Int. j. adv. multidisc. res. stud. 2023; 3(5):576-585

Received: 06-08-2023
Accepted: 16-09-2023

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Analysis of the Potential of Companies from Central and Eastern Europe in Attracting Innovative Sources of Sustainable Financing

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Abstract
The field of financial innovation is characterized by complexity, specificity (distinct from other types of innovations), and dynamism with multiple effects (both positive and negative) on the entire economic system. Financial innovations have created new opportunities for investment and consumption for households over time, allowing for reduced costs of attracting and utilizing funds. They have also enabled firms to attract large amounts of capital at lower costs for projects (such as biotechnology or start-ups) or in situations (financial difficulty) that traditionally would not have been financed due to associated risks. These innovations have provided new opportunities for investors to diversify their risk and achieve high or moderate returns on their capital, as well as for the active involvement of the state in the investment environment through the utilization of held savings. In short, financial innovation seems to be omnipresent. The complexity of financial innovation arises from the variety of financial products, the different types of financial institutions created, and the diversity of processes practiced by these institutions.

Keywords: Financial Inovation, Sustainable Financing, Buyout Investors

1. Description of Financial Innovation in Central and Eastern Europe: Types, Main Providers of Capital, Scaling Methods

Leveraged buyouts first emerged as a significant phenomenon in the 1980s. Their evolution was described by Kaplan and Strömberg (2008) as follows: they grew in the 1980s, reached their peak in 1988, declined in the early 1990s, grew again towards the end of the 1990s, reached their peak in 1998, declined again in the early 2010s, and then grew significantly from 2013, remaining constant to the present day. By 2022, private equity commitments are seen as extremely high compared to historical standards, exceeding one percent of the value of the US stock exchange.

An analysis of the geographic distribution of leveraged buyout transactions identifies the regions where this type of investment is developed and less developed. The first wave of buyouts, which lasted until the end of the 1980s, was dominated by the United States and Canada, and to a lesser extent, the United Kingdom. During the period of 1985-89, these three countries accounted for 89% of the total leveraged buyout transactions and represented 93% of the global value of these transactions. During this time, leveraged buyout deals were dominated by the acquisition of a relatively large number of large companies in mature industries (such as manufacturing and retail). Public-to-private deals accounted for nearly half of the value of private equity transactions. After the bond market crash, public-to-private deals decreased significantly. In contrast, the component of buyouts of non-publicly traded firms increased significantly, becoming the most important component of private equity activity at that time.

Manufacturing and retail companies have become less dominant in the target segment of buyout firms as buyout activity has shifted towards new areas such as information technology / media / telecommunications, financial services, and healthcare. Although the total value of transactions had decreased, the number of deals completed in the period of 1990-1994 doubled compared to the period of 1985-1989. In the subsequent period of 1995-2004 (excluding the decline in 2000-2001), private equity activity continued to grow. The category of acquisitions of listed companies experienced growth, although acquisitions of private companies still accounted for 80% of the total value and 90% of the number of transactions conducted at that time.

The phenomenon of leveraged buyouts quickly spread to Europe, with the Western European private equity market (including the UK) accounting for 48.9% of the total value of leveraged buyout transactions worldwide in the period of 2010-2014, compared to the USA's 43.7% share of the market. During this period, the target objectives of buyout firms expanded into new areas, with service and infrastructure companies being the most popular. During the boom period, many of these trends were

amplified. The 2008 debt crisis led to a reorientation of funds and private equity firms towards new attractive opportunities. It is still being analyzed whether Central and Eastern Europe currently generate new investment opportunities for private equity firms in terms of the characteristics of companies operating in this region of development.

Firstly, the distinctions and comparative approaches between the two development regions in Europe (Western Europe/Central and Eastern Europe) regarding private equity activity and beyond should be mentioned, followed by a description of private equity activity in Central and Eastern Europe. The differences in private equity activity are significant not only between Western countries but even more pronounced between these and those in Central and Eastern Europe.

While globally, the mergers and acquisitions market in 2022 saw the most significant growth since 2014 in terms of the number of high-value transactions, the evolution of mergers and acquisitions in CEE was overall subdued. Poland, Hungary, and Bosnia and Herzegovina experienced an increase in business, both in terms of value and volume, compared to 2021. The volume and value of transactions completed in CEE were declining in 2021, according to the report conducted by CMS in cooperation with EMIS.

Recent political and economic events within the European Union, such as the unrest in Ukraine, the situation in Greece, the influx of immigrants from the Middle East, the risk of deflation, and the United Kingdom's exit from the European Union, are altering the trajectory and course of mergers and acquisitions in the Central and Eastern European region. Helen Rodwell, Partner at CMS Prague, emphasized that political changes can have a direct and often immediate impact on the level of new investments and their sustainability. The overall outcome for the region may be neutral; however, investments are more likely to be redirected to other countries in Central and Eastern Europe rather than withdrawn.

The private equity industry has a much shorter history in the CEE region compared to Western Europe, and the volume of investments as a percentage of GDP, although it has grown rapidly in the period 2016-2022, is still significantly smaller than in the rest of Europe. Despite the fact that private equity activity in the CEE area has doubled between 2016 and 2022, this type of investment is still in a relatively early stage, considering that most of the funds have not been raised and invested. Therefore, many private equity projects have not reached the maturity stage, where investors seek to divest to achieve the expected returns. The trend of private equity activity in this region was not affected by the debt crisis in 2022.

ECE has become a key trading partner, a major manufacturer, and a service provider for the main EU markets, benefiting from the advantages of general border access, attractive costs, and lower corporate tax rates (overall). The high level of education and long tradition of technical and engineering training, combined with flexible labor markets, shape an open and welcoming investment environment, albeit quite fragmented within the region's perimeter. Economic integration further expands the list of advantages.

Since the 1990s, when the first private equity fund was established, the necessary foundations for the private equity investment lifecycle have been created in this region. The economic system developed over time includes not only experienced banks willing to lend and provide professional advice, but also laws and a tax system that have led to a convergence of business conditions with developed markets. The exit infrastructure is also robust: foreign direct investment flows, acquisition/merger offers, active public markets for debt and equity in many countries in the region. For example, Poland, which has the most developed stock exchange in the region, had the highest number of IPOs among European stock exchanges every year during the 2016-2019 period. However, according to an EMPEA survey, the existing exit opportunities in the countries in the CEE region were identified as the most discouraging factor for private equity investors.

The differences between foreign direct investment (FDI) flows and private equity investments need to be taken into account when building this market: venture capital/private equity funds are provided by institutional investors as portfolio investments, not by corporations following a rational strategy; investments are made through agents, venture capital and private equity funds, and not directly: institutional investors hold shares in a closed-end fund as limited partners and do not take direct control over the ultimately financed firm. This is the task of venture capital/private equity fund managers, as general partners who monitor and control the financed firm. These characteristics impose stricter criteria for capital allocation in venture capital/private equity activity compared to foreign direct investments (Groh and Liechtenstein, 2009): Venture capital/private equity investments need to be liquidated after a certain period of time to remunerate investors. Additionally, there needs to be an infrastructure and a network of financial professionals to facilitate and support transactions and ultimately divestment. Consequently, we cannot say that venture capital / private equity investments are similar to foreign direct investments, and their developments in the CEE region have followed a distinct course, with investments in the former category being lower.

An analysis of the strengths and weaknesses of the CEE region, compared to those of countries that joined the EU before 2004, conducted by Groh and Liechtenstein (2009), showed that, on average, the low corporate tax rate is the strongest incentive for investors. As a result of the EU accession process, investor protection and corporate governance standards are at a level equal to that of pre-2004 integrated EU states. On the other hand, the size and liquidity of capital markets in the CEE region are the biggest obstacles to investment, as well as bribery, corruption, and innovation regulation.

The private equity market in the CEE region includes a wide range of funds, with investors participating in buyouts, expansion and venture capital, as well as turnaround and restructuring strategies. National private equity associations also work closely with EVCA to ensure a professional and responsible approach to this type of investment. The strong involvement of the European Bank for Reconstruction and Development and the European Investment Fund in the region's funds has contributed to improving the private equity activity. Additionally, highlighting the positive role of private equity investments in the transition process by governments and the media has led to the creation of a positive operating environment.

Although the foundations and infrastructure of a private equity market have been created and developed over time in

the CEE region, investor capital still flows to other emerging markets. The private equity market in the CEE region is underfunded. Although fundraising was robust for a short period of time just before 2015, these values are still small compared to the region's GDP and the amounts circulating in other markets. The funds raised by the CEE private equity market between 2015 and 2021 have declined. In 2019, the value of funds raised experienced a dramatic decrease, rebounding strongly from 2020 and maintaining the trend in the following years. With this decline, the level of investments in the period from 2015 to 2020 exceeded the new directed financing. Investment activity has been dominated by funds created and specialized in this region of development.

Statistics compiled by Invest Europe describe private equity activity in the CEE region in 2022 across all three segments -fundraising, investments, and divestments-as the lowest in Europe.

According to the report compiled by Invest Europe for the year 2022, private equity investments in the CEE region accounted for 3% of the total private equity investments made in Europe. The level of divestments, according to the same source, is also the lowest in Europe: 0.9% of the total value of divestments (reported based on the country of origin of the private equity firms), and 1.2% (reported based on the country of origin of the portfolio company).

The comparative analysis between CEE and Western Europe has not only led to findings regarding the gap between the two regions in terms of private equity activity (fundraising, investments, exits), but also to the identification of investment opportunities and competitive advantages in the CEE region. A study conducted by private equity firms in the CEE region reveals that this region offers a unique landscape of investment opportunities that can be capitalized on: 58% of businesses are still in their first generation of ownership, but they have up to 20 years of activity behind them. The same study shows that up to 93% of offers made by managers of private equity firms interviewed were primary transactions (directly from business owners). Sales between private equity firms in the CEE region accounted for only 7% of the total transactions. The implications are clear: investors in private equity funds in the CEE region can leverage new and developing opportunities. The study in question identified opportunities for buy-and-build strategies (a large number of existing companies, new generations of company founders, significant consolidation potential).

Buyout leverage in the CEE region was almost non-existent until 2010 and limited until around 2013 when both local and international creditors, following the global trend, increased their financing offerings for acquisitions. However, debt levels in the CEE region have never reached the levels seen in developed markets, so according to the mentioned study, the average debt-to-EBITDA levels of the respondents' portfolios were only 3.1x at the end of 2018, compared to the European average of 4.7x (S&P LCD, European Private Equity Report). This aspect could be seen as an advantage for the region's development, considering that buyouts are typically financed to a percentage of 60-90% through debt, as emphasized by Kaplan and Strömberg (2008).

The study conducted by private equity firms in the CEE region also revealed that the businesses carried out by the surveyed general partners in 2018 had an average equity component of 57%, compared to the European average of 47%. In this context, amid a global recession in financing buyout activities, both local and international creditors are still willing to support private equity transactions characterized by moderate leverage. This justifies the investment focus in this region, particularly towards funding acquisitions, as indicated by reports from EVCA (the value of capital for acquisitions in the CEE region increased by 20% in 2016 compared to the previous year, reaching a level of 1.8 billion euros, with the proportion of capital for acquisitions in total private equity investments increasing from 63.3% in 2015 to 75.1% in 2016). However, this trend did not continue in the immediately following period (dropping dramatically to 720 million euros in 2017 and further declining to 427 million euros in 2020). In contrast, buyout investments in Europe have consistently maintained stable values year after year. In conclusion, the low level of leverage initially constitutes an advantage, but it is not sufficient without characteristics related to the company's growth potential, sector of activity, and financial performance that would allow private equity firms to generate high returns by significantly improving the operational component.

From the perspective of transaction value, in 2020 as well as in recent years, the CEE market has remained focused on small and mid-sized acquisitions. According to EVCA, small buyouts include transactions under 50 million euros, while mid-market buyouts include transactions with values ranging from 50 to 500 million euros.

In conclusion, among the competitive advantages of the CEE region that attract private equity investors, we can identify the following: 58% of businesses are still in their first generation of ownership but have up to 20 years of experience behind them; opportunities for buy-and-build strategies (a large number of existing companies, new generations of company founders, significant consolidation potential); the businesses carried out by the surveyed general partners in 2018 had an average equity component of 57%, compared to the European average of 47%. In this context, amid a global recession in financing buyout activities, both local and international creditors are still willing to support private equity transactions characterized by moderate leverage.

However, we must take into account the advice of some authors addressed to private equity firms not to rely on the power of leverage and the practice of exaggerated pricing in public offers to generate superior returns. Stimulating the operational performance of portfolio companies is the only controllable way to create value. Investing in companies that have significant opportunities to improve profit margins is the main objective of private equity firms.

2. Analysis of Specific Characteristics of Central and Eastern European Firms in Terms of Attracting Innovative Sources of Financing

In the literature, leveraged buyout transactions are characterized as a temporary governance structure whose main purpose is to improve the governance of publicly listed companies with dispersed ownership structures that suffer from an excess of available cash flow compared to investment opportunities, and then return to the public capital market. However, this is a viewpoint, as over time, leveraged buyouts have started to target both public (listed) and private companies. Strömberg (2007) [10] highlighted in this regard (based on a sample of 21,397 leveraged buyout

transactions conducted between January 1, 1970, and June 30, 2007) that public-to-private transactions, which were the central focus of early leveraged buyout research, accounted for only 6.7% of total transactions, with most leveraged buyouts being acquisitions of private firms and divisions of other companies. The same author also demonstrated that many of the public companies that were taken private did not return to the stock market. An analysis of the private equity investment structure shows that during the analyzed period, it is as follows: 7% of the total number of transactions: public-to-private; the majority of transactions are represented by acquisitions of private firms (47%).

In terms of value (referring to the value of the traded company), the situation is different; acquisitions of public companies are large transactions (relative to the enterprise value) to the extent that they account for 28%. In contrast, the acquired private companies are significantly smaller and account for 23% of the transaction value. The largest share of buyout transactions in terms of value is represented by divisional acquisitions (31% of the number of transactions; 30% of the transaction value) where a division of a large company is acquired through leveraged buyout, followed by secondary buyout transactions (13% of the total number of transactions and 19% of their value); acquisitions from another private equity firm; acquisitions of bankrupt or financially distressed companies (2% of the total number of transactions, and 1% of their value).

The characterization is based on the findings of the research conducted by Chapple *et al*. (2010) [2], Osborne *et al*. (2012) [8], Nordström & Wiberg (2009) [6], as well as the available data provided by the Orbis database for the period 2011-2020, covering 1,428 large and very large companies, predominantly private (in the sample) and public, from Central and Eastern Europe. According to the aforementioned authors, private equity firms target larger, more profitable, and more efficient companies with higher operating cash flows. The targeted companies also appear to be more indebted and less liquid (Chapple *et al*., 2010) [2]. This finding applies to other types of transactions (acquisitions and mergers) as well. The analysis examines changes in key indicators such as EBITDA margin, number of employees, and debt-to-equity ratio. Specifically, the smaller the change in the debt-to-equity ratio and EBITDA margin compared to the previous period, the higher the probability of the company becoming a target for acquisition. An increase in the number of employees (as an expression of the company's size) increases the likelihood of a buyout offer. These ideas are supported by Nordström and Wiberg (2009) [6]. Considering the recent developments in the private equity market (starting with the debt crisis), this article also takes into account the following conclusion drawn from the analysis of the current state of research: private equity funds and firms can no longer rely solely on the leverage effect and are forced to invest in companies that have significant opportunities for improving profit margins. Therefore, the following indicators will also be analyzed: financial leverage and profit margin (both in terms of value and their evolution).

Therefore, we consider the following variables in characterizing companies in Central and Eastern Europe in terms of size, profitability, efficiency, liquidity, and indebtedness: total assets, number of employees (to measure firm size); return on equity (ROE), return on assets (ROA), and net profit (to measure profitability); asset turnover ratio (as a measure of efficiency); current liquidity, available cash flow [Jensen (1986, pp. 323-329) [4] considers that private equity transactions create a new form of organization that offers the advantage of controlling agency costs generated by excess available cash flow, and private equity firms declare this variable as an investment criterion]. Last but not least, the sectors in which the analyzed companies predominantly operate are identified because the industry sector is a selection criterion for private equity firms (with the mention that the preferences of private equity firms have varied over time in this regard).

The purpose of this article is to describe the potential of the analysed companies to become the target of a buyout transaction based on variables whose influence has been tested and validated by previous research. The selected variables have support in the specialized literature, both in the results of empirical studies and in the theories developed by established authors. In order to characterize the companies in CEE through these indicators, some theoretical aspects related to benchmark values and the interpretation of results that can be generated by descriptive analysis need to be addressed.

The return on equity (ROE) or financial profitability rate measures the level of profitability of the investment made by shareholders. It is important for potential investors as it measures the profitability of their investment. It is desirable for the financial profitability rate to be higher than the average market interest rate, in order to increase the attractiveness of the company's shares and their stock price (Brezeanu, 2008) [1]. The industry average is 9.2% (Onofrei, 2007) [7]. It is determined as a percentage ratio between net profit and total equity.

The return on assets (ROA) measures the net performance of a company's assets after calculating the profit tax. Since it is affected by profit taxation, it needs to be carefully analyzed in multi-year analyses. It can be compared to the rate obtained by other companies and should show continuous growth. It is determined as a percentage ratio between net profit and total assets. The higher this ratio, the better the growth prospects of the company in the future (Hoanţă, 2011) [3]. Additionally, the economic profitability rate should be higher than the inflation rate, as emphasized by Stancu (2007) [9], in order for the enterprise to maintain its economic substance and allow for the remuneration of invested capital at the level of the minimum rate of return in the economy (average market interest rate) and the economic and financial risk assumed by capital providers.

Recent studies (Chapple *et al*., 2010) [2] have found that profitability indicators (ROE, ROA, net profit) of the analyzed companies showed high values before the takeover. These findings contradict the results of the initial studies in the field (Turch, 2008), which suggested that target companies for private equity firms are characterized by inefficient management. Needles *et al*. (2008) [5] recommend that this indicator should have values higher than 5%.

The price in the world of takeovers is often expressed in terms of multiples of EBITDA (earnings before interest, taxes, depreciation, and amortization), a standard indicator for measuring profitability. In fact, this indicator was first used (as mentioned in some dictionaries) in the financial world in the 1980s during leveraged buyouts to indicate a company's ability to repay its debt. Therefore, this indicator is the most important variable when determining the

probability of a takeover. A negative value indicates that the business is facing serious issues related to profitability and cash flow. On the other hand, a positive EBITDA does not necessarily mean that the business generates cash. This is because EBITDA ignores changes in working capital, capital expenditures, taxes, and interest. However, the indicator allows analysts to generate comparisons between companies, project long-term profitability, and assess the companies' ability to repay debt in the future before considering financing, asset maintenance, and taxation. EBITDA (earnings before interest, taxes, depreciation, and amortization) is calculated using the formula: net profit + interest + taxes + depreciation (related to tangible assets) and amortization (related to intangible assets).

The EBITDA margin (%) provides a more realistic picture of a company's profitability according to some authors. It represents the percentage of EBITDA in revenue. This indicator shows the extent to which operating expenses reduce the company's profit. In the end, the higher this indicator, the less financially risky the company is considered to be.

The current liquidity indicates to what extent short-term creditor rights are covered by the value of assets that can be converted into cash if necessary (Onofrei, 2007) [7]. It is calculated as the ratio between current assets and current liabilities. Authors in the literature recommend that this indicator should register higher values of 2-2.5 in order to ensure the coverage of current debts based on the realization of short-term assets.

Stable cash flows are an investment criterion expressed by private equity firms. Of all the forms of cash flow found in the literature, free cash flow is the most suitable for evaluating a company. Free cash flow represents the cash flow available to the company for remunerating capital investors (shareholders, creditors). If the value of free cash flow is negative, the company must attract new resources from its shareholders or creditors to finance its investment. Obtaining negative free cash flows may indicate management or operational efficiency problems, as Onofrei (2007) [7] argues. According to previous studies (Chapple *et al*., 2010) [2], companies that were the subject of buyout transactions had recorded positive cash flows in the previous period.

Asset turnover expresses the efficiency of using all of the company's real assets. It is determined as the ratio between revenue and total assets. Generally speaking, the higher this rate, the more efficient the company is. Altman (1968) distinguishes the following values (with the note that values are percentages) for the two groups of firms investigated: 150% for the bankrupt group and 190% for the non-bankrupt group. Companies in the retail industry tend to have a very high level of this indicator (asset turnover) due to fierce competition and competitive prices (Bodie *et al*, 2004). It expresses the theoretical number of replacements of total assets using revenue. A lower rotation of 2 raises questions. The rate should be compared to the industry average.

The overall debt ratio (financial leverage) expresses the total indebtedness of the company (short, medium, and long term) in relation to equity. The result should be less than one, with a value greater than one indicating a high level of debt. A value exceeding 2.33 indicates a very high level of debt, and the company may be on the verge of bankruptcy if the result exceeds this threshold by several times. It is calculated as the ratio between debt and equity.

The net profit margin is determined as the percentage ratio between net profit and revenue and is commonly used in analyzing the efficiency of the company's management. A low value of this indicator reflects one of the following situations (Hoanţă, 2011) [3]: either the company does not generate sufficient sales revenue compared to the associated expenses (expenses are disproportionately high compared to sales revenue), or the expenses are not well managed. The average for developed countries is in the range of 1.5% - 6.5% and should show an increasing trend. A value lower than 1% indicates an unstable situation; 1% - 15% reflects a stable situation, while a percentage greater than 15% reflects a volatile situation.

The number of employees is found in the specialized literature as an indicator of measuring the size of the company, but also as an indicator of sizing the company's development (changes in the number of employees). Nordström considers that an increase in the number of employees is positively correlated with the probability of the company being acquired. It is also known that private equity firms invest in relatively large companies.

In terms of the industry sector in which leveraged buyout investments were made, studies (Strömberg, 2007) [10] show that they have always targeted a wide range of industries. Although mature industries such as chemicals, machinery, and retail trade are still popular buyout targets, there has been a growing trend in the past decade towards high-growth sectors such as high-tech (such as information technology, biotechnology).

The sample used in characterizing large and very large companies in the ECE (Eastern and Central Europe) region consists of 1,428 such firms, mostly unlisted (private firms), with approximately 77 out of the 1,428 being listed on the stock exchange (public firms). The economic and financial data were obtained and processed from the ORBIS database, and the analyzed period is 2013-2022.

These firms are analyzed in this article from various perspectives: the 77 publicly listed firms are characterized from the perspective of the selection criteria applied by buyout partnerships (private equity firms and investors) in evaluating target firms; from the perspective of mergers and acquisitions, to ultimately highlight the impact of buyout investments on the performance of post-investment firms.

ECE companies have, on average, high financial profitability rates (above the industry average of 9.2%) at 12.68%. However, there are companies in the analyzed sample that have negative return on equity (ROE). Previous studies (Chapple, 2010) [2] showed that companies in the analyzed sample (European companies) had an average ROE level of 15.90%. The average return on assets (ROA) for ECE companies is positive at 5.19%. This average is lower than the one recorded by leveraged buyout companies analyzed by Chapple (7.18%), but it falls within the theoretical range. The average net profit is €14,845. Additionally, ECE companies, on average, generate positive cash flows (€33,491.95). ECE companies appear to be highly leveraged, with an average financial leverage of 5.70 (exceeding the value of 2.33) and facing the risk of bankruptcy. ECE companies face liquidity issues, with an average liquidity indicator of 1.76. This indicator should register higher values of 2-2.5 to ensure the coverage of current liabilities based on the realization of short-term assets. In terms of the number of employees, the analyzed

ECE companies have an average of 1,821 employees, indicating that they are large companies.
Overall, ECE companies are profitable. In conclusion, the descriptive statistics show that, on average, the analyzed sample consists of large, profitable companies that manage assets efficiently, generate positive cash flows, but are highly leveraged (contradicting previous results indicating that ECE companies have moderate leverage compared to other regions of development) and face liquidity issues.
In previous literature, the values recorded by leveraged buyout companies have been compared to those of companies acquired through traditional techniques (mergers and acquisitions) or with companies that have not yet been subject to a transaction until that time. This article compares the obtained results with the theoretical values of the analyzed characteristics and, to a small extent, with the results provided by previous studies (Chapple, Osborne, Nordström) due to the fact that they refer to different time periods. This allows for a characterization of ECE companies in terms of profitability, efficiency, liquidity, leverage, size, growth prospects, as well as a comparison with firms that have been acquired through leverage. It should be noted that since some firms represent subsidiary units, we encounter null values for the number of employees indicator, as it is reported at the parent company level.
It is worth mentioning that the microeconomic determinants should be correlated with the cyclical nature characteristic of this type of investment, and that private equity managers seek out companies that possess a series of factors that allow them to withstand any economic or market climate.
A grouping of companies and the creation of their typology provide an overview of the predominant category of companies in the analyzed sample, considering that this sample is heterogeneous. The results show that in the typology of Central and Eastern European companies, the following predominate: companies that record positive cash flows (91.43% of total observations); companies with lower leverage (61.40% of total observations), although the proportion of leveraged companies is quite high; although on average, companies in CEE have an asset turnover rate greater than 2, the sample is still dominated by inefficient companies (asset turnover rate less than 2), accounting for 53.89% of observations; although the average current liquidity ratio recorded by companies is below the theoretical threshold, observations in which this indicator reaches values greater than 2 (approximately 75% of observations) predominate in the sample; companies in the Central and Eastern European development region are profitable (81.78%).
An analysis of the sectors in which companies in CEE operate shows that the largest share is held by sector C (manufacturing)-38.38%; followed by sector G (wholesale and retail trade)-34.03%, indicating mature industries. Trends in buyouts are moving towards new industries such as information technology, media, telecommunications, financial services, and healthcare.
The average level of financial leverage (5.70, compared to a theoretical threshold of 2.33) and the grouping of ECE companies based on this variable (38.60% of observations exceed the theoretical threshold of 2.33), in line with the findings of previous research (Strömberg, 2007) [10], which state that acquisitions of bankrupt or financially distressed companies account for only 2% of the total number of transactions and 1% of their value (and have the highest failure rate), lead to the conclusion that a large percentage of companies in the analyzed sample may not be suitable for a buyout offer due to their high level of indebtedness during the reference period (2013-2022). This conclusion differs from previous research (a study conducted by 18 private equity firms on the ECE region in 2012) which found that companies in this development region have the lowest level of indebtedness.
In conclusion, we observe that the limited buyout activity in the ECE region is determined by the typology of companies in this development region, particularly the high level of financial leverage recorded during the analyzed period. The study should be continued by analyzing the evolution of this indicator over time and differentiating it into the following two periods: 2013-2016; 2017-2022, considering that in Central and Eastern European countries, enterprises have increased the use of their own funds, reducing reliance on bank resources (due to restricted access to bank loans) during the financial crisis.

3. The impact of Strategies Implemented in Buyout Investor Firms

Private equity activity in the ECE region was characterized in the pre-crisis period by an excess of funds raised compared to investments made and a low value of exits (divestments), justified for a still developing market where investments were still ongoing. The trend has reversed, with the market being underfunded and the value of funds raised decreasing dramatically (from a level of 4,034 million EUR in 2016 to 2,474 million EUR in 2017, subsequently dropping to 450 million EUR in 2018), being surpassed by the level of investments. Towards the end of the analyzed period 2020-2022, there was an increase in divestments, explained by investments reaching maturity and the exploitation of opportunities in the capital market by private equity partners (interest shown by both strategic buyers and financial buyers). According to the report by EVCA, the countries reporting the highest divestment values were: Poland in the first place, followed by the Czech Republic and Ukraine. Overall, in 2022, private equity activity in this region was reduced.

Table 1: Description of private equity activity in the ECE region

The analyzed stage	2019	2020	2021	2022
Funds raised	602	941	692	409
Investments	1.136	1.247	1.004	789
Divestments (measured at the historical cost of the investment)	345	1.618	1.079	958

In the ECE region, small buyout transactions (transaction value < 50 million EUR) predominate, while large and very large transactions are few in number and are non-existent in some years.

Table 2: Distribution of acquired firms by type of buyout investment made

Type of investment	2019	2020	2021	2022
Small investments (transaction value < 50 million EUR)	29	32	25	30
Medium investments (transaction value between 50 million EUR and 500 million EUR)	8	7	9	4
Large investments (transaction value between 500 million EUR and 1,000 million EUR)	2	0	0	0
Very large investments (transaction value > 1.0000 million EUR)	2	0	0	0
Total	36	39	34	33

Some firms in the analyzed sample (of 1,428 firms) underwent mergers and acquisitions during the period of 2013-2022. The motivations behind these mergers and acquisitions were the synergies created in the resulting entity, diversification, elimination of competition, and expansion into new markets. Out of a total of 1,428 firms, based on the research conducted, which involved analyzing the owners of the firms in the sample (a list found in the ORBIS database) and the investment portfolios published by private equity funds and companies on their own websites, only 2 firms were acquired by financial buyers (companies, private equity funds), while the rest of the acquisitions were made by strategic buyers. Although the number of firms in the sample acquired by private equity seems small, statistics also show that in 2018, 2 transactions of high and very high values were concluded, indicating that large and very large buyout investments made between 2015 and 2022 were very few, specifically only 3 such investments.

The majority of the firms in the analyzed sample that were subject to transactions were acquired by conglomerates, the main competitors in the markets they operate in, at a national, European, or international level. These conglomerates are global industry leaders in their respective fields and have taken control of various national producers. Some firms are owned by wealthy individuals or by the state. For example, the firms AB Achema and UAB Agrochema (both based in Lithuania) in the analyzed sample are owned by the UAB Koncernas Achemos group, the third largest in Lithuania, operating in the Baltic countries and the rest of Europe. The group owns over 50 companies in Lithuania and abroad. The companies in the group operate in the following sectors: chemicals, energy, handling and logistics, and hotels. The companies have merged into a coherent system that has led to the achievement of synergies, allowed access to modern technology, and increased their competitiveness, as presented on the group's official website.

Table 3: List of firms in the sample acquired by private equity investors

Acquired firm	Sector	Private equity company/ fund	Investment date	Exit date
Invitel Tavkozlesi ZRT., Hungary	Telecommunications	Mid Europa Partners	November 2018	Current investment
ALUMETAL S.A., Poland	Metals and metal products	Abris	January 2019	July 2023

In carrying out the case study, three aspects were followed: the description of the target firm's activity at the time of investment (economic and financial results, technical equipment, size, competitiveness, and operational performance); the value created by the private equity fund manager or the destruction of value, as the case may be; and the exit strategy.

In January 2019, Abris acquired a majority stake in Alumetal S.A., the largest aluminum producer in Poland, with the intention of substantially increasing the size of existing operations and financing alloy development, as stated by the private equity company on its own website. The majority of the firm's clients came from the automotive market, collaborating with large vehicle consortia in the domestic and foreign markets.

Abris Capital Partners is a private equity fund manager based in Central Europe whose objective is to acquire majority control in successful, well-managed, non-listed (private) businesses. They have an operational strategy and aim to offer attractive and superior returns through value creation in selected firms. Through this implemented strategy, their ambitious plan is to build market leaders from the firms in their portfolio.

From the analysis of the annual financial statements, it can be said that before the private equity transaction, Alumetal S.A., an unlisted company at the time of acquisition, was engaged in profitable activity, but with a declining trend in 2018 compared to 2017. Operational performance indicators such as sales revenue and operating profit recorded a low level in 2018 compared to the previous year, and the number of employees was reduced. Although new capital contributions were made to the company in 2018 and investments were made in assets, the operational performance and profitability of the company were lower than in the previous year. However, a decrease in debt in 2018 and an improvement in the company's debt capacity can be observed.

In the year of acquisition by Abris private equity firm (January 2019), as well as in the post-acquisition years (2020 and 2021), the operational performance and profitability of Alumetal S.A. have improved significantly. These performances can be attributed to new capital contributions, investments made in assets, and an increase in the number of employees (at the time of the transaction, the staff was reduced, but later in 2020 and 2021, the number of employees increased compared to the pre-transaction period). However, it can be observed that although the sources of funding available to the company have increased from year to year, it has not achieved the same performance as in the first year of investment, decreasing in the second year (2020), and in 2021 the operational performance of the company was weaker: turnover decreased, as well as gross operating profit. Another aspect worth mentioning is the reduction in indebtedness during the investment period.

Analyzing the level of funds (equity and debt) available to Alumetal S.A., a substantial increase in these funds can be observed in the year of the transaction and in the post-transaction period compared to the previous period. The company did not have such funds even before the transaction period.

In conclusion, it can be said that in the case of Alumetal S.A.: the buyout investment did not involve excessive debt, but was based on increasing the share capital through new

capital contributions; the private equity firm Abris created value for Alumetal S.A. by improving its operations, and the investment was made through both increasing the share capital and contracting new forms of borrowing, however, the level of financial leverage was low: 0.80 in the year of the transaction, and then gradually decreased during the investment period. In the financial history of Alumetal S.A., it recorded levels of financial leverage of 1.70 in 2014, which did not pose any problems, considering that the benchmark value for this indicator is 2.33; during the private equity investment period, Alumetal S.A. expanded (total asset value increased, number of employees increased), operations were improved (an increase in turnover, gross operating profit - EBE), profitability increased compared to the pre-investment period, but it can be observed that outstanding results were achieved in the year of the investment, after which they decreased, even so, the performances were superior to those recorded by the company in the pre-investment period.

Table 4: Performance of Alumetal before and after the takeover by the private equity manager, Abris

Analyzed indicators	Pre-investment results		Post-investment results	
	2017	2018	2020	2021
Net profit	4.791	2.328	8.141	5.387
Total assets	29.037	32.435	50.817	59.785
Number of employees	250	220	220	257
Share capital	14.472	19.222	32.243	40.249
Debt to total assets ratio	191	267	733	834
Debt to equity ratio	14.374	12.946	17.841	18.703
Financial leverage	0,99	0,68	0,56	0,48
Operating revenues	83.689	62.824	114.476	103.741
EBIT (Earnings Before Interest and Taxes)	4.367	1.135	6.409	3.100

In conclusion, we can say that the private equity firm Abris has achieved its stated objective at the time of acquiring a majority stake in Alumetal SA: to significantly increase the size of existing operations and finance the development of alloys.

The exit was realized through an initial public offering in 2023, when Abris aimed to sell 56% of its shares in Alumetal SA on the Warsaw Stock Exchange (a developed market that allowed for this exit strategy), according to Reuters. At the time of divestment, Alumetal SA's revenues had increased by more than a quarter in the first three months of 2023, thanks to the peak in production and sales of vehicles in Europe, according to the same source. Abris' involvement in Alumetal was beneficial, managing to boost its activity and overcome the difficulties encountered when the company experienced a slight decline in its operations.

At the time of the exit, the official website of the private equity manager, Abris, presented the news and some aspects related to the sale of the stake in Alumetal SA on the Warsaw Stock Exchange, the initial market capitalization of the Alumetal group - 128 million EUR (with a majority stake of 56%, Abris obtained 71.68 million EUR from the sale), as well as some conclusions regarding the investment performance: under its control, the operations of the Alumetal group expanded significantly, a new factory was opened in September 2020, substantial investments were made in advanced technology, enabling the company to provide customers with a wide range of sophisticated aluminum alloys. At the time of the exit, Alumetal had hired new personnel and was one of the most technologically advanced businesses in its industry in Europe.

The analysis was conducted based on the available ORBIS data for the period 2013-2021, information publicly disclosed by the private equity firm Abris, as well as Alumetal SA on its own website, and news provided by the media.

Mid Europa Partners is the leading buyout investor focused on the growing markets of Central and Southeast Europe. In September 2018, Mid Europa Partners, a fund with expertise in telecommunications, became the majority shareholder of Hungarian company Invitel, formerly known as Hungarian Telephone and Cable Corp. Invitel is the second-largest communications service provider in Hungary and a significant player in the European telecommunications market. The Invitel group has undergone mergers, acquisitions, and sales, which complicated the analysis of the private equity transaction.

In 2018, the deal involved a series of transactions related to the acquisition of a majority stake from the group's main shareholder, TDC A/S. Mid Europa acquired 64.6% of the traded shares, and the entire stake previously held by TDC A/S (Tele Denmark) was transferred in two stages. Mid Europa thus became the majority shareholder of Invitel and also assumed the debts of the second-largest fixed-line and broadband internet service provider in Hungary through a loan of 31 million EUR. In 2019, Mid Europa became the sole owner of the Invitel group, holding the entire share capital.

After the transactions carried out in 2018 and completed in 2020, including the acquisition of the entire share capital and debts, Mid Europa Partners became the owner of the company for the second time. The first acquisition took place in May 2012 when Mid Europa and GMT Communications Partners (a private equity firm focusing on investments in the European communications services market) bought Invitel Telecommunications Zrt. from Vivendi Telecom International S.A. for a price of 325 million EUR. Under their ownership, Invitel experienced a steady increase in EBITDA, from 59.1 million EUR in 2011 to 82.4 million EUR in 2014. In 2016, GMT Communications Partners and Mid Europa Partners sold Matel Holdings N.V., the owner of Invitel Telecommunications, to Hungarian Telephone & Cable Corp (HTCC) for a total value of 470 million EUR. At the completion of the transaction, the two private equity firms considered the Invitel investment a success, as they helped the management team and employees build a strong operational performance since the acquisition (as described by GMT representatives) and achieved a return of 3.9x on their initial investment (as stated by Mid Europa).

In 2018, HTCC USA underwent a reorganization, with all the assets and liabilities of the group being transferred to Invitel Holdings A/S. After the reorganization was completed, Invitel Holdings and its subsidiaries constituted the former HTCC USA and its subsidiaries.

The Invitel group, which began operating in Hungary in 1994, consists of three member companies: Invitel Telecommunications Zrt., Invitech Solutions Zrt., and Invitel Central Services Zrt. Invitel Telecommunications Zrt. offers a wide range of television, internet, and telephone services to residential and SME customers.

In 2019, Turk Telekom acquired 100% of Invitel International, a provider of telecommunications services to

businesses in Central and Southeast Europe, for an estimated sum of 197 million EUR. The Invitel group, which had previously been bought by Mid Europa, decided to divest these international holdings and focus on domestic retail businesses in Hungary.

The following years were marked by new acquisitions and mergers of the group (in 2020 and 2022), aimed at eliminating competition, reducing costs, reorganizing, liquidating the group in 2021, restructuring it in 2022, with the new entity formed being Matel Holdings Limited. The restructuring was necessary due to the losses incurred by the group in 2020, 2021, and 2022, and also involved actions related to credit rating by Standard & Poor's Ratings Services, due to the high level of indebtedness practiced by the group (aggressive financing policy), liquidity problems, negative values recorded in operational cash flow, and bleak predictions for the market in which the group operates: the downgrade of the long-term credit rating previously assigned to telecommunications operator Invitel Holdings A/S and its subsidiaries Magyar Telecom B.V. and HTCC Holdco I.B.V. to CCC+ from B; the withdrawal of credit ratings previously assigned to Invitel Holdings and HTCC Holdco I, companies that were liquidated; the withdrawal of the credit rating for the 350 million EUR secured loan granted to Magyar Telecom's with a maturity in 2025 to CCC+ from B.

The financial problems arose during 2019 as a result of the deteriorating macroeconomic situation in Hungary and the introduction of new taxes on companies in certain sectors, such as the one in which Invitel operates, by the Hungarian government. Additionally, the high level of indebtedness contributed to the financial difficulties. As a result, in 2022, the entire capital structure was revised: the loan taken in 2018 was replaced by a bond of 150,051 thousand EUR (Senior Secured PIK Toggle Notes) with a maturity in 2027 and an additional interest rate of 2% (which prohibited the trading of the issued credit securities on the stock exchange) issued by Magyar Telecom B.V. (Matel). 150,051,000 shares with a nominal value of 0.0001 EUR / common share were issued, representing 100% of the existing shares, by Matel Holdings Limited, which owned 49% of Matel.

According to the report on Magyar Telecom B.V., the parent company of the Invitel group, the ownership structure as of December 31, 2022, and 2021, was as follows: 51% of Matel's shares were held by Hungarian Telecom B.V., which in turn is 100% owned by Mid Europa through its subsidiaries; 49% of the shares are owned by Matel Holdings Limited, a newly established entity owned by bondholders.

The availability of economic and financial data for the period 2013-2022 regarding Invitel Telecommunications Zrt., responsible for providing services to the group in the Hungarian market, allows for a partial analysis of the impact of the investment strategy implemented by Mid Europa. The group-level report was very optimistic about the developments in operational performance indicators compared to the year of acquisition (revenue growth, EBITDA: +33%, EBITDA margin increased to 46% compared to annual growth, a 113% increase in available cash flow allowed for the repayment of part of the bank debt and the shareholder loan). A strategy focused on cost reduction and operational efficiency was implemented.

The analysis of the annual financial statements allows for the observation of different investment strategies implemented by Mid Europa in the two Invitel transactions, which took place at different historical moments and in extreme economic and financial conditions. In the first acquisition, Mid Europa implemented a policy of excessive indebtedness, which was only slightly reduced during the initial investment, and tightly managed available cash flows. This was complemented by cost reduction efforts, resulting in a decrease in total assets in 2014 and 2015. However, operating revenues, cash flow, and EBITDA showed positive trends, albeit with a slight decline in the year of the business sale, which resulted in substantial losses after two years of profitability.

The second investment brought a series of mergers, acquisitions, reorganizations, division liquidations, and capital restructuring to the group. Through these actions, Mid Europa attempted to create synergies between Invitel and other portfolio companies, adapting to a changing business environment, unfavorable market conditions, cost reduction, and debt reduction.

During the period 2018-2022, Invitel Telecommunications Zrt. experienced a decline in operating revenues, an improvement in net results in 2018, 2019, and 2020, followed by a deterioration in 2021 and 2022. Cash flows increased in 2022 (positive throughout the period 2013-2022), while asset value decreased, equity increased, and debt and leverage ratios decreased from 2.55 in 2019 to 0.496 in 2022.

Despite the seven years that have passed since the second Invitel investment, Mid Europa has not yet exited the business. Considering that the situation did not improve after the 2022 restructuring, the group's activity diminished, and financial losses were incurred in 2023, the investment's prospects are tense. This is in contrast to the past, during the first investment, when Mid Europa found an opportunity to divest after only three years of ownership, achieving the expected profitability.

Analyzing this case, it can be said that a strategy based on excessive indebtedness in a changing business environment, despite efforts to reduce costs, exacerbates the problems of the acquired company.

4. Results and Discussions

The research results show that, on average, the analyzed sample (1,428 ECE companies) is represented by large, profitable companies that efficiently manage assets, generate positive cash flows, but are indebted (this result contradicts previous findings that ECE companies have moderate debt compared to other regions of development) and face liquidity issues.

The low percentage of private equity investments in the ECE region is determined by the typology of companies in this development region, especially the high level of financial leverage recorded during the analyzed period. The future research direction should focus on monitoring the evolution of this indicator over time and differentiating it, considering that in Central and Eastern European countries, enterprises have increased the use of equity funds, reducing reliance on bank resources (due to restricted access to bank loans).

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