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CORPORATE ENVIRONMENTAL PERFORMANCE AS A MEDIATOR BETWEEN ECO-EFFICIENCY STRATEGY AND FINANCIAL PERFORMANCE IN JORDANIAN INDUSTRIAL SECTORS

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ABSTRACT

Purpose: The purpose of this study is to examine corporate environmental performance (CEP) as a mediator between eco-efficiency strategy and financial performance.

Theoretical framework: The application of the corporate environmental performance item is weak since it is not documented at that time, and there are also financial and eco-efficiency plan weaknesses. Also, the goal of the present study is to advance, add to the body of literature, and fill in any gaps.

Design/methodology/approach: The study employed a survey-based cross-sectional study that included industrial, service, and real estate firms registered under the Amman Stock Exchange. A total of 230 questionnaires were distributed to the managers in health and safety, finance, and operational firms. Ultimately, 209 (90.8%) of the questionnaires were included for further analysis.

Findings: The results revealed that efficiency strategy and CEP significantly influenced corporate financial performance, whereas efficiency strategy significantly influenced CEP. Moreover, CEP mediated the relationship between efficiency strategy and corporate financial performance. Nonetheless, the study was limited to eco-efficiency strategy.

Research, Practical & Social implications: The study of Jordanian industry, service, and real estate companies' Eco-Efficiency Strategy scores includes their environmental performance, which may be utilized to determine the primary influence factor on their financial success. This study offers insightful information for policymakers.

Originality/value: The study's significance is that, in order to increase the financial success of these businesses, governments must pay more attention to the environment and the factors that influence it.

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DESEMPENHO AMBIENTAL CORPORATIVO COMO MEDIADOR ENTRE A ESTRATÉGIA DE ECOEFICIÊNCIA E O DESEMPENHO FINANCEIRO NOS SETORES INDUSTRIAIS DA JORDÂNIA

RESUMO

Objetivo: O objetivo deste estudo é examinar o desempenho ambiental corporativo (CEP) como um mediador entre a estratégia de ecoeficiência e o desempenho financeiro.

Referencial teórico: A aplicação do item de desempenho ambiental corporativo é fraca, pois não está documentada naquele momento, e também há deficiências financeiras e do plano de ecoeficiência. Além disso, o objetivo do presente estudo é avançar, adicionar ao corpo da literatura e preencher eventuais lacunas.

Projeto/metodologia/abordagem: O estudo empregou um estudo transversal baseado em pesquisa que incluiu empresas industriais, de serviços e imobiliárias registradas na Bolsa de Valores de Amã. Um total de 230 questionários foi distribuído aos gerentes de saúde e segurança, finanças e empresas operacionais. Ao final, 209 (90,8%) dos questionários foram incluídos para posterior análise.

Resultados: Os resultados revelaram que a estratégia de eficiência e o CEP influenciaram significativamente o desempenho financeiro corporativo, enquanto a estratégia de eficiência influenciou significativamente o CEP. Além disso, o CEP mediou a relação entre estratégia de eficiência e desempenho financeiro corporativo. No entanto, o estudo limitou-se à estratégia de ecoeficiência.

Implicações de pesquisa, práticas e sociais: O estudo das pontuações da estratégia de ecoeficiência das empresas da indústria, serviços e imóveis da Jordânia inclui seu desempenho ambiental, que pode ser utilizado para determinar o principal fator de influência em seu sucesso financeiro. Este estudo oferece informações perspicazes para os formuladores de políticas.

Originalidade/valor: O significado do estudo é que, para aumentar o sucesso financeiro desses negócios, os governos devem prestar mais atenção ao meio ambiente e aos fatores que o influenciam.

Palavras-chave: Estratégia de Ecoeficiência, Desempenho Ambiental Corporativo, Desempenho Financeiro, Setor Industrial da Jordânia.

DESEMPEÑO AMBIENTAL CORPORATIVO COMO MEDIADOR ENTRE LA ESTRATEGIA DE ECOEFICIENCIA Y EL DESEMPEÑO FINANCIERO EN LOS SECTORES INDUSTRIALES JORDANOS

RESUMEN

Propósito: El propósito de este estudio es examinar el desempeño ambiental corporativo (CEP) como mediador entre la estrategia de ecoeficiencia y el desempeño financiero.

Marco teórico: La aplicación del ítem desempeño ambiental empresarial es débil ya que no está documentado en ese momento, además existen debilidades financieras y del plan de ecoeficiencia. Además, el objetivo del presente estudio es avanzar, agregar al cuerpo de literatura y llenar cualquier vacío.

Diseño/metodología/enfoque: el estudio empleó un estudio transversal basado en una encuesta que incluyó empresas industriales, de servicios y de bienes raíces registradas en la Bolsa de Valores de Amman. Se distribuyeron un total de 230 cuestionarios a los gerentes de las empresas de salud y seguridad, finanzas y operaciones. Finalmente, 209 (90,8%) de los cuestionarios fueron incluidos para su posterior análisis.

Hallazgos: Los resultados revelaron que la estrategia de eficiencia y el CEP influyeron significativamente en el desempeño financiero corporativo, mientras que la estrategia de eficiencia influyó significativamente en el CEP. Además, el CEP medió en la relación entre la estrategia de eficiencia y el desempeño financiero corporativo. No obstante, el estudio se limitó a la estrategia de ecoeficiencia.

Implicaciones sociales, prácticas y de investigación: el estudio de las puntuaciones de la estrategia de eficiencia ecológica de las empresas jordanas de la industria, los servicios y los bienes raíces incluye su desempeño ambiental, que puede utilizarse para determinar el principal factor de influencia en su éxito financiero. Este estudio ofrece información valiosa para los formuladores de políticas.

Originalidad/valor: La importancia del estudio es que, para aumentar el éxito financiero de estas empresas, los gobiernos deben prestar más atención al medio ambiente y los factores que lo influyen.

Palabras clave: Estrategia de Ecoeficiencia, Desempeño Ambiental Corporativo, Desempeño Financiero, Sector Industrial Jordano.

INTRODUCTION

Recently, governments, policymakers, non-governmental organisations, businesses, and the general public worldwide focused on the environmental condition. Company strategies and practices have been affected to prevent environmental issues and to avoid more interference, regulations, and costly projects (Epstein & Roy 1997; Popp 2019). Moreover, most executives view that environmental concerns should be addressed although the action implies sacrificing business revenues or delaying product debut (Henderson 2015; Charter & Tischner 2017). The CEP denotes organisations that promise to reduce the negative environmental effects of operations or to facilitate efforts of environmental protection. Firms' actions and operations in developing, manufacturing, distributing, and consuming products and services lead to environmental issues (Strike, Gao et al., 2006). The CEP also includes integrating environmental concerns into firms strategies to enhance environmental protection and minimise negative environmental impacts.

Environmental concerns involve several levels in a company. J Nagy, J Oláh and E Erdei (2018) listed four levels in the management process: enterprise strategy, corporate strategy, business strategy, and functional strategy. The significance of enterprise strategy is to determine the role of firm operation in society. Meanwhile, enterprise strategy highlights corporate governance and functions. Corporate strategy determines which types of businesses a company should engage in to achieve long-term goals. Business strategy includes the best resource combination to gain a competitive advantage. Environmental concerns impact product development and price decisions at the functional strategy level. Managers could handle environmental challenges more effectively and efficiently by integrating corporate environmentalism into the business strategy framework (Hermawan, Sari, Biduri, Rahayu, & Rahayu, 2023; Winston & Mintu-Wimsatt 2013).

Based on the environmental perspective, the realisation of environmental goals stipulates managing environmental issues and integrating suitable strategies. Companies must develop strategies to achieve goals by integrating environmental performance (EP) aspects and including financial performance. Sustainable development strategies of companies comprise strategies that primarily protects the environment and emphasise competitive advantage. The World Resources Institute (WRI, 1998) identified a gap between the current consumption and sustainability patterns despite the significant work of businesses to improve material and energy efficiency in the United States, Germany, and Japan. Notably, eco-efficiency is the most appropriate strategy that addresses waste mitigation and enhances the use of resources while

ensuring the least environmental impact and promoting sustainable global resources (Abdul Rashid et al., 2008; Yang & Zhang, 2018).

Several studies have proven the direct relationship between efficiency strategy and the financial performance of the company, such as Xie, Nozawa, Yagi, Fuijii and Managi (2019) and Sinkin, Wright and Burnett (2008). The studies proposed that efficiency strategy enhances competitive edge and market value. Nonetheless, limited studies evaluate the efficiency strategy-financial performance relationship while addressing environmental concerns. Thus, the current study aims to enhance and contribute to the literature. To the best of the authors' knowledge, past studies have not examined the interrelationship of CEP as a mediator between eco-efficiency strategy and corporate financial performance.

The study makes theoretical and practical contributions in the areas of improving corp orate environmental performance and its role as a mediator in the relationship between efficie ncy strategy and financial performance. The study's main contribution is raising managers' aw areness of the issue because earlier research on the subject only looked at shareholders' perspe ctives. Hence, the study analyses the connection between eco-efficiency strategy and financial performance, and whether CEP mediates the relationship.

LITERATURE REVIEW

Performance is the activity of a specific member following a specific event that influences other members (Goffman, 1959). Meanwhile, financial performance is the action of executing the financial activities of the entity or the extent to which the financial objectives is achieved (Yahaya & Lamidi, 2015). Financial performance is the process where the outcomes of the company policy and operations are assessed in financial terms. Moreover, financial performance involves measuring the general economic wellbeing of the firm at a specific period and comparing the measurements with rival firms in the industry or other sectors (Eshna, 2016).

Financial performance is the objective intention for profit-centred firms and the absence of the aspect produces a failed entity (Ugarkovic, 2008; Yahaya & Lamidi, 2015). Similarly, corporate financial performance denotes a general reflection of the business sector outcomes and results detailing the financial health of the sector at a particular period (Naz, Ijaz & Naqvi, 2016). Additionally, corporate financial performance is how the entity uses resources to maximise the wealth and profitability of shareholders.

Investors, creditors and managers evaluate corporate financial performance by adopting top indicators such as accounting-based financial ratios [return on investments (ROI), return on

assets (ROA), sales growth, and profit growth]. Firms profit growth signifies the performance as growth reflects the realisation of sustainable competitive advantage and profitability (Markman & Gartner 2002; Winston & Mintu-Wimsatt, 2013).

Corporate strategies indicate patterns of firm decisions that establishes and presents firm goals, functionality, and aspirations (Andrews, 1998), which creates the main principles and projects that realise the objectives and establishes numerous business initiatives to supply input to stakeholders, staff, clients, and the public. The environmental perspective describes that achieving environmental aims demands handling environmental issues and incorporating corresponding strategies. Corporations must establish strategies by integrating EP aspects and considering financial performance to achieve goals. Corporate sustainability strategy involves two aspects; 1) general sustainability strategy that protects the environment, and 2) a strategy directed towards competitive advantage.

Efficiency aims to enhance the input-output ratio by using fewer resources and less energy level (Nagy, Oláh et al. 2018; Schaltegger & Burritt, 2005). The action is possible through eco-efficiency advocated by the World Business Council for Sustainable Development (WBCSD), stating that eco-efficiency is realised through delivering competitively-priced products/services, which fulfils human needs and aid quality of life while mitigating ecological impacts and resource use during the product or service life cycle to a level tolerable to the environment (Micheli, Cagno & Tappia, 2018; Stigson, 2000). Eco-efficiency must be implemented and adopted in organisational operations to mitigate the environmental impacts and improve economic success. Generally, a sustainable business strategy is manipulated through eco-efficiency (Korhonen & Seager, 2008; Alnaim, Sulong, Salleh, & Ghaith, 2022; Micheli et al., 2018). In the past 30 years, several companies became aware of the cost-saving benefits of applying environmental management practices and implementing eco-efficiency to overcome global environmental issues (Jollands & Patterson, 2004; Yang & Zhang, 2018).

In a world of limited resources and increased requests for environmental protection and saving for the next generation, businesses should consider environmental issues and product safety (Moura-Leite, Padgett et al., 2014). Consequently, companies experience growing pressure to maximise EP and financial performance. Increasing public awareness of environmental problems has raised the demand for environmental financial mechanisms promoting responsible business practice (Lagas 2013; Yusoff, Nejati et al., 2020).

Investors could discover useful value-relevant information about the environmental reputation of a company in predicting future earnings (Hussainey & Salama 2010; Alsayegh,

Abdul Rahman et al., 2020). Resultantly, accountants should prioritise developing sufficient and comprehensive environmental disclosure methods to establish effective financial communication with investors. Investors will highly likely use environmental reporting to better analyse firms earning projections and lower implied uncertainty (Cormierand Machdar, 2017).

Although scholars have long argued on the concept of CEP, no consensus was reached on measuring the aspect. Moreover, the difficulties in measurement complicate developing the definition (Dragomir, 2018). Generally, EP is defined as corporate performance in light of environmental responsibility (Alnaim et al., 2022; Yang, Hong et al., 2011).

The CEP represents monumental advancements regarding the application of environmental management systems (EMS) and developing environmental reportage, such as the Global Reporting Initiatives (Dragomir, 2018) and the Carbon Disclosure Project (Matisoof, Noonan, & O'Brien, 2013). Significantly, the theoretical basis of CEP measurements concerns the inventory of EP indicators (Hourneaux Jr, Hrdlicka, Gomes, & Kruglianskas, 2014; Matisoff et al., 2013; Puig, Wooldridge, & Darbra, 2014). Based on the inventories, researchers established several CEP measurements which deliver opportunities to compare studies, industries, and nations.

For instance, Delmas and Blass (2010) divided EP indicators into three types: environmental influence (emission, energy use, toxicity or spill, mishaps in plants, mishap outcomes), regulatory compliance (compulsory implementation of treatments and recycling plants, lawsuits involving improper hazardous wastes discarding, and penalties for the clean-up), and organisational process (environmental management system development, corporation procedures, and investment costs in managing pollution from technologies. Many stakeholders used combinations of the categories to define CEP. The present study covers all the mentioned EP categories.

MATERIALS AND METHODOLOGY

Efficiency strategies indicate the management control processes applied to raise performance and effectiveness (Al Muala, Al-Ghalabi, Ghaith, Hamdan, & Alnawafleh, 2022; Gatimbu, Ogada, Budambula & Kariuki, 2018; Huppes & Ishikawa, 2005). Past studies demonstrated the enhancing effects of eco-efficiency strategy on competitive advantage and company value (Epstein & Roy, 1997; Mohr, 2002; Peck & Sinding, 2003; Xepapadeas & de Zeeuw, 1999; Xie, Nozawa, Yagi, Fujii & Managi, 2019). Feldman, Soyka and Ameer (1997)

and Ozturk and Yilmaz (2016) stated that firms that effectively implement eco-efficiency strategies provide value to their shareholders by minimising the risk profile, producing better performance.

Past studies also explored efficiency strategy in the accounting sector regarding reduced emissions, pollution prevention, and breach prevention (Cormier, Magnan & Morard, 1993; Hart & Ahuja, 1996; Ramdhani & Meylani, 2016). Brady, Henson, and Fava (1999), Ekins (2005), and Xie et al. (2005) discovered that incorporating environmental values into company planning causes management to determine the connection between efficiency strategy in the form of environmental goals and profitability in the form of financial performance (2019). Regarding the influence of eco-efficiency on business financial performance, Xie et al. (2019) identified a positive link between corporate efficiency and market value, indicating that companies with environmental regulations are subjected to autonomous evaluation with more efficiency and better performance. Dynamic competition in the market has demanded firms to apply strategic-environmental policies to improve competitiveness as the policies impact corporate financial performance. Sinkin, Wright and Burnett (2008) and Al-Qaisi, Al-Batayneh and Slehat (2017) summarised that eco-efficiency strategy adoption leads to increased corporate financial performance. Therefore, the study proposes the following:

H1: Eco-Efficiency strategy significantly influences corporate financial performance.

Eco-efficiency, which relates to the concept of efficiency strategy, aims to protect society and the environment amid economic progress (Al-Qaisi, Al-Batayneh & Slehat, 2017; Al Muala et al., 2022; Dyllick & Hockerts, 2002). Recently, several businesses became concerned about possible cost savings in the environmental management methods, and the essential role of eco-efficacy in confronting the global ecological issue (Ichimura et al., 2009; Sklyarova & Kobets, 2011). Eco-efficiency relates to preserving the environment by utilising fewer resources and producing less material waste while manufacturing high-quality products or services that satisfy stakeholder expectations for competitive pricing. Studies highlighted efficiency solutions to address environmental issues and limit pollution (Penttinen & Pohjola, 2008; Sarkis & Cordeiro, 2001). Schmidt et al. (2004) described eco-efficiency as strategic tools that aid firms in selecting the top cost-effective and environmentally sound production processes. Based on past empirical and theoretical evidence of sustainability strategies, the study proposed that efficiency strategy has a significant role in firms EP. Eco-efficient environmental-strategy adoption lowers energy use and waste production while minimising the

impact on the environment and granting firms with a competitive advantage, lower expenses, and more value (Lehni, 2000). Thus, the study presents that:

H2: Eco-Efficiency strategy significantly influences CEP.

Most studies suggested a favourable relationship between proactive environmental strategy and corporate financial performance (Aragon-Correa, Hurtado-Torres, Sharma & Garcia-Morales, 2008; Bansal, 2005; Lopez-Gamero, Molina-Azorin & Claver Cortes, 2009; Lucato, Costa & De Oliveira Neto, 2017). The natural resource-based priority of corporations encourages the connection between CEP and corporate financial performance (Hart, 1995; Ryszko, 2016; Alnaim et al., 2022). The concept denotes that EP has a favourable impact on firms competitive edge and enhances financial performance, as confirmed by Chiou, Chan, Lettice and Chung (2011) and Ghisetti and Rennings (2014). Fousteris, Didaskalou, Tsogas and Georgakellos (2018), Klassen and Mc Laughlin (1996) and Russo and Fouts (1997) reported a positive relationship between environmental strategies and large competitive levels in major businesses (Atkins, Gilinsky Jr. & Newton, 2012; Christmann, 2000; Fousteris et al., 2018; Hart, 1995; Russo & Fouts, 1997; Sharma & Vredenburg, 1998).

Studies on CEP-corporate financial performance relationship demonstrated inconsistent findings (Albertini, 2013; Dixon-Fowler, Slater, Johnson, Ellstrand & Romi, 2013; Nishitani, Kaneko, Fujii & Komatsu, 2011; Orlitzky & Benjamin, 2001; Stefan & Paul, 2008). Considering the positive findings on the CEP-corporate financial performance relationship, the following is proposed:

H3: CEP significantly influences corporate financial performance.

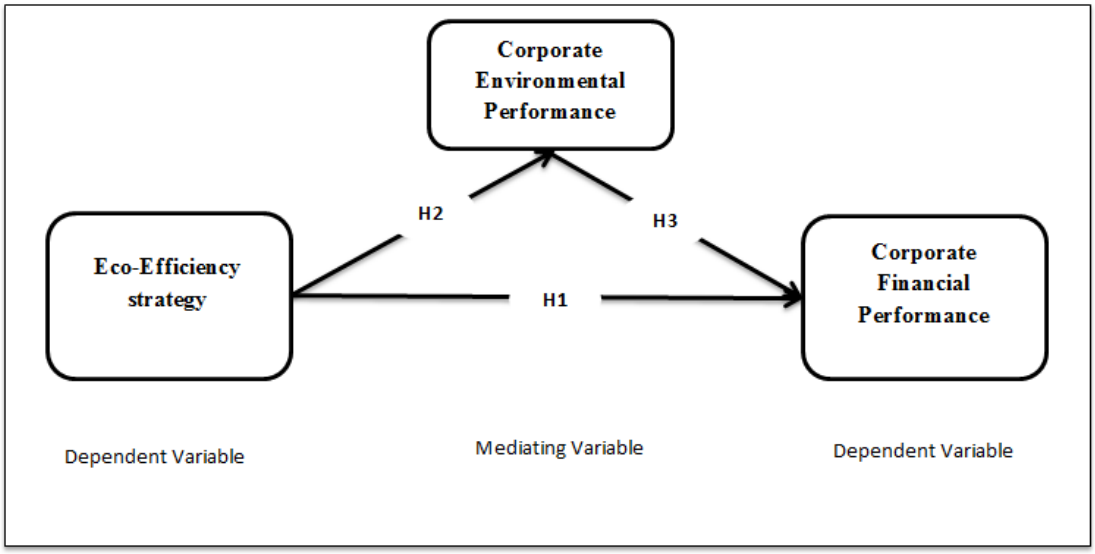
The concept of eco-efficiency was extended and acknowledged by the management of global organisations, including the Organisation for Economic Cooperation and Development (OECD), referring to eco-efficiency as the ecological resources utilised to satisfy human requirements and needs. Similarly, the European Environment Agency (EFA) described the concepts as more welfare from less nature, working as a basic premise to facilitate government sectors, firms, and the public in maintaining a sustainable environment. The strategy gathers the fundamental details of financial and natural growth that are crucial for successful financial performance by optimising resource use and reducing hazardous chemical wastes. The strategy emphasises improving economic development while reducing the environmental impacts (Abdul Rashid, Evans, & Longhurst, 2008; Al-Qaisi, Al-Batayneh, & Slehat, 2017; Stigson, 2000).

A robust EP that is not limited to compliance requires inventive industries and extensive procedure resolutions (Russo & Fouts, 1997; Yu & Rhee, 2015). The workforce and resources from the environmental administration produce developed inventive abilities of companies (Nahapiet & Ghoshal, 1998), enabling entrepreneurship and preparedness for innovative outcome generation. Adinehzadeh, Jaffar, Shukor, Rahman and Che (2018), Grekova, Bremmers, Trienekens, Kemp and Omta (2013) and Yu and Rhee (2015) suggested the mediating role of EP. Hence, the following is proposed:

H4: CEP mediates the relationship between eco-efficiency strategy and corporate financial performance.

The study examined the influence of the corporate efficiency strategy on financial performance with EP as the mediating variable. Similar to other developing countries, the Jordanian government established policies to protect the natural environment, with all sectors implementing various policies and activities to reach the goal and ultimately improve financial performance (Aladwan, 2018). Figure 1 depicts a conceptual framework on the hypothetical relationship between the examined dependent, independent and mediating variables.

Figure 1: Theoretical Framework



Source: Prepared by the authors (2023).

The Natural Resource-Based View (NRBV) is an extension of the Resource-Based View (RBV) relevant to the study, as suggested by Hart (1995). The original RBV theory states that firm growth depends on strategic management and readily available resources. Nevertheless, Hart (1995) proposed the NRBV theory as a conceptual framework including the impact of the natural environment on competitive advantage and firm performance outcomes.

The NRBV mainly suggests three main eco-strategies: pollution prevention by reducing solid wastes and effluents, product stewardship by reducing product lifecycle costs, and sustainable development by minimising the environmental burden from business growth. All the aspects play a role in developing firms a competitive advantage over critical resources with an environmental driving force (Alalade & Oguntodu, 2015).

Based on the environmental-based management practices, the NRBV theory explains the implementing practices that maximise shareholder environmental and financial wealth by corporate managers (Lewndowski, 2018). Corporate managers' inclination to obtain financial assistance from implementing environmental practices overshadows the cost invested in implementation (Ness & Mirza, 1991). If any company operational activity impacts the natural environment through water pollution, oil spills, by-waste, air pollution, and others, the shareholders can demand top management to present a solution to the issue despite the cost.

The NRBV is a top paradigm applied in evaluating the relationship between strategic management and the natural environment (Walls, 2008). Companies that employ proactive environmental management in the corporate strategies are more sustainable competitive than their counterparts that lack similar policies. The NRBV significantly influence the study as the objective is to analyse the influence of eco-efficiency strategy on corporate financial performance, with CEP as the mediating factor.

The study adopted a quantitative research design method according to a survey questionnaire (cross-sectional study). The population comprised the total industrial and service and real estate firms registered under the Amman Stock Exchange (ASE), which are 124 firms (ASE, 2019). The study referred to Delice (2010) and Morgan, Robert and Daryle (1970), a total of 372 respondents included managers of health safety, finance managers, and operational managers from 124 firms registered under ASE (ASE, 2019). Thus, the suitable sample size for the study is 191. Creswell (2012) mentioned that the larger the sample size, the higher the confidence level, the smaller the error variance, the better the representation of results, and the more homogenous the sample. Thus, the study added 20% to the study sample to become 230 (20% × 191) managers.

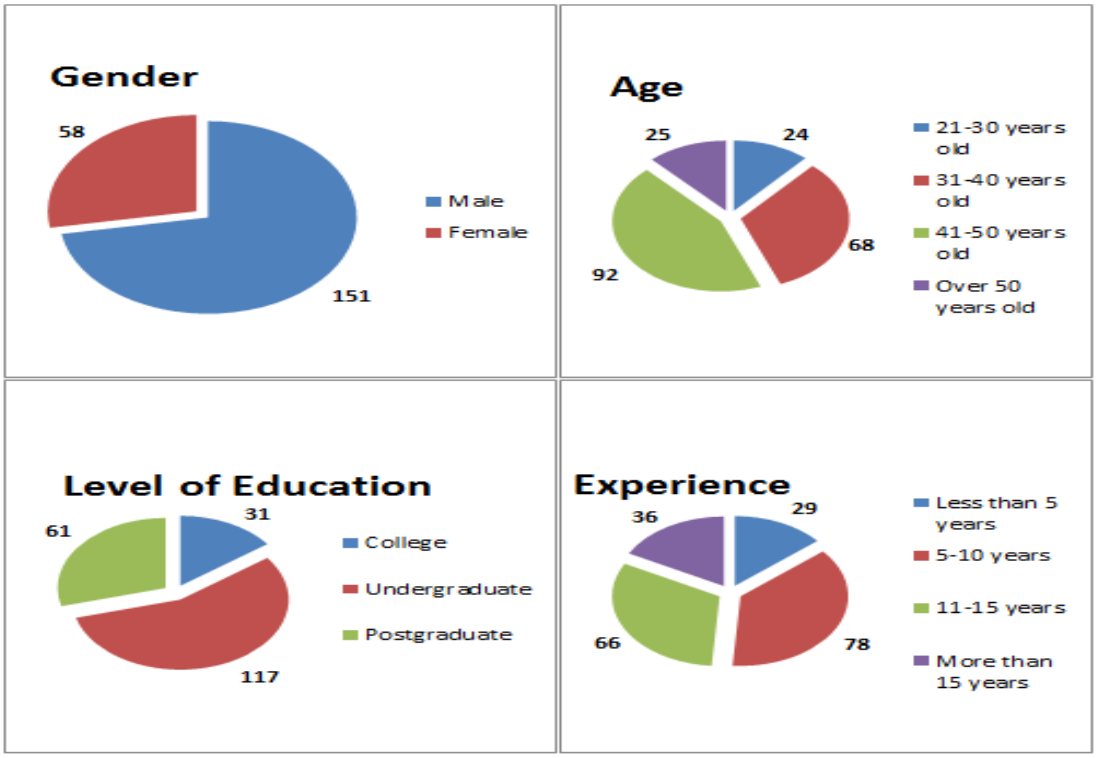
The additional managers were based on Hair et al. (2010) to reduce the sampling error, to manage non-response bias, and reduce problems of the missing questionnaire. Data collection employed two sample methods (simple random sampling, convenience sampling). The study also used a simple random sample to select the firms and a convenience method to select the respondent (managers) from each firm. All industrial and service and real estate firms

in Jordan consented to participate by filling in the questionnaire. The questionnaire was provided with the assistance of one employee of the human resources department. A total of 209 (90.8%) distributed questionnaires were collected for further analysis with 21 missing questionnaires.

The eco-efficiency strategy applied the measurements by Benoit, Margni et al. (2019) and Madden, Young et al. (2005) to assess the efficiency strategy in 12 items, with the reliability of 0.949. The CEP employed the measurement from Al-Qaisi, Al-Batayneh and Slehat (2017), Rettab et al. (2009) and Sharma and Vredenburg (1998) to calculate CEP in nine items, with the reliability of 0.962. Meanwhile, corporate financial performance utilised the measurement from Kang. (2016) and Rettab, Brik et al. (2009) and Samiee and Roth (1992) to assess corporate financial performance in four items, with the reliability 0.936. All variables were measured using a 10-point Likert scale.

Figure 2 depicts the demographic information analysis of 209 respondents, (151) were male while (58) were female. Most respondents were between 41 to 50 years old (92), followed by (68) between 31 to 40 years old, (25) over 50 years old, and (24) were 21 to 30 years old. In terms of education level, most respondents were undergraduate (117), (61) postgraduate, and (31) were college graduates. In terms of experience, (29) had less than five years of experience, (78) had five to ten years of experience, (66) had 11 to 15 years of experience, and (36) had more than 15 years of experience.

Figure 2: Respondents' Demographic Information



Source: Prepared by the authors (2023).

RESULTS AND DISCUSSION

Data analysis comprised two primary aspects: assessment of measurement model and structural model using Smart Partial Least Squares (SmartPLS) Version 3.3.3. The assessment of the measurement model included convergent validity and discriminant validity. Table 1 demonstrates the results of convergent validity, whereby all the items had loadings ranging from 0.708 to 0.912. Meanwhile, all variables achieved values more than 0.7 for Cronbach's alpha and composite reliability. Additionally, all variables achieved values more than 0.5 regarding the average variance extracted. Therefore, all variables achieved values greater than the proposed threshold value by Hair, Hult, Ringle, and Sarstedt (2016).

Table 1: Convergent Validity

Variable	Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE
Efficiency Strategy	ES1	0.787	**0.942**	**0.949**	**0.608**
	ES2	0.801			
	ES3	0.708			
	ES4	0.799			
	ES5	0.814			
	ES6	0.797			
	ES7	0.784			
	ES8	0.821			
	ES9	0.766			
	ES10	0.736			

	ES11	0.712			
	ES12	0.822			
Corporate Environmental Performance	CEP1	0.844	**0.955**	**0.962**	**0.736**
	CEP2	0.850			
	CEP3	0.888			
	CEP4	0.911			
	CEP5	0.824			
	CEP6	0.876			
	CEP7	0.855			
	CEP8	0.898			
	CEP9	0.766			
Corporate Financial Performance	CFP1	0.887	**0.909**	**0.936**	**0.785**
	CFP2	0.884			
	CFP3	0.912			
	CFP4	0.860			

Source: Prepared by the authors (2023).

Discriminant validity was evaluated according to Heterotrait-Monotrait Ratio (HTMT). Table 2 demonstrates that the HTMT values were all smaller than 0.85 for each construct and within the range of 0.632 to 0.732 (Hair, Hult, Ringle, & Sarstedt, 2016).

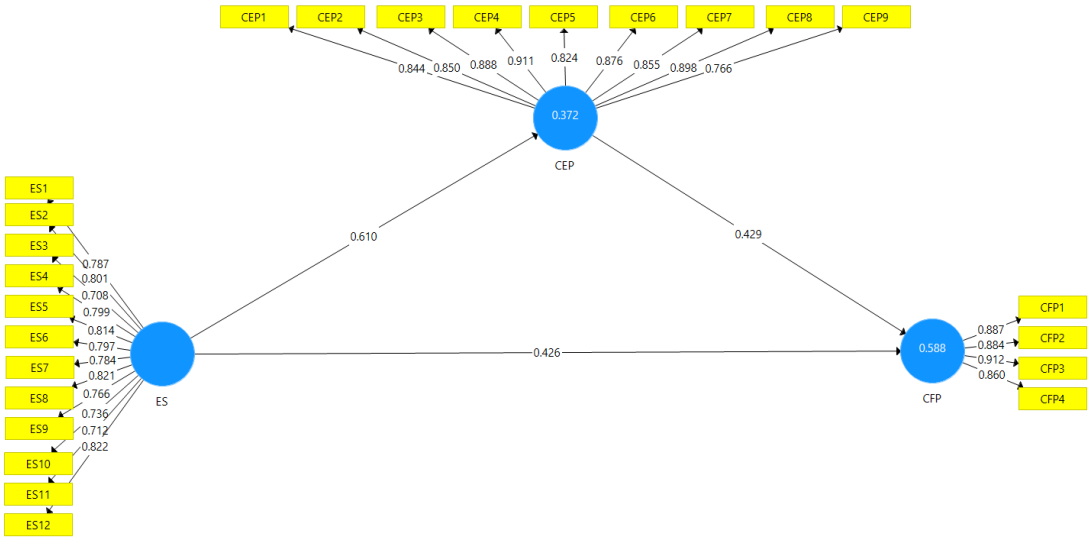
Table 2: Discriminant Validity Based on HTMT

	Efficiency Strategy	**Corporate Environmental Performance**	**Corporate Financial Performance**
Efficiency Strategy			
Corporate Environmental Performance	0.632		
Corporate Financial Performance	0.726	0.732	

Source: Prepared by the authors (2023).

The hypotheses testing was performed by creating the path coefficients using the partial least squares (PLS) algorithm embedded with SmartPLS Version 3.3.3, as illustrated in Figure 3.

Figure 3: Path Coefficients



Source: Prepared by the authors (2023).

After creating the path coefficients, the study tested the p-values and t-values for each path coefficient to determine whether the hypotheses are statistically significant or insignificant using bootstrapping techniques embedded with SmartPLS (3.3.3). Table 3 demonstrates the hypotheses test.

Table 3: Hypotheses testing

No.	Hypotheses	Path Coefficient	T-Value	P-value	Confidence Interval		Decision
					95% LL	95% UL	
H1	ES→CFP	0.426	6.037	0.000*	0.269	0.548	Supported
H2	ES→CEP	0.610	13.997	0.000*	0.514	0.686	Supported
H3	CEP→CFP	0.429	6.406	0.000*	0.306	0.574	Supported

Note: *: $p < 0.001$

Source: Prepared by the authors (2023).

Table 3 depicts that the efficiency strategy significantly influenced corporate financial performance (Path Coefficient = 0.426; T-Value = 6.037; P-Value = 0.000; 95% LL = 0.269; 95% UL = 0.548); hence, H1 was supported. Meanwhile, efficiency strategy significantly influenced CEP (Path Coefficient = 0.610; T-Value = 13.997; P-Value = 0.000; 95% LL = 0.514; 95% UL = 0.686); thus, H2 was supported. Moreover, CEP significantly influenced corporate financial performance (Path Coefficient = 0.429; T-Value = 6.406; P-Value = 0.000; 95% LL = 0.306; 95% UL = 0.574), suggesting that H3 was supported. Table 4 also demonstrates that CEP mediated the relationship between efficiency strategy and corporate

financial performance (Indirect Effect = 0.262; T-Value = 5.333; P-Value = 0.000; 95% LL = 0.180; 95% UL = 0.377); hence, H4 was supported.

Table 4: Testing the mediating effect

No.	Hypothesis	Indirect Effect	T-Value	P-value	Confidence Interval		Decision
					95% LL	95% UL	
H4	ES→ CEP→CFP	0.262	5.333	0.000*	0.180	0.377	Supported

Note: *: p < 0.001
Source: Prepared by the authors (2023)

CONCLUSIONS

The current study looked at the impact of eco-efficiency strategies on the financial performance of companies in Jordan's industrial sectors via the lens of environmental performance as a mediating factor. The results of this study show a considerable positive association between corporate financial performance and the eco-efficiency strategy. Also, it was shown that a company's environmental performance acted as a mediator between its eco-efficiency plan and financial performance.

Many studies have proven that implementing an eco-efficiency strategy enhances competitive advantage and firm value (Epstein & Roy, 1997; Mohr, 2002; Peck & Sinding, 2003; Xepapadeas & de Zeeuw, 1999; Xie, Nozawa, Yagi, Fujii, & Managi, 2019). Firms that effectively employ eco-efficiency methods provide value to the shareholders by lowering the risk profile (Feldman, Soyka, & Ameer, 1997; and Ozturk & Yilmaz, 2016). Past studies also examined efficiency strategy in the accounting field regarding reduced emissions and prevention of pollution (Cormier, Magnan & Morard, 1993; Hart & Ahuja, 1996; Ramdhani & Meylani, 2016). Effective environmental values application in company planning determines the relationship between efficiency strategy in the form of environmental goals and profitability in the form of financial performance, aligned with Brady, Henson and Fava (1999), Ekins (2005) and Xie et al. (2019). Eco-efficiency influence on firms financial performance, Xie et al. (2019) found a positive link between company efficiency and market value, suggesting that firms with environmental policies are subjected to autonomous evaluation, being more efficient with higher performance.

The NRBV theory by Hart (1995) confirmed the relationship between the environmental efficiency strategy and competitive advantage. All past studies also verified the current study finding on the positive relationship between eco-efficiency strategy and corporate financial performance.

Economic development and eco-efficiency under the concept of efficiency strategy aims to protect society and the environment (Al-Qaisi, Al-Batayneh & Slehat, 2017; Dyllick & Hockerts, 2002). Corporations have demonstrated concern with the potential cost-savings in the environmental management practices and the crucial role of eco-efficiency in tackling the global ecological challenge (Ichimura et al., 2009; Jollands & Patterson, 2004; Sklyarova & Kobets, 2011). Specifically, eco-efficiency is safeguarding the environment by employing fewer resources and producing less material waste while generating high-quality products or services that meet the stakeholder's needs of competitive pricing. Efficiency strategies are recommended to manage environmental issues and to prevent pollution (Penttinen & Pohjola, 2008; Sarkis & Cordeiro, 2001). Hence, the studies support the relationship between eco-efficiency strategy and CEP. Most studies confirmed the positive relationship between pro-active environmental strategy and fiscal success of corporations (Aragon-Correa, Hurtado-Torres, Sharma & Garcia-Morales, 2008; Bansal, 2005; Lopez-Gamero, Molina-Azorin & Claver Cortes, 2009; Lucato, Costa & De Oliveira Neto, 2017). The link between CEP and corporate financial performance is promoted by the natural resource-based priority of firms (Hart, 1995; Ryszko, 2016). Therefore, EP positively impacts the firm competitive advantage and enhances financial performance.

The study is limited to eco-efficiency strategy, suggesting that future studies should include other types of efficiency strategy such as socio-efficiency strategy. Moreover, few studies used CEP as a mediating variable. Hence, future studies should apply CEP as a mediating variable with other variables to develop studies on EP. Corporate environmental performance was only thought of as the mediating variable, despite the likelihood that additional variables like social responsibility or stakeholder reactions might have some effect on eco-efficiency strategy in relation to financial performance. Due to the fact that the current study investigates and empirically supports the mediating role of corporate environmental performance, this constraint exists.

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