

Business Performability in the Sustainable Development Imperative. Factorial Analysis on the Performance of Asset Utilizations

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Abstract. *The future of sustainable economic development asserts one equitable administration of the Environment, Social, and Governance (ESG) pillars. Under these circumstances, the sustainable objectives involve a long-term execution with a capitalization of performance over time. One important literature customizes young and limited sustainable reglementations, and during these conditions, the achievements are cost assessment in disfavor of investments. Although the performance in sustainable development is significantly scientifically capitalized, in performability the benefits are determined under the probability of efficiency use in specific time and environment conditions. In line with this assumption, the goal of the paper is to analyse the effects of sustainable development that might significantly influence the assets' performance capitalized in efficiency of assets utilization, and deflating profitability. The study performs an accountability analysis of financial data reported by European public companies between 2015-2023, factorial developed with the product of return on sales rate and income rate for measuring assets utilization performance. To grasp the effects of asset economic tilization, their ability in deflating profitability was performed. Key acting in the paper includes an analysis of the impact of ESG pillars, green buildings, and reporting scope accomplished on the performance of the assets. The analytical trajectory of the ESG score was consolidated by reporting scope effects, considering that performance is affected by reporting attributes. The results map disclose that sustainable development performability exceeds the presentation date limits and ranks green buildings significantly in deflating profitability, noting the causal relationship between utilization and yield effects. While ESG intangible pillars (reporting scope, score) exert significant effects on assets utilization performance, green buildings are meaningful for the results of asset utilization. The paper highlights the importance of the sustainable strategy put into their specific action: green buildings, investments, dates, and reporting in a governance oriented towards economic efficiency and sustainable growth.*

Keywords: Sustainable development, diversity, profitability, green investment, green buildings.

Introduction

The imperative for performance enhances worldwide scientific literature to achieve polarized results from sustainability taxonomy for the future of the economy. The main practice for assessing performance involves the capitalized source and the results of this capitalization. Meyer (1980) defines this concept as performability, therefore the probability of a system performing in time and environment conditions represents the system's performability.

The social monography of these two elements of capitalized performability depicts their effects on the economic syntax. The equation represents the financial position and performance of the company. The financial position, undervalued especially in the capitalist period, in the sustainable development strategy recovers its mission of presenting “resources likely to generate future economic benefits” (Feleaga, 2007).

To account for the global difficulties beginning with the 20th century, as war, economic development asymmetry, pollution, and migration, an imperative call is made to assess the economic syntax under a “universal and transformative sustainable development” (ONU, 2015). In response to ONU call, the scientific literature studies sustainable growth heliocentrism during the correspondence between performance and sustainable development. Researches into the effects of performance is modulated mainly through asset and capital rates. To account for the popularity of capital performance in the literature, sustainable development characterised by time for capitalization and exploitation (The European law for climate regarding climate neutrality up to 2050) requires a solid business case that involves the factuality of efficiency and productivity before remunerating investors. Comprehensive literature aims to analyze asset performance from a traditional view, meaning the asset efficiency in net profit, conversely, few studies analyse it from a position that would increase its robustness.

Inasmuch as low costs with sustainable reporting increase the company’s performance (Buallay, 2019), enlarge the conduct reporting (Dumay et al., 2011), and perform prudential management practices (Goncalves et al., 2021). Oppositely, disclosures reveal a prudential attitude of investors generated by weak regulation or the lack of performance predictability during the time (Porter and Class, 1995, Ball et al., 2014). More specifically, a large number of studies highlighted financial performance followed by assets performance, meaning that assets include debts and capitals (Siew et al., 2013) or more precisely the return of assets at historical cost (for the cases when investors decide to leave with their asset parts, the refund is made at his historical cost and not at his just value) (Brunnermeier et al., 2011). Over a decade, less robust results for assets performance in favor of financial performance were obtained by Buallay et al., (2021) and Giannopoulos et al., (2022).

Among them, Swink et al., (2015) conclude assets performance is significantly improved through process efficiency and assets productivity, while Siew et al., (2013) deducts debts from total assets. Ball et al., (2014) look at the assets rentability in gross profit and future winnings during the time.

Inspired by the knowledge acquired, our paper explores the weight of sustainable development in assets performance with a segmented analysis of assets utilization under the influence of ESG pillars. The motivation for such an analysis is legitimated by the importance of different levels of performance in sustainable strategy (one investment will generate different performance attributes in contrast with a renovation or improvement action).

Our study addresses the literature blankness regarding assets performance lessened than capital performance in sustainable development in a pathway to increase the rigor and the relevance of the result with a factorial analysis of assets utilization depicted on return on sales and total income. This factorial analysis is conducive for assets performance capitalized in profitability. The causality between utilization and performance is achieved during the influence of ESG Score, ESG Reporting Scope, Green Buildings, and CSR sustainability, aimed to crystallize the company’s performance in sustainable development.

A panel of data for 43 countries with financial disclosure in the 2015 - 2023 period conducted our analyses in an econometric study. Endogeneity issues (Combes et al., 2024) arising from the same causality were controlled with exogen dummy variables and control variables. Given the importance of worldwide regulation that has to accomplish the same area of diversity, intangible influence, like ESG score, and reporting scope amplified the assets performance trends. ESG reporting scope exerts the most powerful action in assets performance, because of its neutral position, succeeded by ESG score that can be considered more biased with the context. Moreover, our results show that green buildings have the most significant effects in profitability, noting a direct relationship between utilization and her remunerative effects.

The study is divided into the following sections: Section 2 presents the literature review. Section 3 presents the hypothesis and the research methodology. Section 4 reports the empirical analysis results. In 5 are presented the conclusions, recommendations, and the scope for future research.

Literature review

Reflecting interest parties in sustainability entails diversity for assets utilization, accounting for legitimate and comparable information that reflects performance imprinting over time. Three different frames of reference emerged during the literature:

Diversity and sustainable development

Addressing sustainable development entails solving the complex diversity, assessment, and representation, and linking these actions with the sustainable performance objectives (SEEA, 2021).

According to knowledge theory, diversity is conducive to an efficient use of resources that generate competitive results (Battisti et al., 2022). Furthermore, diversity creates an arch for ethical behavior. One ethical management performed with the accomplishment of principle obligations, previous professional obligations, and rights advocates long-term gains (Goncalves et al., 2021). From the same theoretical point of view but in contrast with the knowledge theory, diversity in dependent resource theory stresses the collaboration between the companies for the management of natural resources. Mardini et al., (2022) study this dependence in the agent theory. Following his results, the managers in favor of their interest can make concessions on ethical practices. Diversity managed by foreign investors, provided by corporate cultures and ethical behaviors, decreases agent threats.

The dynamism of diversity also means non-uniform practices and fragmented information. The main concept in this regard asserts a “*robust information, comparable, and public*”, Dumay et al., (2021) reveals the situation of Sweden's companies that most voluntarily applies the principles of sustainable development and the reporting disclosure, and yet the country is linear settle between the European Union countries.

The isomorphism of sustainable development-reporting acquires a common denominator from diversity perspective, conducive from financial disclosure to sustainable reporting disclosure (Directive 2464/2022, ESRS). Addressing performance, this will be makeable only if these frameworks can evolve together (Battisti et al., 2022).

Performance in sustainable development

In the Socially Responsible theory, one ethical social activity is built alike from social and professional commitments, and this context eliminates the occasional performance. Rield and Smeets (2017) demonstrate that performance investments robust over time are achieved by investors with academic studies, also the social reputation of the investors can influence the price of the asset.

From a different segment of stakeholders, the performance is analyzed from the perspective of the legislative system, the jurisdiction with a strong regulatory system, and an economy oriented through sustainability achieves a powerful performance. While the frame of common law and the orientation through business - Anglo-Saxon economy - mark a lower sustainable performance substituted with a powerful business ethics, justified with a demand for information. However, in emerging countries, the home countries' legitimacy may override the host country's interest (Saini et al., 2019, Varzaru et al., 2021).

Strict legislative regulations do not always go hand in hand with sustainable development but are better viewed in performance (Porter et al., 1995). Regarding Porter's hypothesis, Ambec et al., (2011) reveal that conservator managers will choose to delay investment decisions because of the difficulty of cost management over time since "the cost of innovation accrues now while the benefits are for later". In the same currency, stakeholders and legitimacy theory entail shared responsibility (Council EU, 2024). Stakeholder diversity funds generated through history, culture, and economy scaling performance unfettered by the boundaries of consideration, imprinting value relevance in governance and through the entire chain above (Buallay et al., 2019, 2021). This logical, in Buallay (2019) 's research leads to the outcome that sustainable companies perform lower costs with higher performance.

Strengthening this approach, according to Dumay et al., (2021), voluntary reporting places Sedeen in the average sustainability score in UE countries (useful information for investors), research conducted according to the analyses theory content (words, ESG specific words) (Varriale et al., 2022).

According to suitable knowledges, sustainable development has a shared vision although its imperative for performance, from the primary materials element (Sequeira et al., 2023) to company decisions (Bebbington et al., 2024), is built with cost compliance more than a performing outcome in a long way (Saini et al., 2019). On account of the regulations (legitimacy theory), either an agnostic knowledge of the environment (resource dependency theory and knowledge theory) or as a result of the inadequacy of stakeholders' interest in social responsibility, these opening strategies may undervalue the sustainable development goals. All these strategies are conducive to independent results and the association between them is our interest in this study.

Performance under time effects

The company's economic equilibrium can be caused by volatility and financial risk under the circumstances that asset value is split between the company and investors and these can live anytime with their part from the asset or the asset can be sold during the company's crises time to so-called "vulture investors" causing price abatements (Brunnermeier et al., 2011). Keeping in mind the frame of economic equilibrium, in the sustainable development strategy, the company decisions "*shape and reshape the process*" for robust actions with lower provisions (Bebbington et al., 2024).

The accomplishment of the performance addresses no less the company's position (Ristea and Dumitru, 2003). We found the execution of this assumption in the stakeholders theory. The

investors are assigned according to their placement in the company financial statement to maximize their capital and guard the debts (Total asset = Debts+Equity) (Feleaga L. and Feleaga N., 2007). However, in return rates analyses, the assets generate lower results compared with capital since total assets include both debts and capitals (Siew et al., 2013) in response, syntax analysis with deflating profitability $r=(GP/BE)(BE/AT)$ consider the total asset efficiency in gross profit with a better expectation for asset rate of return, since measurement of the efficiency of rate according to gross profit can cover part of the debt probability from the total assets, also this method is better aspected for future winnings (Ball et al., 2014). Other studies adjust the asset rate rentability with process efficiency and asset productivity (ROA = ROS*ATO) (Swink et al., 2015), while other studies use a net asset (decreasing from the total assets value the interest of the parties) (Siew et al., 2013).

In sum, many research studies assets performance, advocate the macroeconomic effects of ESG pillars in economic assets analysis. Taking into account the two parameters of sustainable development, time and performance, this study tests the direct effects of assets utilization and assets performance, moderated by ESG pillars, dates, and reporting. Regarding the dates, the green buildings pillar, in contrast to the popularity of ESG pillars, hadn't been previously studied with a similar model according to our knowledge.

Dates

In line with the suggestions of other studies, financial and non-financial observations listed from the public companies in the European market achieve the panel of research. The data used were collected from Thomson Reuters (Jadoon et al., 2020). The sample contains dates from the following activity sectors: energy, utilities, industry, technology, retail, and healthcare with reporting over the period 2015 - 2023. The data were selected on two grounds: to comply with the public criteria and a trading price, limits conducive to suitable and relevant dates. The final panel for the research is a set of 3.543 companies that completed 59772 observations.

Methodology

The objective of the research addresses the effects of sustainable development on assets performance. The incentive of the objective advocate assets utilization is conducive to productivity and profitability, which is significantly imprinted by the ESG pillars. Testing for a direct effect of ESG pillars on assets performance is an adequate and upfront way to provide the ESG reglementation outcome in performance.

Appendix 1 Comparative analysis for performance in the ESG goals, introduces the most significant research empowerment for our objective.

The paper aims to address the following research hypothesis:

Hypothesis: There is a positive significant relationship between sustainability development and assets performance.

The benchmark model set for testing the hypothesis involves different types of variables, depicted above.

Variables

In line with the performance depicted by other studies, the analyses explore the effects of assets utilization performance. The first concern was that performance may not be exogenously related to

independent variables, therefore a matching method accounting for assets utilization performance and Deflating profitability was performed. The variables used are described as follows:

Dependent variable

Given the difficulty of the endogenous variable effects, we performed the impact of assets performance settled in utilization and in profitability (gross profit rate). The representation of this approach is built in two syntaxes to crystallize the variation of sustainable development pillars in assets performance. The syntax model entails return on sales (ROS) and assets productivity (ATO) (Swink et al., 2015).

ROS measures the asset's efficiency and is performed as follows (Swink et al., 2015):

$$\text{ROS} = \text{Operational income} / \text{Total assets}$$

ATO measures the asset productivity and is performed as follows (Swink et al., 2015):

$$\text{ATO} = \text{Total income} / \text{Total assets}$$

The assets utilization performance is fixed with the syntax (Swink et al., 2015):

$$\text{Asset (utilization) performance} = \text{ROS} * \text{ATO}$$

The second approach is conducive to the profitability deflating method. In a specific study of the deflating profitability method, a significant influence on assets performance variation was detected when asset efficiency was analyzed in gross profit. Deflating profitability is performed as follows (Ball et al., 2011):

$$\text{Deflating profitability } r = (\text{GP}_{i,t-1} / \text{BE}_{i,t-1}) / (\text{BE}_{i,t-1} / \text{AT}_{i,t-1})$$

Independent variables

As was mentioned in the data source section, independent parameters were extracted from the Thomson Reuters (TH) database. This is defined as follows:

ESG score - is calculated from TH according to the reported information by the companies for the sections: environmental, social, and governance.

ESG reporting scope - is computing according to the reported company's activities related to sustainable development. For non-financial reporting that covers 100% of the company's activities, the corresponding score is 100%. Oppositely, the value of the parameter is determined according to operational activities and employers.

Green buildings - to obtain this parameter, the companies should report information regarding green operational buildings as well as the improvements carried out to increase their environmental aspects.

Capital market capitalization (CMV) - is represented by the market trading value determined by the last price of the relevant assets.

CSR sustainability committee (CSR) - this parameter indicates the existence of a CSR sustainability board.

Control variables: Total assets, Total equity, Gross profit.

Proposed models

To lead the analyses according to our objective, we construct the following effects regression models. The variation of performance assets utilization under the influence of sustainable development (Swink et al., 2015 and Buallay et al., 2021) will be performed by the linear model:

$$\begin{aligned} &\text{Asset utilization performance}_{it} = \\ &\beta_0 + \beta_1 \text{ESG score}_{it} + \beta_2 \text{ESG reporting scope}_{it} + \beta_3 \text{Green building}_{it} + \beta_4 \text{CSR}_{it} + \beta_5 \text{CMV}_{it} + \varepsilon_{it} \end{aligned}$$

The effects of sustainable development parameters in the variation of deflating profitability (Ball et al., 2014 and Buallay et al., 2021) will be performed by the linear model:

$$\text{Deflating profitability } r_{it} = \beta_0 + \beta_1 \text{ESG score}_{it} + \beta_2 \text{ESG reporting scope}_{it} + \beta_3 \text{Green building}_{it} + \beta_4 \text{CSR}_{it} + \beta_5 \text{CMV}_{it} + \varepsilon_{it}$$

Results and discussions

To assess the validity and reliability of the proposed regression model, three kinds of diagnostic tests were adopted: Data diagnostic - normality (Skewness and Kurtosis), Variables diagnostics collinearity (Variance inflation factor test) and Model diagnostics autocorrelation (Durbin-Watson) (Buallay et al., 2021).

Statistical results

Precisely to other studies' suggestions, the strong endogeneity bias, and the lower heterogeneity effects such as lagged effects, for the best of our study, were performed with multiple analyses in the SPSS statistic program. The model's ability was better expected with outlier correction and dummy variables. The autocorrelation was tested with the Durbin-Watson (D-W) test, and the result presented in Table 1 Descriptive statistical results indicate values between 1.5 and 2.5 range (Buallay et al., 2022). These results indicate that the autocorrelation isn't a model issue. Table 1 represents the statistical value of the model variables.

Table 1 Descriptive statistical results describe for which variables the mean, minimum, maximum, and standard deviation. To test the distribution symmetry we used Skewness, for testing the characteristics of the tails we used the Kurtosis test, and for autocorrelation, we applied the D-W test.

Table 1. Descriptive statistical results

	Dependent variables		Independent variables				
	Asset (utilization) performance	Deflating profitability	ESG Score	ESG reporting scope	Green buildings	CSR	Sustainable reporting
Mean	0	0	11.55	17.14	0.31	0.68	1
Minimum	-15	-94	0	0	0	0	1
Maximum	56.45	26.21	91.6	100	1	1	1
SD	1	1	1	1	0.462	0.466	0
Skewness	0.041	0.041	0.041	0.041	0.08	0.08	
Kurtosis	0.082	0.082	0.082	0.082	0.176	0.0175	
Durbin-Watson	1.987	1.098					

Source: Authors research

Notes: The panel points out mean, minimum, maximum, standard deviation, and distribution correlation tested with Skewness, Kurtosis, and D-W for the model parameters: asset performance, deflating profitability, ESG Score, ESG reporting scope, Green Buildings, CSR and dummy Sustainable reporting.

The model distribution is symmetrically performed and univariate according to the Skewness test with absolute results for variables asset performance, deflating profitability, ESG score, and reporting scope less than <.05, and results lower than >.05 were obtained for green buildings, and CRS. The model is light-tailed except for CSR, and green buildings, which grow robustness distribution tails, even the distribution generates a flattening in relation with the density of the normal distribution, accordingly the Kurtosis result, lower than 3, the tails have a platykurtic distribution. The result reveals a balanced panel appropriate for correlated variation (Baboukardos and Rimmel, 2016).

Sustainable reporting is a dummy variable that we create to establish the company's liability for normative sustainable reporting (the result involves *yes* if the company complies with the turnover criteria or *no* in the opposite way, according to European Directive 2013/34, art. 3).

The maximum of 100% for ESG Reporting scope indicates a reporting in sustainable actions equal, or more, than the patrimonial image of the company, light performed according to the mean of 17.14. ESG scores have a mean of 11.5 and a maximum of 91.6, compared with the maximum of other studies of 58.26 (Saini et al., 2019), 78.01 (Buallay, 2019), 95 (Goncalves et al., 2021), we can say that the ESG disclosure quantity and quality are improved. In CSR regards, the results indicate sustainable action compliance (in fact the presence of a CSR board) according to the mean of 0.68 and the closer maximum of 1. Regarding assets, utilization performance has a maximum value of 56.45, and deflating profitability has a maximum of 26.21. This result highlights the effects of sustainable exposure in the patrimonial image of the company, and the utilization performance of its structure (tangible and intangible assets) contents in profitability.

The multicollinearity test highlights the high level of tolerance for the Variance inflationary measure (VIF) while low values are conducive to inconsistent results. The proper tolerance level is between 10 and 25 (Saini and Singhania, 2019).

The VIF results and its rate (1/VIF) are presented in Table 2 VIF results. The independent variables are heterogeneous and the multicollinearity isn't an active process between dates. VIF results and VIF rate, are <10, which does not indicate a multicollinearity issue.

Table 2. VIF results

Variable name	Variable type	VIF	1/VIF
ESG Score	Independent	2.042	0.000490
ESG Reporting scope	Independent	1.399	0.000715
Green Buildings	Independent	1.207	0.000829
CSR Sustainability Committee	Independent	1.482	0.000675

Source: Authors research.

Note: The multicollinearity doesn't test dependent variables. Strong colinearity indicates values between 1 and 10. Values >10 may indicate a multicollinearity issue.

Spearman test indicates a positive correlation with a strong association between variables according to Spearman power near 1, ($-1 < r_s < +1$), the result is statistically significant (Leonenko et al., 2013). Table 3 represents the statistical result.

Table 3. Spearman correlation coefficient

Coefficient	Power	N	Sig.
Spearman (rs)	.908	3542	.05

Source: Authors research

Regression results

The regression results indicate a positive significant relationship between sustainability development and assets performance. Result analyses of the econometric models are described in Table 4 Simple regression results.

The robustness of our benchmark model is partially confirmed. Even though there are reasons to pronounce that the dates, reporting, and outcome of this (ESG pillars disclosure) exert a significant influence both in assets utilization performance and deflating profitability, the regression results depict that the direct effects of this are expected to increase assets utilization performance followed by deflating profitability. In fact, this is an achieved goal for sustainable development, but at the same time reflecting the necessity to continue developing and performing in sustainable reporting to catch up performance.

Table 4. Simple regression results

	Asset utilization performance					Deflating profitability				
	β	t-value>1.96	df	Sig	p-value	β	t-value>1.96	df	Sig	p-value
ESG Score	-.128	2.594**	3540	.005	-2.043*	-.077	5.420	3540	<.001	-1.567
ESG Reporting scope	.113	3.770**	3540	<.001	2.178*	.037	5.938	3540	<.001	.919
Green buildings	.048	.728	766	.233	.992	.105	2.133**	766	.017	2.716*
CSR	.005	-1.068	776	.143	.095	.048	.897	776	.185	1.134
CMV	.156	1.073	3540	.142	2.973	.020	3.494	3540	<.001	.503
Ajusted R Square		0.58					.144			
F statistics		4.732					15.637			
Probability		<.001					<.001			

Source: Authors research

Note: β_0 is the sample mean, β_{1-5} is the coefficient of the independent variables, i is the number of estimated variables during time, and ε is the standard deviation. Significant results for p-value <.05* and t-statistic >1.96**.

The result reveals an insignificant impact of ESG pillars in deflating profitability but dominates the assets utilization performance. The ESG pillars, ESG score, and reporting scope have a significant probability in assets utilization performance and green buildings in deflating profitability. From this result, the next case can be observed, asset utilization performance causes future effects as a result of her score currently complied. The robustness of this assumption is confirmed by the green buildings effect in the comportment of deflating profitability.

ESG score influences, in asset (utilization) performance and deflating profitability

Suitable Adjusted R square, independent variables explain approximately 58% of the variation of asset performance and 14% from deflating profitability variation. The model variables are correlated and the Anova test results have an associated probability of $<.001$. Analytical argued, β coefficient ($\subset$ ESG Score) shows a direct correlation between asset performance and ESG score ($\beta = -.128$), the associate probability is significantly different from zero (t-value = $2.594 > .05$, p-value $< .05$), for this set of variables statistically correlated, asset performance variate on the influence of ESG score. ESG score doesn't have a significant influence in deflating profitability. The benchmark model shows a direct correlation between the independent variable ESG score and the dependent variable deflating profitability ($\beta = -.077$) without statistical correlation (t-value = 5.420 , p-value $= > .05$), for this situation, the presence of a heavy-tailed with non-unified mean dates can be the explanation, assumption in line with the characteristics of the distribution, explained with Skewness and Kurtosis test.

The outcome of asset productivity practice marks rigor, relevance, and good governance revealed in performance and linked in ESG score. Can conclude that performance is tributary to sustainable development when the ESG specifics polarize the performance structure, starting with its underground practice (collecting data, assessment, and reporting). The result from previous studies reveals also that unified ESG practice generates a higher range in ESG score, and this situation can be a governance problem for the companies in the market practice. Instead, good governance generates a proper jurisprudence for ESG practice conducive to reporting and scoring that secure future winnings (Gianopoulos et al., 2022). In line with these results, a positive trend of ESG score controlled in annual profitability generates higher profits (Buallay, 2019).

ESG reporting scope influences in asset (utilization) performance and deflating profitability

The segment analyzed presents a direct correlation between the independent variable ESG reporting scope and the dependent variable asset performance β (ESG Reporting Scope = $.113$) the probability associated β parameter is significantly different from zero (2.178 , $p < .05$) the benchmark model has a positive correlation (t-value = $3.770 > .05$, p-value = $< .05$) with statistic support. Assets performance behavior is significantly associated with the disclosure of sustainability information. However, ESG reporting scope doesn't have a significant influence on deflating profitability. The model variables, although correlated ($\beta = .037$), are without statistical correlation (t-value = $5.938 > .05$, p-value = $= > .05$), we can say that the behavior of deflating profitability (the performance of assets in gross profit) isn't influenced by ESG reporting scope.

Even if they intend to increase together, only asset utilization performance is significantly imprinted from ESG reporting scope, and this correlation is significantly associated with the disclosure of sustainability information. Given the fact that financial performance is the most important decision-making instrument of the agents (Goncalves et al., 2021), the value added of the sustainability activities on performance triggers stakeholders' behavior and one balanced shares of the two parties, enhances the proceeds and sets out the trust of the community and the markets. The result is confirmed by some papers with a motivation for the lower quantity of sustainable information reported (Siew et al., 2013), while other papers struggle for the performance in sustainable reporting (Saini et al., 2019).

Green buildings influence in asset (utilization) performance and deflating profitability

The segment analyzed conveys a direct correlation between the independent variable green buildings and the dependent variable deflating profitability ($\beta = .105$) the probability associated β parameter is significantly different from zero (2.716 , $p < .05$), the model correlates (t-

value=2.133>.05, p-value=<.05) and the result, statistically positive, expresses the reactionary behavior of profitability under the influence of green buildings ESG pillar. The variable green buildings' influence over assets utilization performance is without statistical support. The value of the β parameter shows the direct correlations between the independent variable green buildings and the dependent variable assets utilization performance ($\beta=.048$), benchmark model without statistical correlation and significance (t-value=.728, p-value=>.05), we can say that assets utilization performance isn't affected by green buildings.

Insignificant statistical results were obtained regarding the effects of CSR and CMV on assets performance and deflating profitability. The results of these two models depict an insignificant statistical effect of the independent variables CSR and CMV in, dependent variables.

Our result is opposite to other studies that argue that financial performance is positively affected by ESG pillars, and negatively affected by investment (Gianouopoulos et al., 2022). Yet, the engagement in sustainable activities, respectively the investment in green buildings, meets the interest of stakeholders, interests better aspected and protected in the countries with strong markets (Goncalves et al., 2021). Furthermore, investment in green buildings generates a strong negotiation position, less need of borrowing, high level of capitalization mitigated in the risk of working capital (Buallay et al., 2022).

Our study remarks the failure regarding the linearity of green building's effects between assets utilization performance and deflating performance, possibly explained by the exhaustive reporting and the capitalization time. This result can introduce future research in sustainable development strategy (Ciucu et al., 2024).

Conclusion

This study analyses the effect of sustainable development depicted by ESG score, ESG reporting scope, Green buildings on assets utilization performance.

Addressing the literature gap, our benchmark result, reports the action of ESG score, reporting scope, and green buildings with a significant probability in performance.

When accounting results sustainable development through their intangible parameters, exerts a significant influence in assets utilization performance and the tangible parameters of sustainable development exert significant variation in deflating profitability.

The result highlights the effects of sustainable development conduct on performance, reflecting the imperative of executing a sustainable development strategy to achieve performance. Sustainable development stance in asset performance highlights the endeavor for different types of action - in the matter of ESG score: collecting data, reporting, cost with reporting, in the matter of CSR: specifically employees. This benchmark model generates a scaling openness in the value chain. But this openness is confirmed also, by the ascending trend of ESG scores from the last years, explained by the company's commitment to the transition to sustainable development and the alignment to the global goals for reducing pollution.

The study makes an important contribution to the literature with the significant effect of green buildings indicators on performance. Towards the effect of sustainable development through the pillar of green building on deflating profitability, the result shows the natural effect of economic capitalization under the assumption of performance. The result is notable for the company's draft with the sustainable development strategy, moreover, the company with a sustainable development strategy unroll has an accountability for the correlation between financial reporting and sustainable

reporting. Green buildings pillar independent of the colinearity effect with asset performance is significant for the financial cycle performance.

Limitation and future studies

The limitation of the research depicts several aspects. Not all the companies involved in the study have to comply with the sustainable reporting. For example, the company from Europe that exists in the market but isn't in the EU and the jurisdiction without cooperation.

Another aspect regards the aging of the ESG pillars, exactly with our statistical results, the older indicators are performing better than the new ones, but this situation doesn't make the company less sustainable. From this point of view, the correlation between the company age and the ESG indicator depicted for she can be part of future research.

For our research was mainly to identify the proper control variables to diminish the biased results. And future research can entail more exogenous variables. Even if we find a positive relation with green buildings, we didn't succeed to linking with investment rate, future research can explore this line.

Future studies can exceed in performance with analyses conducted in the macroeconomic world pillars of efficiency depicted with market capitalization, and foreign board stakeholders.

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Appendix 1 Comparative analysis of performance in the ESG goals

Author	Country	Year	Effect parameter	ESG goal	Result
Buallay et al.	Bahrain	2022	ROA	CSRD, IQ	A significant influence of CSRD in countries with strong governance, and a significant effect on ROA.
Siew et al.	Australia	2013	ROA	Sustainable reporting	Lower significance
Buallay et al.	Bahrain	2021	ROA	E, S, G	Positive effect
Giannopoulos et al.	UK	2022	ROA	ESG	Positive effect
Buallay	Bahrain	2019	ROA	ESG	Positive effect
Swink et al.	USA	2015	ROA	Efficiency of process	Positive effect
Saini et al.	India	2019	ROA	E, S, G	Positive effect
Buallay et al.	Bahrain	2022	ROE	CSRD, IQ	A significant influence of CSRD in countries with strong governance, and a significant effect on ROE.
Siew et al.	Australia	2013	ROE	RD	Positive effect
Buallay et al.	Bahrain	2021	ROE	ESG	Positive effect
Buallay	Bahrain	2019	ROE	ESG	Positive effect
Goncalves et al.	Lisbon	2021	CSR, EM	ROA	Positive effect
Siew et al.	Australia	2013	ROIC	RD	The RD effect isn't significant in ROIC.
Ball et al.	USA	2014	Deflating profitability	Performance and investor remuneration	Positive effect

Source: Authors research.