

Article

The Link between Corporate Environmental and Corporate Financial Performance—Viewpoints from Practice and Research

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Abstract: For more than 40 years, a tremendous number of studies have empirically explored the relationship between Corporate Environmental Performance (CEP) and Corporate Financial Performance (CFP). This study considers the relationship from a new perspective—via a qualitative research approach based on expert interviews. First, practitioners are queried for their view on the link between CEP and CFP and how to measure it. Since the vast majority see a positive relationship, this study contributes with a new form of evidence that it pays to be green. The chosen qualitative approach also allows a more detailed analysis of underlying cause-and-effect mechanisms. For instance, interviewed practitioners emphasize a direct and indirect impact from CEP on CFP. Second, the study conducts interviews with experts from research and associations (non-practitioners) and compares the viewpoints of the two interview groups. One prevalent difference refers to the fact that non-practitioners do not focus on the two impact levels. Moreover, business experts perceive the link between CEP and CFP as much less complex and reveal more pragmatically oriented considerations. The study then discusses how the interview results and identified differences can be used to direct future research and to support corporations in their move towards sustainability.

Keywords: corporate environmental performance; corporate financial performance; expert interviews; practitioners; qualitative research; research-practice gap; resource efficiency

1. Introduction

For more than 40 years, a tremendous number of studies have empirically explored the relationship between Corporate Social Responsibility (CSR), in general, and Corporate Environmental Performance (CEP), in particular, to Corporate Financial Performance (CFP) [1]. CEP refers to the “measurable results of an organization’s management of its environmental aspects” [2] (p. 8). The CFP construct is used to assess the outcomes of business strategy [3] and is a primary, fundamental indicator for organizational performance and long-term survival of an organization [4]. The diverse range of studies which analyze the link between CEP and CFP covers various measures, data, theories, methods, directions of causality, as well as plant, industry, and country specific contexts. While many studies demonstrate a positive relationship, e.g., [5–7], others provide evidence for a negative link between CEP and CFP, e.g., [8–10]. Furthermore, insignificant findings appear as well [11], e.g., [12]. Overall inconsistency of gained results still encourages research in that field. Scholars aim to find evidence that benefits of improved CEP appear to outweigh related costs [11].

More than 30 meta-analytic reviews explore the conflicting empirical findings, e.g., [1,13,14]. Among the most recent metastudies, a positive relationship tends to dominate [15–18], which would provide evidence that it pays to move towards corporate sustainability. Considering this overall positive tendency, it could be expected that corporate decision-makers translate the scientific results

into action and pay more attention to enhancing their environmental performance. Furthermore, daily business activities are more and more affected by impacts of climate change and scarcer natural resources [19–21]. Hence, corporations should be additionally forced to develop related strategies and responses [22]. However, a United Nations Global Compact study analyzing Chief Executive Officer (CEO) questionnaires demonstrates that only 32% of respondents believe that corporations are prepared to meet global sustainability challenges [23]. Accordingly, only one-third of global corporations feel equipped to move towards sustainability. Moreover, challenges of the natural environment such as climate change heavily impact corporations already today and scientific proof exists showing that it pays to be green and sustainable.

The starting point of this analysis is the closer consideration of prior empirical studies that regard the relationship between CEP and CFP. Those studies rely on quantitative methods such as regression analysis and thus, ideally, on two separately collected measures [1]. This paper attempts to use a different approach to investigate the relationship: the analysis refers to a qualitative, more straight-forward, and pragmatic approach with the aim to prove that it pays to be green. For this purpose, the analysis, first, is based on a qualitative research approach and presents in-depth interviews with experts from small, medium, large, and multi-national corporations. Second, questions posed to those practitioners directly focus on the link between CEP and CFP. By that, the study surmounts prior investigations and provides a direct cause-and-effect analysis.

In order to validate the gained findings, the study contrasts the results from practitioners to interview findings with further experts from associations, political institutions, as well as researchers (non-practitioners). The study then compares the viewpoints of the two interview groups and discusses how the interview results and identified differences can be used to direct future research and to support corporations in their move towards sustainability.

The article provides answers on how practitioners regard the link, how they consider the cause-and-effect relationship between the two constructs, and how corporations measure the link. Scholars can refer to these considerations and use them within future investigations. Both practice and research receive a new form of evidence for the relationship between the two constructs. Practitioners benefit from the results as they show that it pays to be green. Practitioners moreover learn how non-practitioners regard and measure the link. By that, they receive new insights and can evaluate in how far they can implement the ideas within their corporations.

The paper is organized as follows: Section 2 introduces the relevance of analyzing the CEP-CFP relationship and provides an overview of prior empirical studies from that field. It further explains why this study focuses on the issue of corporate resource efficiency as one part of CEP and deduces the research aim. In Section 3, material and methods are presented. Section 4 outlines the interview findings. Section 5 discusses the results and provides concluding remarks.

2. Literature Review

In 1987, the Brundtland report defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [24] (p. 41). The aim of sustainable development represents the reconciliation of the economic, ecological, and social perspectives for leaving future generations an intact system [24]. People, society, communities, cities, regions, and nations are part of the sustainability goal and especially corporations are forced to develop appropriate strategies and response options as they represent important entities of society [25].

Although many CEOs already attempt to integrate the goal of sustainable development into their corporations, many shareholders still force them to focus on short-term profitability instead of long-term sustainability and resilience [26,27]. Therefore, it is advantageous when corporations can supplement their move towards sustainability by providing evidence that it also pays off. This is the designated goal of many studies which analyze the relationship between CSR and CFP,

e.g., [28]. A recently published article investigates more than 2200 studies and finds an overall positive relationship [18].

Among the three dimensions of CSR, which are social, environmental, and economic, the majority of empirical studies focus on the relationship between CEP and CFP [1]. The reason stems from the fact that global environmental challenges [19,20] and planetary boundaries [29,30] in particular cause enormous consequences for corporations. Related CEP-CFP studies refer to different underlying theoretical assumptions. For instance, stakeholder theory [31] or the resource-based view [32] are used to describe a positive relationship, whereas managerial opportunism suggests a negative link [33]. Moreover, different (statistical) methods are used which are often heavily criticized [11,34]. Following the review of [35], scientists further assume different types of relationships, such as a direct, mediating, or moderating link.

Prior empirical studies further differ in terms of used measures for depicting CEP and CFP [35]. The choice of different measures is justified by the multidimensional nature of the constructs CEP [36] and CFP [4]. The CFP construct is used to assess the outcomes of business strategy [3] and a primary, fundamental indicator for organizational performance and long-term survival of an organization [4]. Scholars refer either to accounting-based measures, e.g., return on assets, or market-based measures, e.g., market value [17]. Those measures are often drawn from archival databases. Studies further rely on perceived measures for CFP. One example is the usage of self-reported data from a questionnaire [37].

The multidimensional nature also holds true for the CEP construct. A construct validity study by [36] indicates that CEP consists of two dimensions, namely, Environmental Operational Performance (EOP) and Environmental Management Performance (EMP). The EMP dimension consists of five sub-dimensions, namely environmental policy, environmental objectives, environmental processes, organizational structure, and environmental monitoring, and every sub-dimension can be measured by several indicators [36]. Often, studies concentrate on the operational performance level as the outcome dimension of CEP “to measure the actual results of environmental management and to avoid the subjectivity that is often associated with EMP evaluation” [11] (p. 3). In order to choose appropriate variables for the EOP level, scholars often rely on variables such as total amount of waste produced in tons or total direct and indirect energy consumption in gigajoules [36]. Rating measures such as the KLD or Fortune ranking, e.g., [12,27], or the presence of a formal Environmental Management System, e.g., [38], are also used as variables.

The present study follows the argumentation of [11] and concentrates on the operational dimension of CEP. It further focuses on corporate resource efficiency as one single aspect of CEP due to the following reason. The depletion of natural resources represents one of the most important global environmental challenges—besides the impacts induced by climate change [20]. Already in 2025, the global population will reach the benchmark of more than 8 billion people, which will be related to a dramatically increasing use of non-renewable resources [39]. This trend is opposed by decreasing stocks of natural resources [20,40]. In this context, resource efficiency, that is, a more efficient and sustainable use of natural resources [41,42], can tackle this issue. Improving corporate resource efficiency constitutes one important avenue towards meeting this global megatrend [43].

Considering prior research focusing on corporate resource efficiency and its direct relationship to CFP, a literature search could not identify one single study which directly labels a variable with the term “resource efficiency” or “corporate resource efficiency”. For instance, the systematic search led to one study which investigates the effectiveness of voluntary environmental programs in the US [44]. The authors find that the implementation of the Resource Conservation and Recovery Act, which aims to conserve natural resources by corporations, leads to improved organizational performance [44]. Thus, this particular analysis does not directly mention corporate resource efficiency as a variable, but the implementation of the Resource Conservation and Recovery Act intends to move corporations towards resource efficiency. Therefore, a broader search for empirical studies that include efficiency measures more generally was conducted. While searching for these studies, I found and analyzed articles that measure eco-efficiency. Eco-efficiency refers to “a management control process aimed at

reducing environmental intensity and increasing environmental productivity while also reducing costs and creating value" [7] (p. 168). Following [45], the measurement of eco-efficiency consists of five areas. One of these areas is related to "sustainability and eco-efficiency risks" and depicted via variables such as energy efficiency, energy intensity, or durability of the product life cycle [45]. Hence, this area of eco-efficiency refers to corporate resource efficiency. I decided to review studies which analyze the link between eco-efficiency and CFP as I expect that results from these studies can help to find answers for the link between corporate resource efficiency and CFP. Interestingly, [46] finds a positive relationship and considers increasing eco-efficiency as a form of low-hanging fruit since eco-efficiency can be reached via easily implementable tools. Studies also find a positive link between eco-efficiency and CFP and conclude that corporate decision-makers do not have to overcome a trade-off between the two goals, namely increasing eco-efficiency and an improved CFP [45,47]. Although these eco-efficiency studies have been identified, there is a lack of studies that directly consider the link from corporate resource efficiency as a distinct variable to CFP.

A second gap identified in research is a lack of qualitative oriented empirical investigations. Scholars analyzing the link between CEP and CFP have the idea in common that an independent variable has a (significant) influence on a dependent variable and therefore refer to quantitative research approaches. Quantitative studies are mainly based on large datasets so that an in-depth analysis is hardly possible [48]. Yet, the CEP-CFP link strongly depends on the particular situation and investigation [35]. For instance, plant, industry, and country specific contexts play a major role and it is nearly impossible to control for all of these peculiarities. An investigation with in-depth expert interviews can surmount this conjuncture. Moreover, there is a lack of studies focusing on cause-and-effect explanations. Following [49], those cause-and-effect relationships are better analyzed by referring to qualitative research approaches as they offer "holistic depictions of realities that cannot be reduced to a few variables" (p. 455). For the purpose of filling the second gap identified in research, this investigation refers to qualitative expert interviews with corporate representatives. The study therefore considers the voice of practice [50] and intends to appeal to practitioners in particular. The cause-and-effect analysis is considered by asking interviewees directly for the existence of a relationship between corporate resource efficiency and CFP. Thus, this study does not separately investigate the two constructs of interest and, therefore, aims to provide an easier to comprehend approach. Gained findings are then contrasted with results from additionally conducted interviews with experts from associations, political institutions, and research. The analysis compares the statements between the two interview groups and finally discusses how the identified differences can be used for future research and within practice.

3. Material and Methods

In the context of qualitative research, conducting and analyzing in-depth interviews represents an appropriate method when "the researchers have a relatively clear sense of their research interests and the kinds of questions they wish to address" [51] (p. 5). The chosen method of semi-structured expert interviews is widely accepted in research. First, expert interviews do not consider interviewees as particular cases, but as representatives of the sample. The tool of expert interviews therefore succeeds to focus on the concerning subject. Second, semi-structured interviews allow for the deduction of concrete statements [52]. By that, the direct voice of practice can be presented, which is one of the study's research aims. Third, open questions do not limit possible answers [53] and an interview guideline guarantees that the research question is retained throughout the interview and leads to a better comparison of results [52] and higher reliability [54].

I considered the key approach in "using numerous and highly knowledgeable informants who view the focal phenomena from diverse perspectives" [55] (p. 28) and therefore chose theoretical sampling [55]. According to this approach, the sample covers experts from multinational corporations (MNC), large corporations, as well as from small and medium sized enterprises (SME), and consulting agencies. All of the interviewed practitioners are designated experts for the topic of corporate resource

efficiency within the company they are working for. The sample was supplemented by experts from research, associations, and political institutions. This complement allows for a contrasting of results from interviewed practitioners with experts' opinions from research and associations. The interviewees from the second group were also selected by theoretical sampling. In order to find appropriate experts for the second interview group, I selected them either by prior publications or projects related to the topic of resource efficiency. Hence, experts from the second interview group are also experts in the field of corporate resource efficiency. The sample further focuses on German experts. Germany is adequate since it represents a country among the many highly industrialized countries with rare stocks of natural resources, already adopting an official resource efficiency program [43]. Thus, higher awareness of the topic might increase the range and fruitfulness of results. The sample was complemented by two Austrian experts as they often work for German companies. The interviews were conducted in January and February 2014 via telephone. All interviews had an average length of 30 minutes. I conducted interviews until theoretical saturation [56] with a final sample of 25 experts. Table 1 summarizes the interviewed experts. Due to confidentiality reasons, Table 1 only contains associated expert group, branch, and position of the expert.

Table 1. Overview of interviewed experts.

Interview Group	Branch	Position	Expert	
Interview group 1 (Practice)	MNC ¹	Manufacturing (Consumer Devices)	Head of Resource Efficiency	#01
		Chemistry	Head of Environment & Responsibility	#02
		Manufacturing	Specialist Design for Environment	#03
		Chemistry	Head of Sustainability Measurement	#04
		Manufacturing (Automotive)	Head of Sustainability Strategy	#05
	Large corp. ¹	Manufacturing	Head of Innovation & Sustainability	#06
		Transport, Logistics	Specialist Resource Efficiency	#07
	SME ¹	Manufacturing	CEO	#08
		Manufacturing	Head of Application Development	#09
	Consulting	Consulting	CEO ²	#10
		Consulting for SME	Project Manager	#11
		Consulting	CEO ²	#12
		Consulting	CEO	#13
		Consulting	Chief Business & Government Relations	#14
		Consulting	Auditor & Team Member Environment	#15
Interview group 2 (Associations and Research)	Associations and political institutions	Nature conservation association	Head of Resource Policy	#16
		Industrial research association	Head of Competence Centre	#17
		Industrial political association	Head of Product-Related Environmental Protection	#18
		Industrial association	Head of Industrial Technologies	#19
		Research association	Research Associate	#20
		Industrial association	Spokesperson of the Association	#21
	Research	Research Institute	Research Associate for Environment	#22
		University	Research Associate for Resource Effic.	#23
		Research Institute	Professor for Sustainable Production	#24
	University	Professor for Environmental Manag.	#25	

¹ Classification of the industry according to [57]; ² Expert from Austria.

In the first part of the interview, I asked experts about their understanding of the term “corporate resource efficiency” and how corporations can measure their progress towards being more resource efficient. I did not define the terms corporate resource efficiency or CFP in advance. Thus, experts relied on their own understanding of the two constructs. This approach can be further justified by the

multidimensional nature of the two constructs [4,36]. The present analysis focuses on the second part of the interview where I asked the previously deduced research question:

For scholars and corporations likewise, there is the interesting question of whether there exists a relationship between corporate environmental performance, in particular corporate resource efficiency, and corporate financial performance. Therewith, the impact of resource scarcity on corporations and especially on the corporate financial performance can be analyzed. Here, I would like to know: How can the relationship between resource efficiency and financial performance of corporations be described and measured?

After transcribing the audio-recorded interviews, I inductively coded [58,59] and analyzed the interviews with MaxQDA, a software for computer-aided qualitative data analysis. The derived categories and sub-categories were refined by a second coding leading to intra-rater reliability [60]. For the analysis, I used quotes from experts [55,61] and intensively discussed gained results as “qualitative researchers search for multiple interpretations by considering diverse voices” [61] (p. 88). It is further critical to build “a bridge between a study’s findings and the larger literature” [62] (p. 257). Therefore, I also searched for support of gained results by consulting broader literature [63,64]. This approach further increases the external validity of results [65]. I then iterated the steps, i.e., use expert quotes, discuss findings, consider broader literature, and repeatedly consult scholars in interdisciplinary research seminars and conferences for feedback until a saturated level of knowledge growth was reached [63]. The presentation of the methods, results, and discussion section follows the suggestion of [48] to use the first-person narrative.

4. Results

4.1. Practitioners’ Views on the Relationship

Main results of conducted interviews are listed in Table 2. The left-hand side of Table 2 shows that all 15 interviewed practitioners see a direct relationship between resource efficiency and financial performance of corporations.

“In general, resources represent efforts and efforts are reflected in the balance sheet and profit and loss statement. Thus, the relationship is pretty simple.” (#10)

Moreover, 14 out of 15 practitioners see a positive relationship.

“Higher resource efficiency (either less input or more output by keeping the other on the same level) has a direct effect on corporate financial performance; it leads to an improved organizational result. Thus, it’s worth striving for resource efficiency, first, taking into account the pure economic reasons, and, second, when considering the move towards sustainability.” (#15)

A CEO from a SME (#08) states that for his particular company, it definitely pays to be resource efficient since his company offers innovative solutions to increase resource efficiency inside production sites of customers.

One consultant who mainly works for SMEs highlights that before a consulting project starts, contractor and customer set a certain goal, such as total material savings of 2%, and this is clearly measureable before and after the project. According to him, the relationship is clear because profitability and financial stability increase (#11). Another consultant (#12) explains that there are a lot of possibilities and examples which show the relationship on the project level, but as long as materials are so cheap, efforts for efficiency improvement projects do not always make sense. That is why this expert underlines that the relationship between resource efficiency and CFP might also be negative in some cases.

Only two interviewed experts consider that in some cases it might also be negative (#09, #12). One of the practitioners who also sees a possible negative impact—next to a possible positive

one—explains that it absolutely depends on surrounding side effects (#09). He states that a solid risk assessment and management is required, but also sees that many corporations are afraid of the assessment. This requires a paradigm shift, which is related to exploring new unknown paths with unknown risks (#09). It is furthermore claimed that many corporations and government subsidies focus on energy efficiency measures in particular and not on more general resource and material efficiency measures, although the latter has a much greater impact in terms of double-digit percentage improvement (#08). This expert relates the current focus on energy efficiency measures to the pretty lagged impact of measures for improving resource efficiency (#08).

To sum up, interviewed practitioners generally argue for a positive link between resource efficiency and CFP. One consultant concludes that the question posed to experts reveals an important aspect because it focuses on financial performance as the motivating factor:

“In general, describing the relationship absolutely makes sense, especially since corporations see financial savings as a main motivator for considering resource efficiency; the ecological perspective is often less interesting.” (#13)

Table 2. Interview results.

	Expert	Link between Resource Efficiency and CFP				Measurement of the Relationship		
		Exists	Positive	Negative	Does not Exist	Possible	Difficult	Not Possible
Practice	#01	X	X				X	
	#02	X	X			X		
	#03	X	X			X		
	#04	X	X					
	#05	X	X			X		
	#06	X	X			X		
	#07	X	X				X	
	#08	X	X			X	X	
	#09	X	X	X		X		
	#10	X	X			X	X	
	#11	X	X			X		
	#12	X	X	X		X		
	#13	X				X		
	#14	X	X			X		
	#15	X	X			X		
Total	15	14	2	0	12	4	0	
Associations and Research	#16	X	X			X		
	#17	X	X	X		X		
	#18	X	X			X		
	#19	X	X	X		X	X	
	#20	X	X			X		
	#21				X			X
	#22	X				X		
	#23	X				X		
	#24	X	X			X		
	#25				X			
Total	8	6	2	2	8	1	1	

4.2. Practitioners' Views on Measuring the Relationship

In addition, practitioners were asked how to measure the relationship between resource efficiency and corporate financial performance. Interview analyses reveal two levels to differentiate. Within the first level, practitioners relate the measurement directly to the cost vs. profit level (#01–#06, #10, #11, #13–#15). The second level refers to the practitioners' argumentation that it is about increasing soft factors, e.g., image, reputation, or quality (#04, #06, #07).

Considering the first level, the following four statements demonstrate that experts refer to pragmatic measurement approaches.

“(...) by increasing profit. That is the simplest thing which can be done and this is definitely what every corporation does. Costs get reduced by reducing material input. Therewith, margin and profit increase. This is the most striking and the simplest way.” (#06)

“Do the resources that your company procures directly affect your profit and loss account; then it is about usual competitiveness on the international market.” (#02)

“Indeed, reducing costs by purchasing less raw materials leads to a product specific decreasing raw materials input.” (#04)

“Classical business perspective: on the one hand, resource efficiency affects costs, on the other hand, profit increases.” (#05)

Measurement of resource input and costs, such as resource input per employee, costs per process, and time, or resource input per production process/sales/profit, are suggested by one of the interviewed consultants (#13).

With regard to interviewed experts working for MNCs, one interview partner (#04) states that his company purchases a significant amount of resources and, therefore, they represent a big cost item and, according to him, there is a direct relationship, but his company does not communicate this to shareholders. In contrast, another expert from a MNC (#05) states that the relationship is measurable with a classical return on investment (ROI) consideration and that there will be a direct effect on the balance sheet.

On the first level, another expert from a MNC (#03) states that one should further differentiate between internal efforts and product advantages. As one example for internal efforts, he mentions the implementation of a more efficient heating system, which leads to decreasing CO₂ emissions and an ROI within a short period of time. According to him, it does not make sense to measure resource efficiency on that level, although it has an impact on corporate results. In contrast, he agrees that for corporations from other branches, such as steel producers with high electricity costs, it is worth measuring internal efforts as well. Considering product advantages, the expert states that resource efficiency can indeed lead to selling advantages, which will be explicitly measurable in operating financial results. However, transparency regarding costs is required and this is the first thing corporations should be concerned with (#01).

The following part of the analysis considers the second differentiation level, where practitioners argue that it is about increasing soft factors such as image and reputation as a competitive factor (#04, #06, #07) or quality (#06). However, measuring the impact of these aspects is complicated (#01, #06, #10) and it is difficult to translate external factors and its influences into indicators (#01, #10). One practitioner from a large corporation (#06) emphasizes especially that SMEs being part of longer value chains will not be able to assess these impacts. He therefore recommends that management involvement is of importance for pushing the topic. Corporations need convinced managers—convinced that it is reasonable to be aware of the topic (#06). Another consultant (#11) adds that involvement of employees is even more important, because they know exactly where saving potentials are hidden. However, according to his experience in consulting, he underlines the challenge to properly integrate employees into the process.

On the second level, it is moreover important that corporations consider their dependence upon scarce resources such as rare earths, because the corporate risk classification might be affected as well, which in turn affects the raising of credit (#02). Another practitioner (#05) supports this argumentation and states that external ratings take the long-term dependence upon resources into account. This has a very positive influence on sustainability performance as well as on usual financial ratings. In the end, loans can be better refinanced, because just 0.1 percentage point less could be worth many millions (#05). Hence, corporations have to consider the long-term impacts of their management decisions and not only short-term profits (#12).

“In the end, corporations benefit from an increasing market for sustainable solutions, leading to a long-term business success, leading to benefits for employees and shareholders.” (#04)

4.3. The Non-Practitioners’ Views on the Relationship and Its Measurement

In contrast to the interviewed practitioners, two out of the ten additionally interviewed experts from associations, political institutions, and research state that a relationship between resource efficiency and CFP does not exist (#21, #25) (see Table 2). One example stems from a researcher who related the cause-and-effect relationship to only some particular corporations:

“I would say that there is no explicit link. The relationship might exist for some corporations, where there is a causal relationship, but not in general, this is far-fetched. (. . .) It is a highly complex system and I can not imagine that there is a verifiable causal relationship.” (#25)

The remaining eight additionally interviewed experts see a link.

“There is definitely a relationship: The more efficient use of resources leads to resource savings. But, this could be also related to a more costly process.” (#17)

Four experts see a positive link and two further experts state that the link might be positive or negative (#17, #19). One expert from an association (#16) states that the relationship is easy for innovations, such as concept, product, design, or system innovations, which lead to financial success. Furthermore, the relationship takes place within several processes, thus, it is a process with a time lag (#18). This is also the reason why the measurement by ROI might be sometimes negative when the time horizon is too short (#19). It is further argued that measuring the relationship requires data over several time periods (#22). However, while measuring it is important to control for side effects (#22).

Following the argumentation of one expert from an association (#19), the relationship can even be visualized. The expert refers to one prominent pie chart which depicts the cost structure of the German manufacturing industry [66]:

“When regarding the pie chart of corporate costs, one piece less of material costs directly leads to one piece more of profit. When profit was three pieces before that, then profit increases by 33%.” (#19)

Comparing those results to statements by interviewed practitioners, only one expert from the second interview group refers to the aspect that the relationship should be differentiated into two levels (#20). He confirms that, first, there is definitely an economic potential, and, second, environmental and competitive advantages and an image boost are associated therewith as well.

For the second level, one expert from research (#24) agrees and states that the relationship is definitely there because resource efficient companies are more competitive. First, they provide eco-intelligent processes and products with an increasing demand. Second, they are aware of critical metals and they have developed strategies for resilient business management. Third, they are agile and innovative. Moreover, corporations which consider their resource efficiency can become the leader in their segment. The creation of a circular economy is important, requiring innovation power and a wealth of ideas. In the future, corporations will earn more with immaterial services than with high resource consumption. Since the demand for materially efficient products is increasing, the incentives to deal with resource efficiency will increase as well (#24). However, scepticisms are also raised, as the relationship is a highly complex system and the positive link between CEP and CFP might also be a question about corporate risk management, related substitution strategies, and innovation management (#25).

I further asked the experts from associations and research in how far the relationship can be measured. The first three interviewed experts from associations provided the following ideas: they suggested putting resource efficiency and financial performance together and analyze in how far the one causes the other (#16); analyzing material, water, or energy consumption in a certain process to financial performance at this point (#17); and analyzing financially strong corporations, look at how

they deal with resource efficiency, e.g., Eco-Management and Audit Scheme (EMAS) [67], and check if these corporations have a systematic management regarding resource efficiency (#18).

One scholar (#23) considers that the description and measurement is possible by linking and evaluating physical and monetary data and information: for instance, measuring costs per resource. Corporations should split the indicator into resources relevant for corporate success and waste. This is a classical lean approach since added value and waste will be separated. Thus, measurement of the monetary share of each resource to added value is possible, e.g., by flow cost accounting (#23).

Another scholar (#24) suggests the measurement by analyzing sales or profit per ton resource or per process unit in the value chain. A similar indicator is created by resource consumption per added value, per working time, per processed ton, per production costs, or per number of employees. In general, it is about deriving how much value is generated out of a resource (#24). In contrast, one expert from an association states that there will never be an indicator to depict the relationship (#21). Sometimes, it might be too difficult to quantify the advantages (#19). Some improvements which companies undertake to increase their resource efficiency might not be quantifiable. For instance, a corporation can never assess the substitution of a resource due to its high costs, cost volatility, or availability issues (#19).

5. Discussion and Conclusions

Within this study, corporate experts for resource efficiency were interviewed and asked for their practitioner's view on the relationship between resource efficiency and financial performance within corporations. Among the 15 interviewed practitioners, all of them see a relationship and 14 confirm a positive link. Hence, the existence of the relationship and the positive impact from resource efficiency to financial performance is accepted as the state of the art. Those findings are in line with recent metastudies [15–18], which investigate the more general relationship between corporate environmental and financial performance. Practitioners can use the results as a support showing that it pays to be green and that by doing so, companies move towards corporate sustainability. Ten non-practitioners of whom eight see a relationship confirmed these findings. Six out of those eight see a positive link between resource efficiency and financial performance. Although the chosen qualitative approach of interviewing experts differs from prior empirical, more quantitatively oriented investigations, this analysis comes to an identical conclusion: It pays to be green [13,16]. The study therefore contributes to the research field by adding qualitative empirical evidence for the existence of the positive link.

Practitioners further consider that improved resource efficiency might have a pretty lagged impact on financial performance. Interview findings are confirmed by [68], stating that “financial benefits that accrue from sustainable development can often be long term and diffuse, for example, through improved corporate reputation or social capital” (p. 201). Hence, corporations should consider short- and long-term profits when implementing sustainability strategies and related improvement measures [3]. Considering the problem of short-termism [26,27], this implies that corporations also have to convince shareholders and investors of the positive financial impacts that take effect in future budget periods. The time-lag effect should be also investigated more thoroughly by future research. For instance, studies should be based on both time frames, short- as well as long-term, investigating at which point in time a particular improvement measure begins to positively impact CFP.

In addition, practitioners were asked how to measure the relationship between resource efficiency and corporate financial performance. The given explanations mainly refer to easily comprehensible approaches. In contrast to scholarly approaches, the practitioners' measurement approaches do not refer to large-sized samples and statistical methods. Certainly, they refer to their companies and, thus, the measurement ideas are comparable to case study approaches. However, the presented suggestions imply that it is possible to measure the relationship with low effort, e.g., via a classical ROI. Considering the results of interviewed experts from research and associations, most statements are similar, but they differ in the degree of conviction. Interviewed non-practitioners are less convinced as the perceptions are stated much more cautiously. Some statements, such as “*there will never be*

an indicator" (#21) or *"there is no explicit link"* (#25) are in contrast to the practitioners' views. Moreover, the presented measurement approaches by non-practitioners are—except the indicators suggested by three scholars—not easy to apply for practitioners. For instance, one expert (#24) suggests measuring profit per process unit in the value chain. The implementation of the suggestion is difficult, first, because many corporations are not able to obtain the necessary data on the process unit as this requires expensive measuring instruments for data collection. Second, many corporations are not able to collect data on the value chain level as this depends on a close relationship with suppliers and customers. This result indicates one further contribution to research. Scholars should analyze in how far the more pragmatic oriented considerations can be utilized for future investigations and measurement approaches. In future studies, scholars should pay more attention to technical feasibility and practicability of measurement approaches. Practitioners benefit from the suggested methods by researchers and cause for thought in how far it makes sense to invest in better measurement instruments and collect the required data.

Another prevalent aspect stemming from the interview analysis represents the identification of two impact levels. First, there seems to be a direct impact between saving resources and improved financial performance, which was acknowledged predominantly by larger firms. According to related literature, it is more likely that larger firms have more capacities, such as financial resources (slack resources) or larger sustainability departments, which are able to focus on those aspects [68,69]. Second, practitioners also assume an indirect impact, for instance, an improved image, reputation, or quality [17]. Interestingly, only one non-practitioner also referred to that fact. However, this result should be considered by both interview groups—practitioners and non-practitioners. A more detailed analysis of the two impact levels represents a further pathway for future research. Practitioners should also keep the two impact levels in mind when considering CEP improvement measures. By that, they can convince corporate decision-makers more easily that an improved CEP level results in direct and indirect impacts on CFP.

To sum up, experts from both interview groups confirm the positive relationship between resource efficiency, being part of CEP, and improved CFP. The study contributes to the research discussion as scholars learn how practitioners consider the cause-and-effect relationship and how corporations measure the link.

After having discussed the differences between the two interview groups and the contribution of the study, I asked myself why in my theoretically chosen sample is the message clear that it pays to be green. If I had conducted many more interviews, would I have gained a significantly different result? I furthermore wondered how reasonable it is that scholars (myself included) still heavily rely on quantitative oriented research in the field with even more sophisticated models and even larger samples when practitioners are already aware of the link. Would it not be more prudent to ask for the barriers which hamper corporations from meeting sustainability challenges?

First, the analysis refers to in-depth expert interviews and, thus, a qualitative research approach. Therefore, generalizability of results is limited [70]. Inherent subjectivity of qualitative research [71] represents a further shortcoming. Future studies could overcome these limitations by conducting representative surveys. Moreover, the sample focuses on one country. Nevertheless, theoretical sampling and the usage of a second interview group leads to high reliability and validity of results [55,65].

Second, I related the issue to the fact that the interviewed practitioners are responsible for resource efficiency inside the corporations they are working for. Thus, it might take some time until the view of the resource efficiency experts gets transferred to the management level [72].

Third, it could be the case that scholars do research far away from practice: Practitioners in general might already know about the existence of the relationship, but have to focus on more highly ranked issues. Hence, limited management attention [73] might be a reason that resource efficiency is not in the focus of corporate decision-makers. Further barriers such as financial limitations or organizational aspects hamper the implementation of resource efficiency measures as well [74]. However, scholars are still searching for the holy grail and overall significant results [75]. The gap between research

and practice is not new to scholarly discussions [76]. I do claim that the research-practice gap exists because rigor and complexity of research is in sharp contrast to what practice can process and implement. The phenomenon of limited management attention considers the impossibility of corporate decision-makers to focus on all aspects at the same time [73]. Thus, aspects which are easier to understand, to process, and to react to are higher prioritized. So, whatever scholars publish, there are difficulties in communicating the results and in identifying the exact practical implications for individual corporations. Moreover, scholars seem to live in their own closed loops, where practitioners are excluded [76]. Scholarly approaches are revisited in [77] and it is stated that “we (scholars) read each others’ papers in our journals and write our own papers so that we may, in turn, have an audience (. . .): an incestuous, closed loop” [77] (p. 13). In order to reduce the gap, researchers need to better edit their messages and practitioners need to be more interested in what researchers want to tell them. Hence, communication might be the key. For both sides, this requires willingness and resources. Convinced managers and a resource culture represent important aspects to lower the barrier as well (#06). I hope that future studies gain deeper insights into the important aspect of communication and that this study contributes to indicate the way. In the particular setting of this study, it would help to improve CEP by improving CFP at the same time. In the end, this fosters long-term survival of corporations and reduces corporate impacts on the natural environment [21].

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