Corporate Social-Environmental Performance versus Financial Performance of Banks in Central and Eastern European Countries

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Abstract: Developed market economies demonstrate a growing interest in issues concerning Corporate Social Responsibility (CSR) and its effects, confirmed by the sizeable theoretical and empirical literature on this issue. A substantial research proves also the positive relation between CSR commitment and financial results of banks in mature markets. However, there is less evidence on CSR existence and its impact in other geographical areas, especially in the research concerning Central and Eastern European Countries (CEEC). In our study we analyze the interrelation between being socially responsible and tangible financial outcome (Corporate Financial Performance—CFP) of banks in the CEEC. The aim is also to empirically verify the relation between efficiency of corporate social-environmental performance (CSP) and the efficiency of CFP for CEEC banks. In our study, we analyze the financial and CSP data of the biggest public banks in CEEC. The researched period is 2012–2016. The empirical part analyzes the interrelation between CSP and CFP based on the panel regression. Moreover, in order to evaluate the CSP efficiency and the CFP efficiency we use the Data Envelopment Analysis (DEA) approach. The empirical results reveal that in case of banks in the Central and Eastern Europe (CEE) region being socially responsible is not reflected in the bottom line. The financial condition of the banks also does not impact the CSR engagement. Our study confirms, however, that CEEC banks with better financial efficiency have higher efficiency of CSR activities. The conclusions may lead to the improved decision-making processes concerning CSR activities and their communication in banks in CEEC.

Keywords: CSR; financial performance; banking; public-interest banks; Central and Eastern Europe; CEE

1. Introduction

Developed market economies demonstrate a growing interest in issues concerning Corporate Social Responsibility (CSR) and its effects, as confirmed by the sizeable theoretical and empirical literature on this issue. A substantial research proves also the positive relation between CSR commitment and financial results of banks in mature markets [1–5]. However, there is less evidence on CSR existence and its impact in other geographical areas, especially in the research concerning Central and Eastern European Countries (CEEC). Generally, the concept and practices concerning CSR are less developed in CEEC. At the same time, most Central and Eastern Europe (CEE) economies grew much faster than those in Western Europe. While the international CSR research grew significantly over the last decade, there is a shortage of research investigating the nature and extent of CSR in CEE

countries, as compared to more developed countries [6]. Market participants in Western European countries have significantly different perspectives on the importance of CSR than those in Central and East European countries, and therefore more research in this field is needed [7–9].

In our study, we try to respond to the needs of the more profound research on CSR effects in CEEC. Banks were chosen as the subject of this research, as empirical studies that are presented in the literature indicate their substantial existing involvement in CSR [1–5,10–13]. We analyze the relation between corporate social-environmental performance (CSP) and the tangible financial outcome (Corporate Financial Performance—CFP) of banks in CEE countries. The opposite relationship is also analyzed: the empirical analysis verifies whether the financial resources and positive outcomes make banks get involved in CSR. The aim is also to empirically analyze the efficiency of the CSP and the efficiency of CFP in CEEC banks. The results of similar empirical analysis in the global perspective, concerning different business sector, give mixed results, however, many of them, especially in Western Europe and in America, tend to show a positive relation between CSR and CFP. However, because of the cultural and historical background of CEEC, as well as their economic situation, we may expect that CEEC will react differently to CSR engagement.

This paper is focused on the CEEC context for the following reasons. According to the authors' best knowledge, empirical studies on CSR engagement influencing CFP in CEEC are almost non-existent. There is also a lack of studies on the CSP efficiency and the CFP efficiency in CEEC banks. CSR research in accounting is definitely more visible within the international academic community than 40 years ago, but it still seems to be a research niche in countries that do not have a long CSR tradition and practice, such as CEE countries [6] (p. 202). While the international CSR research grew significantly over the last decade, there is a shortage of research investigating the nature and extent of CSR in CEE countries, as compared to more developed countries [6] (p. 203), [14] (p. 1).

It is worth underlining that CEEC are getting involved in the CSR activities, the concept of CSR is becoming increasingly popular, both in academic circles through researching its theoretical foundations and empirical consequences, as well as among business practitioners who want to put these theories to use in everyday business practice. Nevertheless, the stage of development of the CSR concept is different from Western countries. It is caused by their economic situation, approach to business, the general wealth of habitants, and other aspects. Moreover, the factors influencing corporate social-environmental performance in CEE countries are still relatively unknown [15]. It is worth mentioning that combinations of state policies, macroeconomic situations, industrial norms, institutions, civil organizations, and community groups result in different perceptions of CSR and different strategic choices [16,17]. We therefore assume that the reaction of the CEEC market to the CSR engagement may also be different.

In our study we analyze the financial and CSP data of the biggest banks in CEEC, listed on the stock exchange. The analyzed period is 2012–2016. The empirical part verifies the interrelation between CSR disclosure and CFP using panel regression. Moreover, in order to evaluate the relation between the CSP efficiency and the CFP efficiency, we use also Data Envelopment Analysis (DEA). The paper is structured as follows: the second section provides the background for the research study; we review the literature concerning heterogeneity of relation between social-environmental performance and corporate financial performance. This part presents theoretical justification of the study, explaining CSR-CFP relation based on theoretical assumptions. This part also includes empirical results of CSP-CFP relation that is presented in the literature. The third section of our paper gives an insight into the issues regarding the CSP-CFP relation in banks and its determinants in CEEC. The fourth section describes the empirical research and contains information on the sample, variables, research model, hypotheses, and tools that are applied in analyzing data and verifying the hypothesis. In the fifth part of this paper, the results of the study are presented. The last section offers the conclusions and suggestions for further research.

The findings are important in better understanding of the CSP-CFP link in CEE countries. The conclusions may lead to the improved decision-making processes concerning CSR commitment

and CSR disclosure by banks. This research contributes to the need for greater clarity and knowledge on the interrelations between CSP and CFP that may shed new light on the CSR issues in banks in CEEC.

2. Heterogeneity of Relation between Corporate Social-Environmental Performance and Financial Performance—Literature Review

Since the 1970's many scientific studies have investigated the theme of CSR and related corporate social-environmental performance. Corporate social responsibility may be defined as "a firm's consideration of, and response to issues beyond the narrow economic, technical, and legal requirements of the firm ... (to) accomplish social benefits along with the traditional economic gains which the firm seeks" [18] (p. 312). In our study, we understand CSR as a philosophy of business running, as an idea of obligation to work for social betterment [19] (p. 4). Corporate social-environmental performance, whereas is the reflection of the general CSR concept in the business practice; it embraces the engagement and outcomes of CSR. As there is generally no binding definition, there is also no consensus regarding CSP measurement. Scholars usually use multidimensional variables capturing a wide range of stakeholder performance aspects, based on the firms' CSR reports [20]. For the needs of this article, following Brammer and Millington [21], we adopt the definition, stating that CSP is a multidimensional construct that encompasses a large and varied range of corporate behavior in relation to its resources, processes, and outputs concerning social responsibility.

Numerous scientific research have focused on the analyses of the possible costs and benefits that would result from the implementation of socially responsible initiatives in order to understand whether such initiatives entail economic and financial loss, or, on the contrary, whether they guarantee the achievement of a competitive advantage [22] (p. 133). A wide range of research has been done trying to find a clear and unequivocal relationship between CSP and CFP, using different theories as well as by means of various qualitative and quantitative analyses. The theories, most commonly used to explain the relationship between CSP and CFP, are following: legitimacy theory, stakeholder theory, and agency theory e.g., [15,16,23–30]. These three major theories suggest that companies should be sustainable and should incorporate corporate sustainability in their core strategic goals because the adoption of social-environmental practices allows for companies to save production costs by reducing environmental risks, while enhancing their relationship with the key stakeholders, which contributes to achieving competitive advantages, and thus improves their corporate financial performance in the long term. This approach states that CSR can be strategically managed to add value, sustainability and competitiveness to the company and seeks to foster CFP through CSP [5]. However, the neoclassical economic theory indicates that through the implementation of CSR policy the company's profitability could be decreased as a result of high production costs linked to environmental innovation [30] (p. 21).

In-depth research of CSP-CFP relation reveals its heterogeneity [31–37]. The direction of the relationship may indicate positive, negative, mixed, or neutral linkages between CSP and financial performance. Separately, it is possible that changes in CSR influence financial performance, or the opposite, which changes in financial performance influence CSR, or there is a synergistic relationship between the two, either positive or negative. Additionally, the interrelation between CSP and CFP may be analyzed from perspective of its causality: prior CSR related to subsequent CFP, prior CFP related to subsequent CSR, and concurrent and across relationship between CSP vs. CFP. Taking into account this heterogeneity of CSP-CFP relation the researchers [38] (pp. 419–424) yield the six possible causal and directional hypotheses:

- with positive direction—social impact hypothesis, available funding hypothesis and positive synergy hypothesis, and
- with negative direction—negative synergy hypothesis, trade-off hypothesis, and managerial opportunism hypothesis.

Social impact hypothesis assumes that CSP contributes to organizational knowledge about an entity's market, social, political, technological, and other environments, and thus, enhances

organizational efficiency [39] (p. 407). All of these "good" effects of these activities are labeled by Waddock and Graves [32] under "good management theory". This "social impact" version of the stakeholder theory assumes that social-environmental performance enhances the satisfaction of various stakeholders and leads to better financial performance. Other scholars [32,39–44] suggest that CSP and CFP are positively associated "but that the causal relationship is from financial to social performance" [38] (p. 423). This approach is the premise of the available funding hypothesis (also called slack resources hypothesis), which means that better financial results potentially effect the availability of slack (financial and other) resources that support companies in investing in social performance activities [32] (p. 312). However, some researchers [32,33] observe a simultaneous and interactive positive relation between CSP and CFP, which is the assumption of the positive synergy hypothesis. This hypothesis supposes bidirectional CSP-CFP relationship, indicating that higher levels of corporate social-environmental performance lead to better financial results, offering the possibility of reinvestment in socially responsible actions.

However, a negative synergy hypothesis is also observed. It indicates a "vicious circle", meaning that greater involvement in socially responsible activities may result in worse financial performance [38] (p. 424). The other negative direction of CSP-CFP relation is assumed by the trade-off hypothesis. It assumes that "a firm's higher levels of social performance may lower its financial performance as compared to competitors" [38] (p. 421). The trade-off hypothesis claims that social accomplishments involve higher costs for an entity, for example, capital expenditures on special equipment, machinery, and real estate that are devoted to social-environmental activities, cost materials, and services by purchase of inputs from suppliers who are socially responsible, higher wages and benefits, as well as additional workers to enhance social performance policies [26] (p. 123). The costs, according to this argument, fall directly to the bottom line, reducing profits and thus shareholder wealth [32] (p. 310). Therefore, the approach that higher levels of financial results may lead to lower levels of social performance and in the opposite direction constitutes the basic assumption of the managerial opportunism hypothesis. According to this hypothesis, the management may try to cash in by reducing social expenditure in order to increase their own short-term private gains. Inversely, with worse financial performance managers may attempt to offset and justify their disappointing results by engaging in conspicuous social programs [38] (p. 423).

It is worth mentioning that regardless the above indicated hypotheses, some theorists [26,45] have a generally negative attitude to the corporate social-financial relationship analysis. They ponder that the relation between corporate social performance and the corporate financial performance disappears when more accurate variables are introduced into econometric models, such as research and development intensity [33]. They also argue that there are so many intervening variables between CSR and CFP that there should be no reason to expect any relationship at all. Additionally, "the measurement problems are still so wide that it alone can mask any real linkage that could exist" [32] (p. 310). This is on the one hand the research limitation, but at the same time, it poses a challenge for further scientific research for greater clarity and knowledge on the social-financial performance relationship.

The in-depth analysis of literature in terms of confirming indicated hypotheses (e.g., [46]) reveals that although many academics tried to empirically analyze the relation between CSR and CFP, the results of their works are neither coherent nor definite, and with no consensus. The results have often been contradictory, even within a given analysis [45] (p. 6). The heterogeneity of social-financial relationship in theoretical background as well in contradictory empirical results in literature stems from many determinants, which we divide into three main factors:

- approach to the research method—it results from the conceptual, operationalization, and methodical differences in the definitions and application of both social and financial performance;
- micro-situation of the company—it results from the differences in company's slack resource, company's financial leverage, profitability and growth, company's research and development expenses, company's capital expenditure, company's board size, company's women on the

board, company's internationalization and networking, company's sustainable business models or sustainable strategy, company's reputation, and also company's market power; and,

- macro-situation of the country (country development level)—it results from a different level of wealth of citizens and their financial capacity to meet basic needs or/and to reflect on sustainable development, it also results from maturity of the financial market, a level of company's industry/sectors' regulation and the company's industry environmental sensitivity.

The differences between the results concerning the interrelationship between CSP and CFP may also result from the various approaches to the understanding and measurement strategies of CSR and CFP themselves [36] (p. 24). There is no common way of the CSR measurement. One approach to judge a company as a socially responsibility is its inclusion into one of the CSR indexes, e.g., Indexes of Corporate Governance (CG), Indexes of Corporate Social Responsibility (CSR), index of Corporate Social Performance (CSP), and GRI-based Disclosure Index Scores, Respect Index. Another way to define that a company is socially responsible is the publication of CSR/sustainability reports and the content of disclosures. Moreover, these different approaches of CSR are combined with various types of CFP indicators that are based on accounting measures (like return of equity, return of assets, return of sales, current ratio, relation debt/equity, relation EBIT to interest expense, total assets, EPS) and on market-based measures (like Alpha, Beta, relation price to earnings, capital adequacy ratio, mean abnormal returns, risk adjusted return, stock price, relation market value to book value). A combination of these different approaches of CSR and CFP results in multitude of diverse applications and the results of empirical analyses [46] (p. 499).

Furthermore, in CSP-CFP research studies, there are different micro- and macroeconomic conditions, which influence both the financial results and the possibility of investing CSR activity. While many of the microeconomic factors can be influenced by an entity, there are a number of macroeconomic factors that limit the impact of CSR activity on company's operational and financial performance. The differences are particularly determined by the level of country's development.

3. CSP-CFP Relation in Banks and Its Determinants in CEEC

The heterogeneity and ambiguity of the relationship between CSR and CFP, as indicated above, are also present in the empirical research in reference to banks. We analyzed the CSP-CFP relationship in the banking sector, conducting the literature review from various countries in the world, presented in GoogleScholar, Ebsco, and Proquest articles. Based on the most frequently cited publications we try to analyze the relation between corporate social-environmental performance and corporate financial performance in banks. The results of the literature review, carried out for the purposes of this article, based on [1–4,22,47–52] and involving more than 1000 banks in total, do not allow for a generally valid statement, relating to the existence and direction of the link between the socio-economic activity of banks. The results confirm the heterogeneity, observed also in other sectors. The obtain results show a positive, neutral, and negative nature, what might deny environmental sensitivity in the banking industry. On the other hand, the study of literature review reveals a relationship between the origin of the surveyed banks and their social-financial performance. The impact of CSR on improvement in bank performance is observed in countries like the United States (US), but also in Ghana and Jordan. The positive impact of CSR on the bank's performance was also observed by Simpson and Kohers [1], who based their research on 385 largest banks in the world (therefore, banks mainly from developed markets) and demonstrated a strong relationship that was observed in the 1990s. This trend was confirmed by studies conducted 10 years later by Meng-Wen and Chung-Hua [4] for 162 banks from 22 countries, also showing a positive CSP-CFP relationship. These researches indicate a positive repercussion of CSR engagement disclosed by banks on their financial performance. However, there is some part of research that shows a neutral or negative CSP-CFP relationship. This is evidenced, for example, by the study results of banks in Kenya [50], Turkey [51], Bangladesh [49], Hungary [10], and Italy [22], as well as by world-wide research conducted by Cheung and Mak [3], and Chih et al. [13]. According to them, in the banking sector, CSP-CFP link cannot be regarded as unambiguous.

Moreover, our literature review confirmed the statement of Manrique and Martí-Ballester [30] (p. 1), that the relationship between corporate environmental performance and corporate financial performance has been extensively studied in developed countries, and has received less attention in developing countries, in particular with respect to the banking sector. To our knowledge, this kind of studies is almost in-existent. The research of Semih Yildirim and Philippatos [52] focuses on the efficiency of banks from transition economies of Europe and embraces the period of 1993–2000, whereas Djalilov and Holscher [11] analyse the determinants of CSR in the banking sector of the transition countries of Central and Eastern Europe (CEE), covering the period of 2000–2012, however without analyzing the interrelation between CSP and CFP. No recent studies concerning the analyzed topic have been found while doing the literature review.

Although CSR is often regarded as a universal concept, it should be highlighted that its actual meaning changes over time and differs between regions due to varying socio-political and cultural circumstances [53] (p. 296). This is due to the fact that the economic conditions, cultural inheritance, political grounds and government decisions influence the expectations of the users in general and the stakeholders' in particular, regarding the extent and the domains of the CSR. The history and tradition of the CSR engagement is also different worldwide. Therefore, CSR is context and territory dependent [54].

The tradition of CSR in some Western countries can be dated back after the World War II [55]) and in some nations even further back to the 19th century. Corporate social responsibility accelerated in the 1990s and 2000s as a response to growth in wealth and business profit. Typically American ideology of CSR associates CSR engagement as entirely voluntary. This understanding of CSR is questioned by the intervention of the state, union agreements, implicit cultural and institutional norms and other non-explicit behaviours influencing the CSR engagement. Matten and Moon [56,57] approach to CSR recognizes that not all CSR is entirely voluntary; especially in the European Union (EU), some parts of CSR are highly integrated in institutional norms, values and (regulated) legislation (more e.g., [58]). The differences in perception of CSR between Western and CEE countries may result from the differences in the institutional framework indicated by Ericson [59] and Kornai [60], concerning mainly the socialist legacy and economic development level and growth rate [61]. While comparing Western countries with CEEC, when considering their background and approach to CSR, it can be stated that:

1. CEEC are characterized by fundamental and comprehensive changes in the formal and informal rules of the game which affect firms and managers [62];
2. CEEC undergo the rapid economic development that is associated with systematic changes in legal, political, and cultural institutions;
3. CEEC are desirous of transforming their economy and business practices marked by the inheritance of socialism in order to join the developed market democracies [63];
4. Western Europe represents the main reference for CEEC because of the leading role of companies originating from Western Europe in foreign direct investments in those countries [63];
5. CEEC have a modernist values system that emphasizes individual achievement, materialism, deference to rational-legal authority, and maximization of economic growth goals [64], whereas Western Europe, with generally higher levels of economic security and stability, expresses commonly higher concern for the environment, social welfare, sustainability;
6. CSR engagement is likely to have higher importance in Western European countries, given their more developed legal and political institutions, aimed at eliciting responsible corporate conduct as well as high levels of economic and human capital dedicated to social responsibility popularization (e.g., [16,32]). In CEEC countries financial considerations take higher precedence over CSR activities [61,65]; and,

7.　　CSR should not be considered as the privilege of developed market economies; many sorts of responsible practices do exist in Central and Eastern European organizations and can be considered as the results of a process of institutional evolution [63] (p. 276).

According to the research conducted by Centrum CSR [66], the recognition and level of implementation of principles of corporate social responsibility was "most likely still low among corporations in CEE region". This is due to many limitations: different obstacles of CSR implementation and communication, such as: negative image of business, dysfunctional legal background, corruption, weakness of the third sector, difficult economic situation of many companies, the lack of an ethics and ethical standards, and difficult situation on the labor market [67]. The main barriers to CSR development in CEEC may also include the lack of qualified staff, inability to see the direct effects for business, poor incentives from the state administration, insufficient time, and limited financial resources [68,69].

Concluding, historical circumstances, cultural differences, as well as the above mentioned institutional and economic discrepancies between CEE and more rich and developed markets are likely to result in contrasting perspectives on the relative importance of social, economic, and environmental corporate responsibilities. Similarly, the reaction of the market and individuals that are dealing with the companies engaged into CSR may be different. The sensibility of clients to the CSR engagement of companies, and in our case—banks—may be different. This may influence the efficiency of CSR engagement that is disclosed by companies.

4. Empirical Research

Banks get engaged in the social and environmental activities and they attempt to communicate on that. The corporate social-environmental performance may be measured and demonstrated in different ways. One is the disclosure of information concerning social and environmental activities in the separated CSR reports, sustainability reports, or in a form of Integrated Reporting. Another option is the special tag on the companies' website. Many companies include also information concerning CSR engagement in the annual report. All of these sources were used to gather the data necessary in our analysis. They were analyzed in the interrelation to the CFP data.

4.1. Sample

Our sample contains the data of the 20 biggest public banks in CEEC in 2016 (according to Global Finance). The CEEC countries in this study are consistent with the classification proposed by the Organisation for Economic Co-operation and Development (OECD) [70]. The financial data has been obtained from audited consolidated financial statements that were derived from the EMIS database. To the great extent the accounting-based measures have been used because the audited accounting data is likely to be authentic and credible and is not influenced by market perceptions or speculations, and is thus considered to be less noisy in comparison to market based indicators, like stock returns, share prices, etc. [71]. The selection of the sample is abstracted from nationality and was dictated only by the common geographical denominator— CEE region. It came out in this way that in the sample there is a numerical advantage of banks from Poland: among 20 top banks in CEEC there were 11 banks from Poland, two banks from Romania, two from Slovakia, one from Bulgaria, one from Hungary, one from Czech Republic, one from Estonia, and one from Lithuania. All of the banks in the sample were quoted on the stock exchange. The analyzed period is 2012–2016. In this way, the resulting study sample consisted of 100 observations. For the first three models, there was a complete set of data available for all the 20 banks for all the five years analyzed. For the last two models, concerning DEA analysis, it was necessary to exclude form the sample 14 observations (out of 100), because of the lack of the necessary data.

4.2. Variables

4.2.1. CSP Variable

　　CSP is difficult to measure. One of the approaches defines socially responsible company as the one that communicates its CSR engagement disclosing CSR/sustainable report. We take two kinds of variables signaling socially responsible company: dummy variable, which is equal 1 if bank publishes CSR report. The second variable is concerned with the intensity of CSR disclosure that we calculate creating the "Level of CSR disclosure indicator". It is created based on the content analysis. It is a basic research method applied in a semi-objective approach. Following the division of research methods that are applied to the analysis of narratives in annual reports proposed by Beattie, McInnes, and Fearnley [72] (p. 209), it falls into the category of disclosure index studies and is similar to the indicator that was created by Dyduch and Krasodomska [15]. The indicator that we propose embraces the analysis of data accessible in the whole period of analysis, 2012–2016, for all of the 20 top banks in CEEC of our sample. We analyze the information disclosed by those banks in 21 different areas.

　　The items to be analyzed were determined according to the Directive 2014/95/EU [73] and ISO 26,000 [74] and covered:

1.　Corporate organizational governance
2.　Human rights
3.　Labor practices
4.　Environmental activities
5.　Fair operating practices
6.　Clients issues
7.　Community involvement
8.　Business model
9.　Risk management
10.　Efficiency in energy use/use of renewable energy
11.　CO_2 emission
12.　Water use
13.　Air pollution
14.　Gender equality/diversity
15.　Working conditions
16.　Health and safety at work
17.　The dialogue with local communities/stakeholders
18.　Corruption and bribery issues
19.　Codes of ethics
20.　Values
21.　Procedures against money laundering and terrorism financing (AML/CTF).

　　In order to create the indicator the analyzed areas are given weights according to the way/intensity of the information disclosure. We conducted content analysis following the approach proposed by Dumitru et al. [69] and applied also by Dyduch and Krasodomska [15], which is based on the following scoring system:

0—no presentation;
1—narrative presentation;
2—presentation using KPIs or other numerical data; and,
3 (1 + 2)—narrative and numerical presentation, at the same time.

　　In order to gather the information we analyze: the CSR/sustainability reports of banks, annual reports, and the websites of banks. We analyzed all together 40 CSR/sustainability reports

available for the period 2012–2016, and 100 annual reports of banks in our sample. Every year 16 banks disclose CSR information in their annual report; or directly in notes to financial statement or in the management commentary. We analyzed also the website content regarding CSR. A special webtag concerning CSR activities is run by 18 out 20 banks. Based on the approach described above, a combined indicator of CSR disclosure was developed. It was called "Level of CSR disclosure indicator". It assesses the overall extent and quality of social, environmental, and ethical disclosures.

Another approach to measure CSR engagement that we adopt in our research is the technical efficiency of the bank's management of CSR activities. We use DEA model to measure such efficiency.

4.2.2. Financial Performance Measures Variable

Following the existing studies, we selected to use return on assets (ROA) and return on equity (ROE) to proxy banking performances. We applied the pre-tax profit to calculate the profitability indicator ratios in order to avoid the effects from differing cross-country tax policies.

4.3. Research Model

4.3.1. The First Part of Analysis—the Interrelation CSP—CFP

The first model intends to examine the impact of corporate social-environmental performance (CSP—independent variable) on financial performance (CFP—dependent variable). Based on the literature review and the assumption that CEEC may react differently than many developed economies on the CSR of banks, we verify a hypothesis, stating:

Hypothesis 1 (*H1*): Social-environmental performance of banks in CEEC does not influence their financial performance.

This research hypothesis is a negation of "social impact hypothesis", as characterized in part 2 of this paper.

To verify the research hypothesis about the impact of CSR on the change of financial result we used an econometric model:

$$CFP_{j,t} = \alpha + \theta \cdot CSR_{j,t} + \sum_{i=1}^{I} \beta_i \cdot X_{i,t} + u_j + \varepsilon_{j,t} \tag{1}$$

where CFP_t means the change of financial performance at time t (or financial performance where it is justified), $X_{i,t}$ is control variable at the same time t and CSR_t (corporate social responsibility) is the variable indicating fact of publication the *CSR* report or variable indicating the level of disclosure of *CSR* managed by a bank, $\varepsilon_{j,t}$—is error term, i.e., random variable with zero expected value and constant variance.

The second model intends to examine the impact of financial results on the corporate social-environmental performance. In this way we verify our second hypothesis:

Hypothesis 2 (*H2*): Corporate financial performance of banks in CEEC influences social-environmental performance positively.

This research hypothesis refers to "available funding hypothesis" (called also "slack resources hypothesis").

In order to verify the second research hypothesis we estimated binary logistic regression:

$$\pi_j = \Pr(CSP_{j,t} = 1 | X_i = x_i)$$
$$\log\left(\frac{\pi_j}{1-\pi_j}\right) = \alpha + \theta \cdot CFP_{j,t} + \sum_{i=1}^{I} \beta_i \cdot X_{i,t} + u_j + \xi_{j,t}, \tag{2}$$

where $CSP_{j,t}$ is response variable, equal 1 when bank j published CSR report and random error variable is distributed according to a standard logistic distribution $\xi_{j,t} \sim Logit(0,1)$. Model (2) was estimated using GLS, where $Var(\xi_{j,t}) = \frac{1}{n_{j,t}\pi_j(1-\pi_j)}$. In case of other CSP proxies, we estimate model:

$$CSR_t = \alpha + \theta \cdot CFP_t + \sum_{i=1}^{I} \beta_i \cdot X_{i,t} + \varepsilon_t \tag{3}$$

4.3.2. The Second Part of the Analysis—DEA Efficiency

For the evaluation of efficiency concerning the corporate social-environmental performance and the efficiency of financial performance for selected Central and Eastern European banks Data Envelopment Analysis was used in this study. This is a nonparametric method proposed in 1978 by Charnes, Cooper, and Rhodes [75] to evaluate the efficiency of the conversion of examined object inputs into its outputs. The evaluation of object's efficiency is carried out by measuring the distance of the object from the so-called efficiency frontier, which is created on the basis of the best (i.e., efficient) objects in the group, which are called benchmarks. DEA is indicated in the literature as the appropriate CSP efficiency measurement (e.g., [32,76–78]. This method was used e.g., as a measurement tool of social efficiency of Italian banks [79].

Currently, under the name of DEA, there is hidden a group of many more or less sophisticated models that allow for an efficiency evaluation of various objects. In the presented research, the BBC—SE (super-efficiency) model [80] is used:

$$
\begin{aligned}
&\min\theta \\
&p.w. \\
&\quad \sum_{\substack{k=1 \\ k \neq e}}^{K} \lambda_k O_{jk} \geq O_{je} \\
&\quad \sum_{\substack{k=1 \\ k \neq e}}^{K} \lambda_k I_{ik} \leq \theta \cdot I_{ie} \\
&\quad \vdots \\
&\quad \sum_{i=1}^{K} \lambda_i = 1 \\
&\quad \lambda_j \geq 0, k = 1, \dots, K
\end{aligned}
\tag{4}
$$

where O and I are variables describing the examined banks, which are divided into inputs and outputs (such division is necessary in assessing objects efficiency using DEA models). The decision to use the model with super-efficiency was dictated by the fact that models without super-efficiency do not allow for the discrimination of the efficient objects (all of these objects have an efficiency ratio equal to 100%). In the case of super-efficiency models, the efficient objects can achieve efficiency ratios that are greater than 100%.

5. Results of the Analysis

5.1. Impact of CSP on CFP

First model is constructed for CSP variable as dummy variable that indicates fact of publishing CSR report. In order to choose the best model for data grouped into the 20 biggest banks that were observed in the period of 2012–2016 we ran several tests. We wanted to check if OLS regression is better than panel data regression. The results of the tests are presented in Tables 1 and 2.

Table 1. Breusch and Pagan Lagrangian multiplier test for random effects, where Corporate Financial Performance (CFP)$_{j,t}$ = b·Corporate Social Responsibility (CSR) $_{j,t}$ + u$_j$ + e$_{j,t}$.

Variable	Var	Sqrt (Var)
ROA	0.810911	0.900506
e	0.5098767	0.7140565
u	0.3664364	0.6053399
Test Var(u) = 0	chibar^2(01) = 22.26	Prob > chibar^2 = 0.0000
ROE	51.81077	7.19797
E	31.7014	5.630399
U	25.46988	5.046769
Test Var(u) = 0	chibar^2(01) = 22.42	Prob > chibar^2 = 0.0000

j means the surveyed banks.

The descriptive statistics, concerning ROA and ROE, which allow for justifying significant discrepancies in variance assessments in the models for these variables, have been included in the Appendix A.

Breusch and Pagan Lagrangian [81] multiplier test (Table 1) for random effects reject the null hypothesis, that OLS residuals do not contain individual specific error components. The results of the test presented in Table 2 allow us to conclude that random effect regression is better than fixed effect panel regression.

Table 2. Hausman test enabling the choice between fixed effect and random effect panel data regression.

	ROA	ROE
chi^2(01)= (b − B)′[(V$_b$ − V$_B$)$^{-1}$](b − B)=	0.13	0.06
Prob > chi^2=	0.7196	0.8130

Test: H0: difference in coefficients not systematic.

Based on Hausman test we conclude that random effect regression is better than fixed effect regression in both cases. Because panel data regression with random effect is the best model for our data we estimated the right model. Next, the analysis was made based on information about areas of CSR disclosure and the intensity of the information that is presented by banks (Level of CSR disclosure indicator). Because the result of Breusch—Pagan and Hausman tests were very similar we use the level of CSR disclosure indicator as independent variable (Table 3).

Table 3. Regression on financial performance: random effect panel data regression for fact of publishing CSR report & for number of areas of CSR disclosure as independent variables.

		Publishing CSR Report as Independent Variable Panel Data Regression on		No of Areas of CSR as Independent Variable Panel Data Regression on	
		ROA	ROE	ROA	ROE
Coefficients (*p* value)	θ	0.013606 (0.955)	0.481333 (0.802)	−0.0028814 (0.682)	−0.0031789 (0.955)
	α	1.049382 (0.000)	9.246764 (0.000)	1.1233 (0.000)	9.484271 (0.000)
R^2 within=		0.0010	0.0016	0.0015	0.0000
R^2 between=		0.0038	0.0002	0.0039	0.0038
R^2 overall=		0.0003	0.0004	0.0016	0.0003
rho (fraction of variance due to u$_j$)		0.4182	0.4455	0.4183	0.4439

The fact of publishing CSR report is not a significant variable for neither ROA nor ROE. Additionally, we checked lagged CSP variable. In case of lagged variable CSPt-1 (publishing of CSR report one year earlier) the results were very similar. In case of number of CSR areas as independent variable, we also cannot confirm the relationship between CSP and CFP.

In order to deepen the analysis, as the last step in verifying our research hypothesis, we ran the testing procedure concerning the relation between technical efficiency of CSP and efficiency of financial performance. In our study we calculated both: CSP efficiency as well as CFP efficiency. We chose the following inputs for CSP efficiency: number of employees, number of clients and value of deposits. We assume that smaller banks with fewer employees must incur relatively greater effort to introduce CSP. As the output we chose: Level of CSR disclosure indicator and signaling CSR variable—which summarize: facts of publishing CSR report, maintaining a website dedicated to CSR, being listed on the CSR index.

For CFP efficiency as input we chose: value of assets, book value and long term debts. As the output we chose: ROA, ROE and revenues. Following this approach, we assumed that a bank that achieves higher rates of return and higher revenues with smaller liabilities and smaller assets is more efficient. Due to the lack of observation we had to remove a part of banks from the analysis (14 observations out of 100 total observations). Detailed results are presented in Appendix A.

The results of the test presented in Table 4 allow us to conclude that random effect regression is better than simple OLS regression in both cases: Breusch and Pagan Lagrangian multiplier for random effects reject the null hypothesis, that OLS residuals do not contain individual specific error components.

Table 4. Breusch and Pagan Lagrangian multiplier test for random effects, where $CFP_{j,t} = b \cdot CSR_{j,t} + u_j + e_{j,t}$.

Variable	Var	Sqrt (Var)
ROA	0.6207639	0.7878857
E	0.3464386	0.5885903
U	0.2774967	0.5267796
Test Var(u) = 0	chibar^2(01) = 26.00 Prob > chibar^2 = 0.0000	
ROE	38.41623	6.198083
E	21.56366	4.643669
U	19.11142	4.371661
Test Var(u) = 0	chibar^2(01) = 20.85 Prob > chibar^2 = 0.0000	

j means the surveyed banks.

Based on Hausman test (Table 5) we conclude that random effect regression is better than fixed effect regression in both cases.

Table 5. Hausman test enabling the choice between fixed effect and random effect panel data regression.

	ROA	ROE
chi^2(01)= $(b - B)'[(V_b - V_B)^{-1}](b - B)=$	1.93	0.88
Prob > chi^2=	0.1643	0.3469

Test: H0: difference in coefficients not systematic.

Table 6 contains results of regression for DEA efficiency of CSP as independent variable. In both cases DEA efficiency score of CSP activities have significant parameter.

Table 6. Corporate social-environmental performance (CSP) efficiency as explanatory variable for financial performance.

		Panel Data Regression on ROA	**Panel Data Regression on ROE**
Coefficients (*p* value)	θ	0.2458476 (0.036)	2.246911 (0.015)
	α	0.9556193 (0.000)	8.365326 (0.000)
R^2 within=		0.0866	0.0944
R^2 between=		0.0090	0.0000
R^2 overall=		0.0120	0.0338
rho (fraction of variance due to uj)		0.4447	0.4698

Gathering all of the results based on the panel regression for CSR disclosure indicator, we may accept the hypothesis number 1.

However, in the situation of using the DEA method, conducting an in-depth analysis, when the technical efficiency of DEA was applied in order to explain the CSR engagement, we confirm a statistically significant relationship between CSP effectiveness and CFP effectiveness in CEEC banks of our sample.

5.2. Impact of CFP on CSP

The next step of our empirical research is referred to testing if there is an opposite relationship i.e., if financial performance is significant variable for CSP. Table 7 contains the result of estimating model (2), using panel regression, and model (3) for number of areas of CSR disclosure as dependent variable (Level of CSR disclosure indicator).

Table 7. Random effect logistic regression for panel data on publishing CSR report and panel data regression for number of areas of CSR disclosure as dependent variable.

		ROA as Independent Variable. Regression on		**ROE as Independent Variable. Regression on**	
		Publishing CSR report	Number of areas of CSR	Publishing CSR report	Number of areas of CSR
Coefficients (*p* value)	θ	0.0544203 (0.927)	−0.6103291 (0.682)	0.4813331 (0.802)	−0.0117969 (0.950)
	α	−3.282272 (0.051)	24.71563 (0.000)	9.246764 (0.000)	24.18338 (0.000)
R^2 within=			0.0015		0.000
R^2 between=			0.0039		0.0038
R^2 overall=			0.0016		0.0003
rho (fraction of variance due to u_j)			0.4197		0.4193
Wald chi^2=		0.010		0.05	
Prob > chi^2=		0.9271		0.8273	
sigma(u)=		6.055874		6.085121	
LR test of rho = 0 (*p*-value)		0.000		0.000	

Probability of publishing CSR report is not significantly greater when we take into account neither ROA nor ROE. For lagged variable ROAt-1 or ROEt-1, the results are very similar. We estimated random effect logit regression because in case of fixed effect logit regression model multiple positive

outcomes within groups that are encountered and 15 groups (59 observations) are dropped because of all positive or all negative outcomes.

In order to verify the second research hypothesis we estimated also model (3) for number of areas of CSR disclosure as dependent variable (level of CSR disclosure indicator). As we expected, regressions for model (2) and (3) are similar—the only difference appears in values of coefficient. As a result of our analysis we deduce that we cannot fully confirm relationship between CFP and CSP. Therefore, we should reject the hypothesis number 2.

As the next step, we calculated DEA efficiency for both CSR activities and CFP and we checked the relationship between those variables. Table 8 contains the results of the estimation of panel regression concerning CSP dependence on CFP.

Table 8. Panel data regression efficiency CSP—CFP for CSP efficiency as dependent variable.

		Regression for CFP Efficiency as Independent Variable
Coefficients (*p* value)	θ	3.260672 (0.000)
	α	−2.197074 (0.000)
R^2 within=		0.8760
R^2 between=		0.6640
R^2 overall=		0.7289
rho (fraction of variance due to u_j)		0.60723

The important observation derived from DEA analysis is that banks with better financial efficiency have higher efficiency of CSR activities. Therefore, this result can be interpreted as a confirmation of the fact that well-managed CEEC banks are also successful in the effective management of CSR activities.

6. Conclusions

Despite many studies trying to find a clear social-environmental-financial relationship using different theories as well as by means of various qualitative and quantitative analyzes, one may observe the heterogeneity of this relation. According to the literature research, the multidirectional causality of the CSP-CFP relation is enhanced by other determinants, like the approach to the research method, micro-situation of the companies, and macro-economic situation of the country, including institutional factors, the level of development, overall economic conditions, etc. In conclusion, the results of this study confirm that the driving forces of CSR vary under different institutional contexts. Generally, the concept and practices concerning CSR are less developed in CEEC. On the basis of the comparative analysis, we conclude that there is a significant difference between CEE countries and many Western economies regarding CSR issues.

Our article makes several contributions to the existing theory and research. Firstly, considering the institutional, cultural, economic characteristics of CEEC, and their business environment, we have challenged the prevailing theories existing in regards to developed markets, supporting the presence of a positive impact of CSP on CFP, as well as a positive impact of CFP on CSP. In our empirical research we analyze the interrelation between being socially responsible and tangible financial outcome of banks in the CEE countries. This study attempts also to check whether having financial resources influences the involvement in the socially responsible actions and reporting on that. We also empirically verify the efficiency of CSP and the efficiency of CFP for CEEC banks.

Our empirical analysis confirms that there is no impact of CSP on CFP in the biggest 20 public banks of CEEC. The statistical results of the research reveal that the publication of a CSR report does not influence the changes in the banks' financial results; panel regressions have not shown that there is such a link. These results fall in line with the results obtained by Strouhal et al. [82] that empirically

proved no relationship between the disclosure of standalone CSR reports and financial performance, however they conducted their research only in two countries of CEE e.g., Czech Republic and Estonia. The results that were obtained from the first part of the research highlight that the CSR activities do not impact the bottom line of the banks in CEEC or at least that the effects are not seen in the following year. We assume, however, that the factor of time is important, we may expect that the reaction of the public on the CSR activities may be delayed. In our study, we also find that CFP does not impact CSP. The results of our study are contrary to those achieved e.g., by Djalilov et al. [12], as they demonstrated that banks with a lower level of profitability are more interested in social projects engagement.

Based on the empirical results, we may conclude that market and the public in CEEC are reluctant in considering the CSP importance and that the CSP engagement is not rewarded in this region. It may also indicate that CSR efforts in CEEC are not focused properly, or they are not communicated effectively. The lack of reaction of the market to the CSP may exist due to many factors, like the cultural and historical background of CEEC, the general wealth of citizens, the rapid economic development associated with systematic changes in legal, political, and cultural environment, the lack of widely spread and used in practice ethics and ethical standards, difficult economic situation of some banks, and other different obstacles relating to CSR implementation, measurement, and communication. These limitations entitle us to assume that CEEC market is not able to perceive social-environmental performance as a competitive advantage, but rather as additional costs of social engagement and environmental innovation, which decreases the profitability of an entity. Nonetheless, for the banking industry, CSR engagement may be an instrument of accountability and transparency.

The interesting results are obtained while analyzing the DEA approach to the analysis of the top 20 banks of CEEC. Apart from being interested in finding a causal relationship CSP versus CFP we were also focused on the verification of a symptomatic relationship: whether banks engage into CSR activities to signal good financial condition and the other way, if banks in good financial condition they are more likely to undertake CSR activities. The cause of both processes may be the same—which has been confirmed by the econometric analysis via DEA models approach. The positive relationship between CSR effectiveness and the financial result may be the result of a stronger organizational culture of the bank and more effective methods of managing the organization. Thus, a good financial result does not have to be directly related to the corporate social-environmental performance, but may be the result of generally good and effective organization management. The relationship was confirmed when we applied complex measures of CSP effectiveness (DEA models), and not when we took simple indicators (like the publication of the CSR report)—the approach that is commonly used in the literature. We can also clearly observe the relations between the efficiency in financial management and the efficiency of CSP. Therefore, those banks that are managed in the efficient way are also able to efficiently manage their CSR engagement. In that case, the efficient CSR engagement is the one that is signaling the corporate and social engagement while adopting smaller inputs (fewer employees, lower value of deposits) than competitors. The efficient financial management concerns banks that while using limited resources (banks with lower assets, debts, lower deposits) are able to get high financial scores, like ROA and ROE, compared to their competitors. The obtained results confirm the signaling role of CSR as a variable indicating "good brand" and as an effect creating positive financial outcomes. Therefore, in order to get the tangible outcomes of CSP it is necessary not only to disclose the CSR report, but to be efficient in the CSP management. This determines the financial success of social and environment commitment and constitutes the potential sources of the long-term value creation in the sustainable business models [83] of banks.

The present study is subject to certain limitations. Firstly, the sample size is relatively small, however it covers the biggest 20 public banks in the financial sector in CEEC in 2012–2016. For the first three models that are applied in this study, there was a full data available for all the banks in the sample, for the whole analyzed period. However, for DEA model (the last two models of the in-depth analysis) we had to eliminate from the sample 14 observation out of all 100 due to the lack of selected information needed to construct a complex variables requiring specific and detailed information.

Secondly, the time frame of the research is fairly short (i.e., five years) and to observe the effects of the CSP engagement would require more time. The problematic issue is also the fact that the banks in CEEC undergo dynamic changes and as an effect they e.g., go through processes of mergers and acquisitions. Therefore, the analysis and the interpretation of the data in this situations is very difficult. The access to the narrative information is also problematic, there are no data bases concerning the CSP information disclosed, all data must be collected manually. Moreover, some of the banks publish their CSR and financial data exclusively in their mother-tongue. There are also different currencies that are used in different CEEC that need to be brought to one common currency to make data comparable. All of this makes the research very complex and time consuming, and may also lead to some errors.

Therefore, the results of this study should be interpreted in light of above indicated limitations. While drawing conclusions, it is also important to consider the predominance of the Polish banks in the sample, that are relatively big, therefore they have a numerous advantage in the representation in the analyzed sample. The directions of future research could be an attempt to overcome or lower those limitations. The cross-national comparison among separated CEE countries could also be valuable to better understand the specifics of financial market in this region and the resulting CSR-attitudes and impacts in particular CEE countries. Future research could also focus on the analysis of the CSP-CFP relationship in much longer lag period, as the tangible effects of CSR engagement may, if ever, occur after many years and in effect of a very focused CSR engagement that is supported by its effective communication.

We believe that this study enriches the scarce research on corporate social-environmental performance in CEEC. Without any doubt, the integration in the global perspective will force the CEEC banks to improve efficiency and adopt certain standards and approaches to business running, that are common in more developed and mature markets. It is important to be aware of their impact and to try to boost them, if one decides to get involved. In case of CSR, it is necessary to properly implement this concept and to effectively communicate on that, in order to reach the clients and other stakeholders. As for now, our research confirms that CSR engagement and its disclosure is a great challenge for the bank sector in CEE countries.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. DEA CSP-CFP Efficiency Basis on BCC-SE Model Input Oriented.

Bank	Year	CSR Efficiency Score	CFP Efficiency Score
Fibank AD	2016	N/D	N/D
Komercni Banka a.s.	2016	0.0612	0.3643
SwedbankEstonia	2016	5.1093	2.8891
Šiaulių bankas	2016	N/D	N/D
PKO BP S.A.	2016	0.0108	0.6624
BZ WBK S.A.	2016	0.0744	0.6795
Bank Pekao S.A.	2016	0.0275	0.5304
Mbank S.A.	2016	0.1326	0.4989
ING BSK S.A.	2016	0.0651	0.5188
Alior Bank S.A.	2016	0.0538	0.652
BGŻ BNP Paribas S.A.	2016	0.1067	0.5475
Bank Millennium S.A.	2016	0.5715	0.5058
Getin Noble Bank S.A.	2016	0.1117	0.5876
Bank Handlowy w Warszawie S.A.	2016	0.2286	0.5779
Bank BPH S.A.	2016	N/D	N/D

Table A1. *Cont.*

Bank	Year	CSR Efficiency Score	CFP Efficiency Score
Banca Transilvania SA	2016	N/D	N/D
BRD Groupe Societe Generale SA	2016	0.0748	0.5184
Vseobecna uverova banka, a.s.	2016	0.5868	0.5039
Tatra bank a.s.	2016	N/D	N/D
OTP Bank Nyrt.	2016	N/D	N/D
Fibank AD	2015	N/D	N/D
Komercni Banka a.s.	2015	0.1568	0.3418
SwedbankEstonia	2015	1.2571	0.7012
Šiaulių bankas	2015	N/D	N/D
PKO BP S.A.	2015	0.0182	0.65
BZ WBK S.A.	2015	0.1917	0.7285
Bank Pekao S.A.	2015	0.0278	0.5395
Mbank S.A.	2015	0.148	0.5161
ING BSK S.A.	2015	0.0901	0.4761
Alior Bank S.A.	2015	0.088	0.9123
BGŻ BNP Paribas S.A.	2015	0.1328	0.4283
Bank Millennium S.A.	2015	0.3727	0.479
Getin Noble Bank S.A.	2015	0.097	0.6325
Bank Handlowy w Warszawie S.A.	2015	0.2187	0.5033
Bank BPH S.A.	2015	N/D	N/D
Banca Transilvania SA	2015	0.0751	1
BRD Groupe Societe Generale SA	2015	0.0767	0.521
Vseobecna uverova banka, a.s.	2015	0.6461	0.3702
Tatra bank a.s.	2015	N/D	N/D
OTP Bank Nyrt.	2015	N/D	N/D
Fibank AD	2014	0.0937	0.7583
Komercni Banka a.s.	2014	0.1232	0.3571
SwedbankEstonia	2014	0.0726	2.528
Šiaulių bankas	2014	1.0837	0.739
PKO BP S.A.	2014	0.0842	0.9237
BZ WBK S.A.	2014	0.1999	0.7432
Bank Pekao S.A.	2014	0.0273	0.6762
Mbank S.A.	2014	0.1461	0.6505
ING BSK S.A.	2014	0.106	0.5529
Alior Bank S.A.	2014	0.0961	1.127
BGŻ BNP Paribas S.A.	2014	0.2234	0.5914
Bank Millennium S.A.	2014	1.0094	0.6364
Getin Noble Bank S.A.	2014	0.1228	0.8306
Bank Handlowy w Warszawie S.A.	2014	0.7001	0.6974
Bank BPH S.A.	2014	0.3696	0.6928
Banca Transilvania SA	2014	0.0919	0.5887
BRD Groupe Societe Generale SA	2014	0.0784	0.4603
Vseobecna uverova banka, a.s.	2014	0.4701	0.4199
Tatra bank a.s.	2014	0.3727	0.491
OTP Bank Nyrt.	2014	0.0747	1.1862
Fibank AD	2013	0.0906	0.4767
Komercni Banka a.s.	2013	0.3072	0.3815
SwedbankEstonia	2013	N/D	N/D
Šiaulių bankas	2013	1.1684	0.6422
PKO BP S.A.	2013	0.0186	0.8701
BZ WBK S.A.	2013	0.3273	0.7942
Bank Pekao S.A.	2013	0.0586	0.6779
Mbank S.A.	2013	0.1912	0.6013
ING BSK S.A.	2013	0.2857	0.5558
Alior Bank S.A.	2013	1.6353	0.9169

Table A1. *Cont.*

Bank	Year	CSR Efficiency Score	CFP Efficiency Score
BGŻ BNP Paribas S.A.	2013	1.4332	0.6012
Bank Millennium S.A.	2013	0.8819	0.5884
Getin Noble Bank S.A.	2013	0.2016	0.7957
Bank Handlowy w Warszawie S.A.	2013	1.1287	0.7301
Bank BPH S.A.	2013	1.0932	0.6622
Banca Transilvania SA	2013	0.1153	0.5037
BRD Groupe Societe Generale SA	2013	0.0753	0.5587
Vseobecna uverova banka, a.s.	2013	1	0.4259
Tatra bank a.s.	2013	1.8858	0.4285
OTP Bank Nyrt.	2013	1.4638	0.8961
Fibank AD	2012	0.1119	0.4862
Komercni Banka a.s.	2012	1.342	0.4212
SwedbankEstonia	2012	N/D	N/D
Šiaulių bankas	2012	1.9777	0.6319
PKO BP S.A.	2012	0.0197	1
BZ WBK S.A.	2012	0.081	1.0546
Bank Pekao S.A.	2012	0.0295	0.8565
Mbank S.A.	2012	0.0859	0.674
ING BSK S.A.	2012	0.1034	0.6122
Alior Bank S.A.	2012	0.1421	0.5688
BGŻ BNP Paribas S.A.	2012	1.4309	0.6621
Bank Millennium S.A.	2012	N/D	N/D
Getin Noble Bank S.A.	2012	0.0868	1.2892
Bank Handlowy w Warszawie S.A.	2012	1.2566	0.8516
Bank BPH S.A.	2012	0.3636	0.7268
Banca Transilvania SA	2012	0.1461	0.5218
BRD Groupe Societe Generale SA	2012	0.0826	0.5844
Vseobecna uverova banka, a.s.	2012	0.6033	0.4045
Tatra bank a.s.	2012	1.0217	0.3977
OTP Bank Nyrt.	2012	0.1443	0.8688

Table A2. Descriptive Statistic of CFP.

Variable	Obs	Mean	Std. Dev	Min	Max
ROA	97	1.052577	0.900506	−3.39	5.1
ROE	97	9.377423	7.19797	−26.09	39.52

References

1. Simpson, W.G.; Kohers, T. The link between corporate social and financial performance: Evidence from the banking industry. *J. Bus. Ethics* **2002**, *35*, 97–109. [CrossRef]
2. Bolton, B. Corporate Social Responsibility and Bank Performance. Available online: http://ssrn.com/abstract=2277912 (accessed on 6 March 2018).
3. Cheung, P.; Mak, W. The Relation between Corporate Social Responsibility Disclosure and Financial Performance: Evidence from the Commercial Banking Industry. Ph.D. Thesis, Beedie School of Business-Segal Graduate School, Vancouver, BC, Canada, 2010.
4. Meng-Wen, W.; Chung-Hua, S. Corporate social responsibility in the banking industry: Motives and financial performance. *J. Bank. Financ.* **2013**, *37*, 3529–3547.
5. Esteban-Sanchez, P.; de la Cuesta-Gonzalez, M.; Paredes-Gazquez, J.D. Corporate Social Performance and its relation with Corporate Financial Performance: International evidence in the banking industry. *J. Clean. Prod.* **2017**, *162*, 1102–1110. [CrossRef]
6. Albu, C.N.; Balsari, C.; Krasodomska, J. Introduction to the Special Issue on Corporate Social Reporting in Central and Eastern Europe. *J. Account. Manag. Inf. Syst.* **2016**, *15*, 193–205.

7. Vaughan-Whitehead, D. *EU Enlargement versus Social Europe? The Uncertain Future of the European Social Model*; Edward Elgar: Cheltenham, UK, 2003; ISBN 1-84064-645-4.

8. Csafor, H. Corporate social responsibility in Central and Eastern Europe. In *Periodica Oeconomica—Studies of Economic Sciences, Regional Development and Competitiveness*; Carmona, M., Szlavik, J., Zam, E., Eds.; University of Paris-Sorbonne IV and Eszterházy Károly College: Eger, Hungary, 2008; pp. 115–127.

9. Furrer, O.; Egri, C.P.; Ralston, D.A.; Danis, W.; Reynaud, E.; Naoumova, I.; Molteni, M.; Starkus, A.; Darder, F.L.; Dabic, M.; et al. Attitudes toward corporate responsibilities in Western Europe and in Central and East Europe. *Manag. Int. Rev.* **2010**, *50*, 379–398. [CrossRef]

10. Deutsch, N.; Pintér, É. The link between Corporate Social Performance and Corporate Financial Performance in the Banking Sector. In Proceedings of the 12th International Conference on Energy, Environment, Ecosystems and Sustainable Development (EEESD '16), Venice, Italy, 29–31 January 2016; pp. 59–70.

11. Djalilov, K.; Holscher, J. Antecedents of Corporate Social Responsibility in the Banks of Central Eastern Europe and in the Countries of the Former Soviet Union. Available online: https://ideas.repec.org/p/bam/wpaper/bafes05.html (accessed on 6 March 2018).

12. Djalilov, K.; Vasylieva, T.; Lyeonov, S.; Lasukova, A. Corporate Social Responsibility and Bank Performance in Transition Countries. *Corp. Ownersh. Control* **2015**, *13*, 669–678. [CrossRef]

13. Chih, H.L.; Chih, H.H.; Chen, T.Y. On the determinants of corporate social responsibility: International evidence on the financial industry. *J. Bus. Ethics* **2010**, *93*, 115–135. [CrossRef]

14. Hąbek, P. CSR reporting practices in Visegrad Group Countries and the quality of disclosure. *Sustainability* **2017**, *9*, 2322. [CrossRef]

15. Dyduch, J.; Krasodomska, J. Determinants of Corporate Social Responsibility Disclosure: An Empirical Study of Polish Listed Companies. *Sustainability* **2017**, *9*, 1934. [CrossRef]

16. Campbell, J.L. Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *Acad. Manag. Rev.* **2007**, *32*, 946–967. [CrossRef]

17. Juelin, Y.; Zhang, Y. Institutional Dynamics and Corporate Social Responsibility (CSR) in an Emerging Country Context: Evidence from China. *J. Bus. Ethics* **2012**, *111*, 301–316.

18. Davis, K. The case for and against business assumption of social responsibilities. *Acad. Manag. J.* **1973**, *16*, 312–322. [CrossRef]

19. Frederick, W.C. *Theories of Corporate Social Performance: Much Done, More to Do*; Working Paper; University of Pittsburgh, Graduate School of Business: Pittsburgh, PA, USA, 1986.

20. Pan, X.; Sha, J.; Zhang, H.; Ke, W. Relationship between corporate social responsibility and financial performance in the mineral Industry: Evidence from Chinese mineral firms. *Sustainability* **2014**, *6*, 4077–4101. [CrossRef]

21. Brammer, S.; Millington, A. Does it pay to be different? An analysis of the relationship between corporate social and financial performance. *Strat. Manag. J.* **2008**, *29*, 1325–1343. [CrossRef]

22. Soana, M.G. The relationship between corporate social performance and corporate financial performance in the banking sector. *J. Bus. Ethcis* **2011**, *104*, 133–148. [CrossRef]

23. Guthrie, J.; Parker, L.D. Corporate social reporting: A rebuttal of legitimacy theory. *Account. Bus. Res.* **1989**, *19*, 343–352. [CrossRef]

24. Brown, N.; Deegan, C. The public disclosure of environmental performance information—A dual test of media agenda setting theory and legitimacy theory. *Account. Bus. Res.* **1998**, *29*, 21–41. [CrossRef]

25. Moir, L. What do we mean by corporate social responsibility? Corporate Governance. *Int. J. Bus. Soc.* **2001**, *1*, 16–22.

26. McWilliams, A.; Siegel, D. Corporate social responsibility: A theory of the firm perspective. *Acad. Manag. Rev.* **2001**, *26*, 117–127.

27. Garriga, E.; Melé, D. Corporate social responsibility theories: Mapping the territory. *J. Bus. Ethics* **2004**, *53*, 51–71. [CrossRef]

28. Fernando, S.; Lawrence, S. A theoretical framework for CSR practices: Integrating legitimacy theory, stakeholder theory and institutional theory. *J. Theor. Account. Res.* **2014**, *10*, 149–178.

29. Lu, F.; Kozak, R.; Toppinen, A.; D'Amato, D.; Wen, Z. Factors Influencing Levels of CSR Disclosure by Forestry Companies in China. *Sustainability* **2017**, *9*, 1800. [CrossRef]

30. Manrique, S.; Martí-Ballester, C.-P. Analyzing the Effect of Corporate Environmental Performance on Corporate Financial Performance in Developed and Developing Countries. *Sustainability* **2017**, *9*, 1957. [CrossRef]

31. Wood, D.J.; Jones, R.E. Stakeholder mismatching: A theoretical problem in empirical research on corporate social performance. *Int. J. Organ. Anal.* **1995**, *3*, 229–267. [CrossRef]

32. Waddock, S.A.; Graves, S.B. The corporate social performance-financial performance link. *Strateg. Manag. J.* **1997**, *18*, 303–319. [CrossRef]

33. Allouche, J.; Laroche, P. A meta-analytical investigation of the relationship between corporate social and financial performance. *Rev. Gest. Ressour. Hum.* **2005**, *57*, 8–41.

34. Martínez-Campillo, A.; Cabeza-García, L.; Marbella-Sánchez, F. Responsabilidad social corporativa y resultado financiero: Evidencia sobre la doble dirección de la causalidad en el sector de las Cajas de Ahorros. *Cuad. Econ. Dir. Empres.* **2013**, *16*, 54–68. [CrossRef]

35. Lu, W.; Chau, K.W.; Wang, H.; Pan, W. A decade's debate on the nexus between corporate social and corporate financial performance: A critical review of empirical studies 2002–2011. *J. Clean. Prod.* **2014**, *79*, 195–206. [CrossRef]

36. Wang, Q.; Dou, J.; Jia, S. A meta-analytic review of corporate social responsibility and corporate financial performance. *Bus. Soc.* **2015**, *55*, 1083–1121. [CrossRef]

37. Zhao, X.; Murrell, A.J. Revisiting the corporate social performance-financial performance link: A replication of Waddock and Graves. *Strateg. Manag. J.* **2016**, *37*, 2378–2388. [CrossRef]

38. Preston, L.E.; O'Bannon, D.P. The corporate social-financial performance relationship: A typology and analysis. *Bus. Soc.* **1997**, *36*, 419–429. [CrossRef]

39. Orlitzky, M.; Schmidt, F.L.; Rynes, S.L. Corporate social and financial performance: A meta-analysis. *Organ. Stud.* **2003**, *24*, 403–441. [CrossRef]

40. McGuire, J.B.; Sundgren, A.; Schneeweiss, T. Corporate Social Responsibility and Firm Financial Performance. *Acad. Manag. J.* **1988**, *31*, 854–872. [CrossRef]

41. Seifert, B.; Morris, S.A.; Bartkus, B.R. Having, giving, and getting: Slack resources, corporate philanthropy, and firm financial performance. *Bus. Soc.* **2004**, *43*, 135–161. [CrossRef]

42. Daniel, F.; Lohrke, F.T.; Fornaciari, C.J.; Turner, R.A. Slack resources and firm performance: A meta-analysis. *J. Bus. Res.* **2004**, *57*, 565–574. [CrossRef]

43. Margolis, J.D.; Elfenbein, H.; Walsh, J.P. *Does it Pay to be Good? A Meta-Analysis and Redirection of Research on the Relationship between Corporate Social and Financial Performance*; Working Paper; Ross School of Business: Ann Arbor, MI, USA, 2007.

44. Albertini, E. Does environmental management improve financial performance? A meta-analytical review. *Organ. Environ.* **2013**, *26*, 431–457. [CrossRef]

45. Griffin, J.J.; Mahon, J.F. The corporate social performance and corporate financial performance debate: Twenty-five years of incomparable research. *Bus. Soc.* **1997**, *36*, 5–31. [CrossRef]

46. Fijałkowska, J.; Zyznarska-Dworczak, B.; Garsztka, P. The relation between the CSR and the accounting information system data in Central and Eastern European (CEE) countries–the evidence of the Polish financial institutions. *Account. Manag. Inf. Syst.* **2017**, *16*, 490–521. [CrossRef]

47. Weshah, S.R.; Dahiyat, A.A.; Abu Awwad, M.R.; Hajjat, E.S. The Impact of Adopting Corporate Social Responsibility on Corporate Financial Performance: Evidence from Jordanian Banks. *Interdiscip. J. Contemp. Res. Bus.* **2012**, *4*, 34–44.

48. Ofori, D.F.; Nyuur, R.B.; S-Darko, M.D. Corporate social responsibility and financial performance: Fact or fiction? A look at Ghanaian banks. *Acta Commer.* **2014**, *14*, a180. [CrossRef]

49. Sarwar Uddin, A.; Md. Zahidul, I.; Ikramul, H. Corporate Social Responsibility and Financial Performance Linkage-Evidence from the Banking Sector of Bangladesh. *J. Organ. Manag.* **2012**, *1*, 14–21.

50. Nyamute, W.; Batta, N. Effect of corporate social responsibility on financial performance in the banking sector evidence from the Nairobi securities exchange. *Int. J. Asian Acad. Res. Assoc.* **2015**, *1*.

51. Taşkın, D. The relationship between CSR and banks' financial performance: Evidence from Turkey. *J. Yasar Univ.* **2015**, 21–30. [CrossRef]

52. Semih Yildirim, H.; Philippatos, G.C. Efficiency of banks: Recent evidence from the transition economies of Europe, 1993–2000. *Eur. J. Financ.* **2007**, *13*, 123–143. [CrossRef]

53. Moon, J. The contribution of corporate social responsibility to sustainable development. *Sustain. Dev.* **2007**, *15*, 296–306. [CrossRef]

54. Bodet, C.; Lamarche, T. La responsabilité sociale des entreprises comme innovation institutionnelle. Une lecture régulationniste. *Rev. Régul. Capital. Inst. Pouvoirs* **2007**, *1*. [CrossRef]

55. Moura-Leite, R.C.; Padgett, R.C. Historical background of corporate social responsibility. *Soc. Responsib. J.* **2011**, *7*, 528–539. [CrossRef]

56. Matten, D.; Moon, J. 'Implicit' and 'Explicit' CSR. A conceptual framework for a Comparative understanding of CSR. *Acad. Manag. Rev.* **2008**, *33*, 404–424. [CrossRef]

57. Matten, D.; Moon, J. 'Implicit' and 'Explicit' CSR. A Conceptual Framework for Understanding CSR in Europe. Available online: http://195.130.87.21:8080/dspace/bitstream/123456789/1124/1/29-'Implicit' %20and%20'Explicit'%20CSR%20A%20conceptual%20framework%20for%20understanding%20CSR% 20in%20Europe.pdf (accessed on 11 March 2018).

58. Matuszak, Ł.; Różańska, E. CSR Disclosure in Polish-Listed Companies in the Light of Directive 2014/95/EU Requirements: Empirical Evidence. *Sustainability* **2017**, *9*, 2304. [CrossRef]

59. Ericson, R.E. The Classical Soviet-Type Economy: Nature of the System and Implications for Reform. *J. Econ. Perspect.* **1991**, *5*, 11–27. [CrossRef]

60. Kornai, J. *The Socialist System: The Political Economy of Communism*; Princeton University Press: Princeton, NJ, USA, 1992.

61. Filatotchev, I.; Buck, T.; Zhukov, V. Downsizing in Privatized Firms in Russia, Ukraine, and Belarus. *Acad. Manag. Rev. J.* **2000**, *43*, 286–304. [CrossRef]

62. Peng, M.W. Institutional Transitions and Strategic Choices. *Acad. Manag. Rev.* **2003**, *28*, 275–296.

63. Koleva, P.; Rodet-Kroichvili, N.; David, P.; Marasova, J. Is corporate social responsibility the privilege of developed market economies? Some evidence from Central and Eastern Europe. *Int. J. Hum. Resour. Manag.* **2010**, *21*, 274–293. [CrossRef]

64. Inglehart, R.; Welzel, C. *Modernization, Cultural Change, and Democracy: The Human Development Sequence*; Cambridge University Press: New York, NY, USA, 2005.

65. Vynoslavska, O.; McKinney, J.A.; Moore, C.W.; Longenecker, J.G. Transition Ethics: A Comparison of Ukrainian and United States Business Professionals. *J. Bus. Ethics* **2005**, *61*, 283–299. [CrossRef]

66. Centrum, C.S.R.; Mielechow, P.; Piskalski, G. *CSR and Polish Business on Foreign Markets*; Preliminary Research Report; Friedrich Ebert Foundation—Warsaw Office: Warsaw, Poland, 2009.

67. Lewicka-Strzelecka, A. Opportunities and limitations of CSR in postcommunist countries: Polish case. *Corp. Gov. Int. J. Bus. Soc.* **2006**, *6*, 440–448. [CrossRef]

68. Dyczkowska, J.; Krasodomska, J.; Michalak, J. CSR in Poland institutional context, legal framework and voluntary initiatives. *Account. Manag. Inf. Syst.* **2016**, *15*, 206–254.

69. Dumitru, M.; Dyduch, J.; Guşe, R.; Krasodomska, J. Corporate reporting practices in Poland and Romania—An ex-ante study of the non-financial reporting European Directive. *Account. Eur.* **2016**, *14*, 29–304. [CrossRef]

70. OECD Agricultural Policies in OECD Countries: Monitoring and Evaluation. Glossary of Agricultural Policy Terms. OECD: Paris, France, 2001. Available online: https://stats.oecd.org/glossary/detail.asp?ID=303 (accessed on 18 January 2018).

71. López, M.V.; Garcia, A.; Rodriguez, L. Sustainable development and corporate performance: A study based on the Dow Jones sustainability index. *J. Bus. Ethics* **2007**, *75*, 285–300. [CrossRef]

72. Beattie, V.; McInnes, B.; Fearnley, S. A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes. *Account. Forum* **2004**, *28*, 205–236. [CrossRef]

73. European Union. *Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 Amending Directive 2013/34/EU as Regards Disclosure of Non-Financial and Diversity Information by Certain Large Undertakings and Groups*; EU Law: Brussels, Belgium, 2014.

74. ISO 26000. Available online: https://www.iso.org/obp/ui/#iso:std:iso:26000:en (accessed on 10 December 2017).

75. Charnes, A.; Cooper, W.W.; Rhodes, E. Measuring the efficiency of decision making units. *Eur. J. Oper. Res.* **1978**, *2*, 429–444. [CrossRef]

76. Bendheim, C.L.; Waddock, S.A.; Graves, S.B. Determining best practice in corporate-stakeholder relations using data envelopment analysis: An industry-level study. *Bus. Soc.* **1998**, *37*, 306–338. [CrossRef]

77. Chen, C.M.; Delmas, M. Measuring corporate social performance: An efficiency perspective. *Prod. Oper. Manag.* **2011**, *20*, 789–804. [CrossRef]

78. Botsian, T.; Karpiuk, O. The role of dea in csr efficiency evaluation. *ScienceRise* **2015**, *2*. [CrossRef]

79. Piatti, D.; Cincinelli, P. Measuring Social Efficiency: The Case of Italian Mutual Banks. *Acad. Account. Financ. Stud. J.* **2015**, *19*, 205–224.

80. Banker, R.D.; Charnes, A.; Cooper, W.W. Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Manag. Sci.* **1984**, *30*, 1078–1092. [CrossRef]

81. Breusch, T.S.; Pagan, A.R. The Lagrange Multiplier Test and Its Applications to Model Specification in Econometrics. *Rev. Econ. Stud.* **1980**, *47*, 239–253. [CrossRef]

82. Strouhal, J.; Gurvits, N.; Nikitina-Kalamäe, M.; Startseva, E. Finding the link between CSR reporting and corporate financial performance: Evidence on Czech and Estonian listed companies. *Cent. Eur. Bus. Rev.* **2015**, *4*, 48–59. [CrossRef]

83. Jabłoński, A. *Modele Zrównoważonego Biznesu w Budowie Długoterminowej Wartości Przedsiębiorstw z Uwzględnieniem ich Społecznej Odpowiedzialności*; Difin: Warsaw, Poland, 2013.