Sensitivity Analysis

To ensure the robustness of the main findings of the previous section I carry out a Sensitivity Analysis which investigates how the variation in the output of equation **??** can be attributed to variations of its input [@Pianosi2016].

Firstly, equation **??** had been re-estimated using a lagged variables of two years, such as :

$$\begin{aligned} Y_{it+2} = \quad & \alpha + \beta_1 SPL_{it} + \beta_2 STC_{it} + \beta_3 A_{it} + \beta_4 CaP_{it} \\ & + \beta_5 WatP_{it} + \beta_6 WastP_{it} + Controls_{it} + d_t + u_{it} \end{aligned} \tag{1}$$

where Y_{it+2} is a proxy of CFP measured as ROA or Tobin's Q, SPL_{it} is a proxy for a firm's sustainability pay link, STC_{it} is a proxy for a firm's sustainability themed commitment, A_{it} is a proxy for a firm's audit score, CP_{it} is a proxy for a firm's carbon productivity, $WatP_{it}$ is a proxy for a firm's water productivity, $WasP_{it}$ is a proxy for a firm's waste productivity, $Controls_{it}$ is a vector of control variables that includes firm size, industry sector, financial leverage and growth, d_t represents the time effect and u_{it} is the error term.

Estimators of equation 1 are reported in table 1. Based on the results of both BPLM and F tests, estimators had been estimated with the *pooled OLS estimation*. Except for the estimator of WaP in Model (4) which loose its significativity, findings stay the same than in section: *"[Results]"*.

Secondly, I use an alternative proxy for approaching CEP, namely GS assigned to each company of the NGR. GS is based on a weighted average of the KPI of the ranking. Concretely, it means that equation **??** becomes:

$$Y_{it+1} = \alpha + \beta_1 GS_{it} + ContrOLS_{it} + d_t + u_{it} \tag{2}$$

where Y_{it+1} is a proxy of CFP measured as ROA or Tobin's Q, GS_{it} is a proxy for a firm's green score, $ContrOLS_{it}$ is a vector of control variables that includes firm size, industry sector, financial leverage and growth, d_t represents time effect and u_{it} is the error term.

Given the pvalue of both BPLM and F tests, Model (4) had been estimated with the *pooled OLS estimation* while Model (5) had been estimated with the *fixed effect estimation*. Results are reported in table 2 and confirm findings of the previous section. More precisely, it shows that a 1% increase of GS increases the long-term CFP (+ 0.669) and the short-term CFP (+ 0.051) of companies.

Hence, the sensitivity analysis supports that CEP does have a significant and positive effect on CFP, no matter the time horizon (short-term and long-term), and is stronger with a long-term perspective than a short-term perspective. `R` script of this section is available in *"[Appendix D: Sensitivity Analysis - R Script]"*.

Table 1: The Impact of Process and Outcome-Based CEP on CFP (Lag = 2)

	Dependent variable:	
	TobinsQ	Roa
	Model (4)	Model (5)
SPL	0.102^{**} (0.044)	0.008^{**} (0.004)
STC	0.062 (0.043)	0.011^{***} (0.004)
A	0.153^{***} (0.044)	-0.002 (0.004)
CaP	0.112 (0.133)	0.039^{***} (0.012)
WaP	0.194 (0.155)	-0.001 (0.013)
WastP	0.032 (0.153)	0.011 (0.013)
FirmSize	-0.427^{***} (0.015)	-0.019^{***} (0.001)
Leverage	0.003 (0.003)	0.0001 (0.0002)
Growth	0.420^{***} (0.152)	0.115^{***} (0.012)
Industry	-0.022^{***} (0.007)	-0.002^{***} (0.001)
Constant	10.295^{***} (0.343)	0.503^{***} (0.028)
BPLM test (pvalue)	0.56	0.33
F test (pvalue)	0.363	0.598
Observations	946	1,078
R^2	0.488	0.254
Adjusted R^2	0.483	0.247
F Statistic	89.135^{***} (df = 10; 935)	36.368^{***} (df = 10; 1067)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 2: Green Score - an Alternative Variable for CEP

	Dependent variable:	
	TobinsQ	Roa
	Model (4)	Model (5)
GreenScore	0.669^{***} (0.093)	0.051^{***} (0.008)
FirmSize	-0.413^{***} (0.014)	-0.018^{***} (0.001)
Leverage	0.003 (0.004)	-0.0003 (0.001)
Growth	0.528^{***} (0.162)	0.134^{***} (0.013)
Industry	-0.030^{***} (0.007)	-0.002^{***} (0.001)
Constant	9.916^{***} (0.336)	
BPLM test (pvalue)	0.475	0^{***}
F test (pvalue)	0.536	0.002^{***}
Observations	956	1,094
R^2	0.481	0.268
Adjusted R^2	0.479	0.263
F Statistic	176.286^{***} (df = 5; 950)	79.571^{***} (df = 5; 1086)
Note:		*p<0.1; **p<0.05; ***p<0.01