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Interdependencies between financial and non-financial performances: a holistic and short-term analytical perspective

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Abstract

Purpose – This paper aims to investigate possible interdependencies affecting short-term profitability between internal and process business aspects which can play a critical role in sustainability operationalisation.

Design/methodology/approach – The authors adopted the panel data approach to perform a partial least square structural modelling equation analysis on a sample of 391 Organisation for Economic Co-operation and Development (OECD) non-financial-listed companies, considering a timeframe of five years.

Findings – Corporate sustainability is a result of interplays between managerial commitment, strategy, slack resources' exploitation, innovation, the sustainable management of internal production and procurement processes that managers can catalyse to foster short-term firms' profitability.

Research limitations/implications – The study is focused on internal process business determinants of sustainability, and the analysis is limited to a short-term timeframe and on non-financial OECD-listed companies.

Practical implications – Managers searching for trade-offs between financial and non-financial performances should enhance their commitment towards sustainability by defining appropriate strategies suitable to employ mainly slack resources derived from core business activities enabling innovation processes, which, in turn, are able to foster sustainability of internal production and procurement processes.

Originality/value – The execution of sustainability is a complex process that needs to be investigated using a holistic approach net of endogeneity biases to better appreciate those interrelationships within multiple drivers determining the firm sustainable growth.

Keywords Internal and process sustainability drivers, Partial least square structural modelling equations, OECD non-Financial companies, Non-financial and financial performance interdependencies

Paper type Research paper

1. Introduction

Nowadays, environmental and social contingencies dramatically affect the approach to business management (Demartini and Taticchi, 2021), emphasising more than ever the trade-off between financial and non-financial issues. This dichotomy paves the way for a long-questioned topic: *does it pay to be sustainable*? Considering this dilemma, flourishing literature has emerged in the past decades about the relationship between environmental, social and governance performance (ESGP) and corporate financial performance (CFP). Scholars who contributed to this debate mainly focused on the univocal causal link between ESGP and CFP

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adopting two distinctly theoretical perspectives. Some studies (e.g. Orlitzky *et al.*, 2003; McWilliams and Siegel, 2000) theorised and empirically validated the effects of prior ESGP on subsequent CFP, following the Good Management Theory (Waddock and Graves, 1997; McGuire *et al.*, 1988) standpoints. Conversely, other studies (e.g. Robaina and Madaleno, 2020; Xu *et al.*, 2015; Scholtens, 2008) theoretically deepened and tested the impacts of previous CFP on future ESGP in line with the Slack Resources Theory principles (Waddock and Graves, 1997). Moreover, another sub-stream of studies investigated bidirectional ESGP-CFP interactions (e.g. Zhao and Murrell, 2022; Salehi and Arianpoor, 2021; Busch and Friede, 2018) producing mixed evidence yet. Nevertheless, recent studies pointed out that prior findings in this research field could be affected by endogeneity problems, thereby calling for new evidence through the adoption of innovative and more rigorous methodological approaches (Zhao and Murrell, 2022; Crane *et al.*, 2017). Moreover, some scholars (e.g. Busch and Schnippering, 2022; Salehi and Arianpoor, 2021; Ye *et al.*, 2021; Grewatsch and Kleindienst, 2017) recently underlined the need to shift to a multidimensional analytical perspective deepening interplays between non-financial and financial plural micro factors determining ESGP–CFP links. The present paper aims thus to overcome prior studies' limitations by adopting a holistic theoretical lens and a methodology that set aside possible endogeneity effects in studying ESGP–CFP interactions. Therefore, factor and multiple regression analyses of structural relationships between some critical internal and process financial/non-financial business elements affecting both corporate sustainability and profitability have been developed. Notably, Partial Least Squares Structural Equation Modelling (PLS-SEM) regressions have been performed to examine mutual sequential interdependencies between sustainability management commitment, corporate social responsibility (CSR) strategy, slack resources, innovation, sustainable input factors use and supply chain management, as well as short-term profitability. The analysis is based on a strongly balanced panel firms' level data of 391 non-financial-listed companies operating in the Organisation for Economic Co-operation and Development (OECD) markets, considering a timeframe of five years. The paper proceeds as follows: Section 2 proposes the theoretical background and the research hypotheses; Sections 3 and 4 present, respectively, the methodology used and the data collection process carried out; Section 5 presents and discusses regressions results; while in Section 6, some final remarks are offered.

2. Theoretical background

In the past 3 decades, many studies focused on the existence, strength and direction of the relationships between ESGP and CFP. However, despite a long-standing debate on this topic, scholars did not find univocal results. A significant number of authors advocated that ESGP and CFP interact positively (e.g. Bojnec and Tomšič, 2021; Ghouri *et al.*, 2020; Zhang *et al.*, 2018; Fisher and Sawczyn, 2013; Orlitzky *et al.*, 2003; Waddock and Graves, 1997), while some papers found a negative relationship between ESGP and CFP (e.g. Amran *et al.*, 2016; Bansal, 2005; Hillman and Keim, 2001). Contextually, other studies (e.g. Salehi and Arianpoor, 2021; Busch and Friede, 2018) highlighted virtuous cycles analysing ESGP–CFP interactions. Differently, some scholars found no relationships or argued that the topic is too complex to be described (e.g. Aras *et al.*, 2010; McWilliams and Siegel, 2000; McGuire *et al.*, 1988). Building on this literature and various viewpoints, Ye *et al.* (2021) recently shed light on the key factors influencing this relationship. Ye *et al.* (2021) divided the key variables that influence the ESGP–CFP relationship into outcome indicators and process indicators, also distinguishing between business external and internal elements (Table 1).

Guided by Ye *et al.* (2021) categorisation, in this paper, the authors opted for a process perspective and a more internal view of the phenomenon. The authors considered those that

Business aspects	Indicators	Description
External	Economic indicators	Economic conditions/financial crisis
	Institutional/legal environment	Institutional environment/legal system
	Social/Culture indicators	Cultural differences/media coverage
	Industry	Industry type/industry munificence/dynamism/complexity
Internal	CSR engagement	Consistency/transparency/CSR disclosure/CSP trajectory/CSR strategy
	Firm strategy	Proactive and reactive strategies/low-cost strategy/cost leadership/differentiation/integration/Public relations/R&D/ Political activity/investment
	Firm governance	Managerial efficiency/operational productivity/earning management/responsible leadership/board independence
	Firm characteristic	Firm size/assets/sales/financial slack/Ownership
Outcome	Reputation/corporate image	Reputation, corporate image, brand
	Customer satisfaction	Customer satisfaction
	Competitive advantage	Competitive advantage
Process	Firm strategy	Firm strategy, innovation, investment, resource integration
	Firm operation	Productivity, risk management, organizational commitment, organizational governance
	Social/Intellectual Capital	Social capital, human capital, intellectual capital, citizenship

Source(s): Authors' re-adaptation of framework proposed by Ye *et al.* (2021)

Table 1. Main drivers determining the ESGP–CFP interactions

Ye *et al.* (2021) defined as internal indicators and process indicators and correlated them to find out how they interact with each other affecting the ESGP–CFP relationship. Specifically, the authors considered the following determinants: management commitment (internal indicator); strategy (Internal and Process indicator); slack resources (Internal indicator); innovation (Process indicator); resources allocation (Process indicator).

In the following section, the authors discuss these determinants and how they have been considered in the literature on the ESGP–CFP relationship.

2.1 The good management theory and the relevance of management commitment and sustainable strategy

According to the good management theory, firms that perform well from a sustainability point of view can also achieve better financial performance. In other words, ESGP positively affects CFP (Waddock and Graves, 1997) due to an improved relationship with stakeholders caused by the implementation of corporate sustainability strategies and behaviours (Hillman and Keim, 2001). The development of a strong sustainable strategy can induce, in a cascade manner, the adoption of a firm's behaviours that are environmentally and socially responsible and that, in turn, are monitored and assessed through *ad hoc* management accounting and control systems and that are ultimately disclosed and communicated to external stakeholders (Vitale *et al.*, 2019; Riccaboni and Leone, 2010). Accordingly, a sustainable firm's behaviours and performance satisfying stakeholder needs can mitigate reputational risks, thus increasing the number of external investments and, ultimately, can create a competitive advantage by increasing sales and/or reducing costs (Mitchell *et al.*, 1997; Preston and O'Bannon, 1997; Freeman, 1984). The Good Management Theory, therefore, has its fulcrum in the socially responsible firms' behaviours and their recognition within the external

environment. Nevertheless, all business actions, decisions and strategies can be decisively affected by management commitment (Vitale *et al.*, 2019). In this regard, within the relation between ESGP and CFP, it is crucial to understand if the managerial commitment concretely affects the integration of sustainability into day-to-day decision-making and firms' strategies. Managers can act in one of two primary ways: in an agency, perspective pursuing financial and/or self-interests (e.g. Shahzad *et al.*, 2016; Julian and Ofori-Dankwa, 2013) or in a socially responsible manner maximising sustainability performance (Vitale *et al.*, 2019).

2.2 Slack resources, innovation and firm profitability

In the slack resources theoretical perspective, corporate sustainability depends on the discretionary allocation of a surplus of resources. In particular, the investment in sustainability activities occurs only when there is the availability of slack resources that can be allocated to that scope. Nevertheless, slack resources can be used, by firms, in a discretionary manner (Bourgeois, 1981) and it is not certain that they are used for socio-environmental purposes. For this reason, as was seen in the case of the previously discussed Good Management Theory, opportunistic managerial behaviours or sustainability-oriented commitment can decisively affect the use of slack resources. As a matter of fact, the literature on this topic is divided among scholars who stated that managers tend to use financial slack resources for their own interests rather than for social responsibility activities (Lee *et al.*, 2020; Shahzad *et al.*, 2016; Julian and Ofori-Dankwa, 2013; Preston and O'Bannon, 1997) and scholars which, conversely, found that slack resources are used in pursuing ESGP (Robaina and Madaleno, 2020; Xu *et al.*, 2015; Scholtens, 2008; McGuire *et al.*, 1988).

This last research stream is more in line with the stewardship theory perspective according to which managers do not act only for self-interests, but they can be motivated to act in the best interests of the organisation and its stakeholders (Davis *et al.*, 1997; Freeman, 1984). In this regard, corporate social responsibility can be a key driver to mitigate agency problems (Samet and Jarboui, 2017) and adopting a strategic approach to sustainability can encourage managers to invest slack resources in innovation activities that can produce both financial and non-financial value (Ruggiero and Cupertino, 2018). Accordingly, innovation represents one of the main strategic drivers for firms' profitability (Gobble, 2012) and sustainability, as well as a key business feature to which slack resources can be allocated.

In this perspective, for firms that embrace a more strategic sustainability approach, innovation can be prompted by sustainability (Bocquet *et al.*, 2013) which, in turn, can lead to the investment of slack resources in R&D activities. Despite this, little evidence exists on the potential of sustainability in affecting innovation activities using slack resources. Indeed, most of the studies in the literature focused on the impact of innovation on ESGP (e.g. Shahzad *et al.*, 2016; McWilliams and Siegel, 2000) but tended to neglect it, with few exceptions (e.g. Liao and Long, 2018; Ferauge, 2012), the inverse relation or corporate sustainability affecting innovation activities using slack resources.

Using slack resources for innovation purposes does not imply a subsequent improvement in firms' innovation. In literature, in fact, there are conflicting results about the effects of slack resources on firms' innovation. A wide part of the literature found that slack resources can have a positive impact on firms' innovation. Several authors highlighted that the availability of slack resources has a positive impact on innovation (Weinzimmer, 2000; Damanpour, 1987). Slack resources represent a sort of "cushion" that buffers any losses that could arise from investments in unsuccessful R&D projects (Zhor, 2018). In light of this, organisations become, in a sense, protected from innovation uncertainty and they are more willing to take risks, worrying less about possible failure (Zhor, 2018; Lee and Wu, 2016). This approach, therefore, encourages experimentation and the exploitation of business opportunities (Weinzimmer, 2000; Moses, 1992) since slack resources protect firms from the uncertainty and risk associated with experimentation (Zhor, 2018; Bourgeois, 1981). Nevertheless, neglecting

the risk of failure can lead to inefficiency and improper resource allocation (Nohria and Gulati, 1996), letting slack be wasteful. This is the basic assumption of the portion of the literature which argues that slack resources harm innovation activities and value (e.g. Leyva-de la Hiz *et al.*, 2019; Chen and Huang, 2008; Jensen, 1993). In this regard, Chen and Huang (2008) found a linear and negative correlation between slack resources and R&D as Jensen (1993) pointed out that slack can induce firms to invest excessively in high-risk R&D projects that hardly produce value. Recently, Leyva-de la Hiz *et al.* (2019) found that slack resources reduce the existing positive relationship between environmental innovations and firms' financial performance. Further supporting this view, Nohria and Gulati (1996) pointed out that if slack resources grow too much, they might reduce the degree of innovation. Starting from Nohria and Gulati (1996) findings, Lee and Wu (2016) emphasise that slack resources might prompt discipline problems that could lead to two types of errors: (*1*) investments in projects that should not have been implemented; (*2*) projects that should have been stopped were continued. In this regard, part of the literature agrees that financial slack has an inverted U-shaped relationship with R&D investment (e.g. Lee and Wu, 2016; Mellahi and Wilkinson, 2010; Nohria and Gulati, 1996). This means that financial slack positively affects R&D investments up to a certain level, but then discourages them when it grows too much (Lee and Wu, 2016).

In most of the studies reviewed, the innovation variable has been adopted to better explain the nature, direction and sign of the relationships between ESGP and CFP, and it has also been used as a moderator factor (e.g. Fisher and Sawczyn, 2013; Hull and Rothenberg, 2008) or as a mediator (e.g. Blanco *et al.*, 2013; Surroca *et al.*, 2010). In this paper, the authors aim to investigate whether process/product innovation affects the sustainable management of resources in production activities and the supply chain as well as the firm's short-term profitability.

A large body of literature (e.g. McLoughlin *et al.*, 2021; Shahzad *et al.*, 2016; McWilliams and Siegel, 2000) indeed highlights virtuous cycles through which innovation critically reduced the use of raw materials and improved the supply chain management affecting firms' profitability. According to Schumpeter (1942), the ability to innovate plays a significant role, over time, in productivity and business development. As a result, it can improve corporate ESGPs and CFPs, leading to the achievement of competitive advantages (He *et al.*, 2019). In addition, innovation cycles contribute to the redefinition of production processes and products based on specific sustainability standards, allowing companies to minimise negative externalities and rationalise the use of resources in production processes (Pan *et al.*, 2020). Therefore, as highlighted by Shafi (2021), innovation can generally be considered as a strategic driver that is positively associated with corporate sustainability. Finally, as Wang and Sarkis (2013) pointed out, one of the decisive aspects of achieving a competitive advantage for companies is the capacity to make the supply chain sustainable. Notably, the execution of sustainability in supply chain processes could be fostered through innovation on plural dimensions reducing negative environmental and social impacts in each production stage along the entire product life cycle (Taticchi *et al.*, 2013). Consequently, companies are increasingly propelled to implement innovation, involving internal processes as well as the entire supply chain (Damanpour, 1987). Surprisingly to many, perhaps, there are mixed results in the literature regarding the impact of innovation on CFP. These discrepancies also depend on the type of indicators used to measure innovation. For instance, Artz *et al.* (2010) found a negative relationship between patents and both Return on Assets (*ROA*) and sales growth. Atalay *et al.* (2013) found that technological innovation significantly and positively affected firm performance, while non-technological innovation had not demonstrated a significant and positive impact on firm performance. Hyytinen *et al.* (2015), analysing Finnish start-ups, found that their innovativeness is negatively associated with their subsequent survival. On the opposite side, Klomp and Van Leeuwen (2001), relying on the innovation

intensity metric, found that innovation contributes significantly to the overall sales performance and firms' productivity. Supporting this line of thinking, Yeh *et al.* (2010) found a positive relationship between R&D and firm performance and Eberhart *et al.* (2004) found that R&D investment can improve corporate operating performance. Considering R&D expenditure as an innovation metric, other scholars found a negative relationship with CFP. Accordingly, Jensen and Meckling (1976) argued that agency issues may hinder the potential benefits produced by R&D investment. Jensen (1993) found that managers can overinvest in R&D and such mismanagement may cause value destruction. In a recent paper, Coluccia *et al.* (2020) effectively summarise the debate on innovation impacts on CFP stating that "R&D is costly, provides long-term returns and increases short-term financial risk". For this reason, "[. . .] *there is a widespread consensus that investment in high R&D spending is not beneficial to firm performance* [. . .]" (Coluccia *et al.*, 2020, p. 268), at least not in the short term.

Considering the above literature background, how internal and process business aspects interact with each other affecting the ESGP–CFP relationship is still controversial and shows the need and scope for deeper investigations (Ye *et al.*, 2021). Furthermore, Zhao and Murrell (2022) raised endogeneity issues in prior studies. Notably, they highlighted three sources of endogeneity affecting this relationship, such as (1) simultaneous causality between ESGP and CFP, (2) omitted variable bias and (3) the dynamic nature of firms' performance. The present study aims to address these issues by examining possible interdependencies between some financial and non-financial performance related to those internal and process elements proposed by Ye *et al.* (2021) that could affect the firm's short-term profitability. The analysis thus focuses on the following research hypotheses:

H1. ESGPs foster (or penalise) the company's profitability and CFPs.

H2. The managerial commitment to pursuing ESG goals fosters (or penalises) profitability.

H3. The managerial commitment to pursuing ESG goals fosters (or penalises) the definition and execution of sustainability strategies.

H4. The managerial commitment to pursuing ESG goals fosters (or penalises) the availability and the use of slack resources.

H5. The managerial commitment to pursuing ESG goals fosters (or penalises) the implementation of innovation.

H6. The managerial commitment to pursuing ESG goals fosters (or penalises) the sustainable management of resources in production processes and the supply chain.

H7. The execution of sustainability strategies fosters (or penalises) the company's profitability.

H8. The execution of sustainability strategies affects the use of slack resources.

H9. The execution of ESG strategies fosters (or penalises) the company's ability to innovate its processes/products in a sustainable manner.

H10. The execution of ESG strategies fosters (or penalises) the company's ability to manage and use the resources as well as the supply chain in a sustainable way.

H11. The availability and the use of slack resources fosters (or penalises) the company's profitability.

H12. Slack resources availability and use fosters (or penalises) the company's ability to activate and develop innovation processes/products.

H13. Slack resources availability and use fosters (or penalises) the sustainability of internal production processes and along the supply chain.

H14. The implementation of innovation processes and the production of sustainable products fosters (or penalises) profitability.

H15. The implementation of innovation processes and the production of sustainable products fosters (or penalises) sustainability in managing resources and the supply chain.

H16. Managing resources in internal business processes and the supply chain in a sustainable manner fosters (penalises) profitability.

3. Methodology

To validate the research hypotheses of this study the authors developed a panel data analysis by performing PLS-SEM regressions using STATA software. The panel data analytical approach, indeed, typically allows scholars to check for cultural factors or differences in corporate practices across companies or for those variables that change over time but not across firms. Moreover, SEM is commonly adopted in the management research fields (Hair *et al.*, 2019) as well as it is increasingly used in recent studies (e.g. Anwar and Li, 2021) investigating the relationships between financial and non-financial corporate issues. Notably, PLS-SEM is a suitable method to study business success or competitive advantage factors examining small samples, estimating complex models, balancing predictions/explanations and checking for endogeneity effects (Hair *et al.*, 2019). Accordingly, the authors considered thus PLS-SEM as an appropriate approach to holistically examine the direct and indirect effects between ESGP-CFP scrutinised variables, net of possible endogeneity biases.

Therefore, following the Slack Resources and Good Management Theories as well as considering those possible determinants of the ESGP–CFP links defined in the framework of Ye *et al.* (2021), the authors introduce the main research hypotheses that the present study aims to validate, summarised and graphically represented in the following theoretical framework reported in Figure 1.

The analysis carried out distinguished from other studies in literature due to the inclusion of some micro ESG scores (i.e. *ManagementC.Score*, *CSRStrategyScore* and *ResourcesUseScore*), recently released by Refinitiv Eikon, to assess some key internal and process aspects of corporate sustainability.

Moreover, following the principles of PLS-SEM, the analysis identified some exogenous variables. The authors included management commitment to sustainability and the firm's size which represent two internal business aspects that play an exogenous role in models. The managerial engagement to pursue ESG goals and the corporate attitude to define and observe governance principles inspired by the postulates of sustainability are drivers that could affect all business issues (Vitale *et al.*, 2019), as well as firms' profitability (Cupertino *et al.*, 2021). In this regard, the authors used *ManagementC.Score* to assess such corporate characteristics. Furthermore, the authors supposed that the bigger the firm is (1) the higher is the ability to acquire/use slack resources and to innovate its business; (2) and the stronger is the stakeholders' pressure for high ESG and profitability standards. In turn, the authors' analysis included, as control, the *natural logarithm of Total Assets* (*lnTA*). An accounting-based firm size proxy (Dang *et al.*, 2018) was also adopted that exogenously could affect the ESGP–CFP relationship considering previous studies' findings (e.g. Margolis and Walsh, 2003). Lastly, the authors included in the analysis industry exogenous control dummy variables to check for differences between nonfinancial sub-industries that could produce unobservable effects on the scrutinised relationships as suggested by prior studies (e.g. Andersen and Dejoy, 2011; Hull and Rothenberg, 2008).

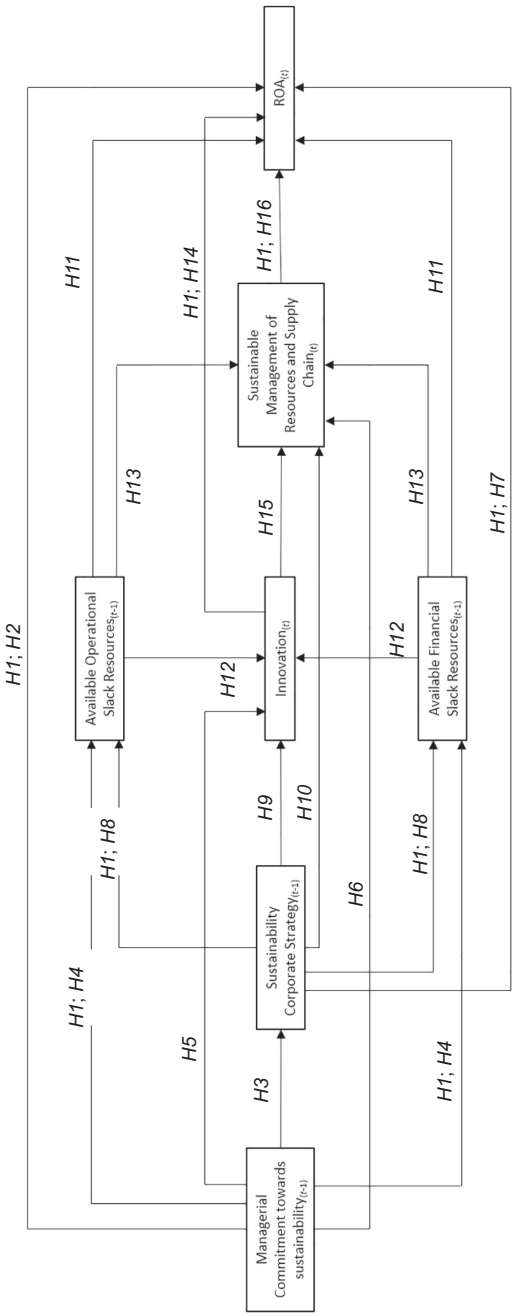


Figure 1.
PLS-SEM modelling framework

Additionally, the analysis included other variables considered as endogenous determinants which critically could catalyse sustainability on the internal processes side. Notably, the analysis considered another ESG category score (i.e. *CSRStrategyScore*) to assess the firms' capacity to strategically execute the sustainability principles in daily business activities. In addition, the authors referred to the *Innovation* to estimate the companies' ability to innovate production processes and products. In this regard, previous studies have found that business innovation activities can allow the effective and efficient use of available resources, particularly slack resources, favouring the achievement of better financial and non-financial performance (e.g. Ruggiero and Cupertino, 2018; Gobble, 2012).

In addition, following Orlitzky's *et al.* (2003) assumptions, the authors supposed that the ESGP–CFP interactions work well, especially in cases where firms used slack resources to invest in developing business core and sustainability activities. Therefore, the analysis conducted by the authors considered two endogenous variables that measure two different unabsorbed slack resources categories. Following Bourgeois and Singh (1983), the authors used the cash flows net sales ratio (i.e. *CahsFlowSales*) to estimate available slack resources generated from core business activities. Differently, the analysis employed the quick ratio (i.e. *QuickRatio*) to evaluate available slack resources derived from both borrowed capitals and self-liquidity.

Finally, the authors included *ResourcesUseScore* as an endogenous variable useful to measure the company's ability to manage the resources in internal processes and the supply chain in a sustainable way. In so doing, this analysis considered that the sustainability of both resources' use and supply chain management results from three key factors, namely: (1) the corporate ability to exploit slack resources, (2) to activate innovation processes supported in turn by a socially responsible managerial commitment as well as and (3) to the application of a strategic approach to ESG issues.

Lastly, the authors included another endogenous variable in this study by considering the *ROA* as one of the cumulative accounting-based proxies used mainly by scholars to assess the short-term firm's profitability (e.g. Margolis and Walsh, 2003). Table 2 summarises the variables' definitions.

Starting from the general equation (EQ) $CFP_{i,t} = \propto_0 ESGP_{i.t-n} + \varepsilon_{i,t}$ that aims to test H_1, the following Table 3 reports the main models used to perform, step-by-step, the PLS-SEM regressions to highlight possible interdependencies between internal and process business aspects that affect financial and non-financial performance interactions as well as short-term profitability.

4. Data collection

This study was developed using a dataset covering 1,955 firm-level annual observations from 391 OECD large transnational listed companies for the 2015–2019 period.

The authors conducted the firms' sampling process by considering possible differences in business features, corporate culture and behaviour, in CFP for different accounting standards used by, for instance, financial and/or non-financial companies (NFCs). Moreover, this study focused on NFCs due to their relevance on the production side at the macroeconomy level, and because they play a determinant role in affecting business cycles (Orhangazi, 2008) as well as sustainable economic growth (Cupertino *et al.*, 2019). Further, the authors delimited the investigation to a sample of companies operating in OECD countries. This focus is justified by considering the average value for the last years of ESG annual equally weighted overall scores regarding OECD and non-OECD companies provided by Refinitiv. In particular, Table 4 shows that OECD companies performed slightly better than non-OECD ones, considering the average ESG scores per year.

Moreover, Table 5 shows that the OECD NFCs have been on average annually more sustainable than non-OECD ones from 2015 to 2019.

Variables *(and timing lags)*	Description
$ROA_{(t)}$	Return on Assets is an accounting indicator commonly used to measure CFP in an aggregate way. Notably, this proxy estimates how profitable a company is concerning the assets available and employed in production activities
$ResourcesUseScore_{(t)}$	It is an estimate provided by the Asset4® database expressed in percentage terms (i.e. 0–100%) that measures the company's ability to make sustainable the management of the resources used in the production processes and the supply chain
$Innovation_{(t-1)}$	It is defined as the ratio between R&D expenses and Net Sales. This accounting index evaluates the corporate innovation intensity as the percentage of sales that is employed to implement R&D activities
$ManagementC.Score_{(t-1)}$	It is an estimate provided by the Asset4® database expressed in percentage terms (i.e. 0–100%) which expresses the management's commitment to pursue ESG objectives and to define/implement governance mechanisms useful for declining the principles of sustainability to influence corporate operations
$CSRStrategyScore_{(t-1)}$	It is an estimate provided by the Asset4® database expressed in percentage terms (i.e. 0–100%) which evaluates the company's ability to integrate economic-financial and ESG aspects into its strategy and management system
$CahsFlowSales_{(t-1)}$	It is given by the ratio of cash flow on the net sales revenue. It is a proxy of a company's capacity to generate excess resources from core business activities that can be used for the firm's growth
$QuickRatio_{(t-1)}$	It is given by the ratio between current assets and liabilities. It measures the degree of corporate liquidity and the company's ability to pay short-term debts. This index, therefore, can express the available financial resources useful to implement future business activities
$lnTA_{(t)}$	It is the sum of all the economic and financial resources of a company that a company uses for carrying out its production activities. This measure is also used as an estimate of corporate size. To normalise the data, this variable was considered in logarithmic form

Table 2. Variables under scrutiny

Furthermore, Table 6 highlights that OECD NFCs have been on average more sustainable than OECD financial companies. This evidence thus allowed the authors to delimitate the analysis by focusing on a sample composed exclusively of OECD NFCs.

Finally, the authors limited the analysis to the 2015–2019 period to fully appreciate the correlations between nonfinancial and financial performances under investigation from a short-term perspective.

The authors then created the non-financial portion of the database scanning ESG annual data for a set of 9,400 listed companies worldwide that composes the Refinitiv Eikon Asset4® universe. Indeed, this dataset is commonly recognised by both scholars and practitioners as one of the more rigorous and reliable ESG data sources (Drago *et al.*, 2019). This first step of the data collection concluded by selecting only those OECD NFCs that present annually ESG data in the analysed period. Accordingly, the authors obtained CFP data from Refinitiv Eikon Datastream Worldscope for this sample, to elaborate a strongly balanced panel data which presents each company with the same number of ESG and CFP observations annually. Lastly, the authors concluded the dataset definition winsorising every variable at 1 and 99% levels for each year excluding outliers from this analysis offered in line with Greene (2003).

The sampling process is shown in Table 7. The industry-related classification of the sample is described in Table 8, whereas the geographical distribution of examined companies covers the following OECD countries: Australia, Canada, Colombia, the EU, Israel, Japan, Mexico, New Zealand, Switzerland, South Korea, Turkey, the UK and the USA.

Table 3.
PLS-SEM models used in the study

Models of PLS-SEM analysis steps	Hypotheses
EQ_1 $CSRStrategyScore_{(i,t-1)} = \beta_0 + \beta_1(ManagementC.Score)_{(i,t-1)} + \beta_2(lnTA)_{(i,t)} + \beta_3\left(\sum_{K=1}^{7} Industry\right)_{(i,t)} + \varepsilon_{(i,t)}$	H_3
EQ_2 $CahsFlowSales_{(i,t-1)} = \delta_0 + \delta_1(CSRStrategyScore)_{(i,t-1)} + \delta_2(ManagementC.Score)_{(i,t-1)} + \delta_3(lnTA)_{(i,t)} + \delta_4\left(\sum_{K=1}^{7} Industry\right)_{(i,t)} + \varepsilon_{(i,t)}$	H_1, H_4, H_8
EQ_3 $QuickRatio_{(i,t-1)} = \vartheta_0 + \vartheta_1(CSRStrategyScore)_{(i,t-1)} + \vartheta_2(ManagementC.Score)_{(i,t-1)} + \vartheta_3(lnTA)_{(i,t)} + \vartheta_4\left(\sum_{K=1}^{7} Industry\right)_{(i,t)} + \varepsilon_{(i,t)}$	H_1, H_4, H_8
EQ_4 $Innovation_{(i,t-1)} = \lambda_0 + \lambda_1(CahsFlowSales)_{(i,t-1)} + \lambda_2(QuickRatio)_{(i,t-1)} + \lambda_3(CSRStrategyScore)_{(i,t-1)} + \lambda_4(ManagementC.Score)_{(i,t-1)} + \lambda_5(lnTA)_{(i,t)} + \lambda_6\left(\sum_{K=1}^{7} Industry\right)_{(i,t)} + \varepsilon_{(i,t)}$	H_5, H_9, H_{12}
EQ_5 $ResourcesUseScore_{(i,t)} = \gamma_0 + \gamma_1(Innovation)_{(i,t-1)} + \gamma_2(CahsFlowSales)_{(i,t-1)} + \gamma_3(QuickRatio)_{(i,t-1)} + \gamma_4(CSRStrategyScore)_{(i,t-1)} + \gamma_5(ManagementC.Score)_{(i,t-1)} + \gamma_6(lnTA)_{(i,t)} + \gamma_7\left(\sum_{K=1}^{7} Industry\right)_{(i,t)} + \varepsilon_{(i,t)}$	H_6, H_{10} H_{13}, H_{15}
EQ_6 $ROA_{(i,t)} = \omega_0 + \omega_1(ResourceUseScore)_{(i,t)} + \omega_2(Innovation)_{(i,t-1)} + \omega_3(CahsFlowSales)_{(i,t-1)} + \omega_4(QuickRatio)_{(i,t-1)} + \omega_5(CSRStrategyScore)_{(i,t-1)} + \omega_6(ManagementC.Score)_{(i,t-1)} + \omega_7(lnTA)_{(i,t)} + \omega_8\left(\sum_{K=1}^{7} Industry\right)_{(i,t)} + \varepsilon_{(i,t)}$	H_1, H_2, H_7 H_{11}, H_{14}, H_{16}

5. Results and discussions

Table 9 summarises the main descriptive statistics characterising the investigated variables, while Table 10 reports Pearson correlations results. To perform the covariance test and regressions, the authors considered three levels of statistical significance (i.e. <0.01, <0.05

Year	OECD companies	Non-OECD companies
2015	42.81	40.31
2016	41.62	42.16
2017	41.91	41.86
2018	42.57	43.19
2019	42.56	42.57
Mean	*42.29*	*42.02*

Source(s): Own elaboration based on Refinitiv Eikon Asset4® data

Table 4. Benchmarking between ESG average annual scores of OECD and non-OECD companies

Year	OECD NFCs	Non-OECD NFCs
2015	43.08	39.66
2016	41.90	41.54
2017	42.10	41.23
2018	42.50	42.60
2019	43.14	41.86
Mean	*42.54*	*41.38*

Source(s): Own elaboration based on Refinitiv Eikon Asset4® data

Table 5. Benchmarking between ESG average annual scores of OECD and non-OECD NFCs

Year	OECD NFCs	OECD financials
2015	43.08	41.40
2016	41.90	40.27
2017	42.10	40.92
2018	42.50	41.44
2019	43.14	39.81
Mean	*42.54*	*40.77*

Source(s): Own elaboration based on Refinitiv Eikon Asset4® data

Table 6. Benchmarking between ESG average annual scores of OECD NFCs and OECD financial companies

Year	ESG data available per n. of companies	Companies with missing CFP data	Companies with ESG&CFP data available	Companies presenting not the same n. of ESG and financial obs. annually in 2015–2019	NFCs presenting the same n. of ESG and financial obs. annually in 2015–2019	OECD NFCs sampled[1]
2015	4,621	3,570	1,051	594	457	391
2016	5,496	4,367	1,129	672	457	391
2017	6,219	4,811	1,408	951	457	391
2018	7,065	5,442	1,623	1,166	457	391
2019	6,970	5,344	1,626	1,169	457	391

Note(s): [1]Companies operating in OECD countries which present the same number of ESG and CFP obs. In 2015–2019 period

Table 7. Sample composition process

and <0.10). The analysis of linear dependencies between variables generally validated all the research hypotheses of the study.

Moreover, the authors developed a collinearity analysis which found an average variance inflation factor (V.I.F.) lesser than 2, as shown in the last column of Table 10. According to Allison (1999), this evidence confirms no significant multicollinearity effects between the variables examined.

The results reported in Table 11 and summarised in Figure 2 generally respond to the majority of the research hypotheses defined above.

The first PLS-SEM regression step was performed on EQ_1. The authors found that, on the one hand, management commitment to sustainability is in a positive and strongly significant correlation with *CSRStrategyScore* (i.e. *ManagementC.Score*; $\beta_1 = 0.23$; $\rho>|z| = 0.01$). This result validates H_3 and confirms the findings of prior studies (e.g. Vitale *et al.*, 2019). The second and third PLS-SEM regressions were performed using, respectively, EQ_2 and EQ_3. The corporate commitment both to pursue non-financial objectives and to implement governance mechanisms aligned with principles of sustainability positively influences the generation of slack resources through core business activities (i.e. *ManagementC.Score*; $\delta_2 = 0.01$; $\rho>|z| = 0.1$) as Good Management Theory studies underscore (e.g. Orlitzky *et al.*, 2003; McWilliams and Siegel, 2000; Waddock and Graves, 1997). On the other hand, the results revealed that the corporate commitment towards sustainability is in negative correlation with financial slack resources (i.e. *QuickRatio*; $\vartheta_2 = -0.004$; $\rho>|z| = 0.01$). This evidence showed that the management's commitment towards sustainability would prefer the employment of slack resources derived from main economic corporate activities to implement ESG programs instead to use the liquidity generated through financial and self-financing operations. Considering these findings, the study validates H_4 and H_1. Furthermore, the results of the analysis highlighted a negative correlation between the slack resources availability with the implementation of the corporate strategy aimed at accomplishing sustainability objectives (i.e. *CSRStrategyScore*; $\delta_1 = -0.01$; $\rho>|z| = 0.1$;

Table 8.
Nonfinancial sub-industry distribution

Sector	Companies	%	Cum
Basic Materials	48	12.28	12.28
Consumer Discretion	69	17.65	29.92
Consumer Staples	36	9.21	39.13
Health Care	56	14.32	53.45
Industrials	114	29.16	82.61
Technology	59	15.09	97.7
Utilities	9	2.3	100
Tot	*391*	100	

Table 9.
Descriptive statistics

Variables	Mean	Median	Standard deviation	Variance	Min	Max
$ROA_{(t)}$	8.09	6.89	5.43	29.48	−2.1	97.06
$ResourcesUseScore_{(t)}$	59.72	66.75	30.34	920.50	0.00	99.79
$Innovation_{(t)}$	5.10	2.84	6.40	40.93	0.00	44.47
$QuickRatio_{(t-1)}$	1.50	1.13	1.45	2.10	0.08	19.22
$CahsFlowSales_{(t-1)}$	15.24	13.00	9.24	85.45	−44.70	68.22
$CSRStrategyScore_{(t-1)}$	46.26	49.82	32.65	1,065.97	0.00	99.84
$ManagementC.Score_{(t-1)}$	56.00	57.39	27.35	747.76	0.84	99.89
$lnTA_{(t)}$	15.80	15.60	1.24	1.54	12.40	19.86

Variables	$ROA_{(t)}$	$ResourcesUseScore_{(t)}$	$Innovation_{(t)}$	$QuickRatio_{(t-1)}$	$CahsFlowSales_{(t-1)}$	$CSRStrategyScore_{(t-1)}$	$ManagementC.Score_{(t-1)}$	$lnTA_{(t)}$	V.I.F
$ROA_{(t)}$	1								1.37
$ResourcesUseScore_{(t)}$	0.05**	1							2.05
$Innovation_{(t)}$	0.29***	−0.01	1						1.47
$QuickRatio_{(t-1)}$	0.22***	−0.18***	0.34***	1					1.28
$CahsFlowSales_{(t-1)}$	0.46***	0.04	0.53***	0.39***	1				1.76
$CSRStrategyScore_{(t-1)}$	−0.03	0.67***	−0.15***	−0.20***	−0.06***	1			1.97
$ManagementC.Score_{(t-1)}$	0.11***	0.22***	0.03	−0.09***	0.08***	0.25***	1		1.10
$lnTA_{(t)}$	−0.17***	0.48***	−0.05**	−0.12***	0.03	0.43***	0.17***	1	1.44

Note(s): ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 10. Pearson test results considering the main variables under investigation

PLS-SEM steps	DVs	IVs & CVs	Coef	Std. Err	ρ>|z|
1	$CSRStrategyScore_{(t-1)}$ <–	$ManagementC.Score_{(t-1)}$	0.23	0.02	0.000
		$lnTA_{(t)}$	10.62	0.54	0.000
		Basic Materials	0.52	4.63	0.911
		Consumer Discretion	−12.32	4.48	0.006
		Consumer Staples	3.42	4.76	0.472
		Health Care	−16.34	4.60	0.000
		Industrials	−7.31	4.43	0.099
		Technology	−15.99	4.57	0.000
		Utilities	*(Omitted because of collinearity)*		
2	$CashFlowSalesRatio_{(t-1)}$ <–	$CSRStrategyScore_{(t-1)}$	−0.01	0.01	0.098
		$ManagementC.Score_{(t-1)}$	0.01	0.01	0.076
		$lnTA_{(t)}$	0.28	0.17	0.105
		Basic Materials	−9.46	1.34	0.000
		Consumer Discretion	−9.12	1.30	0.000
		Consumer Staples	−10.09	1.38	0.000
		Health Care	−0.09	1.34	0.948
		Industrials	−9.27	1.29	0.000
		Technology	−0.45	1.33	0.734
		Utilities	*(Omitted because of collinearity)*		
3	$QuickRatio_{(t-1)}$ <–	$CSRStrategyScore_{(t-1)}$	−0.005	0.001	0.000
		$ManagementC.Score_{(t-1)}$	−0.004	0.001	0.001
		$lnTA_{(t)}$	−0.05	0.029	0.075
		Basic Materials	0.08	0.23	0.725
		Consumer Discretion	0.25	0.22	0.258
		Consumer Staples	−0.01	0.23	0.957
		Health Care	0.95	0.23	0.000
		Industrials	0.22	0.22	0.313
		Technology	0.91	0.22	0.000
		Utilities	*(Omitted because of collinearity)*		
4	$Innovation_{(t)}$ <–	$CashFlowSales_{(t-1)}$	0.22	0.01	0.000
		$QuickRatio_{(t-1)}$	0.39	0.08	0.000
		$CSRStrategyScore_{(t-1)}$	−0.004	0.004	0.268
		$ManagementC.Score_{(t-1)}$	0.008	0.004	0.046
		$lnTA_{(t)}$	−0.05	0.098	0.620
		Basic Materials	3.78	0.78	0.000
		Consumer Discretion	4.39	0.75	0.000
		Consumer Staples	2.51	0.80	0.002
		Health Care	9.42	0.77	0.000
		Industrials	3.57	0.75	0.000
		Technology	9.89	0.76	0.000
		Utilities	*(Omitted because of collinearity)*		
5	$ResourcesUseScoreScore_{(t)}$ <–	$Innovation_{(t)}$	0.34	0.10	0.001
		$CashFlowSales_{(t-1)}$	0.15	0.07	0.025
		$QuickRatio_{(t-1)}$	−1.84	0.37	0.000
		$CSRStrategyScore_{(t-1)}$	0.54	0.02	0.000
		$ManagementC.Score_{(t-1)}$	0.02	0.02	0.214
		$lnTA_{(t)}$	5.58	0.45	0.000
		Basic Materials	−3.25	3.54	0.360
		Consumer Discretion	0.51	3.45	0.882
		Consumer Staples	−2.51	3.63	0.489
		Health Care	3.80	3.61	0.292
		Industrials	5.36	3.40	0.115
		Technology	3.29	3.60	0.361
		Utilities	*(Omitted because of collinearity)*		

Table 11.
PLS-SEM regressions results considering models 1–6

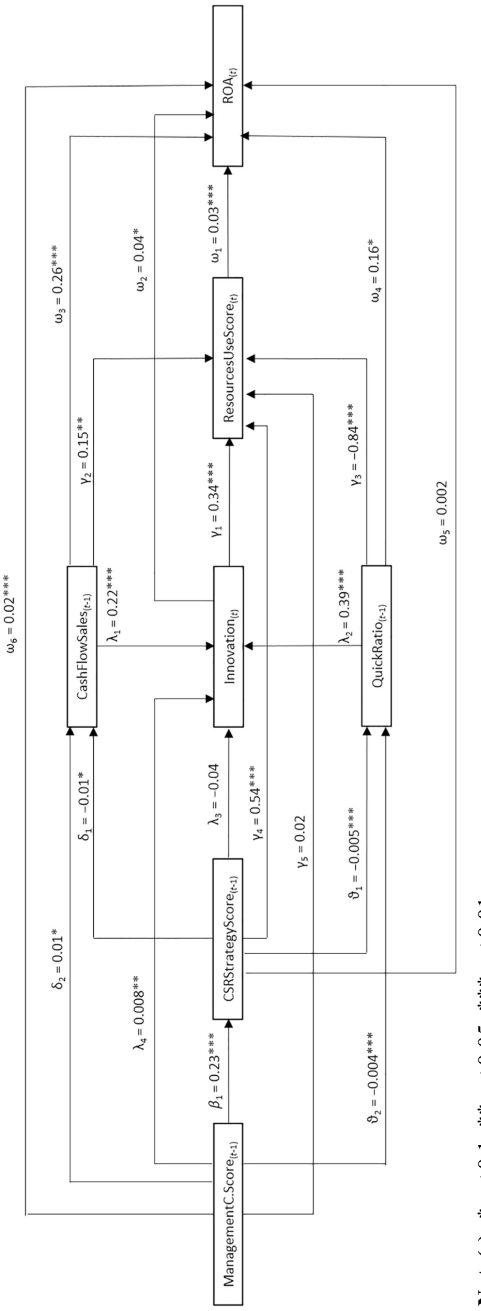
(*continued*)

PLS-SEM steps	DVs	IVs & CVs	Coef	Std. Err	ρ>|z|
6	$ROA_{(t)}$ <–	$ResourcesUseScoreScore_{(t)}$	0.03	0.005	0.000
		$Innovation_{(t)}$	0.046	0.02	0.095
		$CashFlowSales_{(t-1)}$	0.26	0.01	0.000
		$QuickRatio_{(t-1)}$	0.16	0.08	0.056
		$CSRStrategyScore_{(t-1)}$	0.002	0.005	0.697
		$ManagementC.Score_{(t-1)}$	0.02	0.004	0.000
		$lnTA_{(t)}$	−1.10	0.10	0.000
		Basic Materials	2.66	0.77	0.001
		Consumer Discretion	3.17	0.75	0.000
		Consumer Staples	3.99	0.79	0.000
		Health Care	3.25	0.79	0.000
		Industrials	3.07	0.74	0.000
		Technology	2.45	0.79	0.002
		Utilities	*(Omitted because of collinearity)*		
Endogenous variables		*$CSRStrategyScore_{(t-1)}$ $CahsFlowSales_{(t-1)}$ $QuickRatio_{(t-1)}$ $Innovation_{(t)}$ $ResourcesUseScore_{(t)}$ $ROA_{(t)}$*			
Exogenous variables		*$ManagementC.Score_{(t-1)}$ $lnTA_{(t)}$ BasicMaterials ConsumerDiscretion ConsumerStaples Energy HealthCare Industrials RealEstate Technology Telecommunications Utilities*			
Generalized Structural Equation Model				N. of obs. = 1,955	
Estimation method: ml					
Log pseudolikelihood: −39,829.455					

Table 11.

CSRStrategyScore; $\vartheta_1 = -0.005$; $\rho>|z| = 0.01$). This evidence supports thus H_8 and H_1. Indeed, the execution of sustainability principles at the business level requires the implementation of an appropriate strategy which, in turn, regulates the exploitation of the available slack resources (Robaina and Madaleno, 2020; Xu *et al.*, 2015).

The fourth PLS-SEM regression was performed considering the settings of EQ_4. The outputs of this analysis stage highlighted that the management commitment to pursue ESG objectives is positively correlated with the intensity in which companies innovate processes and products (i.e. *ManagementC.Score*; $\lambda_4 = 0.008$; $\rho>|z| = 0.05$) as stated in H_5. This evidence supports prior insights in literature (e.g. Bocquet *et al.*, 2013). At the same time, results showed that the availability of slack resources is positively correlated with the *Innovation* (i.e. *CashflowSales*; $\lambda_1 = 0.22$; $\rho>|z| = 0.01$; *QuickRatio*; $\lambda_2 = 0.39$ $\rho>|z| = 0.01$). This evidence validates H_{12} and presumably highlighted the use of slack resources is crucial for activating and developing innovation cycles to boost, in turn, corporate sustainability. Therefore, the present study confirms previous papers' findings (e.g. Zhor, 2018; Lee and Wu, 2016; Bourgeois, 1981), while it contrasts with other skeptical viewpoints in literature in this regard (e.g. Lee *et al.*, 2020; Shahzad *et al.*, 2016; Nohria and Gulati, 1996). Moreover, the present study did not find significant evidence that supports H_9. The fifth PLS-SEM regression was performed considering EQ_5. This analysis step found that firms' capability to sustainably manage firm's resources in production processes and along the supply chain is positively correlated with: (1) the corporate intensity to innovate processes/products (i.e. *Innovation*; $\gamma_1 = 0.34$; $\rho>|z| = 0.01$), (2) the availability/use of slack resources derived from core business activities (i.e. *CashflowSales*; $\gamma_2 = 0.15$; $\rho>|z| = 0.05$) and (3) the strategic approach to pursue ESG objectives (i.e. *CSRStrategyScore*; $\gamma_4 = 0.54$; $\rho>|z| = 0.01$). On the other hand, regression results showed that financial slack resources from both borrowed capitals and self-liquidity negatively affect the *ResourcesUseScore* (i.e. *QuickRatio*; $\gamma_3 = -1.84$; $\rho>|z| = 0.01$). These results support H_{15}, H_{13} and H_{10}, while the analysis did not find evidence for H_6. Moreover, these findings support prior studies' standpoint that considered sustainability of internal production and procurement processes as a result of innovation



Note(s): $*p < 0.1$; $**p < 0.05$; $***p < 0.01$

Figure 2.
Main PLS-SEM regressions results

(e.g.Shahzad *et al.*, 2016; McWilliams and Siegel, 2000; Damanpour, 1987) or CSR strategy (e.g.Anwar and Li, 2021; Bocquet *et al.*, 2013; Riccaboni and Leone, 2010). Differently, the analysis produced contrasting results with Cupertino *et al.* (2021) as regard the role of available slack resources use in making more sustainable internal production and supply chain processes.

The sixth PLS-SEM analysis was performed using EQ_6 highlights that firms' short-term profitability is improved through the sustainable management of resources, within internal production processes and throughout the supply chain (i.e. *ResourcesUseScore*; $\omega_1 = 0.03$; $\rho>|z| = 0.01$). This finding confirms H_{16} and H_1 as well as prior studies' results (e.g. Wang and Sarkis, 2013). Moreover, results highlighted that corporate innovation intensity positively affects *ROA* (i.e. *Innovation*; $\omega_2 = 0.04$; $\rho>|z| = 0.1$) confirming H_{14} and H_1 as well as previous studies' findings(e.g. Ruggiero and Cupertino, 2018; Yeh *et al.*, 2010; Eberhart *et al.*, 2004; Gobble, 2012; Klomp and Van Leeuwen, 2001). Differently, this evidence contrasts with Busch and Schnippering (2022). Furthermore, findings highlight that the availability of slack resources positively affects the future achievement of higher *ROA* (i.e. *CashflowSales*; $\omega_3 = 0.26$; $\rho>|z| = 0.01$; *QuickRatio*; $\omega_4 = 0.16$; $\rho>|z| = 0.1$) as supposed in H_{11} and underscored by some prior studies (e.g. Zhor, 2018; Bourgeois, 1981). Finally, the analysis found evidence for H_2 and H_1 highlighting that the corporate commitment towards sustainability fosters a better performance of a firm's short-term profitability (i.e. *ManagementC.Score*; $\omega_6 = 0.02$; $\rho>|z| = 0.01$). This evidence is also coherent with a recent study's findings (i.e. Cupertino *et al.*, 2021). Differently, the study did not find CSR strategy significant direct effects on a short-term firm's profitability. Therefore, in this case, the findings did not validate H_7 and H_1 assumptions.

6. Conclusions

Focusing on internal and process business determinants, this study's findings showed generally mutual interactions between ESGP and CFP that could, in turn, positively affect firm's short-term profitability. The ESGP–CFP link decomposition enabled the authors to identify drivers catalysing interplays useful to operationalise sustainability in a profitable manner at the business level. Notably, management commitment proved to be a triggering element able to determine corporate strategies and those internal key mechanisms allowing companies to efficiently combine ESG and traditional business activities. This evidence led the authors to emphasise the "*inside-out*" approach to managing sustainability issues (Vitale *et al.*, 2019). Moreover, the authors found that sustainability principles should be concretely embedded and integrated into the core business strategy (Demartini and Taticchi, 2021) to efficiently use slack resources and optimise the input production factors employment as well as procurement practices. Furthermore, the study confirmed that the availability of slack resources could be considered another enabling factor that fosters the activation of innovation business cycles (Nohria and Gulati, 1996). Moreover, findings showed that innovation, in turn, combined with the slack resources leveraged, conveys the sustainable management of both internal processes' resources and the supply chain activities (McLoughlin *et al.*, 2021; Chen *et al.*, 2018). Nevertheless, the authors found that not all slack resources are positively related to the internal production factors allocation and the supply chain management in a sustainable way. Notably, the exploitation of slack resources derived from core business activities boosts the sustainability of production processes and procurements. Conversely, financial slack resources generated from both borrowed capital and self-liquidity proved to be ineffective and critical. These results emphasise that companies might catalyse synergies between core business and non-financial activities. On one hand, sustainability should be considered as a strategic lever able to boost sales through creating new business opportunities, differentiating the company from competitors and

increasing customer retention or attracting new customers. Accordingly, managers should enhance the firms' capabilities in converting sales volumes into cash useful also to invest in ESG activities. On the other hand, managers could also acquire financial resources from the market to boost the sustainable development of business. In this regard, sustainability may improve, in turn, firms' access to funding opportunities. However, borrowing capital to implement ESG programs could be at the same time costly and risky in the long term.

From the profitability standpoint, this study's findings highlight that the managerial commitment to pursue ESG goals, the availability of slack resources derived from core business activities, innovation and the sustainability of production and procurement processes affect positively the *ROA* in the short term. Differently, the authors observed that the corporate strategic approach to ESG activities is indirectly correlated with the short-term firm's profitability. Indeed, the sustainability strategy can produce indirect positive effects on subsequent financial performance if its execution positively affects the corporate innovation intensity through the employment of available slack resources.

In the light of the above insights and considering recent studies' findings (e.g. Zhao and Murrell, 2022; Salehi and Arianpoor, 2021; Busch and Friede, 2018; Crane *et al.*, 2017), this paper contributes to the literature emphasising the need to better deepen what are the possible financial and non-financial corporate levers and their plausible interplays that lead sustainability to be profitable in the short-term. Accordingly, the authors overcame the limited focus on univocal ESGP–CFP relationships and minimized endogeneity criticalities, by adopting the holistic perspective of Ye *et al.* (2021) and an appropriate methodological approach. In so doing, some critical interdependencies between the internal and process key business determinants have been highlighted as enabling factors for firm sustainable growth. Therefore, the present paper encourages scholars to converge investigations in breaking down ESGP and CFP focusing on those microelements characterising the plural financial and non-financial dimensions of the value creation process. To this end, future studies should fully understand what drivers and bidirectional mechanisms could activate continuous transmuting processes from ESGP to CFP (or vice versa) rather than simply searching for univocal links, particular moderated/mediated effects, or isolated virtuous cycles. From a practical point of view, this study encourages managers to translate their commitment towards ESG issues into a strategy that mainly invests core business available slack resources to innovate and make more sustainable internal production and procurement processes. Therefore, firms could be concurrently sustainable and profitable in the short run. Notably, managers need to operationalise sustainability by prioritising internal efforts before acquiring new capital from the market. Indeed, managers should focus on efficient resource allocation and self-financing activities to foster the trade-off between financial and non-financial issues in the short term.

Since this study only focused on the internal and process business aspects of the Ye *et al.* (2021) framework, other studies could deepen possible synergies between performance and external firms' determinants such as consumers' expectations or governments' pressures and incentives (e.g. Anwar and Li, 2021). Moreover, subsequent studies should focus on non-OECD companies to deepen any differences or similarities with OECD companies. Lastly, the authors invite scholars to overcome this study's limitations by enlarging both the timeframe of the analysis and the sample, as well as the time lags between the scrutinised variables.

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