

## SUSTAINABILITY INITIATIVES & FIRMS PERFORMANCE: A SCALE DEVELOPMENT APPROACH

By

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### Abstract

*This study is an attempt to validate a scale for measuring sustainability practices and firm performance taking governance as moderator. From a representative sample, a data is collected for statistical validation. Exploratory factor analysis, Reliability analysis and Confirmatory factor analysis are conducted for scale development. The results indicate high reliability and model fitness of the scale. All items of the scale are retained and can further used for validation of conceptual model using statistical methods like structure equation modelling and moderation analysis.*

**Keywords:** *sustainability, performance, governance.*

### Introduction

For the creative economy to obtain a competitive edge, knowledge processes at a macro level need to be driven toward sustainability. Products and services resulting from knowledge development determine the rate of economic growth in an innovation-based economy. A new wave of innovative economics was heralded by novel occurrences like the internet's growth in the early 1990s. The rise of sustainability as a key innovation driver brings to light several

significant issues that require further research, such as possible directions for sustainable innovation and sustainable product development, as well as the underlying causes of variations in firms' commitment to sustainable innovation.

The topic of sustainability-oriented innovation has garnered more attention from scholars in recent times (Wagner 2009; Klewitz and Hansen 2013). Regarding this, the pertinent study topic is whether pursuing

sustainability-oriented innovative activities can result in the creation of value. Based on thirty major firms, the study by Nidumolu et al. (2009) shown that organizational and technological innovation that delivers both top- and bottom-line profits must include sustainability as a crucial component. The use of sustainability initiatives yields favorable outcomes for the application of social and environmental innovations, and environmental innovations positively impact all performance outcome assessments for businesses (Hermundsdottir and Aspelund 2022). When considering the competitiveness of high-tech sectors, intellectual capital, such as green innovation, is an important resource for knowledge-intensive enterprises (Chao and Wei 2021). Researchers and industry professionals have studied the business case for sustainability, emphasizing its potential to generate value (Atz et al. 2019; Busch and Friede 2018).

We propose a three-pillared model for to assess the connections between sustainability initiatives, governance, and firm performance. In this paper,

the objective is the scale (Questionnaire) development for testing the relationship between sustainability initiatives and company performance by taking governance as a moderating variable.

## **Literature Review**

### **Sustainability**

According to Carroll (2015), sustainability is related to John Elkington's "triple bottom line" and is derived from the idea of sustainable development. Corporate sustainability pertains to the non-commercial endeavours of an organization that showcase its business operations and stakeholder interactions (Marrewijk & Werre, 2003). The idea of sustainability as consisting of three pillars—social, economic, and environmental—has gained widespread acceptance. It is typically depicted as three intersecting rings with total sustainability at its center. Mao, Purvis, and Robinson (2017). Three interconnected "pillars" (Basiago 1999; Pope et al. 2004; Gibson 2006; Waas et al. 2011; Moldan et al. 2012; Schoolman et al. 2012; Boyer et al. 2016), "dimensions"

(Stirling 1999; Lehtonen 2004; Carter and Moir 2012; Mori and Christodoulou 2012), "components" (Du Pisani 2006; Zijp et al. 2015), "stool legs" (Dawe and Ryan 2003; Vos 2007), "aspects" (Goodland 1995; Lozano 2008; Tanguay et al. 2010), "perspectives" (Brown et al. 1987; Arushanyan et al. 2017), etc. are used to describe sustainability.

### **Environmental Sustainability**

Noordewier and Lucas (2020) investigated the effects of several environmental management practices (EMP) on the financial performance of organizations. According to Singh et al.'s research, agricultural productivity is impacted by pollution and climate change (2019). Many steps are taken to address this problem, such as the use of beneficial bacteria as soil inoculants in sustainable agricultural techniques. Taherdangkoo et al. (2019) focused their research on the companies' environmental reputation and how it affected their marketing strategies. They found a positive correlation between sustainable marketing strategies and environmental reputation, which enhanced both market and financial performance. The

business reduces process waste by using lean and green strategies. The impact of CEO authority, family ties, and varying degrees of industry competition on turning green strategies was examined by Lartey et al. (2020). They showed that a green strategy had a positive influence on firm growth and that this benefit grows in proportion to CEO clout, competitiveness, and family ties.

### **Social sustainability**

Allouche and Laroche (2005) investigated CSP and CFP's association by meta-analysis. There is a lack of agreement among the authors regarding the subject matter of this study; some claim that CSP positively affects CFP, while others find no connection at all. The effect of socially conscious suppliers on the performance of the firm was investigated by Thornton et al. (2013) using a questionnaire. (Niță and Ștefea, 2014) examined the literature on the relationship between sustainability and cost control. Waste reduction, employee motivation, target attainment, and strategy evaluation are examples of cost-controlling techniques. Various approaches to cost

reduction could increase the sustainability of the firm and improve its reputation and image. Huang and Watson (2015) looked analyzed articles that were published during a ten-year period in the top 13 accounting publications. The results suggest that the efforts of stakeholders, the institutionalization of CSR and CSR control, and its precursors characterize CSR. The link between financial results and corporate social responsibility is also turbulent. In 2020, Nirino et al. investigated the impact of corporate social responsibility (CSR) on a food and beverage company's financial performance. The findings showed that CSR governance positively impacts the companies' social and environmental results.

### **Economic Sustainability**

The study conducted by Rezaee and Tuo (2017) investigated the potential motivation of management to disclose non-financial information voluntarily and the potential relationship between these disclosures and the sustainability performance of the organization. The 2019 study by Canh et al. examined the connection between financial performance and corporate social

responsibility (CSR) of Vietnamese manufacturing businesses in 2011–2013 and product and process innovation. The results show that while market share has increased, return on total assets has not. Humphrey et al. (2011) investigated the relationship between ESG and UK-based firms' financial performance. The performance of the companies with high or poor ESG rankings differed significantly, according to the data, while the systematic risks, book-to-market ratios, and momentum exposure of the companies did not. ESG factors should be considered by UK investors when making investment strategies, according to the research. Yang et al. (2021) looked at the possibility that reporting that is sustainable boosts a company's profitability. The results showed that SR raises corporate profitability, but there was little evidence of a moderating effect from key political variables. The global scale has an inverse relationship with GRI SR.

### **Sustainable initiatives and financial performance**

With regard to the impact of sustainable management practices—

which take social and environmental factors into account—on performance, Magon et al. (2018) attempted to synthesize the existing corpus of empirical data. The authors focused on the little-examined subject of causal models for operational performance and sustainability in their extensive analysis of the body of research on the relationships between sustainability and company performance in order to achieve this. Bhaskaran et al.'s (2021) investigation focused on the relationship between international banks' financial performance and their social and governance initiatives. Data from 472 foreign banks were included in the study. The study's conclusions demonstrated the positive effects of market-based valuation on banks with high levels of social and governance-related activity. According to Khan et al. (2022), the manufacturing and service sectors in India have been involved in a number of sustainability efforts that were highlighted in the BSE 100.

The primary findings of various studies indicate that the financial success of enterprises operating in both sectors is significantly impacted by investments made in sustainable initiatives. Several

studies have examined sustainable measures and financial performance using both primary and secondary data. Prior research has indicated a noteworthy influence on both financial success and sustainability. The primary data taken from the questionnaire is the main focus of this study.

### **Governance**

According to Klepczarek (2017), corporate governance is a complicated, multi-paradigmatic, and highly interdisciplinary topic, making it difficult to define the term universally. According to Van Horne and Wachowicz (2015), pp. 8, "corporate governance represents the system by which corporations are managed and controlled." This is the general consensus. It outlines the responsibilities of the board of directors for running the business and upholding the company's bond with its investors (Pass, 2004).

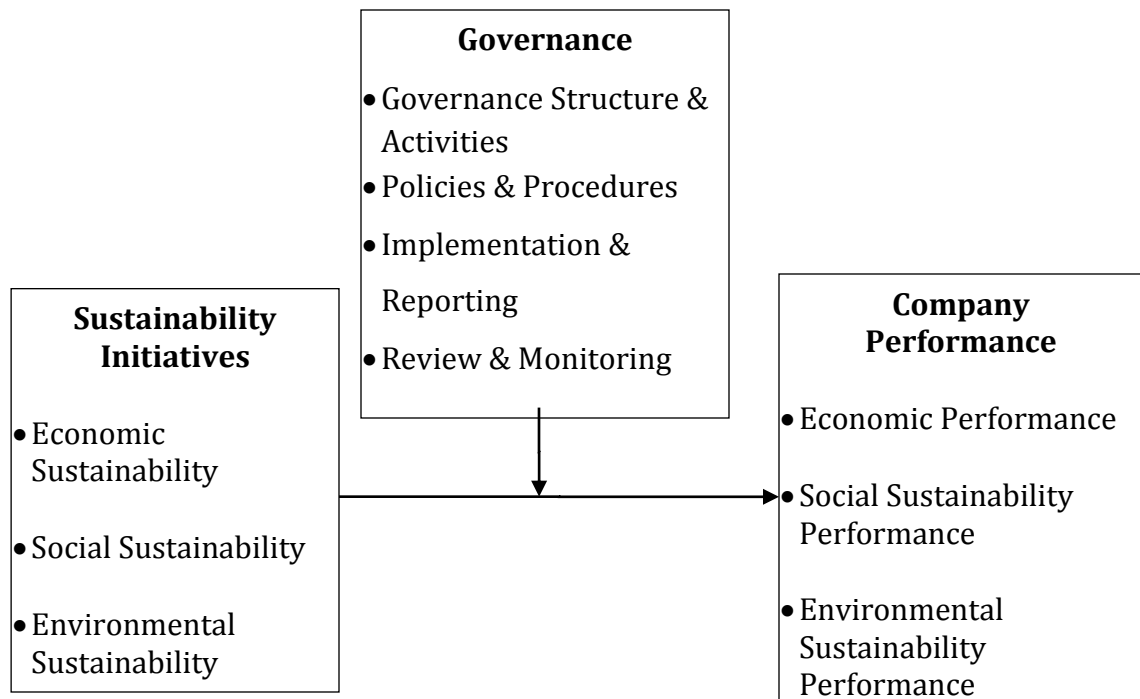
A number of corporate performance metrics, including financial performance, leverage, capital structure, reporting, and environmental performance, have been

investigated in connection to the impact of corporate governance.

Goel & Misra (2017) investigated the sustainability reporting practices of eight industries' worth of 120 BSE-

listed companies. Using a self-developed sustainability reporting methodology with seven sub-parameters, sector-based comparisons were conducted.

### 3. Conceptual Model



**Fig. 1. Conceptual Model: Sustainability Initiatives, Governance & Company Performance**

### Methodology Used

This paper is based on primary data collected using a structured questionnaire. The data is collected from a sample of sustainability managers working in selected sectors

of Indian economy. The sample is selected using purposive judgmental sampling. A scale development approach is used in which step by step procedure is followed. Firstly, Exploratory Factor analysis is done, which is followed by reliability analysis

using cronbach alpha value. Lastly, Confirmatory factor analysis is conducted to test the model fitness using maximum likelihood method.

## Data Analysis & Interpretation

### EFA & Reliability

#### EFA

Exploratory factor analysis (EFA) is a technique for studying the structural interrelationships between the various elements on a scale. The EFA method defines a set of interrelated items

called as factors (Hair et al., 2010). These variables further define the dimensions of the data.

Hair et al. (2010) advises a factor loading of 0.40 for a sample size of 250. As a result, it was determined to keep the items with factor loadings of 0.40 and above for the purposes of this study. Table 1 summarises the results of the EFA. It can be seen that all of the objects had factor loadings more than 0.40, hence they were all kept.

**Table 1. Exploratory Factor Analysis**

S. No.	Factor Loadings	Decision
<b>Environmental Sustainability</b>		
EVNPR1	0.797	Retained
EVNPR2	0.617	Retained
EVNPR3	0.619	Retained
<b>Social Sustainability</b>		
ESCPR1	0.826	Retained
ESCPR2	0.767	Retained
ESCPR3	0.818	Retained
<b>Economic Sustainability (Quality)</b>		
ECPRQ1	0.783	Retained
ECPRQ2	0.587	Retained
ECPRQ3	0.631	Retained
<b>Economic Sustainability (Resource Utilisation)</b>		
ECPRRU1	0.766	Retained
ECPRRU1	0.742	Retained

ECPRRU1	0.605	Retained
<b>Economic Sustainability (Resilience)</b>		
ECPRRES1	0.597	Retained
ECPRRES2	0.553	Retained
ECPRRES3	0.736	Retained
<b>Environmental Sustainability Performance</b>		
ENVPER1	0.542	Retained
ENVPER2	0.739	Retained
ENVPER3	0.520	Retained
ENVPER4	0.497	Retained
<b>Social Sustainability Performance</b>		
ESCPER1	0.879	Retained
ESCPER2	0.612	Retained
ESCPER3	0.775	Retained
ESCPER4	0.670	Retained
ESCPER5	0.749	Retained
<b>Economic Performance (Quality)</b>		
ECPERQ1	0.660	Retained
ECPERQ2	0.525	Retained
ECPERQ3	0.717	Retained
<b>Economic Performance (Resource Utilisation)</b>		
ECPERRU1	0.746	Retained
ECPERRU2	0.705	Retained
ECPERRU3	0.819	Retained
<b>Economic Performance (Resilience)</b>		
ECPERRES1	0.472	Retained
ECPERRES2	0.588	Retained
ECPERRES3	0.711	Retained
<b>Governance (Government Structure and Activities)</b>		
GOVGSA1	0.494	Retained
GOVGSA2	0.505	Retained



GOVGS3	0.716	Retained
<b>Governance (Policies and Procedures)</b>		
GOVPP1	0.485	Retained
GOVPP2	0.776	Retained
GOVPP3	0.727	Retained
GOVPP4	0.527	Retained
<b>Governance (Implementation and Reporting)</b>		
GOVIR1	0.755	Retained
GOVIR2	0.838	Retained
GOVIR3	0.811	Retained
<b>Governance (Review and Monitoring)</b>		
GOVRM1	0.847	Retained
GOVRM2	0.886	Retained
GOVRM3	0.855	Retained
GOVRM4	0.821	Retained
<b>Stakeholder Satisfaction</b>		
SS1	0.668	Retained
SS2	0.757	Retained
SS3	0.743	Retained

## Reliability

Reliability is defined as the consistency of a variable or group of variables in measuring what it is intended to assess (Hair et al., 2010). According to Hair et al. (2010), the commonly recognised lower limit of the Cronbach's alpha is 0.7; however, in circumstances of exploratory studies, a value of 0.6 is also acceptable. As a result, the current study regarded alpha values of 0.6 and

above to be satisfactory. Cronbach's alpha values for each factor are given in table 1.

As per the results of Cronbach 's alpha presented in the table 1, all the factors ranged between 0.672 – 0.937 in terms of reliability, which was higher than the minimum acceptable value of 0.6. For the overall scale, the value of Cronbach alpha was found to be 0.954.

**Table 2. Reliability of Variables**

S. No.	Scale	No. of Items	Cronbach's alpha
1.	Environmental Sustainability	3	0.749
2.	Social Sustainability	3	0.805
3.	Economic Sustainability (Quality)	3	0.618
4.	Economic Sustainability (Resource Utilisation)	3	0.708
5.	Economic Sustainability (Resilience)	3	0.627
6.	Environmental Sustainability Performance	4	0.744
7.	Social Sustainability Performance	5	0.574
8.	Economic Performance (Quality)	3	0.745
9.	Economic Performance (Resource Utilisation)	3	0.829
10.	Economic Performance (Resilience)	3	0.752
11.	Governance (Government Structure & Activities)	3	0.641
12.	Governance (Policies & Procedures)	4	0.879
13.	Governance (Implementation & Reporting)	3	0.859
14.	Governance (Review & Monitoring)	4	0.927
15.	Stakeholder Satisfaction	3	0.878
	Overall	50	0.954

### **Confirmatory Factor Analysis**

Confirmatory Factor Analysis (CFA) is a technique for testing the hypothesised relationship between observable variables and underlying latent components (Suhr, 2006). It describes the way in which each

measure loads on a certain factor and aids in the identification of items with no significant factor loadings. The variables retained following the exploratory factor analysis are included in the CFA measurement model. Figure 2 depicts the CFA measuring model.

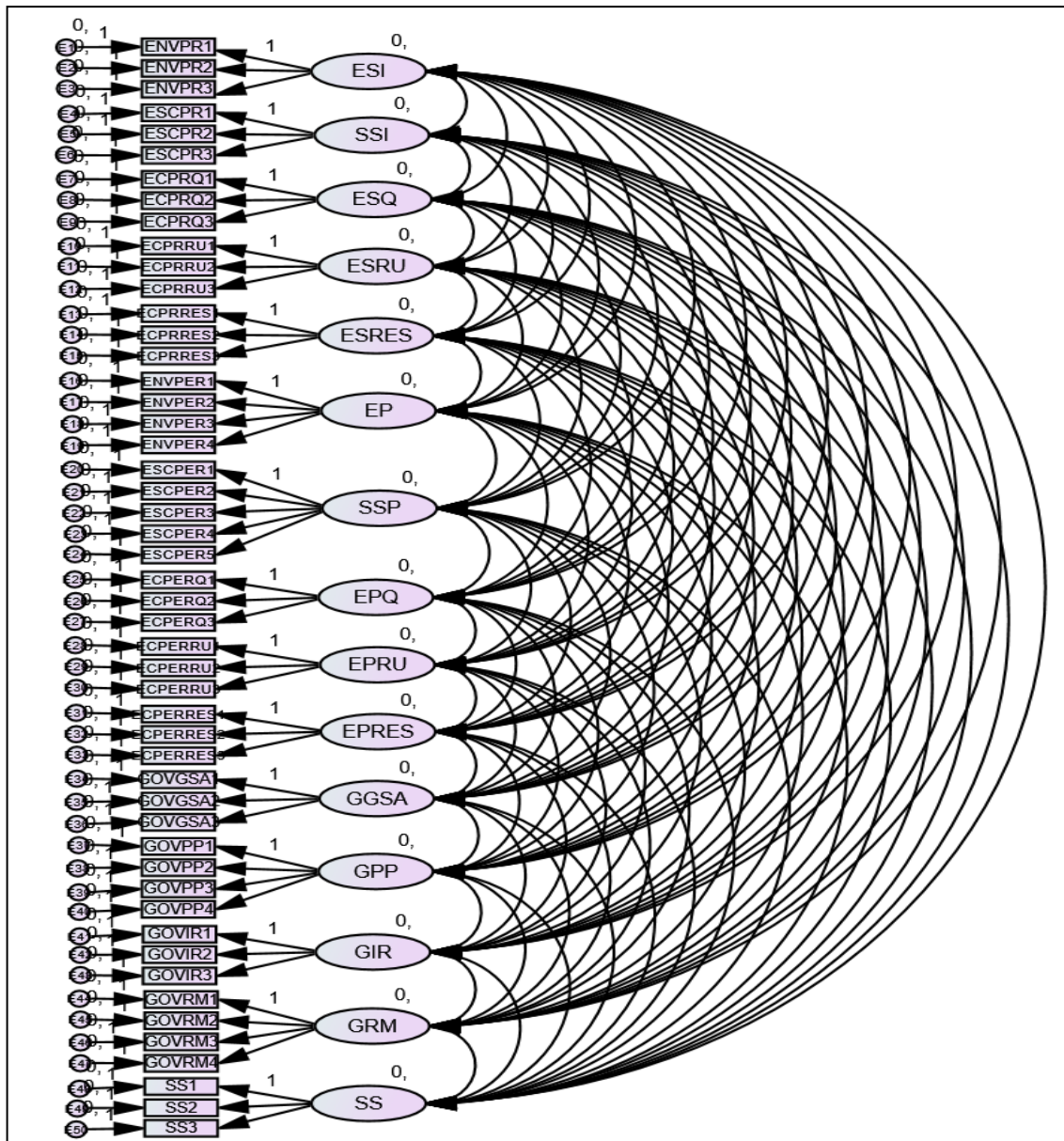


Fig. 2. CFA Measurement Model

### 4.3. Fit Indices

Crowley and Fan (1997) proposed reporting model fit indices using CFA.

The most often used model fit indices in practise are CMIN/DF, GFI, AGFI, CFI, and RMSEA (Hair et al., 2010). The

current study includes all of these indexes.

**Table 3. Model fit Indices (CFA)**

Model Fit Indices	Value
Cmin/df	1.802
GFI	0.821
AGFI	0.703
CFI	0.819
RMSEA	0.072

## Findings & Discussion

In order to achieve the objective of scale development, a conceptual model

linking sustainability practices, firm performance and governance is developed. Based on this model a structured questionnaire is designed and data is collected from a sample of respondents. Statistically, the results indicate that the scale is reliable and valid. The results of exploratory factor analysis and confirmatory analysis suggest that all items of the questionnaire are retained. Therefore, it can be concluded that the data collected using this questionnaire can be used for the purpose for the purpose of validating the impact of sustainability practices on firm performance with governance as moderator.

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