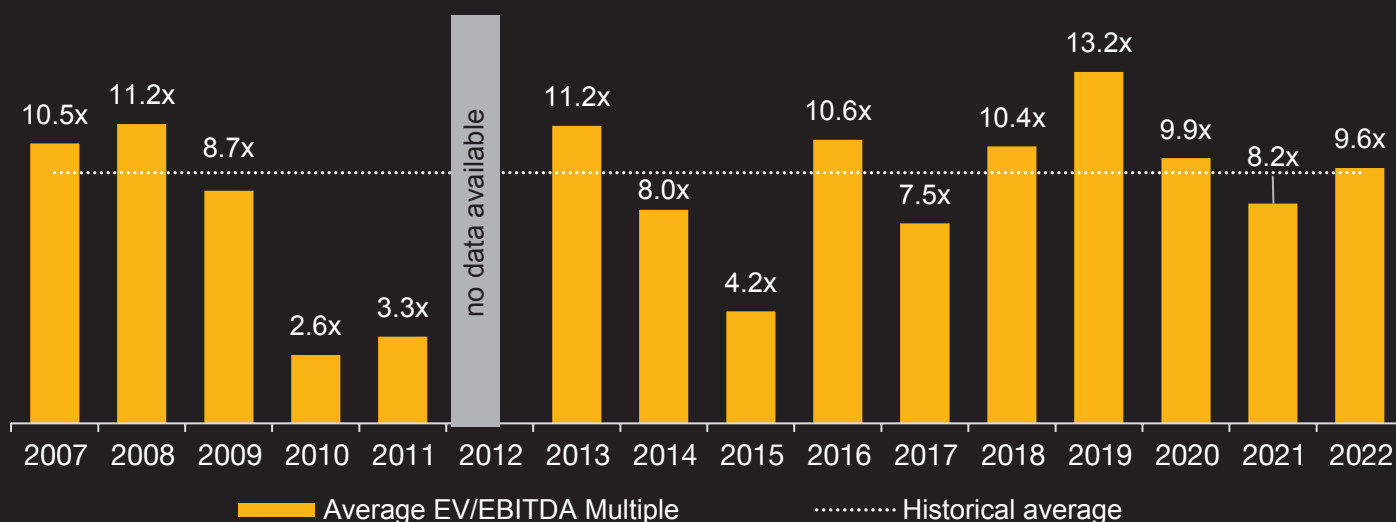
M&A valuation multiples

Based on data sourced from Mergermarket, ISI Emerging Markets, S&P Capital IQ and a PwC internal database, about 1,556 transactions were disclosed over the period 2007 – 2022, for domestic companies operating in the following sectors: Industrial, Consumer, Healthcare, Information Technology & Communications (IT&C), Materials, Financial Services, etc. Furthermore, the screening was adjusted to include only those transactions with: (1) disclosed deal value, and (2) robust financial information available. **This study is therefore based on a set of 510 selected transactions**, including **290 deals covering**

the period 2007 – 2020 (deals extracted from S&P Capital IQ and ISI Emerging Markets or obtained based on individual research of the target), **89 transactions closed in 2021** and **131 deals closed in 2022** (data was sourced from S&P Capital IQ, Mergermarket and ISI Emerging Markets).

Outliers were excluded from the initial screening in order to avoid distortions in the sample extract.

Average EV/EBITDA multiple

Year	Multiple
2007	10.5x
2008	11.2x
2009	8.7x
2010	2.6x
2011	3.3x
2012	no data available
2013	11.2x
2014	8.0x
2015	4.2x
2016	10.6x
2017	7.5x
2018	10.4x
2019	13.2x
2020	9.9x
2021	8.2x
2022	9.6x

Legend: ▬ Average EV/EBITDA Multiple ·········· Historical average

Source: S&P capital IQ, ISI Emerging Markets, Mergermarkets, PwC Analysis

Note: The above graph depicts solely the transactions included in this analysis; selection criteria were based on the availability of data and the robustness of the financial information.

EBITDA multiple analysis
The EBITDA multiple in 2022 was 9.6x, slightly above the historical average (9.4x)
The highest EBITDA multiples were recorded in 2019 (13.2x)
The lowest EBITDA multiples were recorded in 2010 (2.6x) and 2011 (3.3x)
Year 2012 was excluded from the analysis due to the lack of reliable information

General considerations about the EBITDA multiple

It is not meaningful for the Financial Services sector because it is difficult to isolate the financing requirements of a financial institution from its wider operational activities. It can be used to compare companies within the same industry regardless of their debt level and it is not affected by accounting choices regarding amortisation and depreciation. However, attention should be paid if companies are applying

different accounting standards or when comparing EBITDA multiple before and after 2019, when IFRS 16 – Leases came into effect.

EBITDA is good proxy for cash, with the drawback that it cannot be used for company comparisons across industries, due to variations in capital expenditure requirements.

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