BUSINESS VALUATION AND ESG FACTORS – AN INTEGRATED APPROACH

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Abstract: *Considering the rising popularity of reporting ESG (environment, social, governance) related actions, a natural curiosity was born among investors, and other parties, whether it can affect the business value or not. The answers regarding the integration of ESG factors into business valuation are still contradictory, with the tendency towards those who positively support this statement. This study aims to observe some of the potential correlations between ESG factors reported and business valuation. To understand the connectivity, we reviewed key works from the literature regarding this topic and looked for the optimal approach for integrating ESG factors into the business valuation. In this regard, an empirical study case on Romanian companies was developed. The investigated period was from 2020 to 2022. The purpose of the study was to identify the correlations between the most used profitability indicators, price multiples, EV/EBITDA, and ESG Scores. Results showed that the company with the highest ESG score had better profitability, and was the best performing on the market. However, because ESG reporting is still a new challenge for Romanian companies, and measuring the ESG score is still in its infancy stage, we proposed that domestic companies should prepare better to report and disclose sustainability data and regulators should support the companies by developing and promoting sustainability and ESG reporting and disclosure principles, ethics and guides.*

Keywords: *ESG; business valuation; integration; discounted cashflow*

JEL Classification: *M41; G32; Q56*

1. Introduction

In the past years, the ESG (Environment, Social, Governance) term has become more and more popular among both investors and other interested peers. The reason why this nonfinancial factor gained so much popularity is determined by its impact on a firm's value. When we talk about ESG, we refer to a company's approach to becoming more sustainable. The non-financial criteria that are most commonly known are: how a company manages its carbon emissions and waste, how they use its resources, the relations with employees, clients, and stakeholders, how they avoid fraud and corruption, and incorporating the environmental and social factors. Nevertheless, it can be noticed the controversial opinions on the integration of ESG items in a firm's value, recently conducted works proved a positive correlation between the proxies. So, companies that have a higher ESG score are less inclined to risk and can obtain higher returns (Chan et al., 2021). Judging by this premise, we can agree that it is necessary to incorporate ESG factors into the valuation of the company.

Traditional or quantitative active investors who take into consideration the ESG factors when assessing a firm's value or use them in their investment selection process are employing an integration approach. This study is based on finding what methods of firm valuation can integrate ESG factors to later be able to receive the most relevant and close to the actual value of a firm.

2. Literature review

Considering that the essentiality of ESG is growing and that this is still a new term in the economic world, progress towards reaching universally accepted sets of standards to integrate ESG factors into business valuation is still in its infancy stage (Woo, Tan, Deloitte 2022). International organizations like, The IFRS Foundation, The CFA Institute, and The European Financial Reporting Advisory Group (EFRAG) (Prall, IVSC 2021) had established tasks to develop better nonfinancial reporting standards, for the information provided by these standards to be comparable, relevant, and reliable.

In what concerns ESG factors' relevance in business valuation, many researchers (Aydogmus et al., 2022; Friede et al., 2015; Egorova et al., 2021; Alareeni and Hamdan, 2020) found positive correlations between ESG information and business performance. According to Aydogmus et al. (2022), in a meta-analysis conducted by Whelan et al. (2021), more than 1000 papers published between 2015-2020, focused on analysing the link between ESG and financial performance. Results found that 58% of investigated works observed positive relationship between ESG and financial performance (FP), 21% showed mixed results, 13% did not find any correlations, and 8% found negative correlations. The study concluded that even if the majority of researchers found a positive correlation between ESG and FP, there were still mixed opinions and a lack of consistency prevailed.

IVSC published perspective papers in which they consider that the best approach to integrate ESG factors in business valuation is through the discounted cash flow and the discount rate. Based on these International Valuations Standards (IVC), companies from the Big Four, like Deloitte and KPMG published works regarding this approach, arguing that this is the best way for ESG integration in business valuation. However, independent researchers (Aydogmus et al., 2022; Egorova et al., 2021; Alareeni, Hamdan, 2020; Ionescu et al., 2019; Naeem et al., 2022) chose to integrate ESG factors in business valuation by correlating the following three dimensions (Alareeni, Hamdan, 2020): operational (ROA – return on assets), financial (ROE – return on equity), and market (Tobin's Q) performance with the ESG scores.

Further on, a discussion on the approaches to integrating ESG factors into business valuation will be highlighted.

3. Current approaches used on ESG factors integration into business valuation

Traditionally, there are three valuation methodologies: the income, the market, and the cost approach, but from the perspective of ESG factors integration into business valuation, this study will refer to the first two.

3.1. The income approach

As stated in the IVS 105: Valuation approaches and methods, *„The income approach indicates value by converting future cashflow to a single actual value"*. To account for ESG considerations (Deloitte, 2022) valuation under the income approach should take into consideration the impact of ESG factors in the discount rate or cash flows themselves.

The traditional approach of calculating DCF

This is the most frequently applied valuation tehnique and assumes that the firm's estimated perpetual free cash flow is discounted at a rate equal to the expected cost of capital (that consists of both the cost of equity and the cost of debt), under the formula:

$$V_{DCF} = \frac{CF_1}{(1+a)^1} + \frac{CF_2}{(1+a)^2} + \cdots + \frac{CF_n}{(1+a)^n} + \frac{V_T}{(1+a)^n}$$

where: V_{DCF} - company's value; CF - expected cashflows in time; V_T - terminal value; n - number of years for the analyzed period; a - discount rate.

ESG and the Discounted Cashflow

The economic theory recognizes numerous methods that help determine the intrinsic value of a company or a business, through which the discounted cash flow (DCF), which is a method that helps to determine the actual value of a firm, relying on the forecasted cashflow, discounted for the value of money in time (Țîrlea, Birca, 2022). In the traditional approach of the DCF, there are a few indicators that have to be kept into account, like, EBITDA, EBIT, net profit margin, or the investments that the company is planning to make. The new approach, which integrates the ESG factors into valuation, recommends that the traditional approach to DCF should keep account of certain risks and opportunities presented in Table 1 (Petre et al., ANEVAR 2021):

Table 1: Risks and opportunities related to ESG

Risks	Opportunities
• Retracted or suspended operating license; • Fees or other sanctions are given for disobeying the law; • The cost of eliminating waste accounted for the bad management on that matter; • High risk of dissatisfaction regarding employees, clients, suppliers, and stakeholders; • The practice of corrupt actions; • Loss of financing, etc.	• Cost savings resulted from energetic efficiency and good management of resources; • Better investment plans for long term • Gaining loyalty from employees, clients, and stakeholders; • Trademark value; • Providing easier long-term access to capital of international institutional investors; • A better understanding of the stakeholders' needs, etc;

Source: ESG reporting guide (BSE, 2022)

To attain a fair value for the company, based on the DCF approach which integrates the ESG factors, it is very important to acknowledge, income adjusting, supplementary investments necessary for diminishing the impact of implementing or supporting ESG initiatives, adjustments regarding authorities imposed taxes and fees for disobeying the law, and other factors, each specific to the field in which activates the analyzed company. In the case of the plastics industry, for instance, possible adjustments to the cash flow elements are as follows:

Table 2: Adjustments that could be made to cashflow items

Pillars	Cash Flow Items	Adjustments
E	Operating revenues	The increase in sales and other income was driven by: -increasing the quality of products as a result of the implementation of modern technologies and the increase in the level of training of employees, -reducing the number of complaints received from customers, -increasing the degree of waste recovery, promoting the circular economy
	Operating costs	Reduction of material expenses as a result of the increase in the amount of recycled plastic used in the production process -reduction of energy and water expenses, through the use of green energy, local lighting in the technological flow, replacing high-power motors with low-power, and variable speed motors, reducing water consumption, and judicious management of water resources
	Capital expenditures	Additional expenses and investments for the modernization of existing machinery and the purchase of machinery with higher performance, to implement modern technologies, as well as to strengthen the adaptability to climate change
	Taxes	The amount of paid taxes can be reduced by using energy and water-saving equipment, organizing actions to promote among the population the importance of waste selective collection, and participating in the implementation of some investment projects in the community, including sponsorship actions.
S	Operating costs	To reduce the risk of workplace injury, companies offer more training programs for employees, increasing operational costs. To increase the training level of the staff, opportunities were identified for qualification in trades such as plastic processing operator or confectioner, thus reducing the share of unqualified staff. Increasing the average number of training hours per employee generates additional costs.
	Working capital	Companies with increased ESG performances also have higher market credibility and viability, so they can operate with lower working capital requirements.
G	Taxes	Payment of additional fees as a result of the violation of certain regulations. Payment of fines imposed for possible incidents of bribery and corruption.

Source: authors' projection based on ROCE and TRP analyzed sustainability reports

ESG and the discount rate

In what concerns ESG items including in the discount rate, studies on the topic indicate two approaches (Woo, Tan, 2022):

Beta	**Alfa**
This entails the analysis of comparable companies, by incorporating aspects regarding ESG factors into the analyzing process, each factor being relevant to the industry in which the subject company activates.	This entails an incremental adjustment to the discount rate, as a completion to beta. Therefore, for a company that has a lower ESG score compared to its peers, the discount rate will be higher and vice versa.

The biggest challenge in what concerns putting into practice these methods is the quantification of the adjustment that has to be applied to the discount rate because there is limited research on what concerns this aspect.

3.2. The Market Approach

According to the IVS 150: Valuation approaches and methods, *„The market approach indicates value by comparing the asset with identical or comparable (that is similar) assets for which price information is available.”*

ESG and the identification of comparable companies. Because disclosing data regarding ESG performance is becoming a standard for public companies, the vast majority of the companies that become subject to valuation are private ones. Therefore, to include ESG variables into the valuation, experts must consider (Prall, IVSC 2021):

a) identifying and assessing relevant ESG criteria for the comparable companies, activating in the same industry (understanding the size of the company, the geographic zone, the risks, the future development, the comparability of the business model, etc);

b) appraise the performance of companies regarding the criteria that were mentioned above;

c) calibrate the market inputs, such as the EBITDA multiple, to the analyzed company, to assess the relevant performance in comparison with the other peer companies.

As a completion to identifying the relevant comparable companies, in the valuation process by integrating ESG factors, there can be integrated adjusting through price multiples (Chan et al. 2021). The most commonly adopted price multiples are, price-to-earnings ratio (P/E), price-to-book ratio (P/B), and enterprise value to EBITDA (EV/EBITDA). When looking at the previously mentioned price multiples, one can add a price premium to the companies which are good ESG performing, or opposite, apply a discount for the poorly ESG performing companies.

Discounts for Lack of Marketability should be applied when the comparable companies have a larger exposure on the market than the analyzed company (Pratt, Niculita, 2008). For example, the shares of a trading company on the stock market are more liquid, easier to transform into cash, and have smaller administrative and transaction costs than a private company, which has to go through several steps, and procedures to sell its stocks.

Control Premiums and Discounts for Lack of Control. (IVS 105: Valuation approaches and methods) are applied to reflect the differences between the analyzed company and the comparable companies, regarding their ability to make decisions. For instance, generally, the shares of public companies do not offer the ability to make decisions inside of that company, which means that they lack control.

4. Models applied in the analysis of correlations between company value and ESG variables

Researchers like Aydogmus et al. (2022), Egorova et al. (2021), Alareeni et al. (2022), Ionescu et al. (2019), Naeem et al. (2022) used modified versions of the Ohlson model (1995) to link the ESG factors to a business's value. Each of them used the same principle, the same formula that we presented below, modified in their way by adding several factors, in which way they managed to find answers and seek results: $FP = \beta_0 + \beta_1 ESG\_Score + \beta_2 Control\_variabiles + \varepsilon$.

Concerning the specific literature, a firm's performance (FP) is mainly calculated based on three dimensions: operational - ROA = Net income/Total Assets), financial - ROE = Net income/Equity, and market performance - Tobin's Q = (Equity market value + Liabilities market value)/ (Equity book value + Liabilities book value) (Alareeni, Hamdan, 2020), which are considered *dependent variables*, because according to other studies, they serve as proxies for the financial performance of corporations (Naeem et al., 2022). To include ESG in the calculation and to get a more precise visualization of the impact of ESG factors, the ESG Score is usually separated into three different sub-ESG scores, such as ENV (environment), SOC (social, also abbreviated as CSR) and GOV (governance). These are considered to be *independent variables*. Lastly, the formula usually also contains *control variables*, which are corporation characteristics, added into the formula to avoid biased assessments and to obtain the actual impact of ESG performance on a company's value. A few of these control variables might be, the size of the firm, the ratio of cash dividend per share, the ratio of sales to average total assets, the relations with customers, suppliers, and many more.

Aydogmus et al. (2022) conducted a study on 1.720 companies from 2013 to 2021, and they used Tobin's Q and ROA as proxies for the company's FP (dependent variables). As for independent variables, they used four variables: ESG combined score (ESG_Score), Environment score (ENV), Social score (SOC), and Governance score (GOV). The control variables they chose are the company's Size (Log_TASST) and Leverage (TDTA). To assess the impact of each ESG factor, they developed eight models: the first four formulas use Tobin's Q as FP, individual ESG(1), ENV(2), SOC(3), GOV(4) scores, and both size and leverage for all four. In the following models, they used ROA as FP, individual ESG(5), ENV(6), SOC(7), GOV(8) scores, and both size and leverage for all four. The authors concluded that the ESG combined score, Social score, and Governance score have a highly significant correlation with the firm's value. However, the Environment score has no relationship with the firm's value, and they agree with the stakeholder's opinion to exclude the environment score from a business valuation.

Egorova et al. (2021) used only Tobin's Q as the company's FP indicator, and included ROA into the formula, along with the individual factors that provide ESG combined score (ENV, SOC, GOV). They applied their analysis of ESG factors to IT companies. Even if this study did not use actual data, the obtained results by Egorova et al. (2021) proved that ESG rating can positively affect the FP of IT companies. Therefore, most studies have shown that the companies that have higher ESG scores have better operating performance, and financial results, and investors have higher interests in them. Also, most of the studies found that the companies that are trying to initiate, develop and implement ESG components are increasing their position on the market and their value is increasing. Ionescu et al. (2019) conducted a study on 73 companies from the travel and tourism industry, from 2010 to 2015, grouped by country of origin in three regions: Europe, Asia, United States, and used Tobin's Q model presented above. The conclusions of these authors are the following: ENV presents a weak correlation with FP, except for the US companies, and even that is negative; the results for the SOC factor's influence are also negative because the costs of implementing social initiatives exceed the value of the obtained benefits; regarding the influence of the GOV factor, the study showed some inconsistencies, because it has a positive impact on the FP of US companies, and a negative impact on European, and Asian companies.

Also, in their study on the S&P 500 listed companies, from 2009 to 2018, Alareeni et al. (2022) used ROA, ROE, and Tobin's Q to mark a company's FP, as dependent

variables, ESG general score, ENV, SOC, and GOV, as independent variables, and for control variables, they used Firm Size (FS), Financial Leverage (FL), Asset Turnover (AT) and Asset Growth (AG). The authors concluded that ESG disclosure has a significant and positive impact on the company's operational, financial, and market performance. Results showed that companies with high disclosure levels of ESG, ENV, and SOC information have better financial, and operational performance (ROE and ROA) and companies with low lever disclosure of GOV have higher levels of ROA. However, the firm's market performance (Tobin Q) is better for companies that have low levels of ESG, ENV, SOC, and GOV disclosure. Naeem et al. (2022) used the same model as Alareeni et al (2022), except they did not use the overall ESG score, and only used the Firm's Size (FS) and Firm's Leverage as control variables, and also showed that the companies with higher ESG scores have positive and significant relationships with FP; higher ESG performance positively impacts profitability, and contributes to the increase in the market value of companies.
To contribute on the matter, we conducted a study on two Romanian companies, aiming to observe if the ESG score should be integrated into business valuation.

5. Data analysis and research design

The analyzed companies are Teraplast (TRP), and Romacarbon (ROCE). Both have the NACE code, 2221 – *Manufacturing of plates, foils, tubes, and profiles out of plastic material*. The purpose of the investigation is to examine if the ESG score affects the company's value, for the period 2020-2022. The study used a comparative analysis regarding the profitability, and market performance indicators followed by a correlation analysis between EV/EBITDA, and the ESG Score. Data was collected from **https://bvbresearch.ro/**. As far as we know, ESG reporting and disclosure in Romania is still in an early stage, so the publicly available data on ESG scores is limited.

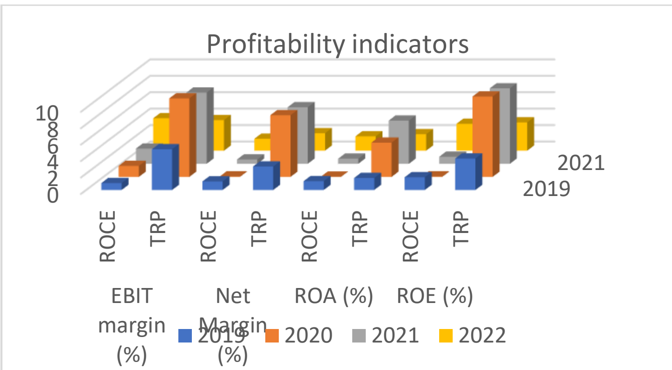

Figure 1: Dynamics of profitability indicators
Source: https://www.bvbresearch.ro/ReportDashboard/CapitalCube

The analysis of the profitability ratios under the period 2019-2021 indicated a higher performance of TRP company over ROCE. In terms of profit margin and relative capital efficiency, if in 2022, ROCE recorded an increase in value compared to previous years, then in the case of TRP, profitability is decreasing, therefore, the balancing value of profitability proxies for the analyzed companies analyzed is achievable. The market expects in case of TRP to grow faster, and the company to improve its current rentability.

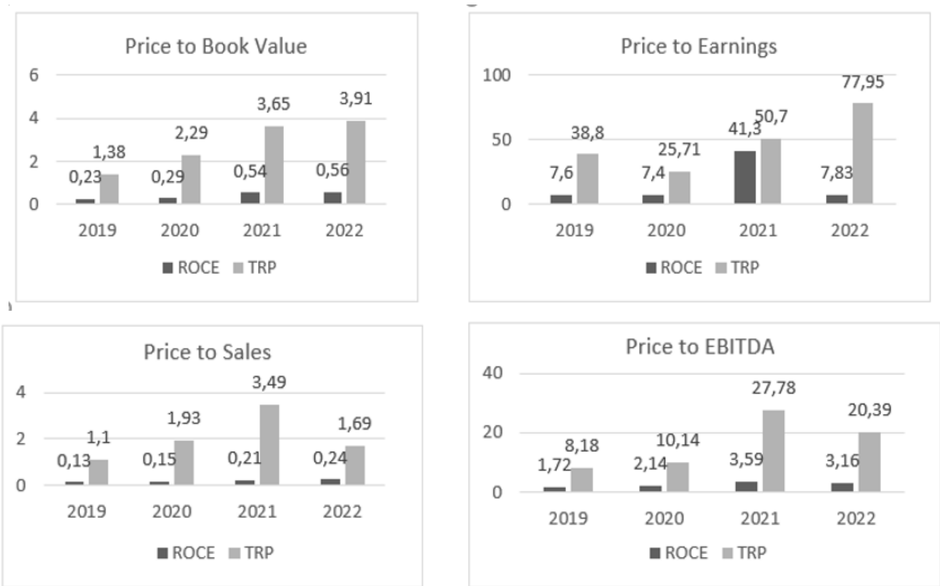

Figure 2: Dynamics of market multiples
Source: https://www.bvbresearch.ro/ReportDashboard/CapitalCube

Analyzing the evolution of market multiples that can be used in the enterprise’s evaluation, TRP registers higher values than ROCE company. While ROCE shares are trading at a sub-unit Price to Book ratio, TRP shares are trading at a super-unit rate. The higher and rising P/E ratio values for TRP suggest superior growth expectations from the market, and the values of lower P/E ratios recorded by ROCE suggest that the market has some doubts about the company's long-term strategy. And the P/S and P/EBITDA multiples are higher in the case of the TRP company, but decrease in 2022.

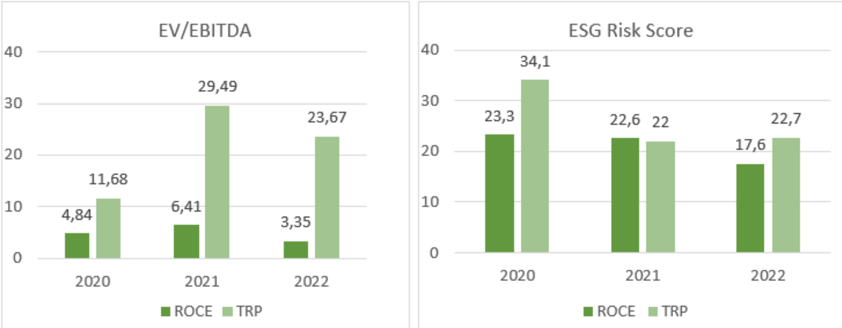

Figure 3: Comparative dynamics EV/EBITDA, ESG Risk Score
Source: https://www.bvbresearch.ro/ReportDashboard/CapitalCube

Where: EV (enterprise value) = Market Capitalization + Total Debt – Cash and cash equivalents; EBITDA - earnings before interest, taxes, depreciation, and amortization.

EV/EBIT ratio shows the multiplier of company value over the resources that a company generates regardless of its financial structure, tax rate, and depreciation policy. Thus, it determines whether the company incorporates more or less value than that directly related to the resources generated. If the ratio increases, it means that the company is generating fewer profits per unit of company value. ESG Risk Score measures the amplitude of unmanaged ESG risks by the company, with a lower score signifying a more limited extent of unmanaged ESG risks (https://bvbresearch.ro/ReportDashboard/CapitalCube**).** While the ESG Risk Score values registered by the two analyzed companies are relatively close, the EV/EBITDA ratio values are very different, much lower for ROCE. This could mean undervaluing ROCE stock or overvaluing TRP stock. In what concerns the TRP company, an increase in the EV/EBITDA ratio is associated with a decrease in the ESG risk score, then the decrease in the EV/EBITDA ratio is accompanied by a decrease in the ESG risk score, but in the case of ROCE, this correlation is valid only for the period 2020-2021, the next period recording a decrease in both the EV/EBITDA ratio and the ESG risk score.

6. Conclusions

As we found from reviewing the works on ESG factors integration into business valuation, lots of ongoing analysis can be found on the topic and whether is this going to become a new standard or not. Therefore, there are strong opinions that consider integrating ESG factors into business valuation necessary even regulators, and the Big 4 companies are trying to comply and find ways to make it possible. Two main approaches have been used to value a business by integrating ESG items, the discounted cash flow and the modified Ohlson model.

The present study conducted on two Romanian companies from the same plastic materials industry, for the period 2020 to 2022, found that, overall, the company with a higher ESG score has better general performance, and is performing better on the market. However, because ESG is still a new concept in Romania, and measuring the ESG score is still a challenge, we think that Romanian companies should prepare more thoroughly ESG reports, and regulators should impose clearer ESG reporting and disclosure requirements, and ethics. This would allow agency ratings and other entities to provide correct and complete ESG scores, as investors and interested parties to have a complete view of a company's performance and academics, but also other researchers to conduct more relevant, valid, and up-to-date studies.

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