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The impact of ethical and CSR factors on engineers' attitudes towards SMEs sustainability

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ABSTRACT

The aim of this study was to examine the impact of selected ethical factors of business on the perception of defined attributes of decline in the small- and medium-sized enterprise sectors of the V4 countries. The perceptions of ethical business factors between entrepreneurs-engineers and entrepreneurs-non-engineers were evaluated. The study underscores the need for permanent implementation of corporate social responsibility (CSR) analyses from a multilevel perspective that allows the integration of different theoretical frameworks. The results of the study justify the need to carry out deeper structured analyses of the ethical aspects of micro-CSR business at the individual or group level, taking into account multiple categorisation lines. This study also confirms the psychological effects of perceived CSR on a company's decline. This can be especially advantageous in identifying opportunities for the better use of CSR strategies and in creating adaptive CSR concept platforms.

Keywords: Corporate social responsibility, CSR, micro-level CSR, entrepreneur-engineer, entrepreneur-non-engineer, ETHICAL factors of business, decline

1. Introduction

Corporate social responsibility (CSR) has been a relevant aspect of entrepreneurship in recent decades, as well as an area of strong multidisciplinary research. This has been dependent not only on the availability of numerous CSR concepts that are used to examine CSR at the organisational level, but also on the pressure to further investigate the determinants of CSR and detect their causal links to help explain the behaviour of individual entities and their impacts on the development of the company and society.

Despite the large number of CSR publications published in the past decades, it must be stated that the literature on CSR is highly fragmented. The reason for this strong fragmentation is both the numerous research directions into which CSR extends as well as the high heterogeneity of the entities that employ the concept of CSR, which requires a multilevel and multidisciplinary review. This situation is also

negatively influenced by the application of numerous theoretical frameworks with their conceptual dynamics and commitment to several dimensions of the business, thus reducing their degree of flexibility owing to changed business conditions or changes in the lifecycle of the enterprise. Some experts employ an institutional form of CSR analysis, applying numerous theoretical frameworks as a conceptual background. However, the application of diverse theoretical concepts and models greatly limits the process comparability of activities within CSR dimensions.

The recent economic crisis as well as the current pandemic crisis highlight much more the need to examine and apply CSR concepts in companies and their degree of adaptability. The very impacts of crises, such as corporate bankruptcies, are not subject to separate investigations of CSR within its individual dimensions, although the explicit links between crises and their impacts are clearly defined. The issue of reducing the social impacts of crises, including job losses as part of CSR, is much more proclaimed in professional circles, but without further quantifying the impact of crises on the different dimensions of CSR.

Amid the current pandemic crisis, the number of bankruptcies is increasing, and space is opening up for a deeper investigation of bankruptcies within the ethical aspects of entrepreneurship and CSR. The aim of bankruptcy is to give debtors another chance after a financial failure, which is considered more ethical and effective than liquidation. Many studies in this area examine not only on a historical basis but also in the context of the development of several concepts extending to many scientific disciplines, whether or not bankruptcy is ethical, as there are many possibilities of carrying out unethical activities during bankruptcy (e.g. bankruptcy in case of sufficient company assets, court bias, and unauthorised fees; **Donaldson and Dunfee, 1999; Kliestik et al., 2018**).

Bankruptcy has an ethical purpose because it protects the company, saves many jobs, and provides certain payments to stakeholders. The bankruptcy of a larger company is also associated with more complicated relationships and obligations (see e.g. **Boettcher et al. 2014; Caplan et al. 2012**). A company has an economic nature, a responsibility towards shareholders and owners, facing an expectation of desirable financial results, and at the same time legal and ethical responsibility. Ethical responsibility coincides with legal responsibility. Bankruptcies have become part of the lifecycle of companies and are heavily influenced by globalisation, as well as by the international and national economic situation and the dynamics of changes in the business environment of individual countries.

Studies examining the dimensions of CSR and their link to an individual CSR lack an examination of the impact of ethical factors of business (EFBs) on the perception of corporate bankruptcies, although CSR concepts encompass dimensions of ethical corporate management that directly or indirectly influence the emergence of bankruptcies (**Kowalczyk and Kucharska, 2019; Zientara et al., 2015; Karaosmanoglu et al., 2016**). A company's bankruptcy can be regarded by an entrepreneur as a natural part of the business; it can be seen as a form of further business experience, while the entrepreneurs do not have to see bankruptcy as their personal failure. **Cumming (2010)** explain the absence of such studies by examining changes to bankruptcy laws and their impact on new, emerging companies. **Cumming (2010)** point to changes in the law as well as problematic data availability that could be examined in the context of CSR. They also point to the fact that the issue of corporate bankruptcies is more preferred, while personal bankruptcies are underestimated, although CSR equally pertains to both forms of bankruptcy.

Corporate bankruptcies can be perceived differently by entrepreneurs. This is influenced by several economic and psychosocial factors. This is apparent, for example, in a study by **Khan et al. (2020)**, who examined the perception of bankruptcy among entrepreneurs from 822 small- and medium-sized enterprises (SMEs) in the Czech Republic and Slovakia. Entrepreneurs consider bankruptcy a natural

part of the business. They consider the experience with bankruptcy to be a fundamental business experience that negatively affects their self-esteem. Experience with bankruptcy is also important in approaches to financial risks (Dvorský et al., 2020).

The absence of studies examining the relationship between a company's bankruptcy and its perception for the further activity of the entrepreneur, or as a form of business experience, creates a large research gap that prevents the further development of CSR concepts and the creation of effective mechanisms examining the impact of CSR concepts on business activities within the company's lifecycle. Taking into account gender as well as other socioeconomic factors (e.g. education, age, cultural aspects, and religion) can bring a new perspective on the adaptability of CSR concepts and their effects on dynamic changes related to the quality of the business environment and political and economic stability of the country, among others.

This consequent fact was the motivation for this research, the aim of which was to examine the impact of EFBs within CSR on the formation of entrepreneurs' (engineers and non-engineers) attitudes towards corporate decline within the V4 countries. The examined attitudes were in the form of defined statements expressing the relationship between EFBs and perceptions of corporate decline in the three assessed dimensions. The orientation of the present research on the V4 countries was determined based on the long-term implementation of numerous studies by the author's research team on the issue of the economics and management of SMEs operating in the conditions of the V4 countries, while their aim was to create an international comparative base and a platform for further studies. This also ensured the acquisition of high-quality primary research data, not only for this research but also for subsequent research.

To fill the identified research gap, the present research employed a categorisation line to examine the perceptions and attitudes towards EFBs based on the different education of owners: entrepreneurs-engineers and entrepreneurs-non-engineers. Through this, this research complements the concept of micro-CRS with a new yet unanalysed dimension of sociodemographic factors when examining selected ethical principles of business related to a company's decline. The different but also consenting identical attitudes and perceptions of both engineers and non-engineers, entrepreneurs-engineers, and entrepreneurs-non-engineers towards the decline of a company allow for a better understanding of the psychological effects of perceived CSR, as well as the rationality of CSR procedure practices among entrepreneurs with respect to their educational backgrounds. This can be beneficial in identifying opportunities for better use of CSR strategies, as well as for the creation of adaptive CSR concept methodological platforms. The results of this study may support the integration of different theoretical frameworks and the understanding of the basic fundamental mechanisms also within the micro-level of CSR, which are currently under-examined and unrelated to other concepts.

This paper is structured as follows: The introductory section of the study highlights the importance of examining CSR issues in relation to selected ethical factors of entrepreneurship and defines the research gap that the study fills. The theoretical section offers an overview of international and national studies that point to preferential development lines of related concepts and the impacts based on their usability in the real conditions of a given country. This knowledge is linked to its own primary research conducted in the V4 countries. The introductory section describes the database and methodology for data collection. This section is followed by a discussion of the data analysis process, carried out using appropriate statistical methods and software support. The results are aggregated and discussed in a discussion section, in which research findings are compared with available studies presented in the literature overview. The conclusion summarises the results and outlines themes for follow-up research.

2. Theoretical insights into CSR as a part of entrepreneurship

The international research environment provides a wide range of studies that have examined the different dimensions of CSR, as well as their interconnectability with the quantitative and qualitative aspects of entrepreneurship and management. The absence of a standard CSR model creates scope for its development, influenced by the penetration of CSR into several scientific fields and disciplines, which has led to CSR gradually becoming a multidisciplinary research area (**Farooq et al. 2014, 2017; Fenwick and Bierema, 2008; Jones and Rupp, 2016**).

This is one of the reasons why studies dealing with this issue are highly heterogeneous, influenced by the target focus of the study as well as research teams that, using their knowledge, enrich a given scientific discipline and create a sharing platform. This creates scope for the development of new and the modification of existing concepts that must reflect the dynamics of the business environment, the globalisation impacts accompanied by global crises, and changes in national economic and political structures. At the same time, available CSR studies have made it possible to identify gaps in the methodological processes of CSR concept development and have highlighted the need to detect and examine new aspects and levels of CSR that may impact the success of CSR concepts for individuals as well as for a company (**Rodrigo et al. 2019; Rupp and Mallory, 2015; Kahreh et al., 2014**).

2.1. The essence of CSR from an ethical perspective

Fryzel and Seppala (2016) promoted knowledge of social identity by creating a clear relationship between the concepts of identity orientation and corporate social responsibility. Based on their results, the authors clearly declared that only authentic CSR produces affective attachment and behaviours that benefit an organisation. **Tamari (1990)** examined the ethical problems associated with bankruptcy and the extent to which they affect debtors, creditors, and companies in which they operate. The author addressed these ethical problems of entrepreneurship from a Jewish perspective, in which debtors are always held liable for their debts, and moral shame is associated with bankruptcy, except in cases related to natural disasters. Owing to the repayment of loans to creditors, the courts are obligated to examine a debtor's assets and, if necessary, sell it, leaving the debtor and his or her family with minimal means of survival.

Another group of studies on the ethical aspects of CSR has focused heavily on the attributes of employees' organisational identification. The authors of such studies have examined various alternative mechanisms through which perceived external and internal CSR activities build employee identification (**Hur et al., 2019; Farooq et al., 2017; Hameed et al., 2016**). **Rupp and Mallory (2015)** focused on the importance of micro-CSR, which extends into the areas of industrial or organisational psychology and organisational behaviour. According to the authors, the concept of micro-CSR has a strong potential to reveal how CSR affects individuals representing different stakeholder groups. Micro-CSR is not limited only to employees. Some groups of stakeholders have been examined within CSR on a micro-level for decades, such as consumers; however, other types of individuals remain unexplored.

2.2. The role of CSR in intra-organisational behaviour

Cornelius et al. (2008) and Jones and Rupp (2016) emphasised the necessity of creating CSR mechanisms to support employee identification, while examining the relationships between the employer and the employee within categorised internal CSR activities. Categorising CSR activities as

internal and external allows us to better understand how different types of CSR influence employees (**Aguinis and Glavas, 2012; Farooq et al. 2014**).

Rodrigo et al. (2019) examined the ethical aspects of entrepreneurship and drew attention to the fact that many studies do not take into account the relationship between social and environmental activities and the business unit strategy of a company. The authors conducted research on a sample of 579 employees and found compelling evidence to support the notion that alignment between strategy and CSR enhances employees' affective organisational commitment through the proposed mediators. The use of mediators is considered by the authors to be a more effective process for aligning ethical activities within CSR, although many other authors examining the impact of CSR on employee attitudes and behaviour point to the absence of building psychological mechanisms (see e.g. **Farooq et al., 2014; Farooq et al., 2017; Hameed et al., 2016; Dupont et al., 2013; Hitka et al., 2019**). This trend is confirmed by studies with a set research trajectory aimed at examining the impact of CSR activities on employee attitudes and behaviours, with only the initial direct relationship being monitored, without exploring the potential for the creation of fundamental mechanisms through which CSR influences employee outcomes (e.g. **Turker, 2009**). It is this absence of fundamental mechanisms of the impact of CSR on employee results that prevent the more dynamic development of CSR concepts with an emphasis on organisational identification of employees (**Aguinis and Glavas, 2012; Rupp and Mallory, 2015**). Their methodological significance would also be multiplied by the acquisition of feedback on the impact of employee attitudes and behaviours affected by CSR activities.

Organisational identification of employees and their selfenhancement process may justify the manner in which CSR affects employee outcomes, but studies focusing on the impact of CSR on employee outcomes usually do not examine the fundamental mechanism of self-enhancement. According to some authors, employees' favourable attitudes towards an organisation are also determined by their pride in belonging to a socially stable and recognised organisation (**Jones, 2010**). Perceived internal respect is a new parameter in the study of internal CSR, and focuses on how employees perceive the organisation's behaviour towards them. **Wang et al. (2020)** examined the relationship between employees' perception of CSR and its dimensions, including other categorising attributes such as gender, age, and national culture. The authors conducted a meta-analysis of 65 studies. The results of the analysis showed that perceived CSR and its dimensions are positively related to employees' positive attitudes and behaviour and negatively related to negative attitudes and behaviour. The study confirmed the psychological effects of perceived CSR as well as the rationality of CSR practices, which can be beneficial for companies in identifying the possibility of better use of CSR strategies to motivate their employees.

The development of conceptual and methodological frameworks is also effectively supported by studies examining the different approaches, methods, and mechanisms of the functioning of CSR and its horizontal and vertical causal links. For example, **Aguinis and Glavas (2012)** studied 588 journal articles, 102 books, and several book chapters. Their study aimed to create a multilevel and multidisciplinary theoretical framework that synthesises and integrates the literature at the institutional, organisational, and individual levels of analysis. The authors attempted to explain the underlying mechanisms of the relationship between CSR and outcomes and the contingency effects that explain the conditions under which the relationship between CSR and its outcomes changes. The results of the study revealed important knowledge gaps in the use of different theoretical concepts of CSR in the understanding of the mechanisms linking CSR to outcomes and emphasised the need for micro-level research (for both individuals and teams). The authors offered a detailed research programme based on a multilevel perspective that can facilitate the integration of different theoretical frameworks and an understanding of the fundamental mechanisms and micro-level CSR.

These suggestions with respect to the area of methodology correspond with a study by **Wang et al. (2020)**, who clearly highlight the need to move from qualitative to quantitative analyses to better examine the relationship between perceived CSR and its implications from the employees' point of view. Quantitative analyses dominate the available studies, especially when examining the relationship between CSR and employee performance, while the application of different methodological concepts created a highly heterogeneous comparative platform and limited the interconnectability of methodological concepts with those used at other levels of CSR (see e.g. **Brammer and Millington, 2008; Brammer et al., 2009; Chatterji and Toffel, 2010; Hull and Rothenberg, 2008; Mura and Sleziak, 2015; Sully de Luque et al., 2008; Surroca et al., 2010**).

Sectoral CSR analyses also revealed their specificities when examining the trajectories of impacts and relationships between CSR components and outcome variables. For example, **Kim and Kim (2020)** offered a sectoral perspective to examine the importance of CSR in the workplace and its impact on the performance of frontline employees (e. g. hotel, airline, and restaurant employees). It formulates and tests a model of perceived management support for CSR, perceived customer support for CSR, work engagement, organisational engagement, wellbeing, and task performance. The results of the analyses confirmed that perceived management support for CSR significantly affects employees' work and organisational involvement. The trajectory was also defined: perceived customer support, higher work engagement, higher organisational commitment, higher perceived well-being, and higher employee performance, all implicitly or explicitly found in numerous studies. These results also highlight the need for a deeper study of CSR at the individual and group levels.

2.3. Specifics in CSR research

In addition to demographic characteristics in research on the use of CSR concepts in organisations (Wang et al. 2020), income indicators related to the perception of CSR and employee engagement are also the subjects of research in several studies. This is supported by **Koirala and Charoensukmongkol (2020)**, whose results indicate a clear relationship between CSR perception and employee engagement. A significantly stronger relationship was observed for higher-income employees than for lower-income employees. However, this effect may not be valid for different sectors or countries. Within one sector, the effect of CSR usability on organisational and individual performance may vary, and is influenced by many determinants. Their knowledge requires a deeper examination of CSR at the individual and group levels as well as access to more deeply structured data. This may also lead to higher adaptability of CSR concepts and their link to quantitative and qualitative economic indicators (**Fenwick and Bierema, 2008; Turker, 2009**).

Companies' CSR is also closely linked to the financial processes in the banking sector. **Abdallah et al. (2020)** examined the use of CSR in the banking sector in 12 major European banks. The authors confirmed a two-way causality between sustainability and banking reliability. They used the Bayes approach for analytical processes because of the potential to examine a large number of criteria and to determine the importance of different determinants in achieving reliability. **Fatma and Khan (2020)** brought a different perspective to the banking sector by considering the authenticity necessary to assess banks' CSR. The authors developed and tested a CSR authenticity model to identify the factors influencing consumers' assessment of their bank's authenticity. The study linked the concept of identification to the authenticity of CSR based on social identity theory.

Many banks have introduced the concept of sustainable development based on the application of CSR principles (**Ben Abdallah et al., 2018; Wu and Shen, 2013; Rebai et al., 2016**). This concept has been criticised because it raises questions about whether sustainable development plays an important role

in banking, and whether sustainable banks are strong and reliable. In this sector, many authors consider the correlation between social performance and financial performance unclear (Makni et al., 2009; Orlitzky et al. 2017; Zigraiova and Havranek, 2016; Shen and Chih, 2005).

The current pandemic crisis caused by COVID-19, as well as the recent economic crisis, is evidence of a strong need for a deeper examination of CSR concepts. It is clear from the results of the above-mentioned studies that examining CSR concepts from a multilevel perspective is also significantly important in the current period. It is important to examine the integrative aspects of different theoretical frameworks of CSR to understand the fundamental mechanisms of their functioning, as well as at the micro-level of CSR, which is currently the least explored. Based on the assessment of various studies, we also identified a lack of linkage between micro-level CSR concepts and other concepts that support the effective application of CSR in SMEs.

3. Aim, methodology, and data

The aim of the study was to look at the impact of selected EFBs on the perception of defined attributes of decline in SMEs. Within the stated aim, the following research questions (RQs) between entrepreneurs-engineers and entrepreneurs-non-engineers were assessed:

RQ1: Are engineers' attitudes more positive towards the selected EFBs than non-engineers'?

RQ2: Are engineers' attitudes different from the selected EFBs in relation to the perception of business bankruptcy than non-engineers?

The empirical research was conducted in the V4 countries (i.e. the Czech Republic [CR], Slovakia [SR], Poland [PL], and Hungary [H]) from 2019 to 2020. The data collection methodology used was identical in every country. Using random selection, 8,250 SMEs were identified in CR (CRIBIS database), 10,100 SMEs in SR (CRIBIS database), 7,680 SMEs in PL (Central Statistical Office of Poland database), and 8,750 SMEs in H (Chamber of Commerce and Industry in Budapest database). The process of creating an SME sample dataset in the business environment (hereinafter, respondent) in the respective countries was as follows:

- i. determination of the basic set of respondents - SMEs with up to 249 employees);
- ii. assigning a serial number to each respondent;
- iii. generating random numbers using mathematical function "Randbetween";
- iv. assigning a randomly generated number to the respondent; and.
- v. finding a phone and email contact for the respondent.

Respondents were contacted by email with a structured request to complete an online questionnaire, as well as by phone, with a request that the SME owner or manager fill out the online questionnaire. The online questionnaire was created in the national languages of the respondents. It contained questions capturing the respondents' demographic characteristics in the first part, and EFB and PBB claims in the second part.

The average response rate was more than 5.0% in the V4 countries. The sample of respondents ($n = 1585$) was divided based on the following research criterion: engineering education (E: master's or doctoral degree) and non-engineering education (N: high school graduate; bachelor's degree).

Table 1 defines EFBs, PBBs indicators, and calculated selected characteristics of descriptive statistics separately for the groups of entrepreneurs-engineers (E ; $n = 912$) and entrepreneurs-non-engineers (N ; $n = 673$).

The questionnaire contains the following independent (EFBs) and dependent (perception of business bankruptcy; PBB) variables: EFB₁ -Owners (managers) should consider the moral and ethical consequences of their decisions; EFB₂ - I am familiar with the concept of corporate social responsibility (CSR) and apply it in my leadership position; EFB₃ -The implementation of CSR enables our company to gain a competitive advantage on the market and higher customer loyalty; EFB₄ - CSR enables our company to gain a good reputation and new opportunities in business; EFB₅ - CSR enables our company to gain satisfied, loyal, and motivated employees; PBB₁ - The decline of the company is a natural part of the business; PBB₂ - The decline of the company brings important experience for further entrepreneurship; PBB₃ - The corporate decline does not mean personal failure of the entrepreneur.

H: The selected ethical factor of business (H1: EFB₁; H2: EFB₂; H3: EFB₃; H4: EFB₄; H5: EFB₅) has a statistically significant impact on the perception of business bankruptcy (A: PBB₁; B: PBB₂; C: PBB₃) according to engineers' (E) and non-engineers' (N) attitudes.

The minimum sample size was calculated separately for each group (E/N) using the following data: margin of error = 5%; confidence level = 99%; population size = E : 3.1 mil./ N : 1.9 mil. The results showed that the minimum sample size (E : $n = 666/N$: $n = 664$) was confirmed for each research sample (according to the respondents' education). The reliability and validity of the questionnaire were verified according to the following indicators (Hair et al. 2010): Cronbach's alpha (CA; minimum value [MV] = 0.7), factor loading (FL; $MV = 0.5$), composite reliability (CR; $MV = 0.7$), and average variance extracted (AVE; $MV = 0.5$). **Table 2** presents the results of the reliability and validity analyses of the questionnaire for each group of respondents (E/N).

Table 1 The descriptive characteristics of EFB and PBB indicators of SMEs.

EFBs	Mean(E/N)	SD(E/N)	Skewness(E/N)	Kurtosis(E/N)
EFB ₁	1.636/1.709	0.918/0.936	3.625/3.004	1.842/1.669
EFB ₂ [*]	2.425/2.523	1.155/1.081	-0.309/-0.032	0.581/0.567
EFB ₃	2.765/2.782	1.118/1.047	-0.459/-0.123	0.278/0.313
EFB ₄	2.721/2.749	1.108/1.091	-0.433/-0.221	0.314/0.400
EFB ₅	2.731/2.750	1.091/1.068	-0.347/-0.270	0.299/0.363
PBBs	Mean(E/N)	SD(E/N)	Skewness(E/N)	Kurtosis(E/N)
PBB ₁ [*]	3.049/3.153	1.247/1.189	-0.988/-0.847	-0.026/-0.133
PBB ₂	2.752/2.698	1.214/1.155	-0.770/-0.693	0.347/0.264
PBB ₃	2.974/2.909	1.193/1.187	-0.892/-0.814	0.012/0.063

Note: SD - Standard deviation; * statistically significant differences between two groups of respondents (E/N) on the level of significance $\alpha = 5\%$ (α - the level of significance; non-parametric approach - Kruskal-Wallis tests). Source: Own data collection.

Table 2 confirms the reliability and validity of the research sample (E/N). Linear regression modelling (LRM) was applied to quantify causal relationships between the dependent (PBB_{1,2,3}) and independent variables (EFB_{1...5}). The aim of LRM application is not to predict PBBs in the future, but only to determine significant EFBs with an impact on PBBs. All variables were scaled identically (same metrics - 1 'strongly agree' to 5 'strongly disagree') and formulated in such a way that respondents' attitudes towards EFBs are linearly converged on the correct perception of respondents to the decline of the

company. Paired dependencies (rEFBs/pBBs) between variables were inserted into a modified correlation matrix and verified using a t-test (Lancaster and Hamdan, 1964). Regression coefficients (β_1, \dots, β_5) of independent variables (IVs) were estimated using the least squares method (Stewart, 1987). The estimated regression coefficient (β) is statistically significant if the p -value of the t-test is lower than the significance level $\alpha = 0.05$ (Arnold, 1980). The general shape of linear regression models (LRMs) is as follows:

$$PBB_{ab} = \beta_0 + \beta_1 \times EFB_1 + \beta_2 \times EFB_2 + \beta_3 \times EFB_3 + \beta_4 \times EFB_4 + \beta_5 \times EFB_5 + \varepsilon_t; (1)$$

where: $a = 1, 2, 3$; $b = E, N$; PBB - indicators of the perception of corporate decline; EFB₁, ..., EFB₅ - ethical factors of business; ε_t - random error.

The significance of LRMa/b was verified using the following regression characteristics: multiple correlation coefficient (MCC), coefficient of determination (R²), adjusted coefficient of determination (Adj. R²), analysis of variance (ANOVA: sum of squares [SS]; mean of squares [ME]; standard error [SE]; degree of freedom [df.]; t-test), and verification of LRMs (F-test; Breslow, 1990). The negative dependence between EFB was verified using the variance influence factor (VIF) as long as at least three EFBs were statistically significant (according to Liao and Valliant, 2012; O'Brien (2007)). Autocorrelation was not analysed because the data were not time-sequence data. The Shapiro-Wilk test (SW test) was applied to verify the normal distribution of random errors. The homogeneity of variance of the selected variables was verified using Levene's test. The above assumptions are accepted if the p -values of the S-W test and Levene's test are larger than α (Arnold, 1980; de Waal, 1977). Statistical analyses were performed using SPSS Statistics software.

4. Results

The results of the graphical analysis show minor variations in the linear bindings for the independent EFB1 variable. The assumption of a normal distribution for EFB1 (E/N) indicates that the variable was not acceptable (see Table 1; skewness [E : 3.625/ N : 3.004]). Given the sufficient number of respondents in both respondent groups (Hair et al., 2010; E : 912 MSP and N : 673 MSP), EFB1 was subjected to further statistical analysis.

Table 2 The results of reliability and validity of the questionnaire.

Factors	Engineers					Non-engineers				
	Items	FL	CA	CR	AVE	Items	FL	CA	CR	AVE
EFB	EFB1	0.739	0.849	0.922	0.705	EFB1	0.884	0.811	0.928	0.721
	EFB2	0.782				EFB2	0.726			
	EFB3	0.871				EFB3	0.881			
	EFB4	0.910				EFB4	0.894			
	EFB5	0.884				EFB5	0.849			
PBB	PBB1	0.789	0.717	0.828	0.617	PBB1	0.767	0.709	0.824	0.610
	PBB2	0.820				PBB2	0.811			
	PBB3	0.745				PBB3	0.764			

Source: Own data collection.

The modified correlation matrix of the dependencies between EFBs and PBBs is presented in Table 3.

The results of the correlation analysis (see Table 3) show that there are strong to very strong dependencies between the independent variables EFB₃, EFB₄, and EFB₅, which are statistically significant at the 0.1% level. In contrast, the results of paired correlation coefficients did not show

statistically significant dependencies between EFBs and PBBs (except $E: r_{PBB2,EFB1}; r_{PBB3,EFB5}; N: r_{PBB2,EFB4}; r_{PBB3,EFB3}; r_{PBB3,EFB4}; r_{PBB3,EFB5}$).

4.1. Impact of EFBs on the perception of corporate decline as a natural part of business

The verification of LRMs ($LRM_{1/E}$ and $LRM_{1/N}$) with respect to the impact of EFBs on the perception of corporate decline as a natural part of the business (PBB_1) is presented in **Table 4**.

Models $LRM_{1/E}$ and $LRM_{1/N}$ did not demonstrate the impact of ethical factors of business (see **Table 4**; $E/N: EFB_1, \dots, EFB_5$; p -values of the t -test are greater than α on the perception of corporate decline as a natural part of the business (PBB_1). Both LRMs are not statistically significant (see **Table 4**; the p -value of the F -ratio is greater than α). The application of step regression analysis also did not demonstrate the significance of any ethical factors in business.

4.2. Impact of EFBs on the perception of corporate decline as a source of important experience for further entrepreneurship

The results of applying step regression analysis of LRMs ($LRM_{2/E}$ and $LRM_{2/N}$) to the impact of business ethical factors (EFBs) on PBB_2 are presented in **Table 5**.

The $LRM_{2/E}$ model shows that the moral and ethical consequences of a company's owner (manager; see **Table 5**; EFB_1 : p -value = 0.011) positively influence the correct perception of corporate decline as a source of important experience for further entrepreneurship. The $LRM_{2/N}$ model verifies that EFB_4 (see **Table 5**; EFB_4 : p -value = 0.002) positively influenced the correct perception of corporate decline as a source of important experience for further entrepreneurship. The remaining EFBs ($E: EFB_2, \dots, EFB_5$; $N: EFB_1, \dots, EFB_3, EFB_5$) are not statistically significant (see **Table 5**). The linear regression functions based on the results (see **Table 5**) are as follows:

$$LRM_{2/E}: PBB_{2/E} = 2.537 + 0.120 \times EFB_1 + 0.008 \times EFB_2 + \varepsilon_t$$

$$LRM_{2/N}: PBB_{2/N} = 2.126 + 0.124 \times EFB_4 + \varepsilon_t(2)$$

where: PBB_2 - corporate decline is α source of important experience for further entrepreneurship; EFB_1, EFB_2, EFB_4 - ethical factors of business; ε_t - random error.

Homoscedasticity was confirmed (Levene's test: $PBB_{2/E}$: p -value = 0.160; $PBB_{2/N}$: p -value = 0.110). The normal distribution of errors was confirmed for the regression model using the SW test ($PBB_{2/E}$: p -value = 0.131; $PBB_{2/E}$: p -value = 0.198).

Table 3 The dependencies between selected variables (E/N).

Variables	PBB ₁	PBB ₂	PBB ₃	EFB ₁	EFB ₂	EFB ₃	EFB ₄	EFB ₅
EFB ₁	0.030/-0.040	0.093***/0.070	0.032/-0.014	1				
EFB ₂	0.004/-0.002	0.042/0.066	0.063/0.052	0.374*/0.358*	1			
EFB ₃	0.054/0.025	0.065/0.077***	0.088**/0.104**	0.215*/0.148**	0.579*/0.511*	1		
EFB ₄	0.043/0.036	0.078***/0.117**	0.084**/0.106**	0.265*/0.153**	0.581*/0.493*	0.787*/0.797*	1	
EFB ₅	0.062/0.042	0.076***/0.081***	0.096**/0.129**	0.263*/0.162**	0.567*/0.466*	0.711*/0.678*	0.816*/0.734*	1

Note: Statistically significant correlation at the 0.1%*, 1%** , and 5%*** levels. Source: Authors' own data collection.

Table 4 The verification of the impact of EFB indicators on PBB₁ (E/N).

MCC	0.091/0.066	Adj.R ²	0.003/0.003	
R ²	0.008/0.004	SE	1.245/1.190	
ANOVA	df.	SS	MS	F- ratio
Regression	5/5	11.749/4.176	2.350/0.835	1.515/0.590
Residual	906/667	1405.1/945.1	1.551/1.417	p-value
Total	911/672	1416.8/949.3		0.182*/0.708*
IVs	β _i	SE	t-Stat	p-value
Intercept	2.840/3.112	0.128/0.155	22.237/20.135	0.000/0.000
EFB ₁	0.046/-0.057	0.049/0.053	0.947/-1.083	0.344/0.279
EFB ₂	-0.085/-0.015	0.048/0.053	-1.776/-0.277	0.076/0.781
EFB ₃	0.069/-0.019	0.063/0.076	1.100/-0.245	0.272/0.807
EFB ₄	-0.043/0.033	0.075/0.078	-0.565/0.430	0.572/0.668
EFB ₅	0.097/0.049	0.067/0.066	1.435/0.749	0.152/0.454

Note: * No statistical significant LRM on the level of significance = 10%. Source: Own data collection.

Table 5 The verification of the impact of EFB indicators on PBB₂ (E/N).

MCC	0.094/0.117	Adj.R ²	0.007/0.012	
R ²	0.009/0.014	SE	1.210/1.147	
ANOVA	df.	SS	MS	F- ratio
Regression	2/1	11.767/12.249	5.884/12.249	4.020/9.302
Residual	909/671	1330.3/983.520	1.463/1.317	p-value
Total	911/672	1342.0/895.77		0.018*/0.002**
IVs	β _i	SE	t-Stat	p-value
Intercept	2.537/2.126	0.103/0.173	24.700/12.299	0.000/0.000
EFB ₁	0.120/-	0.047/-	2.540/-	0.011/-
EFB ₂	0.008/-	0.037/-	0.218/-	0.827/-
EFB ₄	-/0.124	-/0.040	-/3.050	-/0.002

Note: Statistical significant LRM on the level of significance $\alpha = 5%*$ and $\alpha = 1%**$. Source: Own data collection

4.3. Impact of EFBs on the perception of corporate decline as not being a personal failure of the entrepreneur

The results of applying the step regression analysis of LRMs (LRM_{3/E} and LRM_{3/N}) to the impact of EFBs on the perception of corporate decline as not being a personal failure of the entrepreneur (PBB₃) are shown in **Table 6**.

The LRM_{3/E} and LRM_{3/N} models verify that EFB₅ (see **Table 6**; *E*: EFB₅: *p*-value = 0.004; *N*: EFB₅: *p*-value = 0.000) positively influenced the correct perception of corporate decline as not being an entrepreneur's personal failure. The remaining EFBs (*E*: EFB₁, ..., EFB₄; *N*: EFB₁, ..., EFB₄) are not statistically significant (see **Table 5**).

Table 6 The verification of the impact of EFB indicators on PBB₃ (*E/N*).

MCC	0.096/ 0.134	Adj.R ²	0.008/0.015	
R ²	0.009/ 0.018	SE	1.189/1.178	
ANOVA	df.	SS	MS	F- ratio
Regression	1/2	11.882/16.972	11.882/8.486	8.411/6.111
Residual	910/670	1285.49/ 639.498	1.413/1.388	p-value
Total	911/672	1297.37/ 647.471		0.004*/ 0.002*
IVs	β _i	Standard Error	t-Stat	p-value
Intercept	2.688/ 2.576	0.106/0.141	25.330/ 18.245	0.000/0.000
EFB ₁	-/-0.046	-/0.049	-/-0.946	-/0.345
EFB ₅	0.105/ 0.150	0.036/0.043	2.900/3.476	0.004/0.000

Note: Statistical significant LRM on the level of significance $\alpha = 1\%$. Source: Own data collection.

Engineers perceive the EFB₅ indicator (see **Table 6**; $\beta = 0.150$) as a more significant factor influencing the correct perception of PBB₃, as opposed to nonengineers (see **Table 6**; $\beta = 0.105$). The linear regression functions based on the results (see **Table 6**) are as follows:

$$LRM_{3/E}: PBB_{3E} = 2.688 + 0.105 \times EFB_5 + \varepsilon_t$$

$$LRM_{3/N}: PBB_{3N} = 2.576 - 0.046 \times EFB_1 + 0.150 \times EFB_5 + \varepsilon_t(4)$$

where: PBB₃ - corporate decline does not mean personal failure of the entrepreneur; EFB₁, EFB₅ - ethical factors of business; ε_t - random error.

Homoscedasticity was confirmed (Levene's test: PBB_{3/E}: *p*-value = 0.379; PBB_{3/N}: *p*-value = 0.308). The normal distribution of errors was confirmed for the regression model using the SW test (PBB_{3/E}: *p*-value = 0.217; PBB_{3/N}: *p*-value = 0.142).

5. Discussion

Evaluation of the formulated hypotheses revealed the following: hypotheses H1B_E, H4B_N, H5C_E, and H5C_N were confirmed; hypotheses H1A_E, H1A_N, H2A_E, H2A_N, H3A_E, H3A_N, H4A_E, H4A_N, H5A_E, H5A_N, H1B_N, H2B_E, H2B_N, H3B_E, H3B_N, H4B_E, H5B_E, H5B_N, H1C_E, H1C_N, H2C_E, H2C_N, H3C_E, H3C_N, H4C_E, and H4C_N were rejected. The results are important not only from the point of view of comparing the perceptions and attitudes of two groups of SME entrepreneurs in evaluating ethical principles of business within CSR, but they also provide valuable implied trajectories that are not yet present in the literature.

Comparing the results of two respondent groups (i.e. entrepreneurs-engineers and entrepreneurs-non-engineers) resulted in equal, but also different, evaluations in the following evaluation aspects:

1. Entrepreneurs-engineers demonstrated better knowledge of CSR and its application in companies (EFB₂) compared with entrepreneurs-non-engineers ($E: M = 2.425; N: M = 2.523$).
2. Entrepreneurs-engineers and entrepreneurs-non-engineers alike evaluated other factors of ethical factors of business (EFB₁: the owner [manager] should take into account the moral and ethical consequences of his or her decisions; EFB₃: implementation of CSR enables the company to gain a competitive advantage in the market and higher customer loyalty; EFB₄: CSR enables the company to gain a good reputation and new opportunities in business; EFB₅: CSR enables the company to gain satisfied, loyal, and motivated employees).
3. Entrepreneurs-engineers more intensively presented the notion that the decline of the company is a natural part of the business (PBB₁) compared with entrepreneurs-non-engineers ($E: M = 3.049; N: M = 3.153$).
4. Entrepreneurs-engineers and entrepreneurs-non-engineers alike evaluated other indicators of corporate decline (PBB₂: the decline of the company brings important experience for further entrepreneurship; PBB₃: corporate decline does not mean personal failure of the entrepreneur).
5. Both groups of entrepreneurs held similar opinions that EFBs do not influence the correct perception of corporate decline as a natural part of the business (PBB₁; p -values of F -test $LRM_{1/E}$ and $LRM_{1/N}$ are greater than α).
6. Entrepreneurs-engineers ($n = 912$) confirmed that the ethical and moral consequences of company owners' (managers) decisions (EFB₁) are significant factors that positively influence the correct perception of corporate decline as a source of important experience for further entrepreneurship (PBB₂). On the contrary, entrepreneurs-non-engineers ($n = 673$) considered the EFB₄ indicator to be important (CSR enables the company to gain a good reputation and new opportunities in business). The remaining EFBs did not have a significant impact on PBB₂.
7. The correct perception of corporate decline, PBB₃ (corporate decline does not mean personal failure of the entrepreneur), is influenced by the fact that CSR enables the company to gain satisfied, loyal, and motivated employees (EFB₅). EFB₅ was significant for both respondent groups (engineers/non-engineers), for entrepreneurs-non-engineers to a higher degree ($E: \beta = 0.105/N: \beta = 0.150$). The remaining EFBs did not have a significant effect on PBB₃.

Different assessments between entrepreneurs-engineers and entrepreneurs-non-engineers were noted in the first and third assessment aspects: entrepreneurs-engineers demonstrated a better knowledge of CSR and its enforcement in the company, and more intensively presented the view that business decline is a natural part of business. These differences may also be linked to higher levels of entrepreneurial experience, as well as higher levels of financial literacy related to higher education and to theoretical and practical preparation for business and business management (Brown et al. 2014; Caballero-Morales et al. 2020; Chen et al. 2018; Virglerova et al. 2017). The reasons for the

differences between entrepreneurs-engineers and entrepreneurs-non-engineers may also be related to the absence of building psychological mechanisms affecting attitudes and behaviour of individuals in the application of CSR principles in the company, which is confirmed by the studies of **Farooq et al. (2014)**, **Farooq et al. (2017)**, **Hameed et al. (2016)**, and **Dupont et al. (2013)**. The different perceptions of business decline in both groups of entrepreneurs are also related to the psychological effects of the perceived CSR, as well as to the rationality of CSR processes, as confirmed by **Wang et al. (2020)**. The very issue of corporate decline and its connection to CSR dimensions is little explored. The legislative framework of decline, which differs from country to country in a number of legal aspects, as well as frequent changes, is also coming to the forefront. The legal framework for bankruptcy may not contain sufficient safety mechanisms to prevent its abuse; therefore, business owners' perceptions of bankruptcy may have a different dimension. Fair and functional bankruptcy, especially in times of crises, is essential to help entrepreneurs who need it, but at the same time, not to harm the economy by damaging creditors. In many countries, the debtor undergoes a debt relief process that motivates the entrepreneur to avoid bankruptcy in the future (**Tamari, 1990**).

The identification of a factor positively influencing the correct perception of corporate decline as a source of important experience for further entrepreneurship (for entrepreneurs-engineers, 'ethical and moral consequences of decisions of the company owner [manager]', and for entrepreneurs-non-engineers, 'gaining reputation and new opportunities in business'; point 6) relates to the attributes of different employee organisational identification. This fact fully corresponds with the results of the studies by **Hur et al. (2019)**, **Farooq et al. (2017)**, and **Hameed et al. (2016)**, who stress the need to examine various alternative mechanisms that would help perceived internal as well as external CSR activities build employee identification. This finding is supported by **Rupp and Mallory (2015)** and **Toth and Mura (2014)** via the micro-CSR concept, which extends to industrial/organisational psychology and organisational behaviour. The authors believe that micro-CSR has a strong potential to reveal the impact of CSR on individuals representing different stakeholder groups.

The results of this study justify the need to analyse the ethical aspects of business within micro-CSR at the individual level using multiple categorisation lines. In this research, a categorisation line of different education of owners-business owners (entrepreneur-engineer and entrepreneur-non-engineer) was used. The results of this study will complement micro-CRS concepts with a new yet unexplored dimension of sociodemographic factors when examining the ethical principles of entrepreneurship. The psychological effects of the perceived CSR as well as the rationality of CSR processes in the two examined groups of entrepreneurs were confirmed by the different as well as similar notions and perceptions towards corporate decline by entrepreneurs-engineers and entrepreneurs-non-engineers, which can be very beneficial in revealing the possibilities of better use of CSR strategies.

Wang et al. (2020), **Kahreh et al. (2014)**, and **Papamarcos and Sama (1998)**, who recommend the use of sociodemographic factors such as gender, age, and national culture in their studies, also point to the need to investigate and detect new factors of different perceptions and attitudes of individuals in relation to CSR. **Koirala and Charoensukmongkol (2020)** complement these socioeconomic factors by income aspects, which are considered not only a determinant of individuals' different perceptions and attitudes but also as an accelerator of individuals', teams', and companies' higher performance.

Numerous studies have revealed many reserves of the use of different theoretical CSR frameworks at different levels of analysis (**Srinivasan, 2009**; **Ghaderi et al. 2019**; **Zientara et al. 2015**; **Lee and Park, 2009**). Authors examining available studies over a defined period of time see a fundamental problem in understanding the basic mechanisms linking CSR concepts to results and call for conducting more micro-level CSR research (for both individuals and teams). This would create a basis for the development of new methodological approaches to fill the gaps in the current theoretical frameworks

of CSR (Wang et al. 2020; Aguinis and Glavas, 2012). From the aspect of methodology, it will also be necessary to change the approach from conducting qualitative analyses to quantitative analyses to better examine the relationship between perceived CSR and individual attitudes.

The preference for quantitative analyses in the subsequent examination and development of CSR and micro-CSR concepts will eliminate the problematic interconnectivity of methodological concepts with concepts on other levels of CSR (e.g. in this study, a concept reflecting the existence of individual differences in the perceptions and attitudes of entrepreneurs-engineers and entrepreneurs-non-engineers regarding the decline of the company within the CSR). Linking several methodological concepts will enable not only the identification of differences between the studied variables but also reveal the reasons for their origin and create space for multidisciplinary development of this issue, such as linking the examination of perceptions of attitudes of engineers and nonengineers with psychology, organisational behaviour, and other specific areas (e.g. Vlachos et al. 2014; Gupta, 2017; and others). Chatterji and Toffel (2010), Du et al. (2010), Hull and Rothenberg (2008), and Brammer et al. (2009), among others, also draw attention to the research benefits of this multidisciplinary linking of CSR concepts. Aguinis and Glavas (2012) support these findings by offering a new research programme to integrate different theoretical frameworks and a better understanding of the basic mechanisms and micro-CRS, which will support new concepts of research, measurement, and analytical data approaches.

6. Conclusion

The aim of the study was to examine the impact of selected EFBs on the perception of defined attributes of corporate decline in the SMEs sector. Within the stated aim, differences in the perceptions of selected EFBs in relation to corporate decline were assessed between entrepreneurs-engineers and entrepreneurs-non-engineers. The research carried out among entrepreneurs-engineers and entrepreneurs-non-engineers within the V4 countries in 2019-2020 made it possible to create a high-quality database for evaluating causal relationships in assessing ethical business factors in relation to corporate declines. This is an underexplored area, although the decline of companies is the result of a continuous corporate management process and has a conceptual overlap with the individual dimensions of CSR. Differences were discovered in the perception and attitudes of EFBs with regard to declines depending on the selected socio-demographic characteristics - entrepreneurs' education. Non-engineers' attitudes were more positive for the statement 'I familiar with the concept of corporate social responsibility (CSR) and apply it in my leadership position' than engineers' attitudes. Corporate declines have become part of the business, but their research trajectories have not been analysed at all in CSR concepts, creating a significant research gap. The decline of a company is the result of a longer-term management process of the company manager and is associated with numerous qualitative and quantitative links within the individual processes of operating a company, which have also not been sufficiently examined. Examining the determinants influencing different perceptions (e.g. see LRM2) as well as entrepreneurs' attitudes towards decline within the CSR brings a new, as yet absent, dimension of research in the development of micro-CSR, and will encourage multidisciplinary linking of CSR concepts, as has long been called for by numerous research teams. The results of this study offer ideas for follow-up research aimed at exploring other sociodemographic and economic determinants that may have an impact on different perceptions and attitudes of individuals or groups. This will allow the examination of CSRs from a multilevel perspective, while integrating various theoretical frameworks necessary to understand the basic mechanisms, also within the CSR micro levels, which are least explored and insufficiently interconnected with other CSR concepts. The current pandemic as well as the recent global economic crisis highlight the growing importance of CSR

concepts and place much higher demands on their adaptability, as well as their implementation in the socioeconomic and economic structures of society. The results of this study strongly appeal to the need for further continuous analyses of CSR concepts from a multilevel perspective, which will allow for the integration of different theoretical frameworks and an understanding of the fundamental mechanisms also within the micro-level of CSR. These are still under-researched and not linked to other concepts in SME management.

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