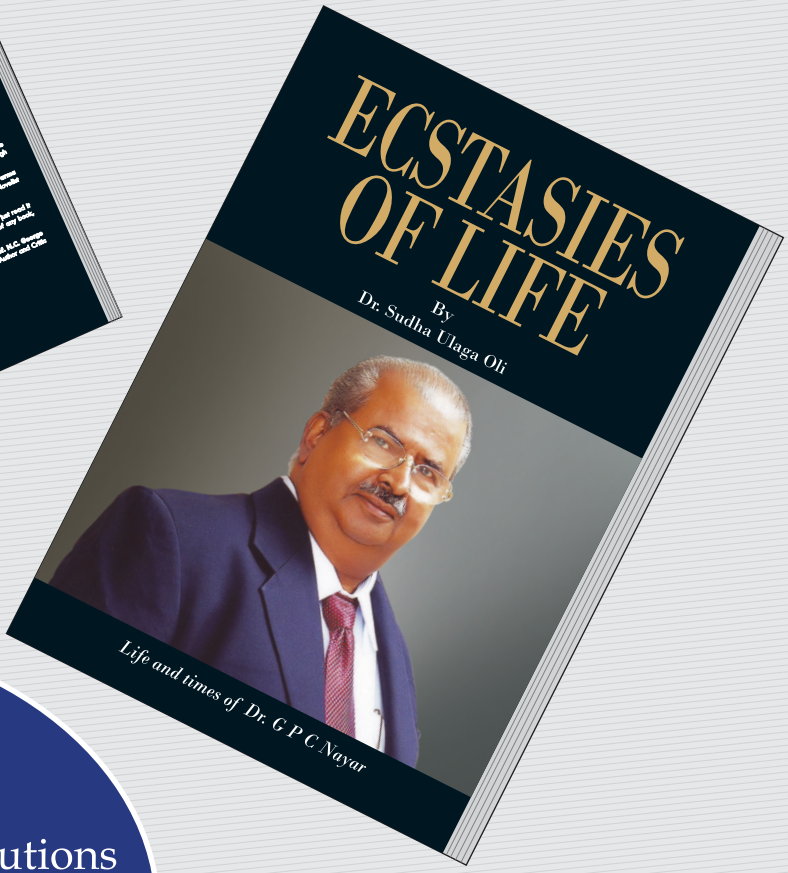
SCMS

JOURNAL OF INDIAN MANAGEMENT

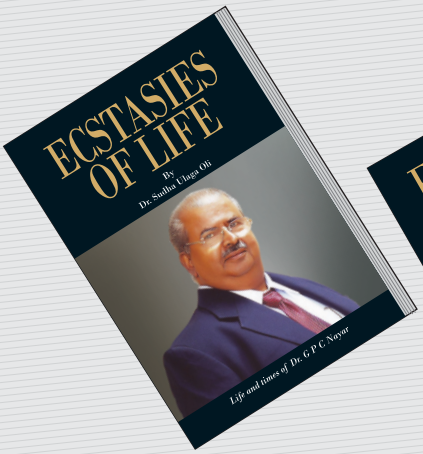
Volume XXI Number - 2 April - June 2024

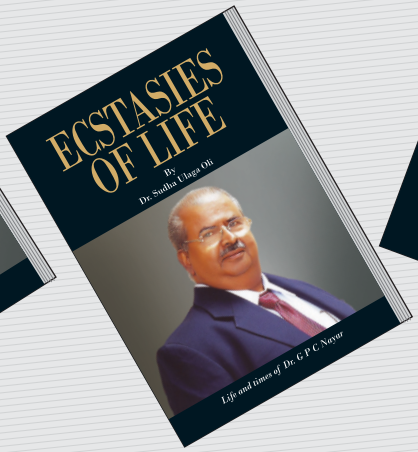
ISSN 0973 - 3167

SCMS COCHIN SCHOOL OF BUSINESS, KERALA, INDIA



Here's an entrepreneur
who has created
some excellent academic institutions
in an unfriendly environment.
It is a saga of trials and tribulations
in an extremely readable manner
by a consummate
writer in English.





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Articles

Chairman's Overview

A Tribute to Ratan Tata: Architect of Modern Indian Business

Ratan Tata, the visionary leader and philanthropist, left an indelible mark on Indian business, transforming the Tata Group into a global powerhouse. Serving as Chairman from 1991 to 2012, his tenure was defined by strategic foresight, ethical leadership, and an unwavering commitment to societal betterment.

One of Ratan Tata's most significant contributions was unifying the diverse Tata companies under a single cohesive group. Prior to his leadership, the Tata companies operated with considerable autonomy. Ratan Tata introduced a centralized structure, fostering synergy and aligning the group's vision. This pivotal restructuring enabled the Tata Group to leverage its collective strength, creating a unified brand identity and setting the stage for its global expansion.

Under his leadership, the Tata Group expanded its international footprint, acquiring globally recognized brands such as Jaguar Land Rover and Corus Steel. These landmark acquisitions were more than business transactions; they were symbolic of India's emergence as a global economic player. His bold vision redefined Indian enterprise, demonstrating that Indian businesses could compete and thrive on the world stage.

Ratan Tata's philosophy extended beyond profit, emphasizing the role of businesses in serving society. He upheld the Tata Group's long-standing commitment to corporate social responsibility, ensuring that two-thirds of its profits were directed toward philanthropic initiatives. Through education, healthcare, rural development, and scientific research, his efforts positively impacted millions of lives, reinforcing the Tata Group's role as a force for good.

Innovation and inclusivity were hallmarks of his leadership. The launch of the Tata Nano in 2008, envisioned as the world's most affordable car, exemplified his dedication to addressing societal needs through innovation. While the project faced challenges, it remains a symbol of his belief in accessible and transformative solutions.

Ratan Tata's humility and integrity earned him widespread respect, making him a model of ethical leadership. His efforts to nurture entrepreneurship through start-up investments and mentorship continue to inspire future generations of business leaders.

By unifying the Tata Group, expanding its global reach, and championing ethical and inclusive business practices, Ratan Tata reshaped Indian industry and reinforced its global relevance. His legacy is a guiding light for building businesses that prioritize purpose alongside profit, leaving an enduring impact on India and the world.

Dr. G. P. C. NAYAR
Chairman, SCMS Group of Educational Institutions.

SCMS Journal of Indian Management

A Quarterly Publication of

SCMS-COCHIN

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Editorial

The second edition of this year emphasizes the need for adaptive practices and informed decision-making in response to evolving business challenges.

The lead article features a study on sustainability practices and carbon emission disclosure among Indian firms, revealing the need for robust frameworks to enhance corporate environmental accountability. Results revealed that high-performing firms are more likely to disclose their carbon emissions, and ownership type plays a moderating role in this relationship.

Critical Discourse Analysis (CDA) is used in the second article to offer valuable insights into the dynamics of corporate communication in IT companies during and after the COVID-19 induced Work-From-Home (WFH) era. The results reveal the dual role of communication in managing employee expectations and organizational goals.

The subsequent contribution analyzes the growing prominence of online food delivery applications through conjoint and cluster analysis. Findings segment consumers into two clusters: "demand-driven" users seeking impeccable service and "convenience-oriented" users prioritizing payment flexibility.

In examining green supply chain management practices (GSCMPs) in Nigerian manufacturing SMEs, the fourth paper aligns with Sustainable Development Goal 9. Results indicate that drivers such as institutional policies significantly influence GSCMP adoption, emphasizing the role of incentives and penalties in fostering sustainable industrial practices.

The next article on the adoption of Integrated Reporting (IR) in India showcases progress in combining financial and non-financial disclosures. While IR adoption remains voluntary, increasing trends in disclosure quality reflect a commitment to stakeholder engagement and transparency, marking an evolution in corporate reporting practices.

Then, we have a study on sentiment analysis of online travel agencies (OTAs), which explores customer feedback on social media platforms. It identifies areas of improvement, such as addressing grievances related to cancellations and refunds, while also highlighting positive sentiments about customer-centric services. This offers actionable insights for enhancing customer relationships.

The impact of macroeconomic factors on share buybacks reveals a long-term association between GDP growth, stock market performance, and buyback activity in India. Policymakers can leverage these findings from this paper to design strategies that stabilize markets and optimize corporate payout policies.

The role of Informal Acquisition of Information (IAI) in participative management is explored in the penultimate article. By analyzing the perspectives of managers and employees, this study demonstrates how IAI fosters authentic engagement, particularly in cultures with high power distance, like India.

Finally, the issue features research output on ESG (Environmental, Social, and Governance) practices that underscore their dual role in driving sustainability and financial performance. A positive correlation between ESG scores and profitability highlights the strategic importance of embedding ethical practices in business operations.

We wish our readers an interesting and educative reading experience!

Dr. Radha Thevannoor

Relating Sustainability Practices, Firm Performance, Carbon Emission Disclosure, and Moderating Role of Ownership Type- A Case Study on Indian Companies

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Abstract

Based on stakeholder and legitimacy theory, the present paper investigates the sustainability practices of Indian firms through carbon emission disclosure. The study also attempts to investigate the impact of firm performance on carbon emission disclosure. Furthermore, the current work examines the moderating role of ownership type on the association between firm performance and carbon emission disclosure. The study considers BSE 100 Indian firms from 2018-19 to 2020-21. The study observes that the sustainability practices of Indian firms are at a nascent stage.

Further, the study confirmed the significant and positive association between firm performance and carbon emission disclosure, indicating that high-performance firms would be more likely to report their carbon emission information. Additionally, the current research suggests that ownership type positively moderates the association between firm performance and carbon emission disclosure. This study adds to the existing literature on sustainability, climate change, and carbon emission disclosure by exploring the impact of firm performance on carbon emission disclosure.

Furthermore, the study provides enriching insights into the existing literature by exploring the moderating role of ownership type on the association between firm performance and carbon emission disclosure. To the best of the author's knowledge, the current study is the first to explore the potential effect of firm performance on carbon emission disclosure in India. Further, current research is the first-ever attempt to scrutinize the moderating role of ownership type on the association between firm performance and carbon emission disclosure.

Keywords: *Carbon disclosure, Carbon emissions, Climate Change, Firm performance, Tobin's q, State ownership.*

1. Introduction

Sustainability has become a vital area of discussion among researchers and practitioners in recent years. Business houses are responsible for environmental damage and socioeconomic problems (Zarefar et al., 2022). Consequently, they face pressure from various stakeholders to report their economic, social, and environmental activities to society (Darnall, 2010; Liesen et al., 2015; Kumar & Firoz, 2018). Global Reporting Initiative (GRI) defines "Sustainability disclosure as the practice of companies disclosing the most significant economic, environmental and social impacts that arise from their corporate activities, and thereby being held accountable for these impacts and responsible for managing them" (GRI, 2021). Wilmshurst and Frost (2000, p.16) defined corporate environmental disclosures as "those disclosures that relate to the impact, company activities have on the physical or natural environment in which they operate."

In the 20th century, academicians, researchers, and policymakers have focused on one of the essential aspects of sustainability, i.e., climate change. Climate change is the rise in ground-level temperature caused by increasing greenhouse gases in the atmosphere, even though the number of gases such as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, hydro chlorofluorocarbons, and ozone cause climate change. However, carbon emissions have been given special attention. The justification behind this fact is that carbon emissions are the potent cause of climate change. Thus, more attention has been assigned to measuring, controlling, and disclosing carbon emissions by firms as they are the largest carbon emitters.

Therefore, the current study has measured sustainability through carbon emission disclosure. It describes the quantitative emissions of climate-changing greenhouse gases and measures taken to manage, reduce, and mitigate the volume of carbon emissions. Furthermore, it reports historical and projected carbon performance to internal and external stakeholders (Velte et al., 2020).

The prior empirical evidence argues that firm performance is one of the influential factors in deciding the disclosure of carbon emission information (Choi et al., 2013; Akbas et al., 2018; Faisal et al., 2018). The rationale behind this view is that environmental or social disclosures require costs due to the investment involved in identifying, collecting, and publishing relevant information in annual or sustainability reports (Brammer & Pavelin, 2006). Thus, corporate performance is essential in determining the amount of information disclosed in annual or sustainability reports.

Earlier literature adopted stakeholder and legitimacy theory to explain the relationship between firm performance and sustainability disclosure (Saka et al., 2014; Ganda, 2018). Freeman (1984) defines a stakeholder as "any group or individual that can affect or be affected by the accomplishment of organizational objectives." An organization may affect several stakeholders, such as governments, competitors, suppliers, customers, employees, shareholders, and the general public through company policies and practices. The stakeholder theory advocates that companies should manage the conflicting interests of various stakeholders (Ngatia, 2014). Thus, carbon emission disclosure can meet stakeholders' various demands regarding how companies manage their social and environmental aspects (Liao et al., 2015).

Gray defined Legitimacy as "a system-oriented view of organization and society which permits to focus on the part of information and disclosure in the relationship between organizations, the state, groups, and individuals" (Gray et al., 1995). The theory postulates that an organization's survival depends on social approval of its corporate activities, highlighting that if the public is satisfied that the company's operations and policies are compatible with societal beliefs and norms, then the company will continue to operate and be accepted by society (Ganda, 2018). Earlier literature shows that companies often try to maintain Legitimacy by reporting environmental and social information (Erin et al., 2021). In this scenario, sustainability reporting is a part of the legitimization process designed to signal how corporate practices respond to stakeholders' needs (Maroun et al., 2014).

Although numerous studies determine firms' sustainability practices, only a couple of studies have focused on the impact of firm performance on carbon emission disclosure. Thus, the present study intends to determine firms' sustainability disclosure through carbon emission disclosure to fill this gap. Further, an attempt has been made to explore the impact of firm performance on carbon emission disclosure. Besides, the study has scrutinized the moderating role of ownership type on the relationship between firm performance and carbon emission disclosure.

The present study contributes to the existing literature in different ways. First, even earlier literature on sustainability disclosure has considered developing countries such as

Indonesia, Turkey, and China. However, the results provided are indeterminate to make valid inferences. Therefore, the current study strives to provide conclusive evidence by examining the relationship between firm performance and carbon emission disclosure. Further, every country has unique institutional, regulatory, and economic settings; for instance, there are laws regulating the carbon practices of firms in the USA, UK, Australia, and Indonesia. However, there is no such law that regulates the carbon emissions of Indian firms.

Additionally, India is the third largest emitter of carbon, which makes it appropriate to study the carbon behavior of firms and the influence of firm performance on carbon emission disclosure. Second, the current work measures firms' sustainability through carbon emission disclosure. Third, earlier studies have assessed carbon emission disclosure from various databases such as CDP and Thomson Reuters databases, and a dummy variable was used to assess whether firms have disclosed carbon emission information. In contrast, the current study has gauged the carbon emission disclosure by performing manual content analysis on firms' annual and sustainability reports through a disclosure index. Fourth, current research provides enriching insights into sustainability literature by exploring the moderating role of ownership type on the association between firm performance and carbon emission disclosure. Finally, the earlier studies conducted in this field have focused on polluting or environmentally sensitive companies. However, the present study has focused on a diverse range of industries.

The rest of the paper is structured as follows: Section 2 deals with literature review and hypothesis development. Section 3 describes the research design. Section 4 presents the study's results. Section 5 presents the conclusion. Section 6 describes the study's implications. Section 7 discloses the limitations and scope for future research.

2. Literature Review

In recent years, environmental or social disclosure has become an area of discussion in international and national contexts. Legitimacy and Stakeholder theories argue that corporate interest parties want disclosure of financial and non-financial information related to various environmental and social issues. Research on various environmental or social disclosures has increased notably in this scenario. Firm performance plays a significant role in the disclosure of carbon or environmental information. However, studies on the influence of firm performance on carbon emission disclosure are reasonably limited. Thus, the present study has explored the effect of firm performance on corporate emission disclosure.

Environmental or social disclosures involve costs because of the resources involved in identifying, collecting, and publishing relevant information in annual or sustainability reports (Brammer & Pavelin, 2006). Thus, corporate performance is essential in determining the amount of information disclosed in annual or sustainability reports. In support of this, Akerlof (1978) argues that more profitable companies disclose more environmental information to differentiate themselves from less profitable firms. Likewise, Lang & Lundholm (1993) found that firms with high financial performance are more eager to disclose good news to financial markets. Cormier and Magnan (1999) argue that firms with good corporate performance are more likely to disclose environmental information than those in poor financial positions.

Similarly, Khanna et al. (2004) and Gul & Leung (2004) found that profitability positively influences the amount of environmental disclosure. Further, Choi et al. (2013) state that firms can afford the various human, technical, and financial resources required for reporting carbon emissions in good financial condition. Similarly, Hermawan et al. (2018) suggest that companies with good financial conditions can invest in carbon emission disclosure compared to companies with poor financial performance. Likewise, Akbas et al. (2018) highlight that more profitable firms are more likely to disclose their carbon information as they can meet the various costs of publishing relevant information in annual and sustainability reports.

On the other hand, some of the earlier studies also found a negative and insignificant association between firm performance and environmental disclosures. In this context, studies such as Freedman and Jaggi et al. (2005) and Clarkson et al. (2008) did not find a significant relationship between firm performance and environmental disclosure. Further, Akhiroh and Kiswanto (2016) argue that corporate financial performance is not associated with carbon emission disclosure. Besides, Shen et al. (2020) found the negative impact of firm performance on carbon emission disclosure. Consequently, based on earlier research, the following hypothesis is proposed:

H1. Firm performance is positively related to carbon emission disclosure.

Table1. Summarizes the previous literature that has analyzed the impact of firm performance on carbon emission disclosure

Authors	Country	Period	Sample size	Firm performance
Prado-Lorenzo et al., (2009)	International	2005-2006	101firms	×
Rankin et al., (2011)	Australia	2007	187 firms	×
Choi et al., (2013).	Australia	2006-2008	100 firms	×
Akhiroh and Kiswanto (2016)	Indonesia	2012-2014	32 firms	×
Chithambo and Tauringana (2017)	UK	2011	410 firms	×
Hermawan et al., (2018)	Indonesia	2014-2016	22 firms	+*
Akbas et al., (2018)	Turkey	2014-2016	84 firms	+*
Faisal et al., (2018)	Indonesia	2011-2014	37 firms	+*
Shen et al., (2020)	China	2009-2015	2450 firm years	-*
Tingbani et al., (2020)	UK	2011-2014	350 firms	×
Gold et al., (2022)	International	2016-2019	368 firms	×

Notes: *+* denotes positive and significant relationship; -* denotes negative and significant relationship and × denotes insignificant relationship*
Source: *Compiled from previous studies*

2.1 Moderating effect of ownership type on the association between firm performance and carbon emission disclosure

Legitimacy theory argues that ownership type is crucial in motivating firms to disclose environmental information (Al et al., 2020). In this context, Ghazali (2007) suggests that state-owned firms have more environmental disclosure. Likewise, Calza et al. (2014) argue that the government pressures corporate managers to report more environmental information, which results in more environmental disclosure. In the same way, Hermawan et al. (2018) document that state-owned firms tend to report more carbon emission disclosure. Giannarakis et al. (2018) evinced that state ownership positively impacts carbon emission disclosure. In addition to the direct impact of state ownership on environmental disclosure, it was argued that state ownership also moderates the association between firm performance and environmental disclosure (Abdi et al., 2022). Thus, this study posits the following hypothesis:

H2. State ownership positively moderates the association between firm performance and carbon emission disclosure.

3. Research Design and Data

3.1 Sample

This study examines the association between firm performance and carbon emission disclosure by taking data from BSE 100 companies from 2018-19 to 2020-21. The study sample includes 216 firm-year observations. The present study has excluded financial companies, as they are not considered in such research due to differences in accounting practices and a unique set of environmental and social regulations (Alsaifi et al., 2019). The present study has not considered firms that prepare their reports on a calendar basis to improve comparability between firms.

3.2 Measures

3.2.1 Carbon Emission Disclosure

The dependent variable of the current study is carbon emission disclosure, measured through an index developed by Bedi and Singh (2024a). The disclosure index is based on various international frameworks, such as GRI (Global

Reporting Initiative), CDP (Climate Disclosure Project), Global Framework on Climate Change Disclosure, TCFD (Task Force on Climate-Related Financial Disclosure), Greenhouse Gas Protocol, and SEBI Business Responsibility Report. The final disclosure index includes 37 items about carbon emissions and climate change.

Further, the disclosure index is weighted using a scale of 0 to 1, depending upon the type of disclosure. If an item is disclosed, one is assigned, and 0 is assigned for non-reporting an item (Choi et al., 2013). The study has assigned equal weights to each item. Thus, the maximum disclosure score is 37. After assigning weights to the items, a content analysis of sustainability and annual reports were performed to gauge firms' carbon emissions. The disclosure score for each sample firm is obtained as the total disclosure score for a firm.

Table 2. Carbon emission disclosure index

	Indicators	Maximum score
1	Assessment/Description/Identification of climate change -related risk	1
2	Assessment/Description/Identification of climate change -related opportunities	1
3	Assessment of the impact of future climate-related risk and opportunities	1
4	Description of scope1 emissions	1
5	Comparison of scope1 emissions with the previous year	1
6	Description of scope2 emissions	1
7	Comparison of scope2 emissions with the previous year	1
8	Description of scope3 emissions	1
9	Comparison of scope3 emissions with the previous year	1
10	Total GHG emissions	1
11	Emission of Ozone depleting substances	1
12	Nitrogen oxide, sulfur oxide, and other air emissions	1
13	Disclosure of emission intensity	1
14	Disclosure of GHG emissions by sources	1
15	Disclosure of GHG emission by facilities/segment	1
16	Description of protocol/standard/methodology used to measure GHG emissions	1
17	Disclosure of reduction in emissions	1
18	Disclosure of initiatives taken to reduce emissions	1
19	Description of targets set to reduce emissions	1
20	Comparison of current year targets with the previous year	1
21	Are emissions generated within permissible limits given by CPCB/SPCB	1
22	Environment management system in the company	1
23	Identify the person/management/committee responsible for climate policies/strategy	1

24	Description of climate change-related business strategy	1
25	Consumption of fuel	1
26	Consumption of purchased/acquired electricity	1
27	Quantification of total energy consumption	1
28	Comparison of total energy consumption with the previous year	1
29	Reduction in energy consumption	1
30	Targets set to reduce energy consumption	1
31	Consumption of renewable energy	1
32	Participation in emission trading schemes	1
33	Statement from CEO/chairman/head of sustainability committee of the company regarding climate change	1
34	Inclusion of words "climate change"/"global warming."	1
35	A section devoted to climate change/natural capital/sustainability	1
36	Investment in clean energy technologies	1
37	Awards if any	1

Source: Bedi and Singh (2024a)

3.2.2 Firm Performance

The independent variable in the present study is corporate performance, as it plays a vital role in determining firms' efficiency, transparency, and carbon performance (Dienes et al., 2016). Previous studies have used accounting measures such as ROS (Return on sales), ROA (Return on assets), ROE (Return on equity), ROIC (Return on invested capital), ROCE (Return on capital employed), and market measures such as Tobin's q and Price to book value to gauge the financial performance of firms. Even though earlier studies have used accounting measures of firm performance or developed a financial performance index that considers all the accounting-based measures, market-based measures are better than accounting-based measures as they take into account future cash flows and profitability of the company. Further, market-based measures consider the firm's long-term performance (Siddique et al., 2021). In contrast, accounting-based measures are historical and retrospective and consider past profitability (Siddique et al., 2021). Thus, the current research has used market-based measures, i.e., Tobin's q, to measure the performance of the firms (Elsayih et al., 2018; Siddique et al., 2021; Busch et al., 2022). The data for Tobin's q is collected from the ACE-EQUITY database.

3.3 Econometric Specifications

This paper investigates the potential impact of firm performance on carbon emission disclosure. To determine the empirical relationship, the dependent variable is carbon emission disclosure, and the independent variable is firm performance. Further, based on previous literature, various control variables have been included to determine the relationship between firm performance and carbon emission disclosure.

To test the formulated hypothesis, the following model is used:

Where DIS represents the carbon emission disclosure of firms i in period t; TQ depicts Tobin's q; Growth represents sales growth; Size denotes firm size; Lev denotes leverage of the firm; B_IND is the board independence; B_Size is the size of the board; Age depicts the firm age; TQ*Type denotes the interaction effect between firm performance and ownership type; e is the error term.

$$DIS_{i,t} = \alpha + \beta_1 TQ_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 Lev_{i,t} + \beta_5 B\_IND_{i,t} + \beta_6 B\_Size_{i,t} + \beta_7 Age_{i,t} + \varepsilon_{i,t}$$

$$DIS_{i,t} = \alpha + \beta_1 TQ_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 Lev_{i,t} + \beta_5 B\_IND_{i,t} + \beta_6 B\_Size_{i,t} + \beta_7 Age_{i,t} + TQ*Type + \varepsilon_{i,t}$$

Table 3. Defines the variables of the study

Variable	Acronym	Measurement
Carbon Emission Disclosure	DIS	The total disclosure score of a firm.
Firm performance (Tobin's q)	TQ	The ratio of market capitalization and the book value of debt to the book value of assets
Firm size	Size	The natural log of total assets.
Firm age	Age	The natural log of the number of years of operation since its inception.
Firm leverage	Lev	The ratio of total debt to total assets
Board size	B_Size	The natural log of the total number of directors.
Board independence	B_IND	The proportion of independent directors on the board.
Sales growth	Growth	Percentage change in sales.
Ownership	Type	1 if the firm is state-owned or 0 otherwise

Source: *Author's computation*

4. Estimation results

4.1 Descriptive Statistics and Correlations

Table 4 reports descriptive statistics for the sample variables included in the present analysis. The total observations for all the variables are 216 as given in Table 4. The mean value of the index score is 16.53, while the minimum is 2 and the maximum is 34. This shows that Indian firms have a low level of carbon emission disclosure. Further, the mean value of Tobin's q is 4.403, while the minimum is 0 and the maximum is 32.96. The average sales growth of a firm is 7.143, however, the minimum is -81.49 and the maximum is 292. This evinced that firms have negative sales growth during the sample period. The maximum value of leverage is 1 and the minimum is 0. Further, the descriptives evinced that sample firms have an average of 2 members on the board. Likewise, board independence shows that approximately 50% of members of the board are independent. Additionally, firm size has a mean value of 6.298, while the maximum is 13.79 and the minimum is 0.878. The age of the firm reports maximum and minimum values of 4.920 and 1.386. The variable ownership type has a minimum value of 0 and a maximum value of 1.

Table 4. Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Standard deviation
DIS	216	2.00	34.00	16.53	8.615
Tobin's q	216	0.00	32.96	4.403	4.734
Growth	216	-81.49	292.00	7.143	27.84
Lev	216	0.00	1.00	0.1916	0.2141
B_Size	216	1.386	3.091	2.371	0.2602
B_IND	216	0.125	0.833	0.51	0.112
Size	216	0.878	13.79	6.298	2.892
Age	216	1.386	4.920	3.795	0.635
Type	216	0	1	0.138	0.346

Source: *Author's computation*

Table 5. Correlation coefficients

Variables	DIS	TQ	Growth	Lev	B_Size	B_IND	Size	Age	Type
DIS	1								
TQ	-0.219	1							
Growth	-0.051	0.077	1						
Lev	0.083	-0.132	-0.075	1					
B_Size	0.104	-0.068	-0.036	-0.154	1				
B_IND	0.042	0.127	0.088	-0.147	0.053	1			
Size	0.113	-0.273	-0.103	0.010	0.074	-0.106	1		
Age	0.157	-0.049	-0.196	-0.157	0.401	0.113	0.057	1	
Type	0.09	-0.23	-0.08	0.143	0.151	-0.485	0.109	-0.05	1

Source: *Author's computation*

Table 5 reports the correlation coefficients of the variables included in the present analysis. The correlation coefficients show that leverage, board size, board independence, firm size, firm age, and ownership type have a positive association while Tobin's q and sales growth have a negative correlation with the carbon emission disclosure. The correlation coefficients for all the variables taken into the study are below ±0.8. Therefore, there is no problem of multicollinearity in the present analysis.

4.2 Multivariate Analysis

The empirical relationship between firm performance and carbon emission disclosure, along with various control variables, is presented in Table 6. The panel data regression applies due to the nature of the data. Further, the study employed fixed effect panel regression as the Hausman test supports the fixed effect regression over the random effect model. Besides, the autocorrelation and multicollinearity assumptions are checked through Durbin-Watson test

statistics and correlation analysis. Additionally, robust standard errors are measured to obtain the heteroskedasticity-robust results.

H1. *Firm performance is positively related to carbon emission disclosure (Accepted)*

Table 6 shows that firm performance is significantly and positively associated with carbon emission disclosure at the 10% significance level with the presence of control variables in Model 2. Further, results show that the coefficient of Tobin's q is significant and positive at a 10% significance level without considering control variables in Model 1. This led to an acceptance of hypothesis (H1) that firm performance is significantly and positively related to carbon emission disclosure. The justification behind this is that firms with high financial performance can meet the costs associated with identifying, collecting, and publishing relevant carbon information in annual and sustainability reports (Choi et al., 2013; Akbas et al., 2018). Furthermore, the availability of adequate resources can aid corporate managers in making investment decisions related to carbon emission disclosure. The results are consistent with previous findings of Hermawan et al. (2018) and Faisal et al. (2018). Thus, firm performance is influential in disclosing firms' carbon emission information.

For control variables, leverage shows a significant and negative association with carbon emission disclosure at a 10% level. This highlights that highly leveraged firms disclose less carbon emission information. The results are consistent with the findings of Tingbani et al. (2020). Further, the coefficient of board independence and carbon emission disclosure is positive and significant at a 10% level, which implies that firms with independent boards positively contribute to the disclosure of carbon emission information (Liao et al., 2015). Besides, firm age also shows a positive and significant association with carbon emission disclosure at a 10% significance level. This depicts that older firms have high carbon emission disclosure as they have adequate knowledge and skills in disclosing carbon information (Shen et al., 2020). The ownership type has a significant and positive association with carbon emission disclosure, indicating that state-owned firms have high carbon emission disclosure (Hermawan et al., 2018). However, the rest of the control variables turn out to be insignificant.

Table 6. Panel Regression on firm performance and carbon emission disclosure

Variables	**Model 1**	**Model 2**
	Coefficient (p -value)	**Coefficient (p -value)**
TQ	0.28 (0.07*)	0.18 (0.09*)
Growth	-	0.00 (0.66)
Lev	-	-5.44 (0.10*)
B_Size	-	-4.29 (0.14)
B_IND	-	9.81 (0.05*)
Size	-	0.05 (0.57)
Age	-	28.14 (0.05*)
Type		0.17 (0.06)*
Durbin-Watson value	1.55	1.56
R-squared	0.02	0.11

*Notes: The significance levels given by ***p < 0.01 **p < 0.05 *p < 0.1*
Source: Author's computation

Table 7. The moderating effect of ownership type on the association between firm performance and carbon emission disclosure

Variables	Model 3 Coefficient (p -value)
TQ	0.18 (0.09*)
Growth	0.00 (0.78)
Lev	-5.80 (0.07*)
B_Size	-3.21 (0.32)
B_IND	11.19 (0.02**)
Size	0.05 (0.53)
Age	28.14 (0.05*)
TQ*Type	1.42 (0.07*)
Durbin-Watson value	1.56
R-squared	0.15

Notes: *TQ*Type represents the moderating effect of ownership type on the association between firm performance and carbon emission disclosure. The significance levels given by ***p < 0.01 **p < 0.05 *p < 0.1*

Source: *Author's computation*

H2. *State ownership positively moderates the association between firm performance and carbon emission disclosure (Accepted)*

The current research has explored the moderating effect of ownership type on the association between firm performance and carbon emission disclosure. The results presented in Table 7 manifest that ownership type (measured as a dummy variable having a value of 1 if the firm is state-owned or 0 if the firm is non-state-owned) positively moderates the association between firm performance and carbon emission disclosure. The justification behind this view is that state-owned firms have enough resources to invest in disclosure activities that enhance the carbon emission disclosure of firms (Abdi et al., 2020). The findings are innovative and significantly contribute to the body of literature, as the moderating effect of ownership type on the association between firm performance and carbon emission disclosure is rarely examined.

5. Conclusion

In the last few years, opportunities and risks arising from climate change have become one of the hottest topics of discussion. In this scenario, there is increasing pressure on business houses to disclose sustainability information. Different theories, such as stakeholder and legitimacy theory, have argued that stakeholders want to know both financial as well as non-financial information. Thus, it becomes relevant to know companies' carbon information disclosure practices and firm performance, which can influence the disclosure practices. Therefore, this article aims to determine the effect of firm performance on corporate sustainability disclosure (carbon emission disclosure) by taking a sample of Indian companies. The results of the study suggest that the sustainability practices of firms as measured through carbon emission disclosure are at a nascent stage. Further, the study suggests that firm performance is essential in explaining firms' carbon information. In addition to this, the study has also examined the moderating effect of ownership type on the association between firm performance and carbon emission disclosure, and the results suggest that state ownership positively moderates the relationship between firm performance and carbon emission disclosure.

6. Implications

The current research findings have several implications for policymakers, the public, and corporate executives, as climate change is an emerging issue that is impacting the existence of life on the earth. The outcome of the present analysis shows that sustainability practices (measured through carbon emission disclosure) of Indian firms are at a

low level. Thus, the Indian government should take progressive steps to increase firms' carbon emission disclosure. Besides, regulatory bodies can also make various guidelines concerning carbon emission disclosure.

The study corroborates that firm performance is a significant factor in disclosing carbon information. Thus, the government should provide adequate budgetary support to firms with low financial performance. Furthermore, firms should also provide human and technological resources to meet the various disclosure requirements. The findings are also worthy for policymakers as they develop standards for measuring and disclosing carbon emission information. The results also provide valuable insights to investors as they can interpret firms' carbon profiles based on their financial performance. Additionally, results provide treasured insights to society about how companies manage their sustainability practices. Furthermore, the current research has provided innovative insights into the moderating role of ownership type on the association between firm performance and carbon emission disclosure. The results suggest the positive role of state ownership in the relationship between firm performance and carbon emission disclosure, indicating that state-owned firms have more carbon emission disclosure than non-state-owned firms. This could also provide treasured acumens to policymakers and regulators. Last but not least, results are also worthy for other emerging economies.

7. Limitations and Scope for Future Research

The study acknowledges the following limitations. First, the sample firms are the largest 100 firms in India. Thus, future research can analyze the disclosure practices of small firms. Further, the present study may only consider some variables that can impact corporate carbon emission disclosure. Therefore, further research can consider other variables, such as ownership concentration, CEO duality, and the presence of an environmental committee, which can impact firms' carbon emission disclosure. Besides, the current study has considered market-based measures (Tobin's q) to determine the impact of corporate performance on carbon emission disclosure. Thus, future studies can also consider the other proxies of corporate performance, such as ROA, ROE, and market-to-book value. The current study only considered the disclosure of carbon emissions by Indian firms. Future research can also make a comparative analysis of firms in developing and developed economies.

References

Abdi, Y., Li, X., & Càmara Turull, X. (2022). How financial performance influences investment in sustainable development initiatives in the airline industry: The moderation role of state ownership. *Sustainable Development*, *30*(5), 1252-1267.

Akbas, H. E., & Canikli, S. (2018). Determinants of voluntary greenhouse gas emission disclosure: An empirical investigation on Turkish firms. *Sustainability, 11(*1), 1-24.

Akerlof, G. A. (1978). The market for “lemons”: Quality uncertainty and the market mechanism. In *Uncertainty in Economics* (pp. 235-251). Academic Press.

Akhiroh, T., & Kiswanto, K. (2016). The determinant of carbon emission disclosures. *Accounting Analysis Journal, 5(*4), 326-336.

Al Amosh, H. & Mansor, N. (2020). The implications of ownership structure on the environmental disclosure in Jordan. *International Journal of Academic Research in Business and Social Sciences, 10*(3), 330–346.

Alsaifi K, Elnahass M, Salama A. (2019). Carbon disclosure and financial performance: UK environmental policy. *Business Strategy and the Environment*, *29(*2), 1-16.

Bedi, A., & Singh, B. (2024). Unraveling the impact of stakeholder pressure on carbon disclosure in an emerging economy. *Social Responsibility Journal*, *20*(4), 703–718.

Brammer, S., & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance & Accounting*, *33*(7 8), 1168-1188.

Busch T, Bassen A, Lewandowski S, Sump F. (2022). Corporate carbon and financial performance revisited. *Organization & Environment, 35(*1), 154-171.

Calza, F., Profumo, G. & Tutore, I. (2016). Corporate ownership and environmental proactivity. *Business Strategy and the Environment, 25(*6), 369-389.

Chithambo, L., & Tauringana, V. (2017). Corporate governance and greenhouse gas disclosure: a mixed-methods approach. *Corporate Governance: The International Journal of Business in Society, 17*(4), 678-699.

Choi, B. B., Lee, D., & Psaros, J. (2013). An analysis of Australian company carbon emission disclosures. *Pacific Accounting Review, 25(*1), 58-79.

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, *33*(4-5), pp. 303-327.

Cormier, D., Magnan, M., & Morard, B. (1993). The impact of corporate pollution on market valuation: some empirical evidence. *Ecological Economics*, *8*(2), 135-155.

Darnall, N., Henriques, I., & Sadorsky, P. (2010). Adopting proactive environmental strategy: The influence of stakeholders and firm size. *Journal of Management Studies*, *47*(6), 1072-1094.

Dienes, D., Sassen, R., & Fischer, J. (2016). What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, *7*(2), 154-189.

Elsayih, J., Tang, Q., & Lan, Y. C. (2018). Corporate governance and carbon transparency: the Australian experience. *Accounting Research Journal*, *31*(3), 405-422.

Erin, O., Adegboye, A., & Bamigboye, O. A. (2021). Corporate governance and sustainability reporting quality: evidence from Nigeria. *Sustainability Accounting, Management and Policy Journal*, *13*(3), 680-707.

Faisal, F., Andiningtyas, E.D., Achmad, T., Haryanto, H. & Meiranto, W. (2018). The content and determinants of greenhouse gas emission disclosure: Evidence from Indonesian companies. *Corporate Social Responsibility and Environmental Management*, *25(*6), 1397–1406.

Freedman, M., & Jaggi, B. (2005). Global warming, commitment to the Kyoto Protocol, and accounting disclosures by the most significant global public firms from polluting industries. *The International Journal of Accounting*, *40*(3), 215–232.

Freeman, R.E. (1984). "Strategic Management: A Stakeholder Approach", Prentice-Hall, Englewood Cliffs, NJ.

Ganda, F. (2018). The influence of carbon emissions disclosure on company financial value in an emerging economy. *Environment, Development and Sustainability*, *20*(4), 1723-1738.

Giannarakis, G., Zafeiriou, E., Arabatzis, G., & Partalidou, X. (2018). Determinants of corporate climate change disclosure for European firms. *Corporate Social Responsibility and Environmental Management*, *25*(3), 281-294.

Global Reporting Initiative (2021). GRI Sustainability Reporting Guidelines, Retrieved from https://www.globalreporting.org/standards/.

Gold, N. O., Taib, F. M., & Ma, Y. (2022). Firm-Level Attributes, Industry-Specific Factors, Stakeholder Pressure, and Country-Level Attributes: Global Evidence of What Inspires Corporate Sustainability Practices and Performance. *Sustainability, 14(*20), 13222.

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: a literature review and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal*, *8*(2), 47–77.

Gul, F. A., & Leung, S. (2004). Board leadership, outside directors' expertise, and voluntary corporate disclosures. *Journal of Accounting and Public Policy*, *23*(5), 351-379.

Hermawan, A., Aisyah, I. S., Gunardi, A., & Putri, W. Y. (2018). Going green: Determinants of carbon emission disclosure in manufacturing companies in Indonesia. *International Journal of Energy Economics and Policy*, *8(*1), 55-61.

Khanna, T., & Palepu, K. G. (2004). Globalization and convergence in corporate governance: Evidence from Infosys and the Indian software industry. *Journal of International Business Studies*, *35*(6), 484-507.

Kumar, P., & Firoz, M. (2018). Corporate Carbon Intensity Matter: Predicting Firms' Financial Performance. *SCMS Journal of Indian Management*, *15*(4), 74-84.

Lang, M., & Lundholm, R. (1993). Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research*, *31*(2), 246-271.

Liao, L., Luo, L., & Tang, Q. (2015). Gender diversity, board independence, environmental committee, and greenhouse gas disclosure. *The British Accounting Review*, *47*(4), 409-424.

Liesen, A., Hoepner, A. G., Patten, D. M., & Figge, F. (2015). Does stakeholder pressure influence corporate GHG emissions reporting? Empirical evidence from Europe. *Accounting, Auditing & Accountability Journal*, *28*(7), 1047-1074.

Maroun, W., Coldwell, D. & Segal, M. (2014). SOX and the transition from apartheid to democracy: South African auditing developments through modernity theory. *International Journal of Auditing*, *18(*3), 206–212.

Mohd Ghazali, N. A. (2007). Ownership structure and corporate social responsibility disclosure: some Malaysian evidence. *Corporate Governance: The International Journal of Business in Society*, *7*(3), 251-266.

Ngatia, C. (2014). Exploring sustainability reporting for the financial performance of selected companies listed on the Nairobi securities exchange in Kenya. *International Journal of Economics and Finance, 1(*4), 32–48.

Prado-Lorenzo, J. M., Rodríguez-Domínguez, L., Gallego-Álvarez, I., & García-Sánchez, I. M. (2009). Factors influencing the disclosure of greenhouse gas emissions in companies worldwide. *Management Decision, 47(7*), 1133-1157.

Rankin, M., Windsor, C., & Wahyuni, D. (2011). An investigation of voluntary corporate greenhouse gas emissions reporting in a market governance system: Australian evidence. *Accounting, Auditing & Accountability Journal, 24(*8), 1037–1070.

Saka, C., & Oshika, T. (2014). Disclosure effects, carbon emissions, and corporate value. *Sustainability Accounting, Management and Policy Journal*, *5*(1), 22-45.

Shen, H., Zheng, S., Adams, J., & Jaggi, B. (2020). The effect stakeholders have on voluntary carbon disclosure within Chinese business organizations. *Carbon Management*, *11(*5), 455–472.

Siddique, M.A., Akhtaruzzaman, M., Rashid, A. and Hammami, H. (2021). Carbon disclosure, carbon performance, and financial performance: International evidence. *International Review of Financial Analysis, 75*, 101734.

Tingbani, I., Chithambo, L., Tauringana, V., & Papanikolaou, N. (2020). Board gender diversity, environmental committee, and greenhouse gas voluntary disclosures. *Business Strategy and the Environment*, 29(6), 2194-2210.

Velte, P., Stawinoga, M., & Lueg, R. (2020). Carbon performance and disclosure: A systematic review of governance-related determinants and financial consequences. *Journal of Cleaner Production*, *254*, 120063.

Wilmshurst, T. D., & Frost, G. R. (2000). Corporate environmental reporting: A test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, *13*(1), 10–26.

Zarefar, A., Agustia, D., & Soewarno, N. (2022). Bridging the Gap between Sustainability Disclosure and Firm Performance in Indonesian Firms: The Moderating Effect of the Family Firm. *Sustainability*, *14*(19), 12022.

Annexure 1. List of sample companies and their ownership type

Sr. No.	Company	Ownership Type
1	Adani Enterprises Ltd.	Non-state owned
2	Adani Green Energy Ltd.	Non-state owned
3	Adani Ports and Special Economic Zone Ltd.	Non-state owned
4	Adani Total Gas Ltd.	Non-state owned
5	Adani Transmission Ltd.	Non-state owned
6	Ashok Leyland Ltd.	Non-state owned
7	Asian Paints Ltd.	Non-state owned
8	Aurobindo Pharma Ltd.	Non-state owned
9	Avenue Supermarts Ltd.	Non-state owned
10	Bajaj Auto Ltd.	Non-state owned
11	Berger Paints India Ltd.	Non-state owned
12	Bharat Forge Ltd.	Non-state owned
13	BPCL	State-owned
14	Bharti Airtel Ltd.	Non-state owned
15	Britannia Industries Ltd.	Non-state owned
16	Cipla Ltd.	Non-state owned
17	Coal India Ltd.	State-owned
18	Colgate-Palmolive (India) Ltd.	Non-state owned
19	Crompton Greaves	Non-state owned
20	Dabur India Ltd.	Non-state owned
21	Divi's Laboratories Ltd.	Non-state owned
22	DLF Ltd.	Non-state owned
23	Dr. Reddy's Laboratories Ltd.	Non-state owned
24	Eicher Motors Ltd.	Non-state owned
25	GAIL (India) Ltd.	State-owned
26	Godrej Consumer Products Ltd.	Non-state owned
27	Grasim Industries Ltd.	Non-state owned
28	Havells India Ltd.	Non-state owned
29	HCL Technologies Ltd.	Non-state owned
30	Hero MotoCorp Ltd.	Non-state owned

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What They Said, What They Meant and Two Years Later: A Critical Discourse Analysis of Corporate Communication during COVID-19 Enforced Work from Home

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Abstract

The present study uses Critical Discourse Analysis (CDA) to capture important power dynamics embedded in corporate communication of four IT majors in India- Tata Consultancy Services (TCS), Wipro, Capgemini, and Hindustan Computers Limited (HCL). The study uses secondary data sources to examine articles published on company websites regarding the Work from Home (WFH) practice during the COVID-19 pandemic. A three-step methodology has been adopted to descend into levels of meaning embedded in the text. The first level involved semantic analysis of the article titles. The next level of thematic analysis allowed for 12 themes to be derived from the text of the articles. These included work models, vision, satisfaction, productivity, technology, data privacy, challenges, advantages, recommendations, employee health, and initiatives for employees and stakeholders. These two steps culminated in the third step of examining the companies' motivation behind WFH, and illustrated whether their level of ambition was compliance-driven, profit-driven, caring, synergistic, or holistic (van Marrewijk, 2003). This helped us discern binary discourse orders (Fairclough, 1995), which reveals the angle from which various organizations approach WFH: employer orientation and employee orientation. It may be concluded that corporate communication became a tool for controlling and manipulating the narrative around WFH as the best practice for the future, and also to coax employees into this transition. Paradoxically, as the pandemic eased and the organizations moved back towards Work from Office (WFO) or hybrid mode, this narrative no longer served and had to be retracted. Implications are discussed.

Keywords: *Corporate communication, Work from Home, Critical Discourse Analysis, Ambition level*

1. Introduction

Whether it was ancient Egyptian hieroglyphs or sacred carvings on inscribed limestone, painted temple walls, or pictorial writings on papyrus sheets, language has always been a primary tool for expression and communication. Linguistic scholars have long held language as a cultural, social, and psychological phenomenon, and a vehicle by which power traverses through society (e.g., Ng & Deng, 2017). Institutions and authorities frequently use conscious and unconscious strategies to exercise power over the subjects. One such strategy used is "discourses", which may be understood as structured and regulated systems of rules, which define who can say what, when, and how (Caldwell, 2007). These discourses define, limit, and control how subjects perceive themselves and their relation to the world (Caldwell, 2007) and offer means of "administering organizational relationships with both employees and society." (Abel, 2005).

Examining prevalent discourses can provide an insight into what is being construed as the prevalent truth about varied organizational conditions and practices, enabling the location of the "truth regime" or "knowledge regime" (Valikangas & Seeck, 2011) at a particular period. Further, when discourses run over time, the ways of organizing and perceiving subjects suggested by them become established and viewed as normal, and consequently render alternative ways of organizing and perceiving the subject as invisible (Rose & Nikolas, 1999). This process is indicative of how a new "truth regime" or "knowledge regime" is established in the organizational context.

To quote Foucault (1988), people know *what* they do and frequently they know *why* they do what they do, but what they don't know is what what they do does. An examination of practices, especially in the organizational context reveals the "own specific regularities, logic, self-evidence and reason" of practices (Foucault, 2000) and how they come to be disseminated through vehicles of discourse, in this case, corporate communication. Corporate communication may be defined as "a management function that offers a framework for the effective coordination of all internal and external communication with the overall purpose of establishing and maintaining favorable reputations with stakeholder groups upon which the organization is dependent." (Cornelissen, 2011, p. 5). Corporate communication serves several functions such as developing image and identity (Argenti, 1996), employee communication, and crisis communication (Kaul & Chaudhri, 2017). Corporate communication includes written communication such as e-mails, press releases, website copy, and advertisements, spoken communication such as interviews and speeches, and even nonspoken communication such as posters, brand images, and infographics.

The present study analyses important power dynamics embedded in corporate communications during the initial period of the COVID-19 pandemic and the consequent practice of enforced Work-from-home (WFH). It juxtaposes these findings in the current times as organizations move towards a hybrid or from-office (WFO) mode. Global crises such as COVID-19 mark an important period whereby tectonic shifts in power in society might take place and percolate through organizational systems in important ways. The crisis communication around enforced WFH also provides the perfect backdrop as an old practice in a new guise, for an examination of "who can say what, when and how" (Caldwell, 2007). Turning the lens on IT majors, considered the keystone of the Indian industry, this research captures the "zeitgeist" during COVID-19, revealing what lies beneath the messaging of IT conglomerates in India.

For this study, the definition of WFH is adopted from the works of Allen et al. (2015) and Yu & Wu (2021) who explain WFH as a practice when "an employee performs work-related activities from their home rather than being physically present at an employer location, typically using digital technology." As the COVID-19 pandemic raged and brought about cataclysmic changes in societies and communities across the world, organizations had to reimagine the work they do, the roles of employees, re-defining physical and virtual spaces as well as creating safe, productive jobs (Boland et al., 2020). About 7.9% of the world's workforce was working from home before the COVID-19 pandemic which increased to 18% post-pandemic (Bonnet et al., 2021). This sudden and unprecedented shift also became the landscape on which a new, hitherto unknown script of corporate communication was etched.

Research has shown that during periods of crisis and subsequent re-organization of work, corporate communication and support play an important role in keeping employees confident about the future and therefore engaged (Manuti et al., 2020). A study conducted by Zito et al. (2021) among Italian employees working from home during the COVID-19 lockdown revealed that organizational communication played a protective role in

buffering the effects of stress that derived from the use of technology, and enhanced a personal resource, self-efficacy, which was functional to the reduction of psycho-physical disorders. Digital social support provided to employees during the pandemic also contributed to both employee productivity and job satisfaction (Ahuja & Padhy, 2023).

Most of the previous research has established the importance of corporate communication in coping with planned change (e.g., Daly et al., 2003; Nelissen & van Selm, 2008). But what happens when change is as abrupt, swift, and unprecedented as COVID-19? Except for one study (Chattaraj et al., 2021), that analyzed the communication strategies and measures adopted by the management of Steel Authority of India Limited during COVID-19, research has not examined corporate communication during the pandemic. We contend that the corporate communications in the months that followed the advent of COVID-19 contained important informational and relational elements that became crucial vehicles of the company's discourse. It is this discourse that this study seeks to examine.

2. The Present Study

Taking critical discourse analysis (hereinafter CDA) (Fairclough, 1995) of selected Indian IT organizations' WFH communication as our starting point, we aim to analyze and discuss what organizations say, how they say it, and why they say it. Previous research has also drawn upon power discourses present in management and social sciences, for example, to examine empirically how workplace democracy may be intertwined with profitability (Akella, 2003), discourses expressed in CSR reporting (Nielsen & Thomsen, 2007), CDA of mission statements of large organizations (Irigaray et al., 2016), etc.

The following questions guided this study: What can we learn about how companies present themselves when discussing WFH? What is their approach in terms of emphasis on various stakeholders, scope, challenges, recommendations, etc.? What are the dominant discourses? Is inequality and power legitimized via text? What larger picture of the power relations and interaction patterns between the employer and the employees within organizations emerge? The primary aim of this study is therefore to critically examine and compare the discourse underlying published communications about COVID-19-enforced WFH of four large IT companies in India. To address this aim, the following objectives were identified:

1. Identify the thrust of the company's approach towards WFH, which issues about WFH are deemed most relevant by organizations (RQ1).

2. Identify prominent themes in published communications of organizations about their functioning, structure, and approach toward WFH (RQ2).

3. Evaluate textual and rhetorical features of the various companies to give a more in-depth picture of the discourse strategies adopted by the organizations to gauge their underlying motivation for WFH (RQ3)

The three-fold objectives allow us to scrutinize the social relations of domination within the capitalist system of organizations (Fairclough, 1995). Such an analysis relies on a broader socio-cultural context of language use, which entails the worldview subsumed in the discourse (Aragbuwa, 2021). The present study adds to the body of knowledge generated during a historically significant period. Further, to the best of our knowledge, this is the first research to analyze corporate communication on WFH revealing the company's orientation towards employees through three levels of analysis. In noting the critical nature of CDA, Chilton (2012) states, “First it seeks to reveal what is not self-evident through the analysis of societally contextualized and institutionalized language use. Second, it seeks to judge and ultimately to correct or improve, certain kinds of social structures and processes.” The ramifications of such an undertaking therefore carry into the future of the field.

3. Methodology

3.1 Design and Procedure

Rooted in the critical paradigm of research, we use Fairclough's (1995) model of CDA to analyze and interpret text. CDA examines how language is used to enact, reproduce, justify, and resist power and inequality in social and political contexts (van Dijk, 2015). According to Fairclough (1995), “An important objective for critical analysis is the elision of power/domination in theory and analysis” (p. 17). Since a key function of management is to regulate power relations within organizations, the CDA of corporate communication becomes crucial to unravel such power relations. Corporate communications during the COVID-19 crisis offered us a unique social and temporal context to examine the relationship between the text (companies' published articles on WFH) and its social conditions, ideologies, and power relations.

To fulfill the objectives of the present study, secondary data sources have been relied upon. With the growing accessibility of the internet, virtual documents such as official websites of companies have been used by previous researchers too (Bryman, 2016). For instance, Dorsey et al. (2004) too analyzed company websites promoting ecotourism holidays to examine if the advertisements are consistent with the discourse of sustainable development and ecotourism.

Four of the top 10 IT companies in India were selected. These were Hindustan Computers Limited (HCL) Tata Consultancy Services (TCS), Wipro, and Capgemini. Their official website was searched using the key phrase "work from home". Each company's website had articles published during the period from March 2020, when the COVID-19 pandemic was first identified to August 2021, after the second wave of COVID-19 in India. The articles on the websites of the four companies identified were accessed in the order in which they appeared on the website. Only articles relevant to the practice of WFH were retained. Following this procedure, 10 articles were selected for each company.

Approval for the study was obtained from the ethics committee, (Name of the Institution- Blinded for Review). The procedures used in this study adhere to the tenets of the Declaration of Helsinki. Informed consent was not required since only secondary data published on the websites of the four companies was used.

To address the three-fold objectives of our study, a three-step methodology was adopted. The first step was semantic analysis of the titles of the selected articles. The titles of all forty articles were read and analysed semantically-both lexically i.e. focusing on word meanings and relations between them as well as logically i.e. focusing on the sense and the implication that could be derived from them, to identify the key issues about WFH. This analysis revealed what was considered relevant by each of the companies under study.

The second step addressing the second objective was thematic analysis. The 6-step process of familiarizing oneself with the data, generating initial codes, searching for themes, reviewing potential themes, defining and naming themes, and finally, producing the report (Braun & Clarke, 2012) was followed to inductively arrive at the main themes in the companies' communications. In the first four steps an iterative process of coding, combining conceptually similar codes and re-organizing codes was done to develop themes and sub-themes. Conceptual codes that were well represented across the data were combined into themes regarding the functioning, structure, and approach of WFH of the four IT companies during the pandemic. Fifteen external reviewers were asked to go through the articles and themes to maintain inter-rater reliability. Only the themes with consensus across researchers and the external reviewers were retained. Two out of 14 potential themes were removed and 12 were retained.

To address the third objective, the textual and rhetorical features were evaluated in the third step to give a more in-depth picture of the motivation of the firm to implement WFH and the discourse strategies adopted by the organizations, using the method suggested by Nielsen and Thomsen (2007). To do this analysis, we adopted the multi-level corporate sustainability construct, first proposed by van Marrewijk (2003). We argue that just as there are varying ambitions of firms regarding corporate sustainability, moving from simply being given a license to operate to value creation into the future; similarly, there can be varying levels of ambition with regards to WFH too. We have adapted the definitions for corporate sustainability (Huq & Sunberg, 2021; van Marrewijk, 2003) to ambition levels for WFH. The operational definitions are as follows.

A. Compliance driven- Here, WFH consists of providing guidelines to employees within the limits of regulation by rightful authorities. The motivation of WFH is a duty or an obligation and correct behavior given the pandemic.

B. Profit driven- WFH at this level consists of the integration of social, ethical, and ecological aspects into business operations and decision-making, provided it contributes to the financial bottom line.

C. Caring- Going beyond legal compliance and beyond profit considerations, here the motivation for WFH is human potential, health, and care for the planet.

D. Synergistic- WFH is perceived to create value in the economic, social, and ecological realms of corporate performance. Here the motivation for WFH is that it is recognized as being the inevitable direction the future takes.

E. Holistic- WFH is perceived as fully integrated and embedded in every aspect of the organization, aimed at contributing to the quality and continuation of the life of every being and entity, now and in the future.

To classify a firm's view on WFH according to the five ambition levels, the two authors first independently analyzed the articles and coded the companies according to their aforementioned top level of ambition and identified textual fragments or excerpts in the company's articles in support of the assertion. The same process was followed by the 15 external reviewers to ensure inter-rater reliability. Those excerpts with 75% agreement were retained for final analysis. Based on the first two steps, the two authors once again discussed and finalized the classification of the firms on the level of ambition.

3.2 Analysis

Since the analysis of discourse necessarily entails going beyond the explicit and self-evident levels of language into layers that are implicit in the text, this study adopted a three-step analysis that would enable the researchers to methodically descend into levels of meaning embedded in the text. Figure 1 presents a model of our analysis. At the center lies the WFH communication discourse universe in the context of IT firms in India dealing with COVID-19. As outlined in the method section above, the first level was analysis was closest to the actual text- a semantic analysis of the article titles. The next level of analysis was grounded deeper in the data, and a systematic process of initial coding and combining allowed for the themes to be derived from the text of the articles. These two steps brought us closer to an examination of the company's motivation and strategies, embedded in their corporate rhetoric and illustrative of their level of ambition (Huq & Sunberg, 2021; van Marrewijk, 2003). Finally, this allowed us to scrutinize two types of social orders in organizations: employer orientation and employee orientation referred to as discourse orders in correspondence to Fairclough (1995). The three levels of analysis combine to reveal these discourse orders, as seen from the arrows. The discourse orders are presented in a broken box as they are not explicit in corporate communication, but have to be inferred. While what firms *do* (Level 1 and Level 2) and *why* they do what they do (Level 3) is more obvious, what what they do does (Foucault, 1988), may be interpreted from these discourse orders.

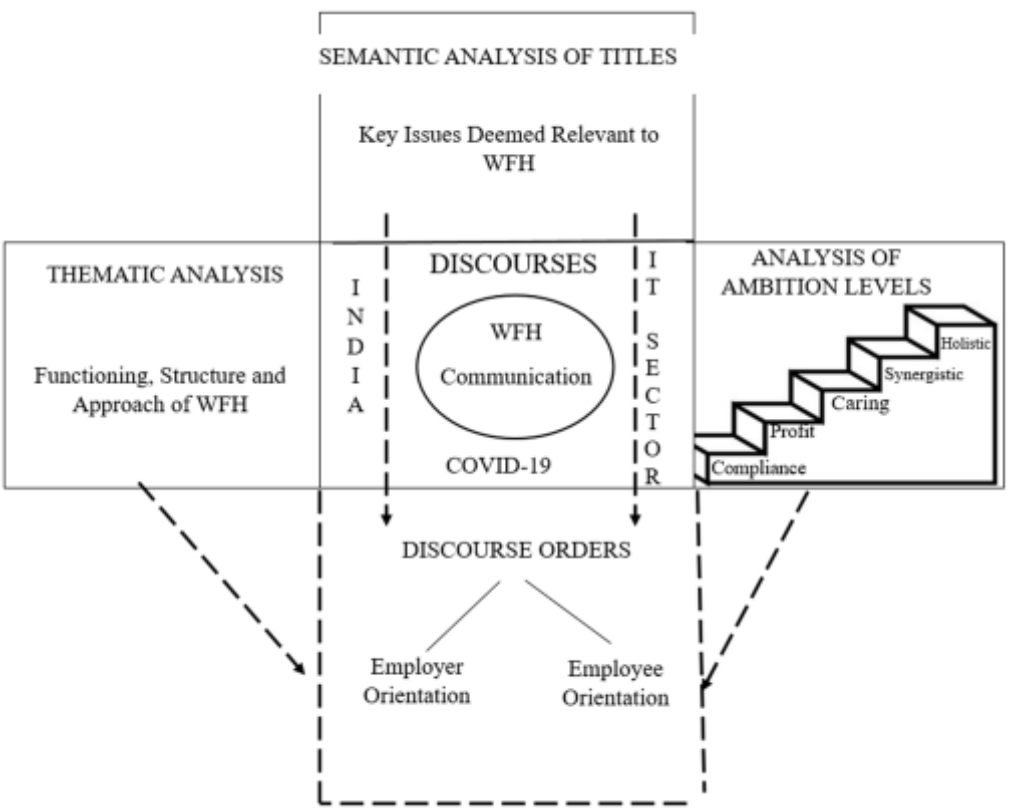

Figure 1. Model of Analysis

4. Findings

Part I: Semantic analysis of the titles

From the titles of articles at TCS (Table 1), it can be inferred that the key issue for the company was shielding data privacy as seen by three of the ten articles (Creating A Data Privacy Shield for Borderless Workplaces, Privacy by Design Principles for Data Privacy During Work from Home and TCS SBWS Secure Borderless Workspace™ Paves the Way to Make Virtual Workplaces the New Normal). The titles of Wipro, on the other hand, stress the pandemic and how the company is dealing with it, as seven out of ten titles have mentions of "COVID-19", "pandemic" or "crises". There is also an emphasis on employee well-being and equipping them to manage the pandemic (e.g., Responding to COVID-19 Disruption: Empowering Employees to Work from Home, Enabling Post-Pandemic Resilience). The titles also reflect the company's focus on building a "high-performing culture", indicating its urge to boost productivity and efficiency.

The titles of Capgemini show that their consideration lies on the future of WFH as indicated by six out of the 10 articles ("Hybrid working- is it here to stay?" "Upskilling is critical to building competitive advantage and organizational resilience in a hybrid work model", "The Future of Work: from remote to hybrid", "The Fluid Workforce Revolution", "The new working paradigm", and "The Future of Work: from remote to hybrid"). Some titles also show their emphasis on employees such as "Our top tips for working from home during COVID-19". Only one title mentions risks "Remote working - The cybersecurity risks and opportunities".

At HCL, the key issue seems to be "accomplishing sales", "rise of the remote working model" and "what it means for utilities", showing that the company prioritizes functioning and productivity. There is only one title that highlights risks "Does the shift to work-from-home leave security vulnerable?" The titles "7 ways to stay sane and feel connected while working remotely", "Work from home: reimagining professional lifestyle for a new normal", and "Setting up your work from home environment" show that HCL values their employees along with productivity.

Table 1. Comparison of Article Titles Across the Four Companies

S. No.	Title of the Article			
	TCS	**WIPRO**	**CAPGEMINI**	**HCL**
1	Redefine the office and work-life after COVID-19	Home is the new branch	A forced shift: digital workforce transformation enabled by "work from home"	Has working from home gotten easier?
2	Best practices when working from home	Responding to COVID-19 disruption: empowering employees to work from home	Our top tips for working from home during COVID-19	Working from home: the new normal for the corporate world
3	Creating a data privacy shield for borderless workplaces	COVID-19 forced us to work from home. But, is that a sustainable model?	Hybrid working — is it here to stay?	Work from here vs work from home: what it means for utilities

S. No.	Title of the Article			
	TCS	**WIPRO**	**CAPGEMINI**	**HCL**
4	Empowering the permanently remote workforce	The future of work is anywhere, anytime!	Upskilling is critical to building competitive advantage and organizational resilience in a hybrid work model	Setting up your work-from-home environment
5	Privacy by design principles for data privacy during work-from-home	COVID-19: The 'Future of Work' is here for good	The future of work: from remote to hybrid	Work from home: accomplishing sales during a global pandemic
6	Adopting hybrid work model – organizations' new way of working	Shifting priorities: reshaping the workplace post-COVID	The fluid workforce revolution	Does the shift to work-from-home leave security vulnerable?
7	How leaders can manage remote workforce effectively	Taking crisis by the horns	The new working paradigm	Work from home: reimagining professional lifestyle for a new normal
8	TCS SBWS Secure Borderless Workspace™ paves the way to make virtual workplaces the new normal	Five ways to build a high-performing culture for a distributed workforce in the new normal	The future of work: from remote to hybrid	7 ways to stay sane and feel connected while working remotely
9	Creating an agile working environment for companies' long-term success	Enabling post-pandemic resilience	Secure remote working and collaboration services	The rise of the remote working model
10	Public health takes priority as the pandemic leads to a new beginning	How HR can be a differentiator during a pandemic	Remote working - The cybersecurity risks and opportunities	Remote working challenges and how to overcome them

Part II: Thematic analysis of the articles

Following the 6-step process of Thematic Analysis (Braun & Clarke, 2012), twelve broad themes emerged from the articles of the four companies.

1. Work Model: TCS, being highly skeptical of the security and preservation of data, quickly designed models like Secure Borderless WorkSpaces TM and Privacy Enabled Task Allocation to assist employees and clients respectively to adjust to a new working environment while also ensuring data security and client confidentiality. On the other hand, Wipro had a highly flexible WFH model, making work more decentralized and gig-oriented. It also introduced the Distributed Delivery Model aimed at transforming activities that necessitate face-to-face connection into virtual interactions so that training could be conducted digitally, remotely, and promptly. Capgemini had a hybrid work model aimed at boosting productivity, retaining talent, upskilling and reskilling employees, and optimizing costs and the environment. HCL, unlike the others, had a human-centric model, with a special emphasis on distributed agile remote working.

2. Vision: TCS announced a 25x25 vision implying that the company needs 25% of its employees in offices, and an employee will only need to spend 25% of their time in the office to be 100% productive. Wipro envisioned creating a happy and prosperous tomorrow by emphasizing the importance of positive practices of teamwork and gratitude. Capgemini was of the view that a hybrid future and a flexible workforce revolution are the keys to success.

HCL envisioned that WFH is and will continue to be a significant aspect of future organizational functioning.

3. Satisfaction: While all four firms reported that satisfaction levels of their employees were increasing due to the comfort and ease of working from home, Capgemini suggested conducting weekly surveys to assess the "employee experience index" to measure employee experience with the overall shift to home and support provided to them.

4. Productivity: TCS strove to “make employees as or more productive than they would be in the office”. Individual preferences, infrastructural setup, home environment, and organizational regulations were all important factors in assuring home productivity. Wipro introduced the Rapid Employee Connect Solution to provide secure access to enterprise applications and data and enhance user experience to ensure productivity. Capgemini upgraded performance management systems and seamless digital working to ensure productivity. In contrast, HCL emphasized using "extra time for self-improvement while maintaining high-efficiency standards and work productivity”.

5. Technology Support: All four companies had measures in place to enable remote working, such as cloud-based governance (TCS), Virtual Desktop Infrastructure solution (Wipro), help desk for technology migration (Capgemini), HCL Digital Workplace Services (HCL), TCS also introduced features as automated attendance marking of employees working from home, regular check-ins with geo-tagging in its HRMS tool.

6. Data Privacy: While all four firms introduced mechanisms to enable robust data security, like privacy by design (TCS), cloning (Wipro), cloud management gateways and BitLocker (Capgemini), and security policy (HCL), TCS seemed most concerned with data security and privacy followed by Wipro, as compared to the other two firms.

7. Challenges : For TCS, the biggest challenges seemed to be cybersecurity issues. Wipro also mentioned technological issues such as lack of internet bandwidth availability, lack of data security on home systems and networks as well as employee integrity. Capgemini emphasized the challenge in WFH as less differentiation between private time and work time along with a perceived "lack of interest" that kept people offline. Some of the major challenges at HCL were disturbances at home, improper internet, lack of social interaction and physical movement, and technological unpreparedness.

8. Advantages: TCS mentioned advantages like improvement in the percentage of women in the workforce, reduction in stress from the commute, and access to a global talent marketplace. Wipro viewed technological benefits like seamless user policy as well as complete visibility for the user traffic and application as the biggest advantages of WFH. HCL highlighted benefits such as flexibility in work time, the ability to manage household chores, and deepened interactions with colleagues. Capgemini concluded that the benefits of WFH were better work-life integration, an engaged workforce, lower operating costs, and environmental benefits like a smaller carbon footprint.

9. Recommendations: The recommendations of TCS centered around ensuring privacy and confidentiality at work by redefining work etiquette and policies. They also suggested working out a “Maker-Checker” arrangement to

increase collaboration amongst peers, utility and quality of output, investment in continuous learning, and provision for flexible careers. Wipro directed increased use of video conferencing tools by upgrading systems and infrastructure as well as following adequate COVID protocols. It also suggested frequent check-ins and effective communication plans to build a culture of trust and business resilience. Capgemini recommended investment in the automation of support and implementing security orchestration, automation, and response (SOAR) technologies. HCL proposed a human-focused approach which included regular team meetings to develop a sense of security and responsibility, as well as realigning and upskilling methodologies.

10. Employee health. TCS proposed to cater to the mental and physical well-being of employees by ensuring their emotional balance and setting physical boundaries. Wipro introduced a layer of psychological safety for employees and began identifying and addressing employees who may need help with counseling sessions. Capgemini acknowledged that the impact on the mental health of the workforce in a remote setting can be detrimental and that they may feel burned out. HCL urged employees to take breaks, set up ergonomic furniture, strengthen family ties, and prioritize well-being over productivity.

11. Initiative for employees. Only two firms, Wipro and Capgemini explicitly mentioned certain practices designed to help develop staff, improve their performance, and keep them happy during WFH. Wipro, for instance, built a 10-point checklist around system, access, and security compliance. They used a multipronged approach toward employee wellbeing, and also launched Health Cover "Back to office" app. Capgemini conducted employee satisfaction surveys to rate employee experience. Reducing management control, open dialogue of feedback, building digital communities to activate purpose, and a sense of belonging, and embracing new collective rituals, such as more virtual team-building activities were put in place. TCS and HCL did not explicitly mention the initiatives they took for employees.

12. Stakeholders. TCS included clients, employees, customers, and HR managers as its stakeholders. Wipro included customers, government, employees, and HR as stakeholders. HCL included clients, customers, prospective customers, employees, business leaders executives, and family members of employees. Capgemini had an even broader range of stakeholders, including colleagues, clients, managers, employees, employee families, users, the cybersecurity team, HR, and executives.

Part III: Analysis of Ambition Level

The third level of analysis involved an analysis of ambition levels (Huq & Sundberg, 2021; van Marrewijk, 2003) to give a more in-depth picture of the discourse strategies adopted by the organizations.

The dominant ambition level of the first company TCS seems to be profit-driven. A profit-driven company views WFH from a purely business standpoint. This can be seen from the following excerpts:

TCS sees the shift to a hybrid work environment (some people in the office, some at home, others at client sites) as an opportunity to improve our performance for clients.

Benefits to companies include the ability to reduce sizable real estate (and associated) costs through the consolidation of office space; the chance to hire talent everywhere, and keeping the company open even when its doors must close (so-called “business continuity”).

What we note in this example is some ambivalence around WFH. On one hand, the word "opportunity" is used for a hybrid work environment, on the other the use of the phrase "keeping the company open even when its doors must close" depicts the inevitability of WFH.

The next company Wipro also seems to be profit-driven in terms of its ambition level. This approach is reflected in excerpts emphasizing *"productivity”*, *“enabled 30% cost savings”* and *“providing best possible work from home environment to its employees for profits to the company”*, such as:

Employees working closer to their home location experience an increase in job satisfaction that eventually leads to lower attrition rates and higher productivity.

The dominant ambition level of the third company, Capgemini seems to be synergistic. Capgemini views WFH as the inevitable direction that all companies will need to take, as can be seen here *“Collaborate, and innovate and remote work becomes the norm".* It sees the motivation of WFH to be about human potential, health, and caring for the planet, in a synergistic, win-together approach with all relevant stakeholders. As seen from the excerpts, Capgemini not only seeks to *“lower operating costs”,* allow for a *"smaller carbon footprint"* and *“reinvent a 'trusted' work*

culture with new collective rituals", but also emphasizes the need to *"actively step in and offer additional support to create an environment that fosters better work-life balance", "reduced management control",* and *"promotion of employees' self-care".*

The last company, with the strongest ambition of caring for employees seems to be HCL. In many of the articles, the company has emphasized employee's well-being and has given several recommendations as to how the employees can look out for themselves. For instance-

Now is perhaps the best time for you to rejuvenate your mind, vitalize your bonding with your family, and strengthen your mental conditioning before you are back in the office.

Connect with people face to face, so you do not feel lonely; Set up a mental and physical calendar for breaks, including lunch; Having ergonomic office furniture helps physical well-being; Show empathy for the employees as working from home can be pretty lonely, especially for employees without families, new to a country or region, and/or for team members who are sick or fearing health issues, etc.

It is interesting to note that none of the firms could be categorized under either the "Compliance" or the "Holistic" ambition level. This indicates that while all four firms have moved beyond the basic compliance with mandated norms, none of the companies have such bigger-than-life or actual, holistic goals that a holistic ambition level strives to achieve. In the largely capitalistic economic environment, it may be extremely rare that firms will adopt the holistic ambition level (Roth et al., 2020).

5. Discussion

The results presented in the previous section have provided insights into varied power dynamics for the four IT firms under consideration based on their titles, themes of communication, and their ascribed ambition levels. How organizations communicate during a crisis, both the crisis event and post-crisis stage, is crucial in re-establishing control of the organization, restoring the company image, and regaining stakeholder trust (Marsen, 2020). Our analysis of corporate communication during the crisis of COVID-19 has helped us discern a set of binary discourse patterns, which reveals the angle from which various organizations approached WFH in their communication: employer orientation and employee orientation (Refer Figure 2).

TCS Employer-Orientation Predominant	**WIPRO** Greater Employer- than Employee-orientation
CAPEGEMINI Titled towards being Employee-oriented	**HCL** Significantly Employee-oriented

Figure 2. Discourse Orders (Employer Orientation and Employee Orientation) of the Four Firms

Discourse around WFH in TCS reveals it to be predominantly employer-oriented. The key considerations for the company are employee productivity and performance for the benefit of TCS and its clients, reflective of an employer orientation. On the future of WFH, TCS mentions a 25x25 vision "*By 2025…we will need only 25% of our workforce to be in our offices and an associate needs to spend 25% of his/her time in the office to be 100% productive."*

The wording of the articles also seems to suggest that the onus of implementing certain WFH recommendations is on the employees. Emphasis on aspects like employee attendance or monitoring - *"Help HR managers easily procure, monitor and regulate workforce assets"*; *"Strategise new attendance and leave rules"* - is indicative of the same power hierarchy in the employer-employee relationship. Its emphasis on data security may be another way to wield power over employees.

The orientation of Wipro also showed a greater employer-focus than an employee-focus, as can be inferred via their emphasis on developing measures that aid employee productivity, and a profit-driven ambition level. While at face value statements like "*This results in your employees feeling secure, preventing defensive or rash actions*", shows that although they want employees to feel secure, the underlying thrust for doing so may be to benefit the employer. The overall power discourse thus seems to be more in favor of the employer as compared to the employee for WIPRO, as is the case with TCS.

CDA of Capgemini articles highlights their orientation to be employee-centric, with emphasis placed upon employee autonomy, work-life balance, and empowering leadership

practices within the WFH context. Their dominant ambition level was derived to be synergistic due to the perceived inevitability of WFH in the future, Statements such as "*Optimising employee home and work-life balance*", and "*enhance remote leadership skills such as empathy, active listening and adaptability*" are illustrative of their employee orientation. Further, Capgemini mentions "*responsibility towards employees*" in assisting them to transition to WFH as a part of their approach and vision, clearly distancing itself from a solely profit-driven model.

HCL equalizes its pursuit of profit by adopting an employee-centric orientation by emphasizing employee motivation, health, and satisfaction. This becomes evident from statements such as "*It's the responsibility of every individual employee to stay positive, optimistic, and responsible, and use some of the extra time for self-improvement while also maintaining high standards of efficiency and productivity at work*". While discussing the advantages of WFH, "*opportunity to spend quality time with their families*, *productivity gains, reduction in project cost due to talent availability, and possible cost reduction in the office real estate"* are mentioned. At the same time, HCL also encourages its employees to skill themselves, such as "*employees can now devote that time to increase their knowledge by reading and updating.*". It may thus be discerned that the power dynamic within the case of HCL tilts towards the employee.

The reader may also be reminded that only HCL and Capgemini include employee families as a stakeholder, clearly reflecting employee orientation for both these firms. This also suggests that their environmental, social, and governance (ESG) goals would also be reflective of an employee orientation. A glance at the vision statements of these four companies further substantiates our claim. The vision of TCS is to "*decouple business growth and ecological footprint from its operations to address the environment bottom line*". Wipro envisions to "*contribute for global e-society, where a wide range of information is being exchanged beyond time and space over global networks, which breaks down the boundaries among countries, regions, and cultures…developing new technology in wireless communication*". Remarkably different is HCL, with its known philosophy of *"employees first, customers second".* In his book, Nayar (2010), CEO of HCL Technologies, described how HCLT successfully adopted an "Employees First" structure which he terms as management of the future. Their vision is "*to provide innovative, professional and personalized services to clients, associates, and employees. We shall be sensitive to the needs of individuals forming a subject of our intervention*". Lastly, Capgemini states that "*the business value of technology comes from and through people*". It aligns itself with values that ensure the adoption of an employee-centric orientation and policies as seen in their statement *"At its core is the Capgemini vision that technology is nothing without the people behind it."*

On comparing the current stance of these firms on WFH, at a time when the worst of the pandemic seems to be behind us, it is clear that it is pretty much in line with our analysis of the ambition levels and power orientation of the company. Most IT firms are now calling their employees back to the workplace, in work-from-office (WFO) mode, owing to problems such as moonlighting (IT companies: Moonlighting worries put IT companies in a spot, 2022). However, there appear to be significant differences in the approach of the firms. TCS, Wipro, and Capgemini have removed the WFH policy and have asked employees to come to the office at least thrice a week. Wipro chairman Premji at a summit said, "*I'm a big believer we should be coming back in some shape and form and connecting because there is an intimacy to it that is irreplaceable with technology*," (Wipro chairman wants employees to work from office, feels remote work spoilt the industry, 2023). Capgemini, while enforcing WFO is stressing on skilling its employees. It has made it "*compulsory for all those on the bench to come to the office daily to upskill themselves, update their CVs, and try to get a project*" (Mani, 2022). HCL, on the other hand, in line with its employee-centric orientation and caring ambition level, is "*encouraging*" employees to return to the office thrice a week like its peers but has not made WFO mandatory yet.

TCS has been the strictest in its attempt to enforce WFO. It has started sending memos to employees who are not completing at least 12 days of work from the office in a month. Their internal memo stated, "*You are warned and directed to start reporting to work from your office location as per the assigned roster with immediate effect*" (TCS sends a memo to employees not following roster, 2023). Unfortunately, while this has brought benefits to the company, it has already had two adverse fallouts- a rise in attrition of women and a sharp decline in the average learning hours per employee- from 121 in FY22 to 82 in FY23 (Mani, 2023). This suggests that the profit orientation at TCS did override their 25x25 vision.

Our findings clearly show that in the communication regarding WFH, language has been used to construe

employee experience of the organizational world in the context of COVID-19. The analysis that goes from sematic to thematic to a discourse level systematically uncovered how discursive hegemony exists in the context of corporate communication. Previous researchers (e.g. Breeze, 2013; Darics & Koller, 2018; Jaworska, 2020) have also emphasized that corporate communication often hides more than it reveals, and therefore reading between the lines is imperative. For instance, Lischinsky (2018) showed that referring to employees as 'partners' in corporate communication is problematic as it makes the employees believe that everyone is responsible for the financial situation of the corporation while existing managerial power structures are conveniently downplayed. Additionally, as a critical hermeneutical study on analysis of company documentation by Forster (1994) revealed, company documents frequently obscure events or processes being described and often reflect the position of the writer in the organization.

What emerges from our analysis is that the corporate discourse regarding WFH, necessitated due to the sudden onset of the COVID-19 pandemic, was used to control and manipulate employees into believing that WFH is the best alternative to legitimatize the practice and also to coax the employees into this transition. At the time when the world was locked down and WFH seemed to be the only way to function and survive, firms used language that presented WFH to be as "*the new working paradigm*", "*The future of work is anywhere, anytime*!", "*The Fluid Workforce Revolution*". This helped firms to establish a new regime of "truth"- of WFH being the practice of the future and, rendered old ways of working "invisible" (Rose & Nikolas, 1999). Paradoxically, as the pandemic eased, the new narrative no longer served the companies and had to be retracted. Most firms demanded that their employees report back to the office, autonomy and flexibility be damned. Our results seem to be in line with the interesting analysis (Breeze, 2012) of letters to the stakeholders published in the annual reports of five leading oil companies following the environmental disaster in the Gulf of Mexico in 2010. Companies drew on the 'survivor' and 'lesson learned' narratives both to inspire solidarity among stakeholders and restore the industry's positive reputation. Similarly, in the present case as the pandemic was left behind, 'lessons' (and problems) of WFH were used by companies to coax employees back into physical workspaces.

Our findings therefore uncover how corporate communication can be used to influence and shape expectations of employees and other stakeholders. Jaworska (2020) also suggested that organizational discourses often attempt to mold employees' minds by co-opting them to think and behave in the ways desired by the corporation, much like what we can see in the present study.

6. Conclusion

It may be concluded that discourse, more than "mere use of language", is a kind of "social practice" (Fairclough, 1992) that has shown power relations and inequality, at least in two firms. To a large extent, the dominant (employer) exercises concealed control over the dominant (employees) through language. Our study thus illuminates the power of the written word for both employees and managers. Companies need to work on having systematic, well-defined WFH or hybrid work policies and be mindful of the sub-text of their communications. Incorporating clarity in orientation while communicating especially during times of crises can help both in improving the employee-employer relations and in understanding employee-employer dynamics better.

The theme for the G20 summit hosted by India for the first time in 2023 was "Vasudhaiva Kutumbakam" or "One Earth - One Family - One Future", to instill a sense of unanimity to address global challenges effectively and collectively (Asian Development Bank, 2023). Juxtaposed against this vision, the fact that none of the four IT majors presented a holistic level of ambition, sets up a roadmap that reads uphill. As corporate India moves towards finding 'pragmatic global solutions for the well-being of all', a stronger commitment towards employee well-being, both in articulation and in practice, is warranted.

7. Limitations and Future Directions

The biggest limitation the authors faced was that none of the companies selected for this study had an official WFH policy in the early days of the pandemic that we could access. In its absence, we had to rely on articles taken from the company's website. This may have led to both a representation and a social desirability bias, in painting a very positive picture of the company. Future research could attempt to analyze WFH policies of firms to provide a more accurate understanding of how the companies are now responding to the shift from WFH to WFO or a hybrid way of working. Another limitation is the small sample size of only four IT majors operating in India, limiting the generalisability of the study. Future studies can focus on other sectors including healthcare, real estate, energy, commerce, etc. Other small

companies may also be included to assess the difference in policy and implementation of WFH between large and small companies and examine their employee-employer orientation. One final caveat relates to our struggle with subjectivity vs objectivity as researchers who have studied only secondary data. Empirical studies focusing on the use of CDA are still not very common in management literature and we urge fellow researchers to undertake investigations into the construction of power relations in organizational communications.

References

Abel, C. F. (2005). Beyond the mainstream: Foucault, power and organization theory. *International Journal of Organization Theory & Behaviour*, *8*(4), 495–520. https://doi.org/10.1108/IJOTB-08-04-2005-B003

Ahuja, K.K. & Padhy, P. (2023). Zooming in: A gender-based examination of job satisfaction and productivity while working from home. *IOSR Journal of Business and Management, 25*(8), 13-21.

Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest: A Journal of the American Psychological Society*, *16*(2), 40–68. https://doi.org/10.1177/1529100615593273

Akella, D. (2003). A question of power: How does management retain it? *Vikalapa: The Journal for Decision Makers, 28*(3), 45-56. https://doi.org/10.1177/0256090920030304

Aragbuwa, A., (2020). Dialogic contractions in online news discourse on violence against women in Nigeria. *Journal of Gender Studies, 29*(2), 130-145, https://doi.org/ 10.1080/09589236.2019.1584553.

Argenti, P. A. (1996). Corporate communication as a discipline: Toward a definition. *Management Communication Quarterly*, *10*(1), 73–97. https://doi.org/10.1177/0893318996010001005

Asian Development Bank (2023, June 19). India's G20 Presidency: An Opportunity to Steer the World Toward Inclusive and Sustainable Growth. Retrieved June 26, 2023, from Asian Development Bank website: https://www.adb.org/news/features/indias-g20-presidency-opportunity

Boland, B., De Smet, A., Palter, R., & Sanghvi, A. (2020, June 8). Reimagining the office and work life after COVID-19. Retrieved June 28, 2023, from Mckinsey.com website: http://ceros.mckinsey.com/coronavirus-promo-video-desktop

Bonnet, F., Soares, S., & Berg, J. (2021, April 25). Working from home during the COVID-19 pandemic: Updating global estimates using household survey data. Retrieved June 28, 2023, from CEPR website: https://cepr.org/voxeu/columns/working-home-during-covid-19-pandemic-updating-global-estimates-using-household

Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA Handbook of research methods in Psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and Biological* (pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Breeze, R. (2012). Legitimation in corporate discourse: Oil corporations after Deepwater Horizon. *Discourse & Society*, *23*(1), 3-18.

Breeze, R. (2013). *Corporate Discourse*. Bloomsbury.

Bryman, A. (2016). *Social Research Methods* (5th ed.). Oxford University Press.

Caldwell, R. (2007). Agency and change: Re-evaluating Foucault's legacy. *Organization*, *14*(6), 769–791. https://doi.org/10.1177/1350508407082262

Chattaraj, D., Mohanty, S., & Satpathy, A. (2021). Communicating through a pandemic: Insights on crisis communication from Steel Authority of India Limited, Rourkela Steel Plant. *Vikalapa: The Journal for Decision Makers, 46*(3), 166-176. https://doi.org/10.1177/02560909211043184

Chilton, P. (2012). "Critical" in Critical Discourse Analysis. *The Encyclopaedia of Applied Linguistics*. Wiley-Blackwell. https://doi.org/ 10.1002/9781405198431.wbeal0280.

Daly, F., Teague, P., & Kitchen, P. (2003). Exploring the role of internal communication during organizational change. *Corporate Communications: An International Journal, 8*(3), 153-62. https://doi.org/10.1108/13563280310487612.

Darics, E. & Koller, V. (2018). *Language in business, language at work*. Palgrave Higher Education.

Dorsey, E. R., Steeves, H. L., & Porras, L. E. (2004). Advertising ecotourism on the internet: Commodifying environment and culture. *New Media & Society*, *6*(6), 753–779. https://doi.org/10.1177/146144804044328

Fairclough, N. (1992). Discourse and text: Linguistic and intertextual analysis within discourse analysis. *Discourse and Society, 3*(2), 193-217.

http://dx.doi.org/10.1177/0957926592003002004.

Fairclough, N. (*1995*). *Critical discourse analysis: The critical study of language* (1st Pub). Longman.

Forster, N. (1994). 'The Analysis of Company Documentation', in C. Cassell and G. Symon (eds), *Qualitative Methods in Organizational Research*. London: Sage.

Foucault, M. (1988). *Madness and Civilization: A History of Insanity in the Age of Reason*. Knopf Doubleday.

Foucault, M. (2000). *Power*. New Press.

Huq, A. M., & Sundberg, K. (2021). Friedman doctrine prevails! Or does it? : Evidence from the views of practitioners on corporate sustainability in their firms. Working papers in transport, tourism, information technology, and microdata analysis. Dalarna University. Retrieved June 29, 2023, from DiVA website. urn:nbn:se:du-38117

Irigaray, H.A.R., Cunha, G.X., & Harten, B.A. (2016). Organizational mission: What does critical discourse analysis reveal? *Cademos EBAPE.BR, 14*(4), 921-933. https://doi.org/10.1590/1679-395133162

IT companies: Moonlighting worries put IT companies in a spot. (2022, February 8), *The Economic Times*. Retrieved from https://economictimes.indiatimes.com/ news/company/corporate-trends/moonlighting-worries-put-it-companies-in-a-spot/articleshow/ 89420508.cms?from=mdr

Jaworska, S. (2020). Corporate discourse. In A. De Fina, & A. Georgakopoulou-Nunes (Eds.). *Handbook of Discourse Studies*, pp. 666-686. Cambridge University Press. https://doi.org/10.1017/9781108348195

Kaul, A. & Chaudhri, V. (2017). *Corporate Communication through social media: Strategies for managing reputation*. Sage.

Lischinsky, A. (2018). Critical Discourse Studies and Branding. In J. Flowerdew & J. Richardson (Eds.). *The Routledge Handbook of Critical Discourse Analysis*, pp. 540-552. Routledge.

Mani, S. (2022, October 20). WFO: Some IT companies wield sticks, others offer carrots. *Times of India.* Retrieved from https://timesofindia.indiatimes.com/business/india-business/wfo-some-it-companies-wield-stick-others-offer-carrot/articleshow/94974835.cms

Mani, V. (2023, June 15). With a return to the office, TCS staff gets less time to upskill. *Times of India*. Retrieved from https://timesofindia.indiatimes.com/business/india-business/with-return-to-office-tcs-staff-gets-less-time-to-upskill/articleshow/101004600.cms

Manuti, A., Giancaspro, M. L., Molino, M., Ingusci, E., Russo, V., Signore, F., ... & Cortese, C. G. (2020). "Everything will be fine": a study on the relationship between employees' perception of sustainable HRM practices and positive organizational behavior during COVID-19. *Sustainability*, *12*(23), 10216. https://doi.org/10.3390/ijerph18083933

Marsen, S. (2020). Navigating crisis: The role of communication in organizational crisis. *International Journal of Business Communication*, *57*(2), 163-175.

Nayar, V. (2010). *Employees first, customers second: Turning conventional management upside down*. Harvard Business Review.

Nelissen, P., & van Selm, M. (2008). Surviving organizational change: How management communication helps balance mixed feelings. *Corporate Communications: An International Journal, 13*(3), 306 – 318. http://dx.doi.org/10.1108/13563280810893670.

Ng, S., & Deng, F. (2017). Language and power. *Oxford Research Encyclopaedia of Communication*, 1–22. https://doi.org/10.1093/acrefore/9780190228613.013.436

Nielsen, A.E. & Thomsen, C. (2007). Reporting CSR - What and how to say it? *Corporate Communications: An International Journal, 12*(1), 25-40. https://doi.org/10.1108/13563280710723732

Rose, N., & Nikolas, R. (1999). *Governing the Soul: The Shaping of the Private Self* (2nd ed. edition). London: Free Association Books.

Roth, S., Valentinov, V., Heidingsfelder, M. & Pérez-Valls, M., 2020. CSR beyond the economy and society: A post-capitalist approach. *Journal of Business Ethics, 165*(3), 411-423. https://doi.org/10.1007/s10551-018-4068-y

TCS sends memos to employees not following the roster (2023, June 1). *Times of India*. Retrieved from

http://timesofindia.indiatimes.com/articleshow/100663937.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Välikangas, A., & Seeck, H. (2011). Exploring the Foucauldian interpretation of power and subject in organizations. *Journal of Management & Organization*, *17*(6), 812–827. https://doi.org/10.5172/jmo.2011.812

van Dijk, T. A. (2015). *Critical discourse analysis*. In *D. Tannen,* H.E. Hamilton, & *D. Schiffrin* (*Eds.*)*, The Handbook of Discourse Analysis,* 2nd Ed. (pp. 466-485). John Wiley.

van Marrewijk, M. (2003). Concepts and definitions of CSR and corporate sustainability: between agency and communion. *Journal of Business Ethics, 44*(2), 95-105. https://doi.org/10.1023/A:1023331212247

Wipro's chairman wants employees to work from the office and feels remote work spoilt the industry. (2023, March 2), *India Today*. Retrieved from https://www.indiatoday.in/ technology/news/story/wipro-chairman-says-he-is-against-work-from-home-believes-hybrid-work-culture-is-the-future-2341530-2023-03-02

Yu, J., & Wu, Y. (2021). The impact of enforced working from home on employee job satisfaction during COVID-19: An event system perspective. *International Journal of Environmental Research and Public Health*, *18*(24), 13207. https://doi.org/ 10.3390/ijerph182413207

Zito, M., Ingusci, E., Cortese, C.G., Giancaspro, M.L., Manuti, A., Molino, M., Signore, F., Russo, V. (2021). Does the end justify the means? The role of organizational communication among work-from-home employees during the COVID-19 pandemic. *International Journal of Environmental Research & Public Health, 18*(8): 3933. doi: 10.3390/ijerph18083933.

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Using Conjoint and Cluster Analysis to Elicit Attributes for Online Food Delivery Applications

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Abstract

In the recent era of the surge of Internet-based start-ups, the food technology business is an emerging service sector to be watched out for. Today these pioneering start-ups in various cities in India have started creating value and online consumer experience for both customers and the service providers. The changing realm of transaction processing, use of smartphones, and ease of internet access have witnessed the spurt of e-transactions among the food order delivery applications in India. Changing demographics, rising disposable income, increased consumption levels, lifestyle changes, and convenience of ordering are driving the growth in this industry. Hence the main objective of the paper is to exemplify the preferences of consumers for online food delivery applications.

The authors conducted the preliminary study using focus group discussions and personal interviews to identify the attributes and levels of attributes. Quantitative research was administered to identify the characteristics and their levels among specified sample groups viz. students, housewives, business executives, and service personnel. A three-step methodology for conducting conjoint analysis was administered to compile the profiles of the attributes and their levels and orthogonal arrays which is a special class of fractional factorial design were considered for the study to get the combinations relevant for further examination.

Based on the utility scores calculated for the different attribute levels, consumer segment profiles were formed using cluster analysis which helped in forming two clusters. Cluster 1 was named "Discriminating and No-Nonsense Customers" - They are very demanding customer groups and discriminate against the use of online food delivery apps based on the attributes they find are most important and hence accept no lapse or nonsense from the marketer and Cluster 2 were the "Dependents on C2C payment ecosystem" - For this cluster, the availability of 'debit/credit card as an option, 'e-wallet' as an option and 'cash on delivery' as an option are crucial factors in the entire selection of the online food delivery app.

Adoption of cluster analysis which is a data mining technique to segment different consumer profiles based on their demographic profiling and importance given to the set of attributes while preferring and intending to use food delivery applications is the unique contribution of the study.

Keywords: *online food delivery application, conjoint analysis, cluster analysis, customer preferences, service attributes, attribute levels*

1. Introduction

Online retailing has witnessed transformation as a result of fast technological advances by using smart machinery and technologies to stay competitive and by improving consumer shopping experiences (Proporas et al., 2017). Consumers have become dependent on technology and hence companies have increased their investment in information technology (IT) as they are becoming conscious of the importance of IT and its usefulness (Zhitomirsky-Geffet & Blau, 2016; Halilovic & Cicic, 2013). Today society has been exchanging information through smartphones, tablets, and laptops and retailing has been embracing smart technologies to improve the customer shopping experiences (Fotiadis & Stylos, 2016; Pantano & Priporas, 2016). Online food delivery applications have grabbed an opportunity by adapting to food delivery services and restaurants which is recognized as an alternate means for consumers to opportunely receive services and products to increase the overall sales revenue (Cho et.al., 2019). Consumers have perceived certain quality attributes that represent price, trustworthiness, design, and various food choices which impact the user-perceived value and the intention and attitude to continuously use the food delivery applications (Cho et.al., 2019). One of the vital attributes of electronic ordering has been 'accuracy of ordering' which is followed by 'ease of ordering' and 'convenience' (Kimes, 2011). Customers perceived value of a self-service system which explains the attitude towards online ordering has been 'perceived convenience', 'perceived control mechanism', 'technology anxiety', and 'need for interaction' which leads to an increase in both satisfaction and adoption and results in this self-service technology's intention to use or its ability to recommend to others (Kimes, 2011). Additionally, age has been a prime factor in the new-age digital culture and hence we find differences across different consumer segments, and therefore their expectations are also varying (Priporas et al., 2017). Consumers especially Generation Z have been the biggest marketing challenge for most retail firms as they are the prime drivers of change and innovation along with having huge spending power (Empson, 2016). This generation has been projected to severely influence the practices of retail marketing both from the technological and product-specific point of view (Baruk & Iwanicka, 2016). To analyze the structure of consumer preferences which differ based on their overall evaluations across different sets of alternatives, a decompositional method termed conjoint analysis is used which is increasingly been applied especially with physical products like food products and stimuli as stimuli (Green & Srinivasan 1990). This is an important tool for obtaining information based on different product attributes which captures the purchase intent and liking of food products (Green & Srinivasan 1978 ; Louviere 1988). Conjoint analysis would support the usefulness in determining the utility values of the food delivery apps (Seo, 2005; Koo et al., 1999). Understanding the trade-offs of customer perceptions provides insights into how end users make purchase decisions while using applications and these perceived advantages are addressed in the conjoint analysis methodology (Nikou et al., 2014). The prerequisites to enhancing the adoption of an app are the functionalities of the applications which lead to customer satisfaction and hence become imperative in understanding the importance of the retail segment (Hass et al., 2018). Further on the study would use cluster analysis which is a data mining technique to segment different consumer profiles based on their demographic profiling and importance given to the set of attributes while preferring and intending to use food delivery applications.

2. Review of Literature

2.1 Online Food Delivery Apps

In this era of the surge of Internet-based start-ups, the food technology business is an emerging service sector that entrepreneurs have to watch out for. Today these pioneering start-ups in various cities in India have started creating value and online consumer experience for both customers and service providers (Pigatto, 2017). The changing range of transaction processing, the use of smartphones, and the ease of internet access have witnessed the rise of e-transactions across food order delivery applications in India (Shinde, 2014). Changing demographics, rising disposable income, an increase in consumption levels, lifestyle changes, and convenience of ordering are driving the growth in this industry (Ghosh & Saha, 2018). Online food delivery applications or aggregators provide a wide array of convenience and choice thereby capturing customers and markets among most of the metropolitan cities across India (Kapoor & Vij, 2018). Technology has created a revolutionizing role across food delivery services thereby reshaping the industry at large. The size of the food market in India is predicted to touch 42 lac crores by 2020 as per Boston Consulting Group (Sahu & Agrawal, 2019). Research also suggests that in India, the food delivery online market is projected to grow by 34 to 36% over the next few

years (Ghosh & Saha, 2018). Customers have felt that online food purchasing services have helped them deal with their time better, and provided ease of ordering desired food at any time which has been possible due to the easy access to the internet (Sethu & Saini, 2016). The capabilities of smartphone technology and wireless communication have fulfilled the urge of convenience, and ease of use and offered effective service delivery systems (Chavan et al., 2015). The various factors that influence customer choice are choice of the app, discounts, on-time delivery, customer service, and period of order (ease of ordering). Among another set of subjects in a study pertaining to 'emotional response' along with understanding the 'willingness to use apps', it was found that the design of the apps and the sympathy towards the food delivery apps had a positive and significant impact on 'arousal' while design and reliability had a positive and significant impact on 'pleasure' (Jeon et.al., 2016). A study designed for Chinese consumers indicated that convenience, trustworthiness, food choices, prices, and the design of the app were the salient quality attributes that impacted Chinese users. The study also discovered that the users gave more importance to the trustworthiness of the food delivery app (Cho et al., 2019). Morganosky and Cude in their study posited that the online ordering system being slow might not be under the sole control of the retailer; however, delivery personnel problems like their timeliness, social skills, and politeness are completely under the realm of retailer control. Due to these reasons of dissatisfaction, consumers are unintentionally pushed away (Morganosky & Cude, 2002). A Brazilian study indicated that the users showed the highest amount of attendance towards 'content' provided on the app followed by 'usability' and 'functionality'. However, the downside and the apprehension among them was the security of the site (Pigatto, 2017). Participants in the Netherlands and Germany also indicated that functionality which includes convenience and usefulness are perceived to be of utmost importance in the online food ordering system (Voordouw et al., 2012). Due to the variety, volume, and velocity of big data availability, successful players are forced to integrate software, hardware, and services to be designed into value-generating activities. Food delivery apps have provided customers with benefits such as 'pay as you go" and 'product as a service' in addition to providing operation efficiency, productivity, newer revenue streams, and strengthening customer services (Chan, 2015). In another study, the results revealed that the choice of the online food ordering system depends on the innovativeness against IT and the trust of the e-retailers (Alagoz & Hekimoglu, 2012). A study by Ghosh and Saha (2018) indicated that customers prefer convenience, time-saving, secured payment gateway, multi-payment options (flexible payments), real-time tracking, referral coupon strategy for first-time users, discount by portals, effective customer support which has helped increase brand loyalty and brand recognition among the food delivery apps (Ghosh & Saha, 2018; Gupta, 2019). Online food ordering systems eliminate bad traffic and bad weather problems which have motivated customers towards these online apps. Customers have higher levels of control over the pace of ordering and are also presented with different ordering methods which would lead to higher customer satisfaction (See-Kwong et al., 2017). No human intervention relates to more privacy for users which is the driving force for most consumers. Cashbacks, rewards, and loyalty points have also motivated and attracted consumers to online food apps (Saxena, 2019). Simpler menu options, hassle-free service, and significant savings have made the food sensation apps here remain (Gupta, 2019). Online food delivery app ratings which are part of the big data provide a guide to the customers while choosing their food or hotel as these apps share the user's feedback on the product or the service. In this fast-changing era of technology, this feedback is instant and hence one can decide not to buy or buy the products or services (Drain et al., 2018).

Online marketplaces have over the years gained food preparation and packaging efficiency, give a better profit model to restaurants, provide access to a broader market, protect from weather obstruction, and help link with clients in the digital forum (Ladiwal, 2019). Therefore, the number of shoppers and the amount of business continues to be on the rise. Wang et al. (2011) suggested that consumers also look at the website before they decide on the website they should buy from.

Food delivery apps have impacted businesses by way of increasing customer experience, increasing sales, taking care of the restaurant's savings and margins, etc. If these food delivery apps for restaurants are done right, it can substantially boost profitability, and loyalty and expand into newer market segments (Gupta, 2019).

2.2 Conjoint Analysis

Conjoint analysis is a tool that is importantly used for developing new products and services and in turn helps in resolving the trade-offs between the set of attributes. It is a tool to analyze preferences of multi-attribute products and services which was introduced in 1920 and was widely adopted for making decisions regarding consumer

purchasing (Green et al., 1978; Green & Rao, 1971; Green et al., 2001). Research studies in this area have delved into specific business sectors like retailing, grocery, candy products and life insurance (Toombs & Bailey, 1995); credit card business (Kara et al., 1994); eggs (Ness & Gerhardy, 1994); health club retailers in the service sector (Amirani & Baker, 1995); financial services (Arias, 1996); wine (Gil & Sanchez, 1997) and beef retailing (Hobbs, 1996). The tool has also been applied across domains involving pricing (Halme & Somervuori, 2013) and sectors that involve gathering information on the various choice sets among management and technology departments (Valeeva et al., 2005; Tufa et al., 2012; Karniouchina et al., 2009). These studies have applied conjoint analysis to quantify and measure the importance and utilities of different attributes of the restaurants among varied consumer groups. This technique has also been applied in sectors of environmental studies, medicine, and transportation research although a very minimal attempt has been made to extend this research in the field of behavioral decision arena (Louviere et al., 2000; Bradlow, 2005; Swait & Adamowicz, 2001). Among the Australian consumers, functional, ethical environmental, and hedonistic attributes of denim jeans were considered, and their purchase decisions were empirically tested with the help of conjoint (Jegethesan et al., 2012). The validation for conjoint analysis has been its competency to provide an almost accurate decision model where-by consumers evaluate the products and simulate real-life buying behavior scenarios by calculating the utility scores of different product attributes (Churchill & Iacobucci, 2002; Bajaj, 1999). The authors Luzio and Lemke in 2013, have explored the perception of Portuguese consumers towards green and environmentally friendly products regarding their consumption pattern and product demands. Conjoint Analysis has also been adopted in quantifying the effect of various attributes on consumer perception of the food industry thereby quantifying the consumer purchase intention (Moskowitz & Silcher, 2006; Carneiro et al., 2005; Deliza et al., 2003; Mueller et al., 2008). Novel applications of this technique have also been increasing in the health services category while considering the preferences of users when designing their programs (Xinfang Wang, 2019); used in designing dress industry to provide methods for designers in identifying user preferences (Xiaoxi Zhou & Yunhao Xu, 2019). Further studies have also explored identifying consumer preferences for halal beef and developing consumer segments using a cluster analysis approach (Mahbubi, 2019). Additionally, bank service quality among Nigerian consumers (Samson Yusuf Dauda, 2015); examining consumer preferences for the readers of e-books (Min et al., 2011); investigation of key determinants in online systems quality, customer service quality and banking industry (Jun & Cai, 2001); web-based public transportation and information services (Molin & Timmermans, 2006); mobile applications for evaluating tourist preferences (Manuel, R. 2016) has been evaluated using conjoint methodology approach. The evidence of this approach suggests providing strategic mapping for the important multi-attributes identified in the study for developing strategies pertaining to product/service, place, promotion, physical evidence, people, and process in terms of new product/ service development.

2.3 Cluster Analysis

Cluster Analysis has been adopted by researchers as a means of data mining technique for market segmentation thereby increasing the effectiveness and efficiency of a firm's marketing budget (Jurowski & Reich, 2000; Lewis & Chambers, 1989). This segmentation approach groups respondents by identifying homogenous buyer groups based on their interest levels across attribute levels in products and services so as to seek a better understanding of consumer buyer behavior. Cluster analysis doesn't provide clear-cut guidelines while interpreting the results and while determining the total number of clusters which has continued to be a topic of debate among most of the researchers and practitioners (Thomas Foscht et al., 2010). Michael A. Bourlakis (2006) conducted a study of food shopper behavior among Greek consumers to explore the existence of shopper segments and subsequently identify the attitude toward store features of shoppers. The results revealed that variety and store design, convenient location, and personnel were the three most important dimensions that triggered store features. In yet another study, cluster analysis has been used as a classification tool/ multidimensional approach for young consumers in the banking and financial sector (Thomas et al., 2010). Another methodology to determine important customer groupings is factor-cluster analysis which is an alternate method of segmentation where pull and push motivators can be examined using factor analysis and there-on check if any significant difference exists among segments (Jennifer L. Duncan, 2014). Cluster analysis has been commonly used in the tourism and travel industry (Furse et al., 1984; Cha et al., 1995; Josiam et al., 2012; Sargeant, 1997) although has been neglected in food delivery applications. Cluster methodology of segmentation has been gaining acceptance, however is still less frequently used in academic literature regarding food delivery applications (Chen, et al., 2013). Studies have also

investigated that demographic variables like race, age, and gender are poor predictors of behavior and should not be adopted for segmentation (Yuksel et al., 2002).

As the needs, wants, and desires of the consumers are complex, this makes choosing among alternatives very diverse, and hence cluster analysis when coupled with conjoint analysis we find the results are fulfilling. Before making their final choice of the product profile, consumers use their judgments, evaluations, and impressions of the choice set and this final choice is the total utility attained by the customer (Kucukusta & Guillet, 2014). Conjoint analysis allows marketers to identify consumer preferences and using these choices and preferences cluster analysis helps in grouping the consumers into homogenous segments having similar preferences. This would result in combining the benefits of both cluster and conjoint analysis (Picón, 2004).

3. Research Objectives

The foremost purpose of the research paper is to offer an outline of the significance and usage of a research tool viz. conjoint and cluster analysis to analyze consumer preference for online food applications. The objective is to identify consumer selection criteria depending on the value these criteria attach to select attributes while making a preference choice against various online delivery apps. The study also aims to determine groups of consumers having specific preferences and needs for online food delivery apps which would help the marketers to identify and develop specific marketing strategies appropriate for the group.

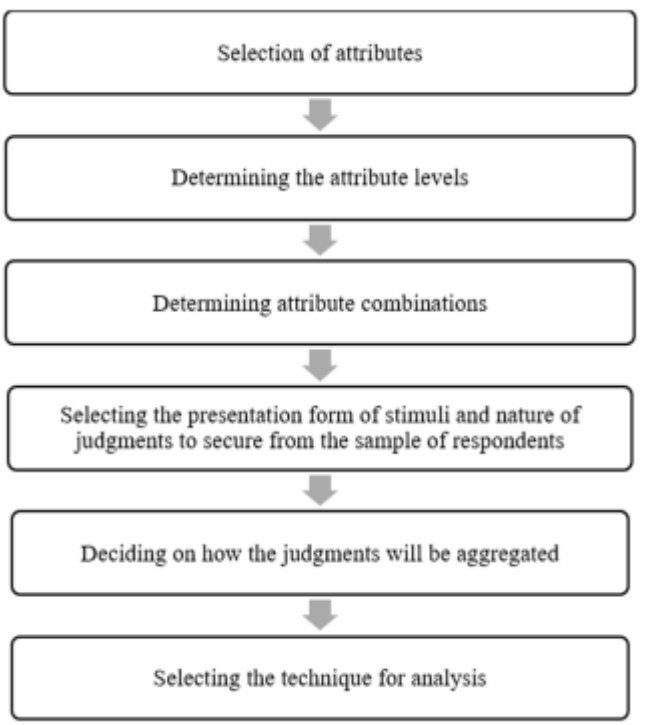

Figure 1. Steps for Conjoint Analysis

4. Research Methodology

In the present study, a comprehensive conjoint analysis experiment as suggested by Churchill and Iacobucc (2002) has been implemented.

This model consists of six phases as shown in Figure 1.

A brief summary of all the steps followed by authors for Conjoint analysis is as follows:

Selection of attributes: The attributes for the research were primarily identified through extant literature review and expert opinion. Two focus group discussions (FGDs) and five personal interviews were held with people from different backgrounds. The FGDs consisted of 8 people from different occupational backgrounds and had experience of using online food delivery apps at least once in their lifetime. The participants of the FGD belong to different age groups, 10 were in the age bracket of 23-25, and 6 were above 25 years of age. They discussed their experiences and expectations both positive and negative across various occasions and perspectives. The personal interviews were conducted with experts from industry and academics. The attributes identified were the ones that were relevant for the online food delivery apps and were those that the company could do something about (Churchill et al., 2002).

Determining the attribute levels: As suggested by Churchill et al. in 2002 the authors should consider the range of levels somewhat large but not so large that it becomes difficult for the respondents while making their choices. Table 1 depicts the attribute and their levels identified as important by the FGDs, Interviews, and literature review.

Determining attribute combinations: This step identified the attribute combinations. There were 5# attributes with 3# levels each which were recognized for the study, hence the possible combinations would be 3*3*3*3*3=243 profiles. As we cannot expect a respondent to provide meaningful judgments if there were 243 options; Hence as suggested by Green in 1974 and Hair et al. in 2006, fractional factorial design has been considered for the study to get the combinations relevant for the study. The calculations of

Table 1. Attributes and Attributes levels for the study

Attributes	Attribute Levels	Source
Application	Design	Jeon et al., 2016; Cho, Bonn & Li, 2019
	Compatibility	Focus Group Discussions
	Reliability and trustworthiness	Cho, Bonn & Li, 2019
	Simple menu options	Gupta, 2019
	Functionality	Pigatto, 2017; Voordouw et al., 2012
Payment options	Credit/debit cards	Ghosh & Saha, 2018; Gupta, 2019
	Cash on delivery	Ghosh & Saha, 2018; Gupta, 2019
	e-wallets	Focus Group Discussions
Service delivery	On-time delivery	Jeon et al., 2016; Morganosky & Cude, 2002; Chavan et al., 2015
	Time period of order	Sethu et al., 2016; Jeon et al., 2016; See-Kwong et al., 2017
Customer Service	Tracking system	Ghosh & Saha, 2018; Gupta, 2019
	Effective customer support	Ghosh & Saha, 2018; Gupta, 2019; Drain et al., 2018; Gupta, 2019
	Reward/loyalty points	Saxena, 2019
	Cashback option	Saxena, 2019
Delivery personnel	Timeliness	Morganosky & Cude, 2002;
	Social skills	Morganosky & Cude, 2002;
	Politeness	Morganosky & Cude, 2002;

fractional factorial design for the study which was done through SPSS 20.0 version. Orthogonal arrays are a specific class of fractional design which is used for the study. The assumption is that all interactions that are available in stimuli have been insignificant. It permits for effective prediction of all main effects of interest (Green et al., 2001). The orthogonal arrays (orthoplan) generated 25 combinations and hence respondents had to evaluate the questionnaires which consisted of 25 combinations.

Selecting the presentation form of stimuli and nature of judgments to secure from the sample of respondents: After the combinations are ready there are three options to represent these options namely: verbal, paragraph description, and pictorial representation. The present study uses pictorial representation.

Deciding on how the judgments will be aggregated: Here the decision is taken based on how the responses from consumers will be collected. In the present study, respondents were asked to rank the alternatives as per the preferences available from being the most favored to the least favored attribute and combinations of levels in the form of cards.

The last step involves designing the conjoint analysis project which includes the selection of the technique that will be adopted to analyze the data. As suggested by Churchill and Iacobucci, when rank-order data have been attained, the supposition of a linear relationship may not be appropriate, hence a non-metric regression model was applied to estimate the utilities. The attribute's relative importance was attained by utilizing part worths or utility scores. The contribution of all the levels of attributes in comparison to the overall

evaluation was measured using the utility scores. As the range increases, the importance score increases and therefore the importance of the attribute increases (Portinga et al., 2003). Hence the basic model in the conjoint analysis would be y= b1(attribute 1) +b2(attribute2)) +b3(attribute3)+b4(attribute4)+b5(attribute5)+b6(attribute 6)+c+e, where y is the respondent's preference for online food app combinations, b1 are the beta weights and e is the error term.

The study was administered in Bangalore City, India between March 2019 to July 2019. The highest sample frame for the study was Generation Z followed by the Millennials as defined by Dimock, M. (2019). In order to define the uniqueness of the new cohort after the Millennial Generation Pew Research Center decided last year that people born between the years 1981 and 1996 i.e. aged 23 to 38 in 2019 considered to be Millennials, and those born from 1997 onwards are part of new generation, namely Gen Z. Youth of Gen Z are among the firsts who are born into this new digital era. They are different from other generations of youths as they are the generation who are electronically connected. From their initial years, they have grown up in an environment using internet browsers, instant messenger services, laptops, video games, and broadband. They have been exposed to many high-tech and high-speed digital devices (Geck, C. 2007). Additionally, the sample had representation from various demographic characteristics based on age, gender, marital status, profession, and annual household income. These demographics were selected for the study depending on the previous research conducted in a similar context (Tripathi et al., 2010). The attributes for online food delivery applications were studied by considering four groups of respondents: students (38%), housewives (21.71%), business professionals (11.76%), and participants from the service sector (28.5%). The age groups were dominated by students with ages <25 years. There was a collective representation of samples who had been using online food delivery applications. The survey was administered to 309 respondents of which 221 valid responses were recorded. In the study examined by Rezaei (2015) and Burmeister and Aitken (2012), the minimum requirement for the sample size was detected to be 100 to 150 samples (Yeo et al., 2017). As per the study conducted by Akaah et al. (1988), a sample size of less than 100 is most suitable for the use of conjoint analysis (SPSS, 1994). Hence the collected sample size of 221 was considered as acceptable for the study. Table 2 gives the demographic profile of the sample.

Table 2. Demographic profiling of the Respondents (overall sample)

Demographic variables	Levels	Frequency	Percentage
Age	<25	90	40.72
	25-35	58	26.24
	36-45	47	21.26
	>45	26	11.76
Marital Status	Married	111	50.22
	Single	110	49.77
Gender	Female	100	45.24
	Male	121	54.75
Profession	Student	84	38.00
	Housewife	48	21.71
	Business	26	11.76
	Services	63	28.50
Annual Household Income	< 50K	35	15.83
	50K to 1 Lac	106	47.96
	> 1 Lac	80	36.19

Table 3. Conjoint Analysis results on the total sample

Utilities		Utility Estimate	Std. Error
Application	Design	-1.704	1.085
	Compatibility	-.899	1.085
	Reliability and trustworthiness	1.559	1.085
	Simple menu options	-.060	1.085
	Functionality	1.104	1.085
Payment options	Credit/debit cards	-1.912	.757
	Cash on delivery	-.088	.757
	e-wallets	2.000	.904
Service delivery	On-time delivery	-.942	.554
	Time period of order	.942	.554
Customer Service	Tracking system	1.388	.831
	Effective customer support	-.539	1.029
	Reward/loyalty points	-1.677	1.029
	Cashback option	.828	1.029
Delivery personnel	Timeliness	.559	.757
	Social skills	-.558	.757
	politeness	-.002	.904
(Constant)		13.311	.632

5. Conjoint Analysis Findings

The utility scores characterize the preference and the choice for each of the attribute levels as part of the conjoint analysis. The conjoint analysis results over the 221 respondents indicate the correlation values between observed and estimated preferences as Kendall's tau to be 0.593 and Pearson's R to be 0.797. The utilities of the attribute levels across the total sample are shown in Table 3.

Conjoint Analysis helps in getting the ideal combination of the attributes for spiritual tourism as expected by the tourists. The ideal combination is made by adding all the part-worths of the preferred levels in each of the attributes along with the constant as given in table 3 and the same has been depicted in the form of charts in Chart 1 to Chart 7. Thus, the most preferred combination for our sample is 1.559+2.000+0.661+0.942+1.388+0.559+13.311= 20.42, so the importance of the most preferred combination is 7.109. The most preferred attributes are payment option importance value of 29.544, application (Importance value of 26.644), followed by customer service (an importance value of 23.146), service delivery (an importance value of 14.230), and lastly delivery personal importance value of 8.437). The most preferred combination is Reliability and trustworthiness (Application), e-wallet (payment options), time period of order (service delivery), tracking system (customer service), and timeliness (delivery personnel).

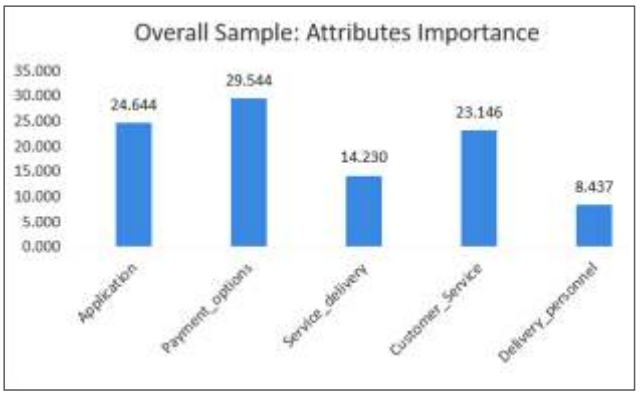

Chart 1. Overall Sample: Attributes Importance

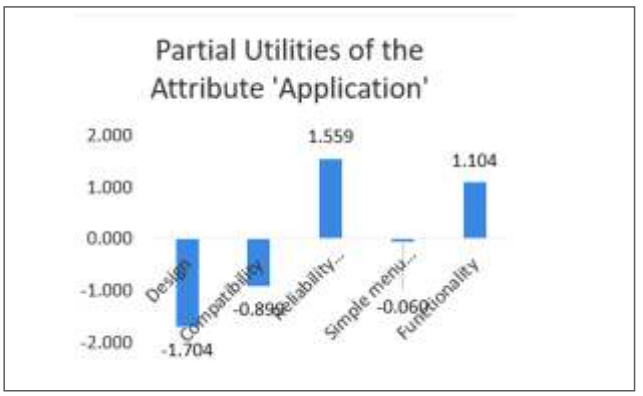

Chart 2. Partial Utilities of attribute Application

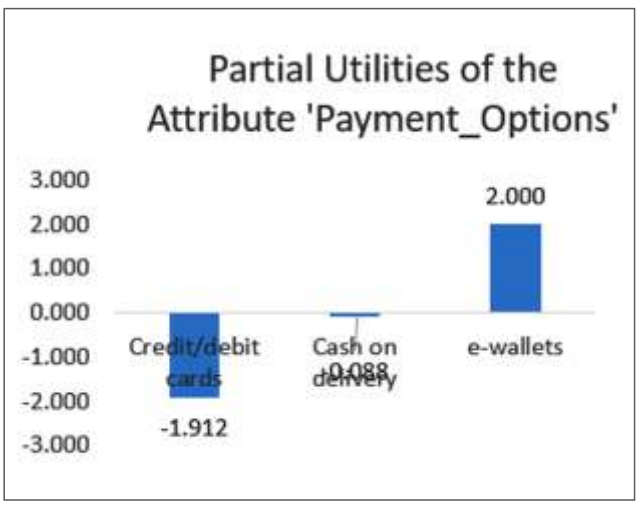

Chart 3. Partial Utilities of attribute Payment options

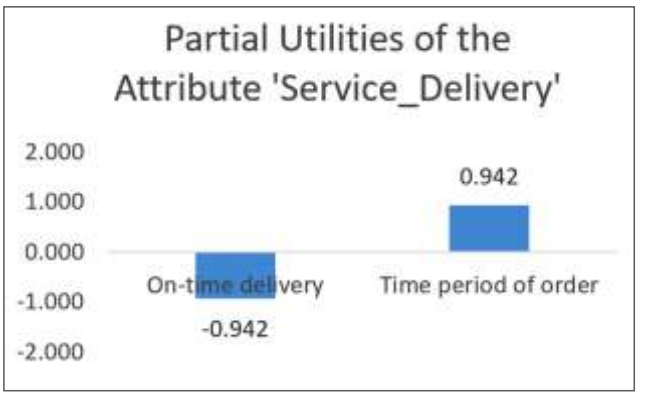

Chart 4. Partial Utilities of attribute Service delivery

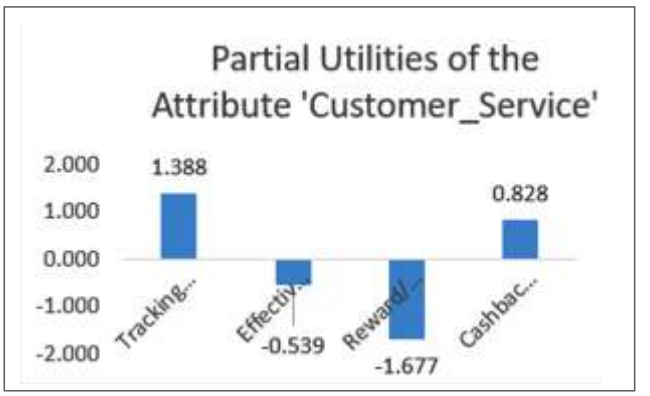

Chart 5.
Partial Utilities of Attribute Service Customer Service

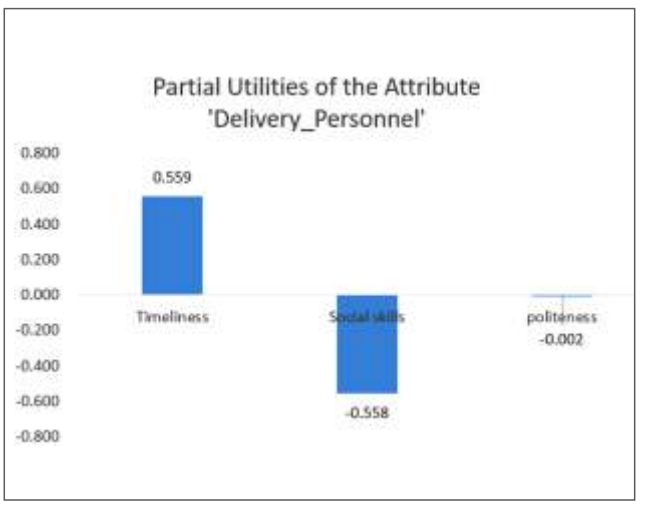

Chart 6. Partial Utilities of Attribute Delivery personnel

Conjoint analysis helped in forming the preferences for market-based segmentation for which hierarchical cluster analysis was administered. Based on the dendrogram, it revealed that 2 clusters were formed. These two clusters were separately analyzed using the above-defined conjoint methodology. The two clusters formed different demographic profiles. Cluster 1 had 183 samples and Cluster 2 had 38 samples. The details of the respondents in each cluster are given in Table 4.

Based on the table above, it is evident that in the two clusters, the maximum respondents are aged below 25 years and primarily belong to the 'Male' gender group.

The conjoint analysis results in each cluster indicated the correlation values for Cluster 1: Pearson's R = 0.785; Kendall's tau =0.587; and Cluster 2: Pearson's R =0.846; Kendall's tau =0.624. The utilities of the attribute levels across the clusters are shown in Table 5.

Table 4. Demographic profiling of Respondents for each cluster

		Cluster 1		Cluster 2	
		Frequency	**Percentage**	**Frequency**	**Percentage**
Age	<25	75	40.98	15	39.47
	25-35	47	25.68	11	28.94
	36-45	39	21.31	8	21.05
	>45	22	12.02	4	10.52
Marital Status	Married	87	47.54	24	63.16
	Single	96	52.45	14	36.84
Gender	Female	85	46.44	15	39.47
	Male	98	53.55	23	60.52
Profession	Student	69	22.23	15	39.47
	Housewife	40	21.85	8	21.05
	Business	21	11.48	5	13.16
	Services	53	28.96	10	26.32
Annual Household Income	< 50K	29	15.85	6	15.79
	50K to 1 Lac	88	48.09	18	47.37
	> 1 Lac	66	36.07	14	36.84

Table 5. Conjoint analysis results for clusters (market segments)

		Importance Value: Cluster 1	Importance Value: Cluster 2	Utility Estimate for Cluster 1	Utility Estimate for Cluster 2
Application	Design			-1.931	-.723
	Compatibility			-.964	-.516
	Reliability and trustworthiness	27.607	13.561	1.634	1.374
	Simple menu options			-.070	-.058
	Functionality			1.331	-.077
Payment options	Credit/debit cards			-1.794	-2.420
	Cash on delivery	27.763	35.090	.003	-.585
	e-wallets			1.791	3.005
Service delivery	On-time delivery			-.930	-.981
	Time period of order	14.407	12.691	.930	.981
Customer Service	Tracking system			1.424	1.302
	Effective customer support	22.880	23.887	-.644	-.069
	Reward/loyalty points			-1.531	-2.391
	Cashback option			.751	1.157
Delivery personnel	Timeliness			.386	1.391
	Social skills	7.342	14.771	-.562	-.499
	politeness			.175	-.892
(Constant)				13.295	13.358

A similar conjoint analysis by summing up the part-worth of the most preferred levels for each attribute gave us the importance of the most preferred combination in both markets as shown in Table 5. Thus, the most preferred combination by cluster 1 is: 1.634+1.791+0.930+1.424+ 0.386+13.295 = 19.46 so the importance of the most preferred combination is 19.46. The important attributes for cluster 1 are payment option, and application, followed by customer service, service delivery, and lastly delivery personnel. The most preferred combination for cluster 1 is Reliability and trustworthiness (Application), e-wallet (payment options), time period of order (service delivery), tracking system (customer service), and timeliness (delivery personnel). The important attributes for cluster 2 are payment option, customer service followed by delivery personnel, application, and lastly service delivery. Thus the most preferred combination by cluster 2 is 1.374+3.005+0.981+1.302+1.391+13.358= 21.411. So, the importance of the most preferred combination is 21.411. The most preferred combination for cluster 2 is Reliability and trustworthiness (Application), e-wallet (payment options), time period of order (service delivery), tracking system (customer service), and timeliness (delivery personnel), which is the same as cluster 1.

6. Discussion and Implications

The two types of shopper profiles or consumer segments were identified using hierarchical cluster analysis. The cluster names were selected to reflect the shoppers' preferences towards online food delivery apps based on the importance given by shoppers to the two clusters. The detailed results of the two profiles are presented below.

Cluster 1: "Discriminating and No-Nonsense Customers" or "One-Stop Solution Customers" (n=183)

Shoppers and members that represent this cluster are very particular to most of the quality attributes that are considered

in the study towards their selection and intention to use online food delivery apps. They are very demanding customer groups and discriminate the use of online food delivery apps based on the attributes they find are most important and hence accept no lapse or nonsense from the marketer. They perceive the 'Application', 'Payment Options', 'Service delivery', and 'Customer Service' as being equally important and wouldn't compromise on the quality of any of these attributes or their levels. They are the most on 'reliability and trustworthiness and functionality' of the Application; at the same time depend a lot on 'e-wallet' as a Payment Option being available in the online app; additionally preferring 'time period of ordering' to be a important parameter to perceive the Service Delivery as being desirable and 'tracking system' to be made available as an important attribute towards judging Customer Service. However, these shoppers ranked 'Delivery Personnel' as least important to them in the selection of an appropriate online food delivery app.

Cluster 2: "Dependents on C2C payment ecosystem" (n=38)

These shoppers are much more sensitive towards the attribute Payment Options in comparison to the other cluster and hence are named as dependents on customer to to-customer (C2C) e-payment ecosystem. For this cluster, the availability of 'debit/credit card as an option, 'e-wallet' as an option, and 'cash on delivery' as an option are crucial factors in the entire selection of the online food delivery app. They also appreciate service personnel possessing social skills, being on time with the order delivery, and being polite in their behavior which was considered the least preferred attribute for the customers of Cluster 1.

The results of the conjoint analysis approach suggest providing strategic mapping for the important multi-attributes identified in the study across the two clusters formed for developing strategies pertaining to product/service, promotion, process, place, people, and physical evidence in terms of new product/ service development (Manuel, R. 2016). These cluster profiles would help businesses in identifying homogenous consumer groups to increase the effectiveness and efficiency of the firm's marketing budget (Jurowski & Reich, 2000; Lewis & Chambers, 1989). The results of the study provide a guide to marketers in shaping loyalty through user experiences and in determining the motivation of the application users with the aim of enhancing their relationship with the brand/service. Marketers can use the results to understand market segments of online food delivery apps by analyzing the shifts from interactions to experiences (Rutkowska et al., 2017).

7. Limitations and Future Scope

The conjoint analysis tool is used to identify the consumer's preferences under situations where product/service attributes can be defined in terms of discrete levels. However, a limited number of variables and their levels in the study can be its limitation. Hence, the authors would suggest incorporating more attributes and levels like the choice of restaurants, features of the application, technical know-how, etc. in future studies. Based on respondents' perception capabilities and the absence of clear guidelines on the selection of an appropriate preference there might have been some biases in the responses. Also, there is no mechanism to verify the correctness of responses received. The sample size was also a limiting factor in the study. Additionally, due to limited resources and manpower support, convenience sampling methodology was adopted for data collection and hence may create a hindrance in reflecting the market. However, conjoint is quite economical in comparison to other methods like concept testing and so is very versatile and powerful tool to predict consumer preferences. The authors have used cluster analysis to create a market based on the customer's preferences for food delivery applications. However, another limitation could be with cluster analysis which is a statistical method that assumes no underlying knowledge of the market or how consumers may behave. Hence, the authors have used cluster analysis for just creating two clusters and have analyzed them based on specific preferences and how they can be used as two different markets by marketers. However, future research may scrutinize the practicality of promoting certain product attributes such as stimulating an ultimate attribute for food delivery application based on consumer preferences for two different markets. Further research can also analyze the current service delivery sector by delving into market segmentation and a detailed analysis of the clusters along with their demographic characteristics. Thematic analysis capturing the consumers' experiences with online delivery applications can also be dealt with in future studies. Research scholars can also delve into the demographic analysis of the clusters formed to get a closer perspective of the market segments.

References

Akaah, I. P. (1988). A conjoint investigation of the relative importance of risk relievers in direct marketing. *Journal of Advertising Research*., 38-44.

Amirani, S. and Baker, J. (1995), ``Quality cues and retail target market strategy: a conjointbased application", *International Journal of Retail & Distribution Management*, Vol. 23 No. 5, pp. 22-31.

Arias, J.T.G. (1996), ``Conjoint-based preferential segmentation in the design of a new financial service", *International Journal of Bank Marketing*, Vol. 14 No. 3, pp. 30-2.

Baruk, A. I., & Iwanicka, A. (2016). Aktywno prosumpcyjna polskich nabywców na rynku dóbr konsumpcyjnych. Handel Wewn trzny, (3 (362)), 37-49.

Bourlakis, M. A., Ness, M. R., & -Vasilios Priporas, C. (2006). The Greek food shopper: segmentation on the basis of attitudes to store features. *EuroMed Journal of Business*, 1(2), 29-49.

Bradlow, E.T. (2005). "Current issues and a wish list for conjoint analysis", *Applied Stochastic Models in Business and Industry*, Vol. 21 Nos 4/5, pp. 319-323

Burmeister, E., & Aitken, L. M. (2012). Sample size: How many is enough? *Australian Critical Care*, 25(4), 271-274.

Carneiro, J.D.S., Minim, V.P.R., Deliza, R., Silva, C.H.O., Carneiro, J.C.S. and Leão, F.P. (2005), "Labelling effects on consumer intention to purchase for soybean oil", *Food Quality Preference*, Vol. 16 No. 3, pp. 275-282.

Chan, H. C. (2015). Internet of Things business models. *Journal of Service Science and Management*, 8(04), 552.

Cho, M., Bonn, M. A., & Li, J. J. (2019). Differences in perceptions about food delivery apps between single-person and multi-person households. *International Journal of Hospitality Management*, 77, 108-116.

Churchill, G.A., Jr and Iacobucci, D. (2002), *Marketing Research: Methodological Foundations*, 8th ed., Harcourt, Forth Worth, TX.

Dauda, S. Y., & Lee, J. (2016). Quality of service and customer satisfaction: a conjoint analysis for the Nigerian bank customers. *International Journal of Bank Marketing*, 34(6), 841-867.

Deliza, R., Macfie, H. and Hedderely, D. (2003), "Use of computer-generated images and conjoint analysis to investigate sensory expectations", *Journal of Sensory Studies*, Vol. 18 No. 6, pp. 465-486.

Dimock, M. (2019). Defining generations: Where Millennials end and Generation Z begins. Pew Research Center, 17.

Drain, A., McCreery, M., Shekar, A., & Grigg, N. (2018, October). The collaborative design of a low-cost, accessible rice seeder for rural Cambodia: Trade-offs and challenges. In 2018 IEEE Global Humanitarian Technology Conference (GHTC) (pp. 1-7). IEEE.

Empson, R. (2016) Things business owners need to know about Gen Z.https://www.upcounsel.com/blog/who-is-gen-z.

Foscht, T., Maloles III, C., Schloffer, J., Chia, S. L., & "Jay" Sinha, I. (2010). Banking on the youth: the case for finer segmentation of the youth market. *Young Consumers*, 11(4), 264-276.

Fotiadis, A., & Stylos, N. (2016). The effects of online social networking on retail consumer dynamics in the attractions industry: The case of E-da theme park, Taiwan. *Technological Forecasting & Social Change.* http://dx.doi.org/10.1016/j.techfore.2016.06.033.

Geck, C. (2007). The Generation Z connection: Teaching information literacy to the newest net generation. Toward a 21st-century school library media program, 235, 2007.

Ghosh, R., & Saha, T. R. (2018). A Study of E-Payment System on Food Delivery Industry: A Case Study on Swiggy. *International Journal on Recent Trends in Business and Tourism*, 2(3), 19-25.

Gil, J.M. and Sanchez, M. (1997), ``Consumer preferences for wine attributes: a conjoint approach", *British Food Journal*, Vol. 99 No. 1, pp. 3-11.

Gordon, I.J. (1969), Human Development: From Birth through Adolescence, Harper & Row Publishers, New York, NY.

Green PE, Srinivasan V (1990): Conjoint analysis in marketing : New developments with implications for research and practice. *Journal of Marketing* 54(4)3-19

Green PE, Srinivasan V (1978) Conjoint analysis in consumer research : issues and outlook. Journal of Consumer Research 5 (2)103-123

Green, P.E., Krieger, A.M. and Wind, Y. (2001), "Thirty years of conjoint analysis: reflections and prospects", *Interfaces*, Vol. 31 No. 3, pp. 56-73.

Green, P.E., 1974. On the design of choice experiments involving multifactor alternatives. *Journal of Consumer Research*, 1(2), pp.61-68.

Gupta, M. (2019). A Study on Impact of Online Food Delivery app on Restaurant Business special reference to Zomato and Swiggy. *International Journal of Research and Analytical Reviews*

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L., 2006. Multivariate Data Analysis. Upper saddle River

Halme, M. and Somervuori, O. (2013), "Choice behavior of information services when prices are increased and decreased from reference level", *Annals of Operations Research*, Vol. 211 No. 1, pp. 549-564

Halilovic, S., & Cicic, M. (2013). Antecedents of information systems user behavior–extended expectation-confirmation model. *Behavior & Information Technology*, 32(4), 359-370.

Hass, C., & Bug, P. The use of apps in food retailing: creating value added for customers and companies.

Hobbs, J.E. (1996), ``A transaction cost analysis of quality, traceability and animal welfare issues in UK beef retailing", *British Food Journal*, Vol. 98 No. 6, pp. 16-26

H.S. Sethu & Bhavya Saini (2016), "Customer Perception and Satisfaction on Ordering Food via the Internet, a Case on Foodzoned.Com, in Manipal", *Proceedings of the Seventh Asia-Pacific Conference on Global Business, Economics, Finance, and Social Sciences* (AP16Malaysia Conference) ISBN: 978-1-943579-81-5. Kuala Lumpur, Malaysia. 15-17, July 2016. Paper ID: KL631

Jegethesan, K., Sneddon, J.N. and Soutar, G.N. (2012), "Young Australian consumers' preferences for fashion apparel attributes", *Journal of Fashion Marketing and Management: An International Journal*, Vol. 16 No. 3, pp. 275-289

Jeon, H. M., Kim, M. J., & Jeong, H. C. (2016). Influence of smartphone food delivery apps' service quality on emotional response and app reuse intention-Focused on PAD theory. *Culinary Science and Hospitality Research*, 22(2), 206-221.

Jurowski, C. and Reich, A.Z. (2000), "An explanation and illustration of cluster analysis for identifying hospitality marketing segments", *Journal of Hospitality and Tourism Research*, Vol. 24 No. 1, pp. 67-91.

Jun, M. and Cai, S. (2001), "The key determinants of Internet banking service quality: a content analysis", *International Journal of Bank Marketing*, Vol. 19 No. 7, pp. 276-291.

Kapoor, A. P., & Vij, M. (2018). Technology at the dinner table: Ordering food online through mobile apps. *Journal of Retailing and Consumer Services*, 43, 342-351.

Kara, A., Kaynak, E., and Kucukemiroglu, O (1994), ``Credit card development strategies

For the youth market: the use of conjoint analysis", *International Journal of Bank Marketing*, Vol. 12 No. 6, pp. 30-6.

Katawetawaraks and Wang (2011) "Online shopping behavior-online preferences". *EPRA International Journal of Multidisciplinary Research*, Volume 5 Issue 1 January 2019.

Kimes, S. E. (2011). Customer perceptions of electronic food ordering. Cornell Hospitality Report, 11(10), 6-15.

Koo LC, Tao FKC, Yeung JHC (1999) : Preferential segmentation of restaurant attributes through conjoint analysis. *International Journal of Contemporary Hospitality Management* 11(5) : 242-250

Kucukusta, D., & Guillet, B. D. (2014). Measuring spa-goers' preferences: A conjoint analysis approach. *International Journal of Hospitality Management*, 41, 115-124.

Ladiwal, O. (2019). Growing online industry in India-a glimpse. *Journal Current Science*, 20(1).

Levy, D.S. (1995), ``Modern marketing research techniques and the property professional", *Property Management*, Vol. 13, pp. 33-40.

Lewis, R.C. and Chambers, R.E. (1989), Marketing Leadership in Hospitality, Van Nostrand Reinhold, New York, NY.

Lopesi, s.d.,Boubeta, a.r. and Jesus, V.M., 2009. Post hoc tourist segmentation with conjoint and cluster analysis. Pasos, Revista de Turismo y Patrimonio Cultural, 7(3), pp.491-501.

Louviere JJ (1988) : Analyzing Decision Making: Metric Conjoint Analysis. Sage Publications Inc. Beverly Hills CA

Luzio, J.P.P. and Lemke, F. (2013), "Exploring green consumers' product demands and consumption processes: the case of Portuguese green consumers", *European Business Review*, Vol. 25 No. 3, pp. 281-300

Mahbubi, A., Uchiyama, T., & Hatanaka, K. (2019). Capturing consumer value and clustering customer preferences in the Indonesian halal beef market. *Meat Science*, 156, 23-32.

Min, S.H., Kim, H.Y., Kwon, Y.J. and Sohn, S.Y. (2011), "Conjoint analysis for improving the e-book reader in the Korean market", *Expert System with Applications*, Vol. 38 No. 10, pp. 12923-12929.

Molin, J.E. and Timmermans, H.J.P. (2006), "Traveler expectations and willingness-to-pay for web-enabled public transport information services", *Transportation Research* Part C, Vol. 14 No. 2, pp. 57-67

Morganosky, M. A., & Cude, B. J. (2002). Consumer demand for online food retailing: is it really a supply-side issue? *International Journal of Retail & Distribution Management*, 30(10), 451-458.

Moskowitz, H.R. and Silcher, M. (2006), "The applications of conjoint analysis and their possible uses in Scientometrics", *Food Quality and Preference*, Vol. 17 Nos 3-4, pp. 145-165

Mueller, S. and Lockshin, L. (2008), "How important is wine packaging for consumers", 4th International Conference of the Academy of Wine Business Research, Sienna, July 17-19, available at: http://academyofwinebusiness.com/wp-content/uploads/2010/04/How-important-iswine-packaging-for-consumers_paper.pdf (accessed January 3, 2017).

Ness, M.R. and Gerhardy, H. (1994), ``Consumer preferences for quality and freshness attributes of eggs", *British Food Journal*, Vol. 96 No. 3, pp. 26-34.

Nikou, S., Bouwman, H., & de Reuver, M. (2014). A Consumer Perspective on Mobile Service Platforms: A Conjoint Analysis Approach. CAIS, 34, 82.

Pantano, E., & Priporas, C. V. (2016). The effect of mobile retailing on consumers' purchasing experiences: A dynamic perspective. *Computers in Human Behavior*, 61, 548-555.

Picón, E., 2004. A Monte Carlo comparison of three methods of segmentation with Conjoint Analysis. *Psicológica*, 25, pp.231-252.

Pigatto, G., Machado, J. G. D. C. F., Negreti, A. D. S., & Machado, L. M. (2017). Have you chosen your request? Analysis of online food delivery companies in Brazil. *British Food Journal*, 119(3), 639-657.

Priporas, C. V., Stylos, N., & Fotiadis, A. K. (2017). Generation Z consumers' expectations of interactions in smart retailing: A future agenda. *Computers in Human Behavior*, 77, 374-381.

Rezaei, J. (2015). Best-worst multi-criteria decision-making method. Omega, 53, 49-57.

Rivera, M., Croes, R., & Zhong, Y. (2016). Developing mobile services: A look at first-time and repeat visitors in a small island destination. *International Journal of Contemporary Hospitality Management*, 28(12), 2721-2747.

Rutkowska, J., Lamas, D., Visser, F. S., Wodyk, Z., & Ba ka, O. (2017). Shaping loyalty: experiences from design research practice. *Interactions*, 24(3), 60-65.

Sahu, N. and Agrawal, B. (2019). The Revolution in Online Food Services: A Perceptual Study. *Journal Current Science*, 20(1).

Saxena, A. (2019). An Analysis of Online Food Ordering Applications in India: Zomato and Swiggy. 4th National Conference On Recent Trends in Humanities, Technology, Management & Social Development (RTHTMS 2K19), Vol.9, Special Issue, April 2019.

Schwarz, A., Hirscheim, R., Jayatilake, B. and Goles, T. (2009), "A conjoint analysis to understanding IT application services outsourcing", *Journal of the Association for Information Systems*, Vol. 10 No. 3, pp. 748-781

See-Kwong, G., Soo-Ryue, N., Shiun-Yi, W., & Lily, C. H. O. N. G. (2017). Outsourcing to online food delivery services: Perspective of F&B business owners. *The Journal of Internet Banking and Commerce*, 22(2), 1-18.

Seo, S. (2005). Identifying relative importance of quality attributes of dining service for older adults using conjoint analysis. *Journal of Community Nutrition*, 7(1), 58-63.

Serhat Murat Alagoz & Haluk Hekimoglu (2012), "A study on TAM: Analysis of customer attitudes in online food", *Procedia - Social and Behavioral Sciences* 62 (2012) pp.1138 – 1143

Shinde, R., Thakare, P., Dhomne, N. & Sarkar, S. (2014). Design and Implementation of Digital Dining in Restaurants Using Android. *International Journal of Advance Research in Computer Science and Management Studies*, 2(1), pp 379-384.

Sugar, C.A. and James, G.M. (2003), "Finding the number of clusters in a dataset: an information-theoretic approach", *Journal of the American Statistical Association*, Vol. 98 No. 463, pp. 750-63

Swait, J. and Adamowicz, W. (2001), "The influence of task complexity on consumer choice: a latent class model of decision strategy switching", *Journal of Consumer Research*, Vol. 28 No. 1, pp. 135-148

Toombs, K., and Bailey, G. (1995), ``How to redesign your organization to match customer needs", *Managing Service Quality*, Vol. 5 No. 3, pp. 52-6.

Tripathi, S.N. and Siddiqui, M.H., 2010. An empirical study of tourist preferences using conjoint analysis. *International Journal of Business Science & Applied Management* (IJBSAM), 5(2), pp.1-16.

Varsha Chavan, Priya Jadhav, Snehal Korade and Priyanka Teli (2015), "Implementing Customizable Online Food Ordering System Using Web Based Application", *International Journal of Innovative Science, Engineering & Technology*, Vol 2 Issue 4, April 2015.

Valeeva, N.I., Meuwissen, M.P.M., Oude Lansink, A.G.J.M. and Huirne, R.B.M. (2005), "Improving food safety within the dairy chain: an application of conjoint analysis", *Journal of Dairy Science*, Vol. 88 No. 4, pp. 1601-1612

Voordouw, J., Antonides, G., Cornelisse-Vermaat, J. R., Pfaff, S., Niemietz, D., & Frewer, L. J. (2012). Optimizing the delivery of food allergy information. An assessment of food allergic consumer preferences for different information delivery formats. *Food Quality and Preference*, 23(1), 71-78.

Wang, X. (2019). Health service design with conjoint optimization. *Journal of the Operational Research Society*, 1-11.

Wyatt, J.C., Batley, R.P. and Keen, J. (2010), "GP preference for information systems: a conjoint analysis of speed, reliability, access, and users", *Journal of Evaluation in Clinical Practice*, Vol. 16 No. 5, pp. 911-915.

Yeo, V. C. S., Goh, S. K., & Rezaei, S. (2017). Consumer experiences, attitude, and behavioral intention toward online food delivery (OFD) services. *Journal of Retailing and Consumer Services*, 35, 150-162.

Yuksel, A. and Yuksel, F. (2002a), "Market segmentation based on tourists' dining preferences", *Journal of Hospitality & Tourism Research*, Vol. 26 No. 4, pp. 315-331.

Yuksel, A. and Yuksel, F. (2002b), "Measurement of tourist satisfaction with restaurant services: a segment based approach", *Journal of Vacation Marketing*, Vol. 9 No. 1, pp. 52-68

Zhitomirsky-Geffet, M., & Blau, M. (2016). Cross-generational analysis of predictive factors of addictive behavior in smartphone usage. *Computers in Human Behavior*, 64, 682-693.

Zhou, X., & Xu, Y. (2019). Conjoint analysis of consumer preferences for dress design. *International Journal of Clothing Science and Technology*.

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Green Supply Chain Management Practices in Nigerian Manufacturing Firms and Sustainable Development Goal 9

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Abstract

Both developed and developing nations are making concerted efforts to attain some of the sustainable development goals (SDG) recommended by the United Nations, especially SDG number 9. This paper thus examined the extent of green supply chain management practices (GSCMPs) usage, drivers of green supply chain management practices (DGSCMPs), and the relationship between the extent of GSCMPs usage and the DGSCMPs of manufacturing small and medium-scale enterprises (SMEs) in Nigeria. Data was obtained from a primary survey of a population of 1,901 manufacturing SMEs in the Southwest of Nigeria based on the Nigerian Bureau of Statistics Reports (2019). The sample size for the study was 330 respondents, obtained through Slovin's formula. Descriptive tools and structural equation modeling were used for data analysis. Results indicate that DGSCMPs (β= 0.572, t = 4.648, ρ= 0.003) significantly and positively contributed to the extent of usage of GSCMPs among manufacturing SMEs in Nigeria. Implications for practice and policy were spelled out, including the use of GSCMPs to reduce costs associated with waste, institutional and policy instruments to establish rewards for green-compliant firms, and fines for non-compliance in a bid to improve manufacturing SMEs' usage of the GSCMPs at a geometric rate and foster the attainment of SDG 9.

Keywords*: Green Supply Chain Management Practices, Sustainable Development Goal 9, Manufacturing SMEs*

1. Introduction

SDG 9 focuses on building adaptable, fundamental, physical, and organizational structures and facilities, encouraging all-encompassing and sustainable industrialization, and advancing innovation. It has been underscored by the United Nations (2021) via SDG that businesses rely on infrastructures, materials, resources, labor, and services from different corners of the globe and that if these are aging, not available, or reduced in quality, then conducting legitimate business activities becomes challenging. The achievement of SDG 9 is important for economic development and growth. Resilient infrastructure, for instance, helps reduce production costs and improve market access, stimulating economic activities. Furthermore, inclusive and sustainable industrialization has the potential to generate employment and increase productivity. This fundamental aspect of SDG 9 promotes the development of small and medium-sized enterprises (SMEs) that engage in sustainable production and consumption practices (GSCMPs), which are essential for economic growth.

Among the major economies, the United States is expected to remain the world's largest economy, with a GDP of $21.5 trillion in 2023. China, the second-largest economy, is projected to surpass the United States by 2030 (Kim & Kim, 2022). The major factors fueling China's GDP growth are exports and investment in infrastructure and manufacturing, thereby underscoring the importance of investment in infrastructure and manufacturing for developing economies. In Africa, Nigeria, to be precise, the manufacturing sector plays a significant role in national development. The sector contributed 14.18% to the country's GDP in the second (2nd) quarter of 2021, while it was 11.79% during the same period in 2020. Hypothetically, the manufacturing sector can help achieve Sustainable Development Goal 9 by incorporating GSCMPs into their operations.

The chase to achieve sustainable development by businesses, non-governmental organizations, and government agencies is a pressing global imperative, most importantly in manufacturing businesses where the consumption of resources and eco-friendly influence is very substantial. Although the awareness of the need to adopt and implement green supply chain practices to mitigate distortions to the natural environment championed by United Nations and non-governmental organizations is growing globally, it is crystally clear in literature that a noteworthy gap exists concerning the precise initiatives and policies that the manufacturing businesses in Nigeria are adopting in their attempts to achieve Sustainable Development Goal 9 (Ali & Shoaib, 2023; Ali et al., 2023; Raman et al., 2023; Agarwal, 2022; Denoncourt, 2020; Odesola & Aderemi, 2022). More worrisome is the lack of empirical information on the efforts being made by small and medium-sized manufacturing enterprises (that are in large numbers and spread all over the country) to ameliorate distortions being released into the environment from their productive activities (Odesola & Aderemi, 2022; Aderemi & Odesola, 2021). A critical analysis of the previous empirical investigations on the issue showed that developed economies and some developing nations are pursuing the attainment of SDG 9 vigorously, which is evident in the revelation of comprehensive efforts to ensure sustainability. Still, the inimitable framework and challenges being faced by manufacturers in Nigeria have been neglected. Given the above, the country needs empirical investigative research to examine and present the precise green supply chain management practices being adopted and executed by firms in manufacturing in Nigeria (most notably the small and medium-sized enterprises) to achieve efficiency and effectiveness as well as their efforts to attain SDG 9. In attempting to fill this notable gap, this empirical study titled: Green Supply Chain Practices in Nigeria Manufacturing Firms and Sustainable Development Goal 9" would offer valuable insights and recommendations that are practically possible to implement and support the development of sustainable practices and innovations for the Nigerian manufacturing sector.

Several empirical investigations (Zhu & Sarkis, 2004; Zhu et al., 2005; Rasit et al., 2019) have been conducted in developed and some developing economies to appraise the association connecting GSCMPs to the sustainable performance of the firms deploying the practices. Some of these scientific investigations (Rushi et al., 2012; Singh & Kumar, 2017) further considered the relationship between GSCMPs and sustainable performance subsets, including economic, social, and environmental performance. However, the relationship between the extent of usage of the GSCMPs and the drivers of the GSCMPs has not been extensively explored.

The objectives of this empirical investigative survey are to:

Investigate the extent of GSCMP usage; examine the drivers of GSCMPs; and determine the relationship between the extent of GSCMP usage and the drivers of GSCMPs among Nigerian Small and Medium-Sized Manufacturing Enterprises.

2. Review of Literature

2.1 Sustainable Development Goal 9, Economic Growth and Green Supply Chain Management Practices

Sustainable Development Goal 9 aims to promote sustainable industrialization, foster innovation, and upgrade

infrastructure to support economic development. Its focus is building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation (Agarwal, 2022; Denoncourt, 2020). On the other hand, green supply chain management refers to integrating environmental considerations into supply chain management. The goal is to reduce environmental impact and achieve sustainable development by optimizing all activities in the supply chain (Baliga et al., 2020). There are several ways that Green Supply Chain Management can contribute to Sustainable Development Goal 9. For example, companies can work to reduce their carbon footprint by optimizing transportation and distribution processes. This can include modal shifts to more environmentally friendly modes of transportation, like rail or ship transport. Companies can also utilize green packaging materials and work to reduce waste in their supply chain. Aside from the aforementioned, companies can promote sustainable industrialization by implementing renewable energy sources like solar or wind power in their manufacturing facilities. They can also work to develop sustainable products and services that meet customer demands while minimizing environmental impact. Moreover, Green Supply Chain Management promotes innovation by encouraging cooperation between suppliers, manufacturers, and customers. This can lead to the development of new technologies and processes that reduce environmental impact and enhance sustainability (Goswani, 2014; Denoncourt, 2020; Ali & Shoaib, 2023; Ali et al., 2023; Hejazi et al., 2023).

2.2 Practices Designed for Green Supply Chain Management and its Relationship with GSCMP Drivers

The origin of the green supply chain management (GSCM) concept was traced to Webb's 1994 proposal on the green purchasing concept. In 1996, it was first proposed for the study of environmental responsibility manufacturing (ERM) (Shan & Wang, 2018). The authors added that the structure of the green supply chain management concept is still emerging, and its definitions and scope are also evolving. Green supply chain management has its scope in procedures and processes like procurement, product design, manufacturing, and logistics. Green supply chain management concept discussions have been increasing in recent years among local and international intervention agencies, governments, health practitioners, environmentalists, civil society organizations, host communities, and researchers. The concept is widely recognized, accepted, and incorporated by manufacturing corporations or firms to ameliorate environmental distortions witnessed worldwide because of their attendant effects on the citizenry and corporations.

The environmental distortions in question, according to empirical studies conducted by Faisal (2006); Afum et al. (2020); Namagembe et al. (2019); Rasit et al. (2019); Ali and Shoaib (2023), Ali et al. (2023), Raman et al. (2023), Hejazi et al. (2023) Mishra et al. (2019); Namagembe et al. (2018); Mafini and Muposhi (2017); and Rusli et al. (2012), were a fallout of the productive operations of manufacturing firms, including small and medium-scale manufacturing enterprises, in a developed or developing country.

Contributing to the discussion on the GSCMPs, Srivastava (2007) described GSCMPs as integrating thoughts about the environment into the well-accepted and recognized concept of supply chain management that consists of product design, choice, and sourcing of materials; manufacturing of goods; product delivery; and product extinction management after use. In the same way, Walker et al. (2008) also gave their view on the concept. They submitted that the practices cover every stage of a manufactured goods' life cycle, from the pulling out of raw materials for production in the course of the designing of products, production of products, and delivery stages, to the utilization of the manufactured goods by final customers and discarding them at the last part of the manufactured goods' useful life. The seven (7) GSCMPs established in the literature are green design, green marketing, green manufacturing, reverse logistics, packaging, purchasing, and distribution.

The drivers of green supply chain management (GSCM) refer to those factors that will drive or push organizations to execute or deploy GSCMPs for their operations, thereby ameliorating the repercussions of their manufacturing process on the natural ecosystem. The accessible literature revealed that some authors like Shi et al. (2012), Green et al. (2012), Peters et al. (2005), Zhu and Sarkis (2004), Rao (2019), and Min and Galle (2001) preferred to classify these drivers as pro-active and reactive strategies for GSCMPs. The authors submitted that proactive drivers are behind any move by organizations to intentionally put GSCMPs into practice for their manufacturing activities.In contrast, reactive approaches result from government regulations and pressures from competitors and customers.

Ali et al. (2017) conducted a study using SMEs in the United Kingdom. The study found that internal drivers significantly impacted the deployment of GSCMPs but did not explore external drivers. Singh and Kumar qualitatively investigated the drivers influencing the GSCMPs in Rajasthan's SMEs in India (2017). The authors discovered that the green drivers positively influenced the deployment and execution of the GSCMPs in India. However, adopting four (4) practices to proxy GSCMPs might have limited the type and number of drivers discovered by the study. These two studies were

limited in the treatment of the association between the extent of usage of GSCMPs and the drivers of GSCMPs, thus providing impetus for the current study.

3. Hypothesis Formation

This section established the hypothesis for the current study.

3.1 GSCMP Extent of Use and GSCMP Drivers

Several empirical investigations have submitted that pro-active GSCMP drivers are behind any move by organizations to intentionally put GSCMPs into practice for their manufacturing activities. In contrast, reactive approaches result from government regulations and pressures from competitors and customers. Although firms in developed economies have increasingly embraced GSCMPs to achieve operational efficiency and attain SDG 9, empirical evidence concerning the connection between them and drivers seeks substantiation. Consequently, this research hypothesizes that:

H_{o1}: Drivers of GSCMPs have no significant effect on the extent of usage among manufacturing SMEs in Nigeria.

4. Methodology

The investigative empirical survey employed a descriptive survey research design. Primary data were obtained during the administration of a well-structured questionnaire. A well-structured questionnaire that benefited from the works of Hejazi et al. (2023), Rasit et al., (2019), Rusli et al. (2012) and Srivastava (2007) was employed for the study. Section A was for information about the respondents, Section B was employed to collect data on the extent of usage of GSCMPs among the manufacturing SMEs, and Section C was used to gather data on drivers of GSCMPs. The response options of Sections B and C were based on a 5-point Likert scale. The scale has 5 strongly agree, 4- Agree, 3-Neutral, 2- Disagree, and 1- Strongly Disagree. The study was conducted in Southwest Nigeria. Nigeria is a significant economic and political player in Africa. The country accounted for half of the population of the countries in West Africa. Its people are close to 206 million. Nigerian youths are the largest in the world. The country has a lot of natural resources. The study was conducted among small and medium-scale manufacturing enterprises in Southwest Nigeria.

According to the Nigerian Bureau of Statistics Reports (2019), the study population comprises 1,901 small and medium-scale manufacturing enterprises in Ekiti, Lagos, Ogun, Ondo, Oyo, and Osun States (Southwest Nigeria). The sample size for the study was 330 respondents, obtained through the Slovin formula. A stratified random sampling technique was used to select 330 respondents, and a population proportional to size was used to disaggregate the 330 respondents. In contrast, simple random sampling was used to administer copies of a structured questionnaire to the enterprises across the six states in Southwest Nigeria. The data were evaluated using suitable descriptive statistics and a structural equation model.

5. Data Analysis

5.1 Demographic Factors of Respondents

A response rate of 286 (two hundred and eighty-six) questionnaires was attained, which translated to 87%, as portrayed in Table 1. This response rate was attained via unwavering visits to the locations selected for the survey and the inclusion of well-trained research assistants.

Table 1. Analysis of Returned Questionnaire

S/N	Locations	Number Distributed	Number Retrieved	% of Number Retrieved
1	Ekiti State	17	14	82%
2	Lagos State	207	179	87%
3	Ogun State	21	20	95%
4	Ondo State	26	22	85%
5	Osun State	12	10	83%
6	Oyo State	47	41	87%
Total		330	286	87%

Source: Researcher's Field Results, 2022

5.2 Extent of Usage of the GSCMPs

Table 2. Extent of Usage of GSCMPs by Manufacturing SMEs

SN	Green Supply Chain Management Practices	Mean Values	Rank
1	Usage of Green Purchasing	4.072	3
2	Usage of Green Manufacturing	4.085	1
3	Usage of Green Design	4.046	5
4	Usage of Green Reverse Logistics	3.690	7
5	Usage of Green Distribution	4.062	4
6	Usage of Green Packaging	3.933	6
7	Green Marketing	4.073	2
Average Total		**3.994**	

Source: Researcher's Field Results, 2022

Table 3. Frequency Distribution for the DSCMPs by Selected Manufacturing SMEs

Drivers	SA	A	U	D	SD	Total	Mean	Standard Deviation
Management voluntary decision	70 24.5%	85 29.7%	50 17.5%	33 11.5%	48 16.8%	286 100%	3.3217	1.38463
Import Trade	41 14.3%	103 36%	67 23.4%	36 12.6%	39 13.6%	286 100%	3.2762	1.24700
Export Trade	36 12.6%	101 35.3%	62 21.7%	39 13.6%	48 16.8%	286 100%	3.1469	1.27573
Pressure from customers	40 14%	72 25.2%	65 22.7%	52 18.2%	57 19.9%	286 100%	2.9510	1.31030
Pressure from competitors	36 12.6%	78 27.3%	76 26.6%	41 14.3%	55 19.2%	286 100%	2.9720	1.27565
Pressure from the Host community	36 12.6%	69 24.1%	55 19.2%	65 22.7%	61 21.3%	286 100%	3.0559	3.89111
Economic benefits	65 22.7%	114 39.9%	52 18.2%	14 4.9%	41 14.3%	286 100%	3.4965	1.26975
Environmental benefits	68 23.8%	90 31.5%	60 21%	22 7.7%	46 16.1%	286 100%	3.4371	1.38712
Social benefits	62 21.7%	101 35.3%	64 22.4%	21 7.3%	38 13.3%	286 100%	3.5175	1.30507
Government Environmental Regulations	68 23.8%	89 31.1%	54 18.9%	30 10.5%	45 15.7%	286 100%	3.4091	1.40317

Source: Researcher's Field Results, 2022

From Table 2, it can be adjudged that selected manufacturing SMEs in the selected states were using GSCMPs but to varying degrees. Green manufacturing is the most prominent practice adopted by the selected SMMEs. This implies that SMMEs in Nigeria have adopted the process of designing, manufacturing, and distributing their products in an economically friendly way. The finding also suggests that the up-and-coming regulations from the government and more vital consciousness of the members of the public on the attendant effects of negative environmental practices are compelling manufacturing business ventures to discover and develop policies, plans, and programs targeted toward mitigating the negative impacts of their supply chains on the environment.

5.3 GSCMP Drivers

This study examined the reasons why organizations execute GSCMPs. This section identifies the main drivers (Table 3) of GSCMPs, including management voluntary decisions, import and export trade, customers' pressure, competitors' pressure, host communities' pressure, economic benefits, environmental benefits, social benefits, and government environmental regulations, but economic benefits are a significant driver that motivates manufacturing SMEs to apply GSCMPs in their day-to-day activities.

5.4 Relationship between Drivers of GSCMPs and Extent of Usage of GSCMPs

H_0: There is no significant relationship between drivers of GSCMPs and the extent of usage of the GSCMPs among small and medium-scale manufacturing enterprises.

The preliminary analysis assessed the latent variables' internal consistency reliability, convergent validity, and discriminant validity. Reliability was evaluated both at the construct and item levels, with Cronbach's alpha serving as the metric for internal consistency. The alpha values presented in Table 4 surpassed the accepted threshold of 0.7, indicating the reliability of the measurement instruments. Convergent validity was examined through the average variance extracted (AVE) method following the approach outlined by Fornell and Larcker (1981). The AVE values depicted in Table 4, range between 0.606 and 0.692. These values exceed the minimum threshold required, suggesting strong convergent validity.

Structural and measurement models were taken into consideration when examining the relationship between drivers of green supply chain management practices and the level of usage of green practices among manufacturing SMEs. The items were adapted for measuring green supply

Table 4. Factor Loading for Drivers and Usage of GSCMPs

	Factor Loading	Error Variance	Reliability of Composite	AVE	Cronbach's Alpha	Number of Indicators
Indicators	**Greater 0.7**	**Less than 0.5**	**≥ 0.8**	**≥ 0.5**	**≥ 0.7**	
Drivers of Green Supply Chain Management			0.852	0.692	0.790	10
DGSCM1	0.814	0.186				
DGSCM2	0.725	0.275				
DGSCM3	0.825	0.175				
DGSCM4	0.724	0.276				
DGSCM5	0.627	0.373				
DGSCM6	0.797	0.203				
DGSCM7	0.811	0.189				
DGSCM8	0.733	0.267				
DGSCM9	0.836	0.164				
DGSCM10	0.826	0.174				
Green Supply Chain Management Practices			0.843	0.606	0.784	25
UGP	0.786	0.214				
UGM	0.804	0.196				
UGD	0.718	0.282				
UGRL	0.793	0.207				
UGD	0.729	0.271				
UGPKG	0.825	0.175				
GM	0.705	0.295				

Source: Researcher's Field Results, 2022

chain management drivers, including voluntary decisions, import and export trade, customers' pressure, competitors' pressure and the host communities' pressure, economic benefits, environmental benefits, social benefits, and government environmental regulations. For the measurement model (Table 4), the items and constructs reflect the least acceptable value for the loading factor, i.e., 0.60 (Fornell & Larcker, 1981), and interestingly, the values of all the constructs were more than 0.60.

5.4.1 Factor Loading of the Drivers of GSCMPs and Extent of Usage of GSCMPs

Few items with a loading factor lesser than 0.6 were detached. Figures 1 to 3 showed the outcomes of removing those few items. The inner representation of computation of structural equations is the structural model (Hussain et al., 2018). It evaluated path coefficients (b) values and significant values.

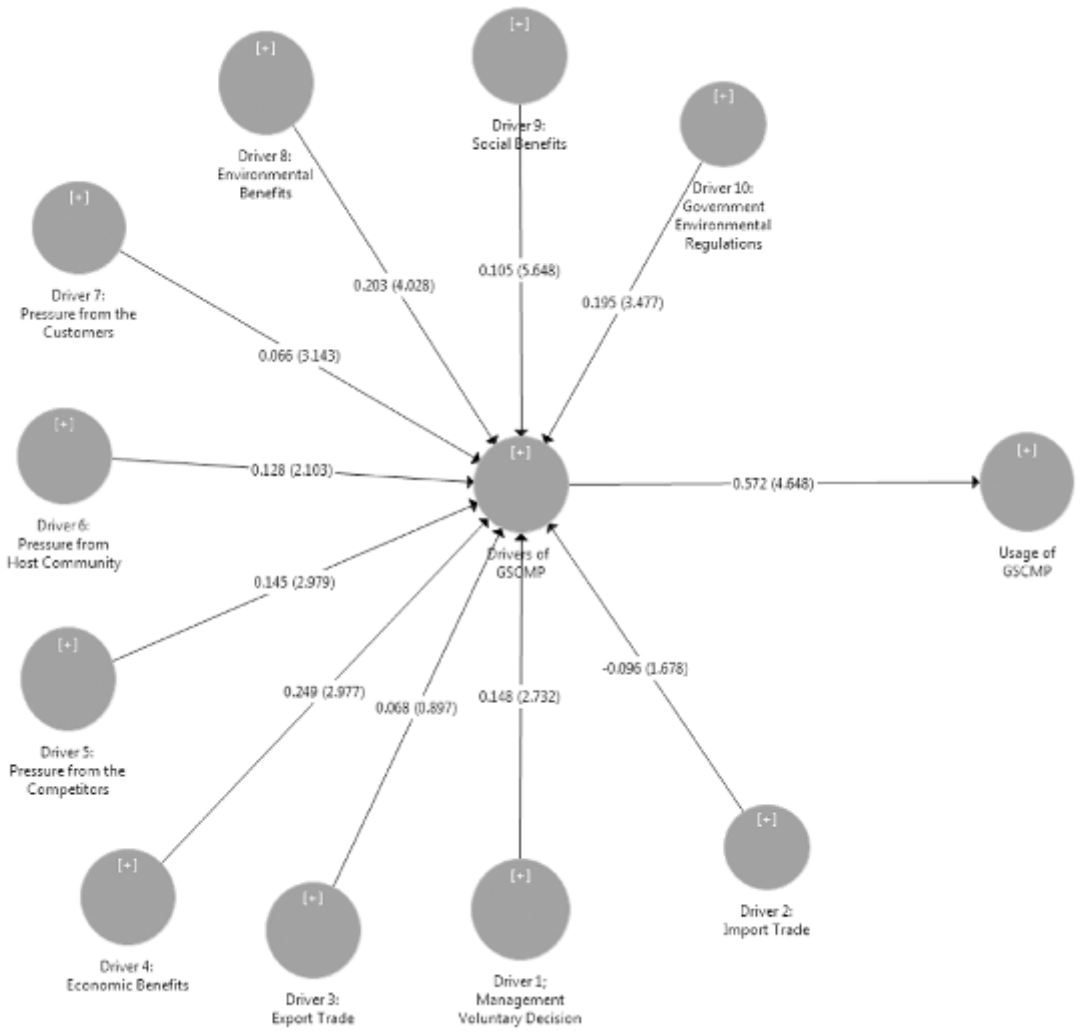

Figure 1. Predictive Co-efficient of Path and T-values in favor of Drivers of GSCMPs

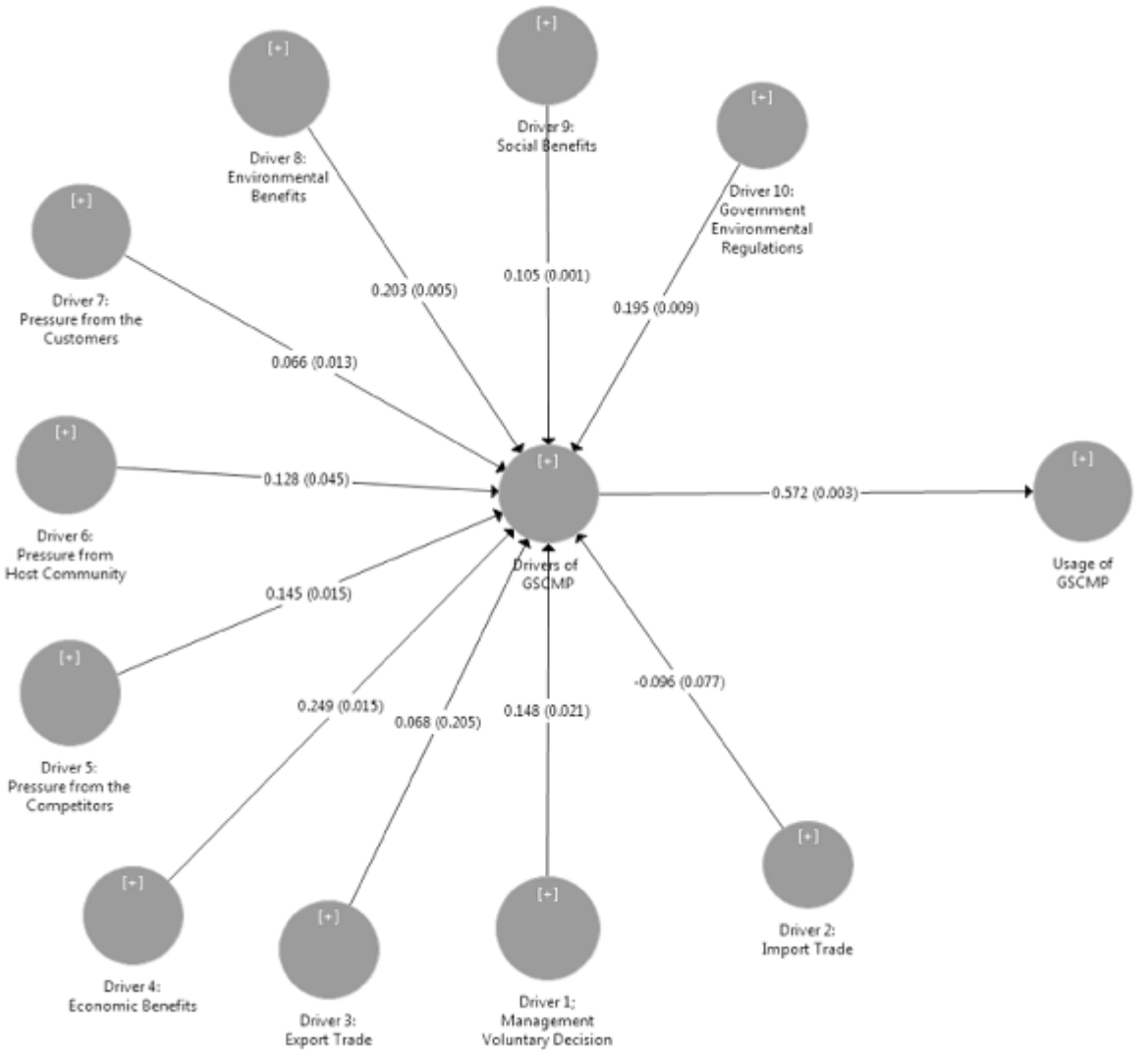

Figure 2. Co-efficient of Path and P-values in favor of Drivers of GSCMPs

This model indicated that the drivers of green supply chain management include management voluntary decisions (β= 0.148, t= 2.732, ρ=0.021), customers' pressure (β= 0.066, t= 3.143, ρ=0.013), government environmental regulations (β= 0.195, t= 3.477, ρ=0.009), competitors' pressure (β= 0.145, t= 2.979, ρ=0.015) and the host communities' pressure (β= 0.128, t= 2.103, ρ=0.045), economic benefits (β= 0.249, t= 2.977, ρ=0.015), environmental benefits (β= 0.148, t= 2.732, ρ=0.021), social benefits (β= 0.105, t= 5.648, ρ=0.001). It should be noted that the use of GSCMPs was not significantly impacted by import (β= -0.096, t= 1.678, ρ=0.077) and export trade (β= 0.068, t= 0.897, ρ=0.205). This implies that import and export were not fuelling the usage of GSCMPs in the study area. However, based on t-values, social benefits, followed by government environmental regulations, customers and competitors' pressure, economic benefits, environmental benefits, and host community pressure, in that order served as impetus for the firms to adopt and implement GSCMPs. Such GSCMPs comprised the use of goods and procedures that consume less energy, diminishing the generation of waste via a cradle-to-cradle system to manage waste, optimizing logistics, and reducing emissions from carbon.

Table 5. Path Coefficients for DGSCMPs and Usage of GSCMPs

Variables & Cross Loading	Co-efficient of Path (O)	Standard Deviation (SDEV)	t-Statistics (O/ SDEV	P-Values
Drivers of GSCMPs --> Usage of GSCMPs	0.572	0.064	4.648	0.003
Management voluntary decision	0.148	0.073	2.732	0.021
Import trade	0.096	0.078	1.678	0.077
Export trade	0.068	0.063	0.897	0.205
Pressure from customers	0.066	0.070	3.143	0.013
Pressure from competitors	0.145	0.061	2.979	0.015
Pressure from host community	0.128	0.059	2.103	0.045
Economic benefits	0.249	0.075	2.977	0.015
Environmental benefits	0.203	0.074	4.028	0.005
Social benefits	0.105	0.066	5.648	0.001
Government environmental regulations	0.195	0.052	3.477	0.009

Source: Researcher's Field Results, 2022

Table 6. Model Fit Index for the Drivers and Usage of GSCMPs

Model Fit Index	Measures	Abbreviated	Accepted value	Model Value
	The Goodness of Fit Index	GFI	≥0.90	0.912
Absolute Fit Index	Chi-square/Degree of Freedom	CMIN/DF	<3.0	2.236
	Root Mean Square Residual	RMSR	<0.08	0.059
Incremental Fit Index	Comparative Fit Index	CFI	≥0.90	0.917
	Normed Fit Index	NFI	≥0.90	0.905
Parsimony Fit Index	Parsimony Comparative Fit Index	PCFI	≥0.50	0.528

The coefficient of path (Table 5), as well as the constructs' bootstrapping, specify whether the DGSCMPs are significant at 0.05. Statistically, the model signified significant path co-efficient among all the DGSCMPs and the usage of GSCMPs. Hence, based on the path coefficient signifying contributions, the result showed that government environmental regulations, pressure from the customers, and environmental benefits were the major drivers of green supply chain management, while social benefits were the least.

The measurement model (Table 6) revealed that all indices to test if a model is fit are within the satisfactory range and more than the suggested benchmark as recommended by Lacker and Fornell (2009). RMSR is 0.059, below the 0.08 benchmark, implying a good fit for the model. Hence, this study concludes that DGSCMPs significantly affect the level of usage of GSCMPs among small and medium-scale manufacturing business ventures. The study, therefore, rejects hypothesis 1. This empirical survey discovered that given the varied policies and priorities a firm may adopt, the impact of DGSCMPs kept varying instead of static. For manufacturing SMEs to trade profitably and contribute to SDG 9, policies, plans, and programs that will deal with the seven (7) drivers identified by this empirical survey must be in place.

6. Discussion of Results

The first objective determined the extent of usage of GSCMPs by small and medium-scale manufacturing enterprises (manufacturing SMEs). Analysis of the collected data revealed that selected manufacturing SMEs in the selected states frequently used GSCMPs in their operations. Regarding ranking, green manufacturing, green marketing, and green purchasing were ranked highest, while usage of green reverse logistics was ranked lowest. This discovery is in tandem with the empirical outcomes of a survey conducted in India by Vijayvargy et al. (2017), where it was reported that business organizations, specifically SMEs in India, had demonstrated a rational level of execution of the GSCMPs identified by the author. It was discovered that the

selected SMEs accepted and executed the GSCMPs at the same level as large organizations in India. The outcomes of this empirical survey aligned with the outcomes of a review of fifty-six empirical investigations conducted between 2010 and April 2020 by Sánchez-Flores et al. (2020). The review indicates that GSCMPs are gaining acceptance in emerging economies compared to developed ones. However, there is an improvement or increase in the usage of the GSCMPs that has been accepted in literature to mitigate the effects or repercussions of distortions to the natural environment. This finding also aligned with the findings of Ali and Shoaib (2023), Ali et al. (2023), Raman et al. (2023), and Hejazi et al. (2023).

The empirical investigation also examined the drivers of GSCMPs among Small and Medium-Sized Manufacturing Enterprises (Manufacturing SMEs). The term GSCMP drivers refers to factors that will both inspire and enable business organizations to reduce materials, resulting in disruptions to the natural ecosystem in their supply chain management (SCM). On the issue of factors or drivers encouraging firms to adopt and deploy GSCMPs in their operations, there is a rise in the number of empirical investigations focusing attention on probing the drivers and barriers of GSCMPs in varied circumstances and industries where the practices had been applied in the last few years. This study discovered the following ranked drivers from the selected manufacturing SMEs: Economic benefits, competitive pressure, host community pressure, customer pressure, environmental and social benefits, government environmental regulations, management voluntary decisions, and export and import trade.

The drivers unveiled by this empirical investigation aligned with the results of other empirical studies conducted before now, although some of the studies used certain classifications to group their findings. For instance, a few of the empirical investigations discovered that regulatory and proactive to competitive decisions were the drivers (Singh & Kumar, 2017; Sarkis, 1999), while a few other empirical investigations discovered proactive or reactive reasons for firms' acceptance and deployment of green practices. Other investigations classified the factors that motivate manufacturing firms to use the practices as internal and external factors (Lee et al., 2013; Testa & Iraldo, 2010; Zailani et al., 2012), while other empirical investigations discovered that green drivers were classified as coercive and non-coercive pressures.

The third objective was associated with one hypothesis, and it was predicted that drivers of GSCMPs significantly influence the extent of usage of GSCMPs among small and medium-scale manufacturing enterprises. All constructs' path coefficients and bootstrapping in the analysis indicated significant relationships at 5 percent. Also, between drivers and the extent of usage of GSCMPs amongst manufacturing SMEs, statistically, the model denoted a significant path coefficient ($t_{val} = 4.648, \beta = 0.572, \rho = 0.003$).

The bootstrapping and path coefficient of all constructs signified that the drivers of GSCMPs are significant at 5 percent. Statistically, the model confirmed a significant path coefficient among all the drivers of GSCMPs and the usage of GSCMPs. Hence, the result showed that government environmental regulations, customer pressure, and environmental benefits were the major drivers of GSCMPs, while social benefits had the least. Furthermore, import and export trade were insignificant. Because the significance level of all other indicators was lower than 5 percent, it implies that all the path coefficients were significant in practical terms.

This model signifies that all the drivers of GSCMPs, including management voluntary decisions, import and export trade, customers' pressure, competitors' pressure, host communities' pressure, economic and environmental benefits, social benefits, and government environmental regulations, are important. This implies that these selected manufacturing SMEs complied with regulations to advance favourable environmental results and SDG 9 outcomes. To ensure continued compliance with the policies put in place, manufacturing SMEs need to be motivated to execute GSCMPs. The GSCMPs will ensure that products and processes utilize low energy, cutting down on waste generation via a cradle-to-cradle system for managing waste, optimizing logistics, and decreasing emissions from carbon, among others.

From this empirical analysis, it is evident that just 8 (eight) out of a list of 10 (ten) sub-drivers have an eighty percent (80%) influence on the execution of GSCMPs amongst manufacturing SMEs. Sub-drivers of the major drivers, such as suppliers and general society, were less significant in controlling the execution of GSCMPs by selected business organizations in this case study. This empirical finding implies that while the host community was mounting pressure, the general society and suppliers were not

considerately controlling the execution of GSCMPs. It also implies that they were not significantly supporting the drive to embrace and execute GSCMPs to aid the achievement of SDG 9. Then, unlike China, where exports were driving manufacturing and economic development (Kim & Kim, 2022) and possibly adopting GSCMPs to attain SDG 9, this was not the case in the study area. The empirical outcomes of this study established that the local/host community had a considerable influence on manufacturing SMEs to embrace and execute GSCMPs in their operations, thus emphasizing the role of host communities, particularly when they are adequately sensitized.

7. Conclusion

The findings indicate the extent of usage of GSCMPs and DGSCMPs and a positive relationship between the extent of usage of GSCMPs and the DGSCMPs among selected manufacturing SMEs in the selected locations. The study established that GSCMPs like green purchasing, green manufacturing, usage of green design, usage of green reverse logistics, usage of green distribution, usage of green packaging, and green marketing were moderately to highly deployed. Understanding the extent to which GSCMPs are being used can help businesses (in this case, SMMEs) determine if they are progressing toward sustainability goals. Especially with the attainment of SDG in view, all stakeholders' hands need to be on deck to make the SDG goal a reality come 2030. This understanding will assist SMMEs in taking corrective measures or steps once it is discovered that achieving sustainability goals, as championed by the United Nations, is threatened.

Also established through this empirical study are the drivers of GSCMPs, including management voluntary decisions, customers' pressure, competitors' pressure, host communities' pressure, economic benefits, environmental benefits, social benefits, and government/environmental regulations. The study showed that export and import trade pressures, though important, were not significant. The study of the factors is imperative to determine the specific drivers that support GSCMP adoption toward achieving SDG 9. Though there are internal drivers, such as a company's culture or management style, external factors, such as regulations or market conditions, can also be external factors. By identifying the drivers that most influence green supply chain management practices, stakeholders, including the business, regulatory agencies, international development partners, society as well as researchers, can better understand and focus attention on forces that can contribute to increasing the adoption of GSCMPs most likely to be effective in reducing environmental impact, and contributing to SDG 9 attainment.

A positive and significant relationship was also established between the extent of usage of GSCMPs and DGSCMPs of the selected SMEEs in Nigeria. By studying this relationship, businesses can develop more effective and efficient strategies for improving their sustainability performance. The key idea here is that understanding the relationship between the extent of usage of GSCMPs and the DGSCMPs that influence them can help businesses optimize their sustainability strategies. For example, if a business finds that regulatory compliance is key to DGSCMPs and that the extent of usage of these practices is low. In this case, the business could develop a strategy to increase the extent of usage by focusing on improving compliance. By targeting the specific DGSCMPs that influence GSCMPs, businesses can make their sustainability strategies more effective and efficient.

8. Recommendations

This paper recommends that governments should:

1. Promote policies that encourage green practices, such as tax breaks for SMEEs that adopt sustainable practices;
2. Provide incentives for companies to invest in research and development of new green practices; and
3. Encourage collaboration between businesses, government, and other stakeholders to create and implement green supply chain management practices.
4. Ensure that regulatory agencies are responsive to their assigned statutory roles. This will push manufacturing firms to adopt GSCMPs, hastening the attainment of SDG 9.

If these recommendations are accepted and implemented, the extent of usage of the GSCMPs will continue to increase at a geometric rate and be entrenched. The repercussions of manufacturing activities on the natural ecosystem will be ameliorated, and achieving SDG 9 will not be threatened.

References

Aderemi, H. O. & Odesola, O. T. (2021). Green supply chain management practices and sustainable performance of small and medium scale manufacturing enterprises - Empirical evidence from Nigeria. *Book of Conference Proceeding of the 1st International Conference on Africa's Sustainable Development (ICASuD), Lagos, pp. 109 -113, October 20 -21, 2021.*

Agarwal, K. (2022). Ownership-based ethnocentrism tendencies: Its antecedents and impact on domestic-owned/foreign-owned product purchase of Indian consumers. *SCMS Journal of Indian Management*, *19*(1).

Ali, M., Salim, B. A., Al-Ansi, A. M., & Jaboob, M. (2023). Green supply chain management: A comprehensive review of research, applications, and future directions. *Management and Production Engineering Review*, *14*(3), 118-133. DOI: 10.24425/mper.2023.147194

Ali, H., & Shoaib, M. (2023). A comprehensive literature review on green supply chain management: recent advances and potential research directions. *International Journal of Supply and Operations Management*, 10(1), 57-75. doi: 10.22034/ijsom.2022.109587.2503

Christmann, P., & Taylor, G. (2001). Globalization and the environment: Determinants of firm regulations in China. *Journal of International Business Studies*, 32(3), 439–458.

Denoncourt, J. (2020). Companies and UN 2030 sustainable development goal 9 industry, innovation, and infrastructure. *Journal of Corporate Law Studies*, *20*(1), 199-235.

Faisal, M. N. (2006). Supply chain risk management. *SCMS Journal of Indian Management*, 3(2), 6-11

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39-50.

Goswami, S. (2014). ICT: Sustainable development. *SCMS Journal of Indian Management*, *11*(1), 125.

Green, K.W., Pamela, Z., Meacham J., & Bhadauria, S. V. (2012). Green supply chain management practices: impact on performance. *Supply Chain Management: An International Journal,* 17(3), 290–305.

Hejazi, M. T., Al Batati, B., & Bahurmuz, A. (2023). The influence of green supply chain management practices on corporate sustainability performance. *Sustainability*, 15(6), 5459. https://doi.org/10.3390/su15065459

Hussain, S., Fangwei, Z., Siddiqi, A., Ali, Z., & Shabbir, M. (2018). Structural equation model for evaluating factors affecting quality of social infrastructure projects. *Sustainability, 10(5), 1415.* doi:10.3390/su10051415.

Kim, S. H., & Kim, S. (2022). China's contestation of the liberal international order. *The Pacific Review*, 1-26.

Min, H., & Galle, W. P. (2001). Green purchasing practices of US firms. *International Journal of Operations and Production Management*, 21(9), 1222–1238.

Mishra, M. K., Choudhury, D., & Rao, K. S. V. G. (2019). Impact of SMEs' adoption of green supply chain practice on SMEs' firm and environmental performance. *Theoretical Economics Letters*, 9, 1901-1919.

Namagembe, S., Ryan, S., & Sridharan, R. (2018). Green supply chain practice adoption and firm performance: Manufacturing SMEs in Uganda. *Management of Environmental Quality: An International Journal*. https://doi.org/10.1108/MEQ-10-2017-0119.

National Bureau of Statistics. (2019). A national survey of micro, small, and medium enterprises (MSMEs).

Niemann, W., Kotze, T., & Adamo, F. (2013). Drivers and barriers to implementation of green supply chain management in the Mozambican manufacturing industry. *Journal of Contemporary Management*, 13, 977-1013.

Nigerian Bureau of Statistics (2021). Nigerian gross domestic product report (expenditure and income approach) (full year 2020 & q1 - q2 2021). https://nigerianstat.gov.ng/elibrary/read/1241082.

Odesola, O. T., & Aderemi H. O. (2022). Green supply chain management and operational environmental performance: A cross-sectional analysis of small and medium scale manufacturing enterprises. *Covenant Journal of Business and Social Sciences (CJBSS)* Vol. 13 (2), P. 131–143.

Rao, P. H. (2019). Green supply chain management: A study based on SMEs in India. *Journal of Supply Chain Management Systems*, 8 (1), 15–24.

Raman, R., Sreenivasan, A., Ma, S., Patwardhan, A., & Nedungadi, P. (2023). Green supply chain management research trends and linkages to unsustainable development goals. *Sustainability*, *15*(22), 15848. https://doi.org/10.3390/su152215848

Rasit, Z. A., Zakaria, M., Hashim, M., Ramli, A., & Mohamed, M. (2019). Green supply chain management (GSCM) practices for sustainability performance: An empirical evidence of Malaysian SMEs. *International Journal of Financial Research*, 10 (3).

Rusli, K. A., Rahman, A. A., & Ho, J. A. (2012). Green supply chain management in developing countries: A study of factors and practices in Malaysia. *International Annual Symposium on Sustainability Science and Management*, 11, 278 – 285.

Shan, W. & Wang, J. (2018). Mapping the landscape and evolutions of green supply chain management. *Sustainability*, *10*, 597. https://doi.org/10.3390/su10030597

Shi, V. G., Koh, S. C. L., Baldwin, J., & Cucchiella, F. (2012). Natural resource-based green supply chain management. *Supply Chain Management,* 17(1), 54–67.

Singh, P., & Kumar, V. (2017). Quantitative analysis of drivers affecting green supply chain management in Rajasthan SMEs. *International Journal of Process Management and Benchmarking*, 7(3).

Srivastava, S. K. (2007). Green supply chain management: A state-of-the-art literature review. *International Journal of Management Reviews,* 9(1), 53–80.

Testa, F., & Iraldo, F. (2010). Shadows and lights of green supply chain management: Determinants and effects of these practices based on a multi-national study. *Journal of Cleaner Production*, 18(10-11), 953 - 962.

United Nations (2021). Seventeen goals to transform our world. www.un.org/sustainabledevelopment/.

Vijayvargy, L. & Thakkar, J. & Agarwal, G. (2017). Green supply chain management practices and performance: The role of firm-size for emerging economies. *Journal of Manufacturing Technology Management*. 28. 299–323. 10.1108/JMTM-09-2016-0123.

Walker, H., Di Sisto, L., & Mcbain, D**. (**2008). Drivers and barriers to environmental supply chain management practices: lessons from the public and private sectors. *Journal of Purchasing and Supply Management,* 14(1), 69–85.

Zailani, S., Jeyaraman, K., Vengadasan, G., & Premkumar, R. (2012). Sustainable supply chain management (SSCM) in Malaysia: A survey. *International Journal of Production Economics*, 140 (1), 330 - 340.

Zhu, Q., & Sarkis, J. (2004). Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *Journal of Operations Management*, 22(3), 265–289.

Zhu, Q., & Sarkis, J. (2007). The moderating effects of institutional pressures on emergent green supply chain practices and performance. *International Journal of Production Research*, 45(18–19), 4333–4355.

Zhu, Q., Sarkis, J., & Geng, Y. (2005). Green supply chain management in China: Pressures, practices, and performance. *International Journal of Operations and Production Management,* 25(5), 449-468.

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Initial Trends of Integrated Reporting Disclosure Practices: Insights from Indian Listed Companies

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Abstract

Integrated Reporting (IR) amalgamates financial and non-financial data with business strategies to create organizational value. As IR progresses, it is essential to ascertain its feasibility in India following its transition to voluntary status after the issuance of the SEBI circular in 2017. This study examines the trends and quality of IR disclosure practices of 82 Indian listed companies by utilizing legitimacy and stakeholder theory. Manual content analysis was employed from 2017-18 to 2022-23. An IR checklist has been formulated based on three pillars: (a) Guiding Principles, (b) Content elements, and (c) Capitals of <IR> framework, consisting of 94 items. Results show the upward trend of the IR disclosure scores and enhancement in categories from 2017–2018 to 2022–2023, notably in Conciseness, Strategic focus and future orientation, and Organizational overview and external environment.' This suggests an improvement in IR awareness and commitment towards stakeholders' informational needs, assisting companies to gain legitimacy in the face of the changing environment. The above results show that the IR implementation is early in India. The results would assist policymakers in ascertaining whether the IR execution attains desired objectives in the voluntary settings and may call for rigorous regulations to mandate IR in India. Nonetheless, the study's limitations include the limited sample size because only a handful of companies are implementing IR in India, suggesting future research should explore cross-country analysis beyond the Indian context.

Keywords: *Integrated Reporting, <IR> framework, International Integrated Reporting Council (IIRC), Content Analysis, Disclosures, Indian companies*

1. Introduction

The intertwining of the economies through trade and investment (Li & Gaur, 2014) prompted the opening of new technologies, facilitated economic growth, and reduced inequality. The 2008 financial crisis censured the reliability of corporate reports, highlighting a lack of nexus between non-financial disclosures and corporate strategy (Eccles & Serafeim, 2011). After encountering double crises, i.e., the economic crisis and the COVID-19 pandemic, corporate boards should make necessary decisions to cope with such economic conditions in the future and to regenerate the old business activities. Despite dominating the market, financial reports do not evaluate intangible assets such as intellectual property, research and development, etc. The above issues signify the importance of Integrated Thinking (IT) and IR (GGA-3rd-Colloquium-Memorandum). IR expounded on creating value through tangible and intangible assets (EY-IR). It also assists companies in retaining their strategic position (Gibassier et al., 2018) and facilitates resource allocation and decision-making processes. This culminates in organizational changes (Higgins et al., 2019) and modifies corporate behavior (Setia et al., 2015). In 2013, the International Integrated Reporting Council (IIRC) was constituted (Liu et al., 2019) to publish < IR> framework, directing companies to display Content elements, Guiding Principles, and Capital in annual reports. A revised framework was released on January 2021, applicable from January 1, 2022, onwards (IIRC revisions, 2021). It aims to ameliorate the perception of the reporting quality and integrity and differentiate between outputs and outcomes.

Professional bodies and regulatory authorities in India have taken several initiatives to embrace IR guidelines. In 2015, the Confederation of Indian Industry (CII)-ITC., Centre of Excellence for Sustainable Development (CIICESD), in collaboration with the IIRC, established a laboratory to promote IR practices (Basu, 2017). On February 6, 2017, SEBI dispensed a circular asserting that from the financial year 2017, 18 top 500 companies preparing the Business Responsibility Report (BRR) might adopt IR voluntarily (SEBI, 2017). Further, IR became a part of the Institute of Chartered Accountants of India (ICAI) awards for excellence in Financial Reporting in 2018 (ICAI, 2018). It exhibits that IR is progressing in India.

Several studies on IR have been carried out across different contexts. Currently, the focus is on formulating the value creation model, disclosure practices (Nistor et al., 2019), and approaches to accelerating its implementation (Stubbs & Higgins, 2014). Empirical studies analyze the relationship between financial performance, value relevance (Landau et al., 2020; Buallay et al., 2021), board characteristics, and other determinants (Kılıç & Kuzey, 2018b; Senani et al., 2022) with IR quality. Recent focus areas include assessing the stakeholders' and professionals' perceptions of IR implementation. Several studies also scrutinize the IR disclosures in annual reports (Kılıç & Kuzey, 2018a; Nguyen et al., 2021).

In India, several studies were conducted on non-financial reporting, such as sustainability (Corporate Social Responsibility), CSR, etc. Some analyze CSR and sustainability reporting practices and trends, while others focus on environmental reporting's relevance and implementation challenges (Sekhon & Kathuria, 2019; Aggarwal & Singh, 2019). However, there have been a limited number of studies conducted on IR (Abhishek & Divyashree, 2019; Ashok et al., 2020; Mishra et al., 2021).

In India, the studies primarily focus on the reason behind IR adoption and how the stakeholders perceive it (Mishra et al., 2021; Kaura, 2022) and whether it is bringing transition in the organization and the determinants associated with it (Gupta & Bhalla, 2022; Soriya & Rastogi, 2023). As IR progresses, it becomes essential to ascertain its feasibility in India. The IR benefits can be determined through the organization's value-creation process. Therefore, to determine whether this new reporting could ameliorate information disclosures in India and bring more benefits to its stakeholders, the following research questions are formulated:

RQ1: What is the trend of IR disclosure practices in India after the issuance of the SEBI circular?

Rq2: To what extent do listed companies in India assimilate content elements, guiding principles, and capital in their annual reports following the <IR> framework?

This study contributes to the recent strand of research on IR disclosure. In 2017, SEBI encouraged 500 companies with the highest market capitalization to voluntarily publish IR to ameliorate disclosures (SEBI, 2017). Therefore, the study assesses IR disclosures in India by formulating an IR checklist following the <IR> framework. The longitudinal analysis has been conducted from 2017-18 to 2022-23. Moreover, the study utilizes manual content analysis to scrutinize the IR disclosures of listed companies.

This study provides valuable insights into IR adoption in India, which has been under-investigated in previous studies. IR checklist has been constructed to facilitate Indian organizations in determining their adherence level. It assesses Guiding principles, Content elements, and Capitals aligning with <IR> framework and focuses on a comprehensive understanding of IR disclosures. Additionally, qualitative and quantitative scores are allotted to IR categories because quantitative information is also significant for the stakeholders. It also provides insights to the stakeholders about IR practices followed by Indian companies so that informed decisions can be made during uncertain times. The study uses legitimacy and stakeholders' theory to elucidate IR trends and quality. It also identifies best reporting practices to assist lagging companies in changing their internal systems. Finally, the study would aid stakeholders in making crucial decisions about the companies they are interested in.

The paper is segregated into sections: Section 2 includes the theory utilized and related literature. Section 3 encapsulates the research methodology section, which details the sampling process, IR checklist construction checklist, and coding. Section 4 displays data analysis and findings. Section 5 presents a discussion, and Section 6 includes a conclusion, implications, limitations, and future research.

2. Literature Review

2.1 Theoretical Framework

Researchers have proposed several theories over the past few years (Ioana & Adriana, 2014; Elisa & Guido, 2018), including legitimacy, agency, stakeholder, and institutional theory. to describe IR (Soriya & Rastogi, 2021). This study uses legitimacy and stakeholders' theory to examine IR disclosure practices of Indian listed companies for six years. Stakeholders' theory propounded a social contract between companies and their stakeholders. Companies engage in those activities that fulfill the stakeholder's needs by expanding disclosures on financial and non-financial issues, which are often overlooked by organizations (Manes-Rossi et al., 2020). Similarly, under legitimacy theory, organizations work under a social contract (Wahl et al., 2020; Deegan, 2002) and can only exist until it benefits society and the public (Wahl et al., 2020). The incongruity between societal norms and company operations leads to a legitimacy gap (Wartick & Mahon, 1994; Elisa & Guido, 2018). To become socially aware and avoid legitimacy threats, organizations legitimize their actions by disclosing more corporate disclosures (Manes-Rossi et al., 2020).

IR amalgamates financial and non-financial information to meet stakeholders' needs by furnishing business strategies, value creation processes, and financial, social, and environmental information to secure legitimacy (Ahmed Haji & Anifowose 2017). Therefore, this study focuses on both theories because they correlate and help understand the reason behind IR adoption (Manes-Rossi et al., 2020). It also presumes that by enhancing coverage of IR disclosures in annual reports, firms strive to fulfill society's needs by establishing congruency between organizational activities and stakeholders' expectations.

2.2 Related Literature

Due to the several advantages of IR, numerous studies have been conducted in developing and developed economies. The study of Setia et al. (2015) exhibited that companies have espoused symbolic management as a legitimacy theory. These results aligned with Haji and Anifowose (2016) and Manes-Rossi et al. (2020) in the South African and European contexts. Similarly, Cooray et al. (2021) assessed the trend and coverage of IR content elements of 171 Sri Lankan listed companies and supported both strategic and institutional perspectives of legitimacy theory. Camilleri (2017) examined <IR> guiding principles and content elements from the perspective of agency, stewardship, and institutional theories.

Further, Kılıç and Kuzey (2018a) investigated the compliance level of Turkish annual reports with IIRC. The results of Zinsou (2018) manifested moderate integration of strategy, governance, and commitment of stakeholders in the annual reports of French listed companies. Similarly, Pratama (2017) and Nguyen et al. (2021) displayed moderate IR disclosures by Indonesian and Vietnamese listed companies. Kılıç and Kuzey (2018b) revealed that non-financial companies provide more qualitative information than quantitative ones. Liu et al. (2019) formulated an IR benchmark. Their results elucidated that IR practices of award-winning Australian companies are substandard. Fakhro et al. (2020) revealed that the annual reports of Bahrain Telecommunication Company displayed higher disclosure of stakeholders' relationships and strategic focus, while reliability, completeness, and consistency have disappointed. Further, Adhikariparajuli et al. (2020)

supported the isomorphism theory due to the escalation in IR content elements in higher educational institutes.

Petcharat and Zaman (2019) displayed the limited adoption of IR practices in Thailand by conducting interviews. Further, Gunarathne and Senaratne (2017) investigated the diffusion of IR practices in Sri Lanka before and after the introduction of IIRC from the diffusion theory perspective. Bananuka et al. (2019) interviewed executive managers and professional bodies, revealing that factors such as lack of awareness, globalization, and low demand for stakeholders contribute to the gradual adoption of IR in developing countries. Marasca et al. (2020) interviewed stakeholders of Italian public organizations and found that the main reason behind IR adoption is to communicate the use of public resources. Additionally, Mirsadri et al. (2020) displayed that hi-tech Knowledge-Based Organizations (KBOs) did not disclose the future outlook in their IR due to competitive concerns.

In the Indian context, several studies have been conducted on non-financial reporting, such as CSR and sustainability reporting disclosures. Some of them examined the extent and quality of sustainability disclosures. Garg (2017) formulated a sustainability reporting index in the Indian context. Sekhon and Kathuria (2019) revealed that top Indian companies disclosed more qualitative disclosures than quantitative ones. Similarly, Aggarwal and Singh (2019) displayed that CSR practices differ by dimension and industry type but are not affected by ownership structure. Kumar and Prakash (2019) elucidated that environmental indicators are less disclosed among CSR disclosures by Indian banks. Further, Bhatia and Dhawan (2018) manifested that community development and environmental indicators increased after CSR practices became mandatory in India.

Due to the novel concept of IR, a limited number of studies have been conducted in the Indian context. Barin (2016) suggested the necessity of professional bodies in India to clarify the guidelines and objectives of the < IR> framework. Basu (2017) elucidated that IR can induce more transparency and accountability in India by giving prominence to financial and social interests. Kundu (2017) exhibited no significant difference in the IR elements of both private and public sectors. Further, Ghosh (2019) propounded that Indian companies are well-equipped and can efficiently execute IR practices. Abhishek and Divyashree (2019) displayed an escalation in the disclosures of human and social capital in the IR of Indian-listed companies. Further, Mishra et al. (2021) elucidated that preparers of IR perceive it as an effective and transparent reporting system. Similarly, Kaura (2022) revealed that stakeholder perceived IR as an eminent part of their decision-making process. Gupta and Bhalla (2022) show that IR positively affects firm value, size, and profitability of Indian listed companies. On the contrary, Soriya and Rastogi (2023) find an insignificant association with the firm value.

Current literature focuses on conceptual studies such as IR concepts and theories, while empirical studies analyze the association between firm value, cost of capital, and board characteristics with IR disclosures. However, in India, most studies focus on non-financial reporting practices, while few studies pinpoint the reason behind IR implementation and the transition it brings to the organization. Since the stakeholders' concerns are growing about the long-term sustainment of firms, there is an increasing demand for integrating financial and non-financial information into one report. This enhances investors' trust and reduces information asymmetry (Akisik & Gal, 2019).

The above literature shows that IR is in its primitive stages, necessitating further research on its format and preparation. Moreover, there is a gap in understanding the trend and quality of IR disclosure practices in the Indian context after the issuance of the SEBI circular.

Previous literature also highlights the relevance of exploring the application and execution of IR following <IR> framework (Nguyen et al., 2021). Stakeholders perceive IR as valuable, emphasizing the significance of determining whether Indian companies are utilizing the benefits of this new reporting system through detailed disclosure practices. Thus, this study evaluates IR disclosure trends and quality to determine whether or not it improves information transparency.

3. Research Methodology

3.1 Sampling Process

SEBI encouraged the top 500 companies based on market capitalization to voluntarily produce IR from 2017-2018 to improve disclosure practices (SEBI, 2017). Due to the above circular, an initial sample of the top 500 listed companies was selected. However, the above sample was further filtered

to the top 200 companies each year from 2017 to 2023 due to the high intensity of IR preparation within these companies. Focus was on the top performers who could afford the costs associated with innovative reporting (Setia et al., 2015; Haji & Anifowose, 2016). Among these 200 companies, 82 that espoused IR and satisfied the <IR> framework guidelines were selected. The final sample consists of 82 companies preparing IR for each year from 2017-2023. 492 (82*6) observations were made over the six years, with the sample divided into 18 industries. It included Financial services (14), FMCG (11), Pharma (7), Metals (6), IT (5), Manufacturing (5), Oil and Gas (5), Power (5), Automobile (4), Services (4), Cement and Cement products (4), Construction (3), Chemicals (2), Telecom (2), Renewable energy (1), Engineering (1), Fashion and Lifestyle (1), Real estate (1). The 2017-18 was selected because it is assumed that companies will prepare IR after the issuance of the SEBI circular. The IR reports were obtained from the National Stock Exchange (NSE) India website.

3.2 Content Analysis

The study utilizes manual content analysis to scrutinize the IR disclosures of listed companies. Several studies have employed this method to assess disclosure practices of Intellectual Capital, CSR, and IR in different countries (Abhishek & Divyashree, 2019; Abang et al., 2020). It categorizes the information from the source document into several themes and codes and then assesses the presence and absence of categories (Patten, 2002). It also quantitatively analyses the text's contents (Denscombe, 1998). However, its time-consuming and costly nature has been mitigated due to its small sample size (Steenkamp, 2018). Its subjectivity is also curtailed by ensuring the checklist's validity and the coding process's reliability. This study furcates the information from the source document into two categories: quality and quantity.

3.3 IR Disclosure Checklist and Scoring Methodology

The <IR> framework was formulated in 2013 to guide IR. A revised <IR> framework was introduced in 2021, applicable to companies preparing IR from 2022 (IIRC Revisions, 2021). Since the study covers the period from 2017-18 to 2022-23 and due to its voluntary nature in India, the revised framework is also used in the study.

Codes are assigned to the three dimensions of <IR> framework: content elements, guiding principles, and capitals that assist organizations in IR preparation. The existing literature has also verified the index (Setia et al., 2015; Lee & Yeo, 2016; Haji & Anifowose, 2016; Liu et al., 2019).

The IR checklist consists of seven guiding principles, eight content elements, and six capitals and is further subdivided into 39, 36, and 19 subcategories, respectively. Altogether, the final checklist consists of 94 elements.

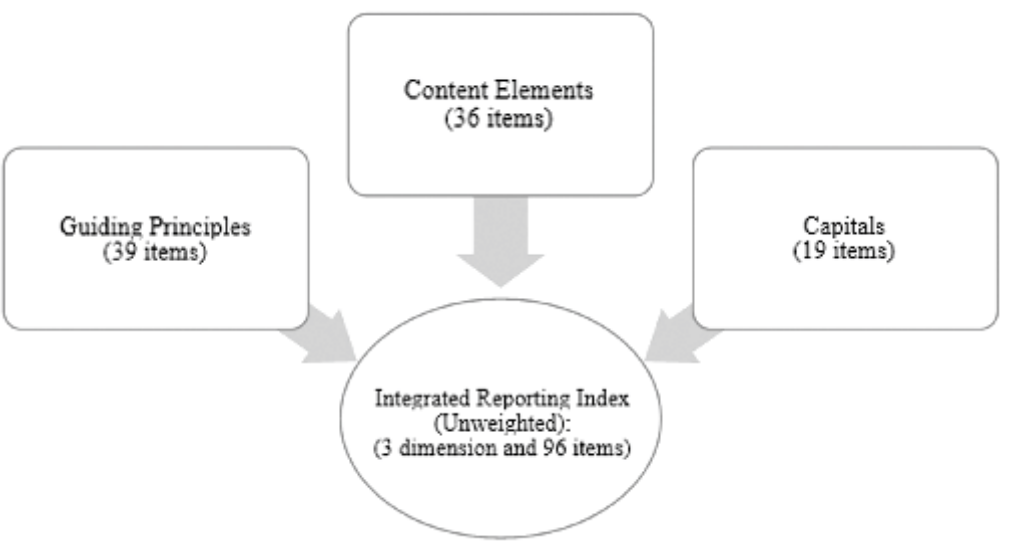

Figure 1. IR Index

Two coders are assigned to ensure the reliability of the coding process. The IR scores of one coder are compared with the other. The total score of five companies obtained by the first coder is 1359, and by the second, it is 1348. The difference between the total scores of both coders is 11, resolved through discussion.

After finalizing the checklist, scores are allotted to the items and themes based on the frameworks mentioned above. Prior studies utilized either an unweighted (Kılıç & Kuzey, 2018b), weighted (Haji & Anifowose, 2017) approach, or both (Haji & Anifowose, 2016; Abang et al., 2020) to scrutinize IR disclosure practices. The unweighted method allows equal value to the item in the checklist. For example, '0' means 'no disclosure' and '1' means' disclosure of a particular item. To ensure verifiability, this study utilized a six-point scale (0-5) (Aggarwal & Singh, 2019). The criterion of the scale was based on the analysis of Haji and Anifowose (2016), Abang et al. (2020), and Sekhon and Kathuria (2019). Table I represents the IR scoring index. The IR disclosure score is calculated as Actual Scores (AS) based on the coder's judgment and divided by Total Scores (TS).

Quality of IR disclosure = AS/TS

Table 1 assigns both quantitative and qualitative coding. Due to the objectivity of quantitative disclosures, higher weights are allotted to them (Al-Tuwaijri et al., 2004)

4. Data Analysis

The mean IR score has been shown to analyze the trend of IR disclosures.

4.1 Findings

Figure 2 displays the mean trend of IR disclosures for six years (2017-2023). The mean score for 2017-18 is 12%, then it increases to 22% and 23% in 2018-19 and 2019-20. In the years 2020-21 and 2021-22, the trend of IR scores shows an increase of 33% and 36%. Further, in 2022-23, the mean IR score escalates to 44%.

Table 1. IR Scoring Index

Criterion	Score
No disclosure	0
Qualitative and brief disclosure	1
Qualitative and detailed disclosure	2
Quantitative and brief disclosure	3
Quantitative and detailed disclosure	4
Qualitative and quantitative both	5

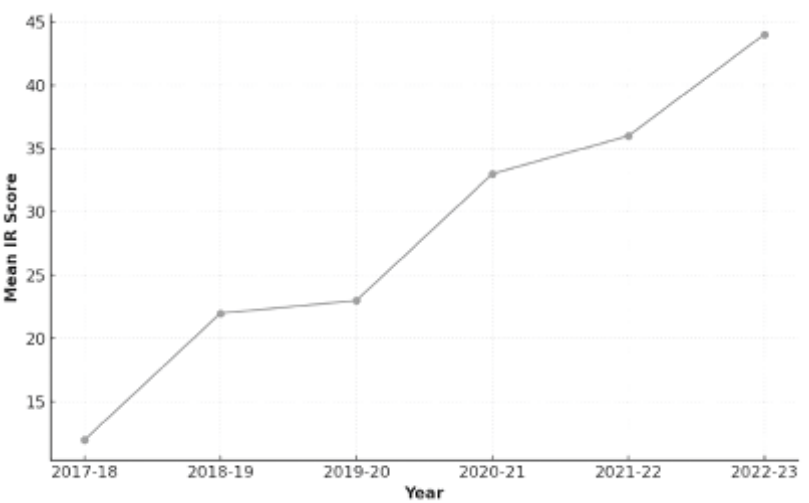

Figure 2. Mean of IR Score

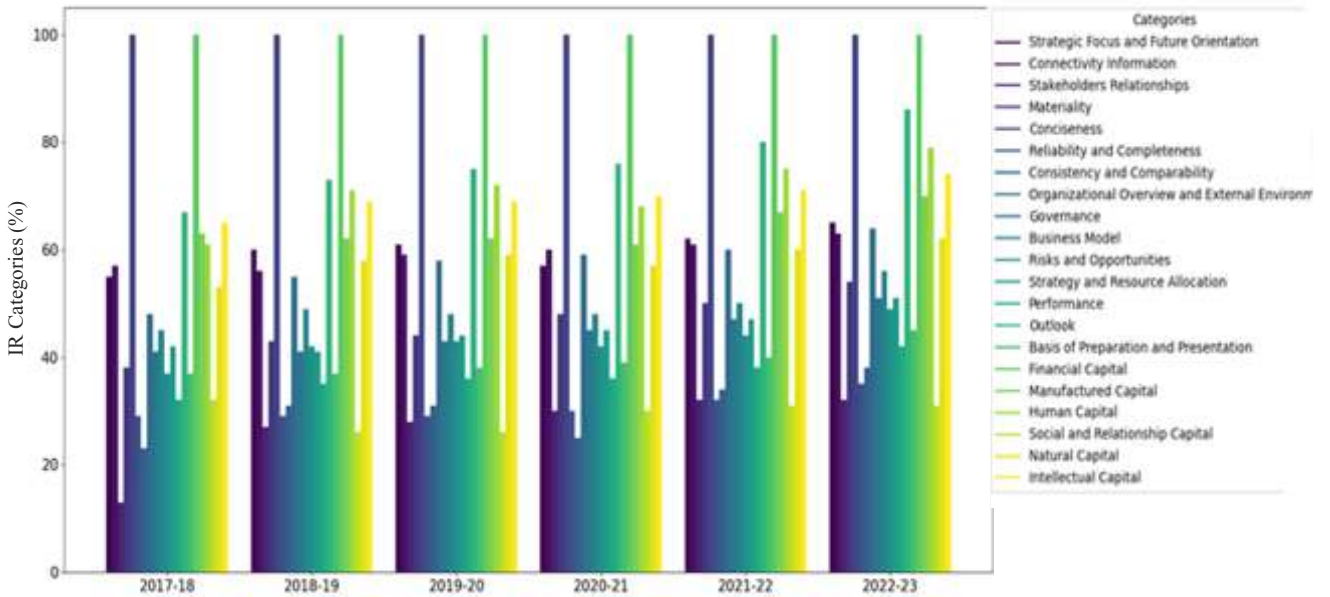

Figure 3. Scores of three pillars of IR (Guiding Principles, Content Elements and Capitals)

Figure 3 describes the categories of IR content elements, guiding principles, and capitals for six years. The total and actual scores are computed to analyze the scores of each IR category. It displays 'Conciseness', 'Strategic focus and future orientation', and 'Connectivity' as the highest disclosure categories among guiding principles for six years. Under 'Strategic focus and future orientation,' organizations disclose their value creation process. However, factors affecting past and future performance and past experiences are briefly disclosed.

Furthermore, companies need to follow the logical structure of IR. They use plain language and use cross-references to limit repetition. Among 'Connectivity information,' few companies display the interrelatedness between factors and capital. It might be because reporting connectivity is challenging (Liu et al., 2019). 'Materiality' includes information eminent for the organization's value creation process. Under 'Materiality,' companies briefly disclose the matters significant for the organization, while only a few companies display a materiality determination process. Islam (2020) suggests that limited disclosure of material issues could be due to the concern that more disclosure can cause a competitive disadvantage to firms. The lowest disclosure category in 2017-18 is 'Stakeholders relationship.' The above findings are in contrast with Haji and Anifowose (2016). Under 'Stakeholders' relationship', companies display the relationship between the organization and its stakeholders.

Nevertheless, very few companies openly disclose the stakeholder' insights on economic, social, and environmental concerns. The emphasis on 'Stakeholder relationships' has increased over six years. However, many companies fail to report positive and negative trade-offs between capital. These findings align with the study of Haji and Anifowose (2016); Kılıç and Kuzey (2018a). Moreover, Kılıç and Kuzey (2018a) revealed that traditional reports overlook comparisons between industrial and regional benchmarks. The disclosure categories among guiding principles have increased steadily over the past six years.

The highest disclosure categories among content elements included 'Outlook' and 'Organizational overview and external environment.' This implies that companies are willing to disclose their challenges and uncertainties. However, it briefly exhibits its culture, ethics, markets, and competitive landscape. The disappointing areas among content elements are 'Basis of preparation and presentation' and 'Performance.' The above findings are consistent with Liu et al. (2019) and Cooray et al. (2021). However, its trend has increased over six years. The increasing trend of 'Basis of preparation and presentation' implies that the ambit of reporting boundary enhances beyond financial reporting.

Companies also display risks and opportunities while they do not connect financial information with other capitals. Under the 'Business model,' companies display the flow of inputs and outputs generated from business activity. However, they do not reveal their by-products and connectivity between multiple business models. Under 'Risks and opportunities,' companies show internal and external risks and opportunities but do not ascertain the quantitative impacts of risks on the business. Similar findings by Clayton et al. (2015); and Kılıç and Kuzey (2018a) revealed that IR augmented risk-related disclosures. The disclosure categories among content elements increased steadily over the next six years.

Among six capitals, the 'Financial and Human capital' has the highest disclosure, while Natural, Social, and relationship capital have disappointed. Under Human capital, companies are transparent about their training activities and education but must provide sufficient information on 'Human rights issues'. These findings are consistent with Setia et al. (2015). Under Social and relationship capital, companies are unwilling to disclose in detail the extent of stakeholders' involvement in setting economic, social, and environmental policies. Further, companies fail to display quantitative data on renewable and non-renewable materials consumption under natural capital. However, the disclosure of all the capital increased steadily over the next six years.

Figure 4. shows that the guiding principles' qualitative and quantitative disclosures increased from 28.91% and 1.16% in 2017-18 to 38.5% and 6.2% in 2022-23. However, the aggregate of qualitative and quantitative disclosures decreased from 69.92% in 2017-18 to 55.26% in 2022-23. Companies display organizations' strategies and capital qualitatively and quantitatively, yet they only provide qualitative disclosure on interrelatedness between capital and Key Performance Indicators (KPIs). Among content elements, quantitative disclosures increased from 12.56% in 2017-18 to 19.79% in 2022-23. Likewise, the percentage of qualitative disclosures also increased from 43.05% in 2017-18 to 48.26% in 2022-23. However, the aggregate of both disclosures declined from 44.39% in 2017-18 to 31.91% in 2022-23. Companies disclose vital inputs, outputs, and outcomes of their business activities in quantitative and qualitative terms. Additionally, they qualitatively disclose the impacts of risks on business activities and material matters. There is also an increase in qualitative disclosures among capitals from 18.46% in 2017-18 to 47.52% in 2022-23. However, the quantitative disclosures have declined from 21.38% in 2017-18 to 11.23% in 2022-23. The aggregate of both has also decreased from 60.14% in 2017-18 to 41.24% in 2022-23. Except for the Social capital, all capitals disclose information in both qualitative and quantitative terms.

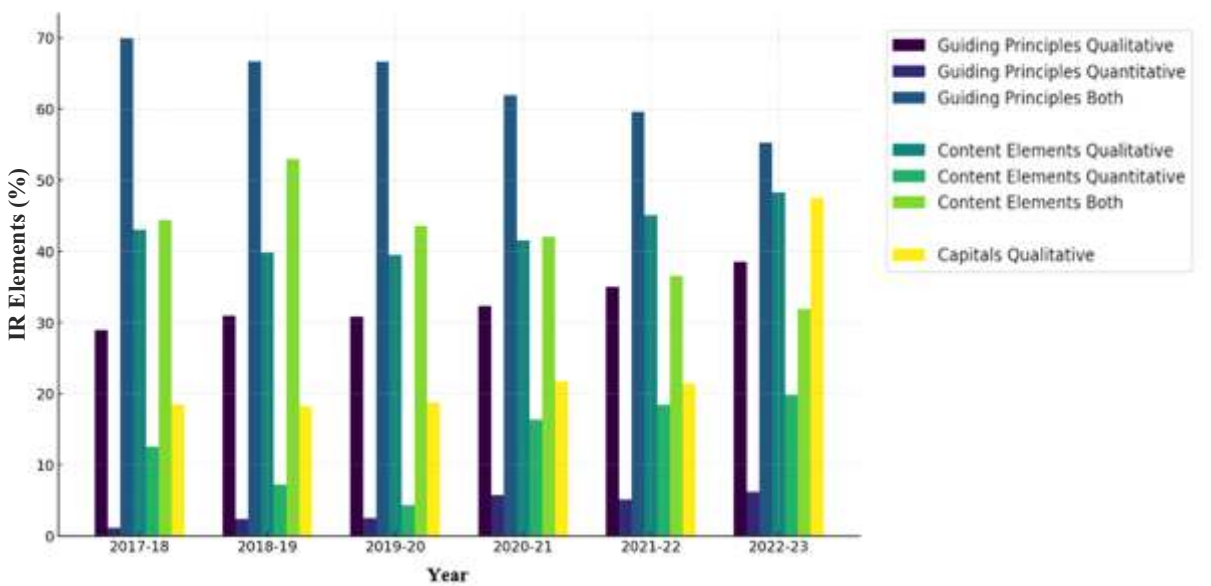

Figure 4. IR disclosures across categories and years, both

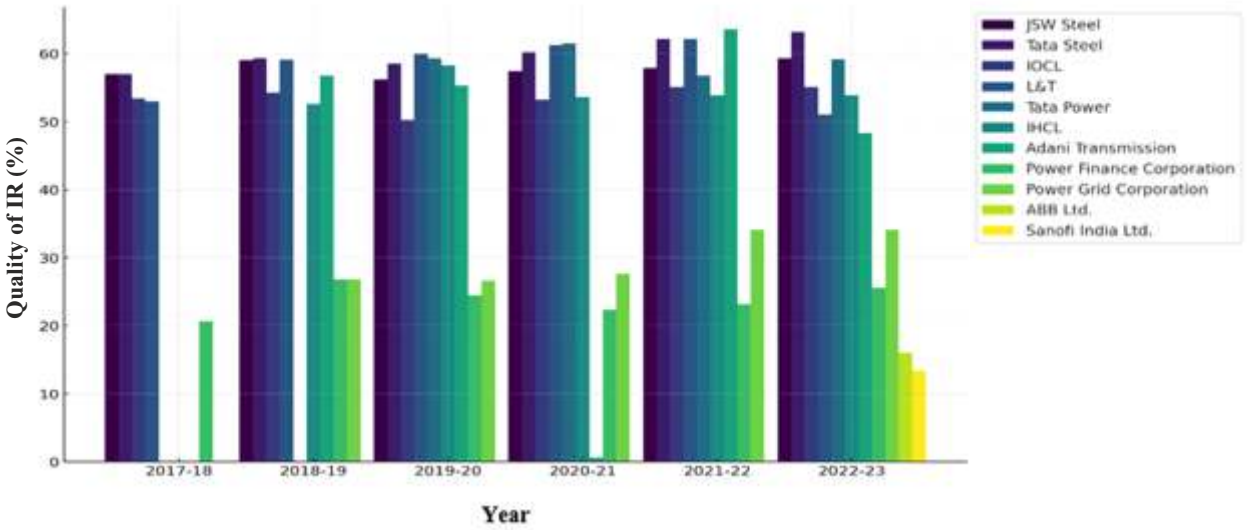

Figure 5. Highest and lowest IR disclosure companies

Figure 5 shows top performing and underperforming IR disclosure companies over six years. JSW Steel and Tata Steel were adjudged as the leading companies in 2017-18, with a score of 57.02%. Tata Steel maintained its leading position in 2018-19 with an increasing score of 59.36%. However, in 2019-20 and 2020-21, L&T and Adani Transmission surpassed Tata Steel and JSW Steel with 60% and 62.77%, respectively. In 2017-18 and 2018-19, IOCL, L&T, and JSW Steel remained in second and third position, respectively, with scores of 53.40%, 59.14%, and 59%. However, in 2019-20 and 2020-21, Tata Power outrivaled L&T and IOCL and secured the second position. In 2021-22, Adani Transmission remained the leading company in disclosing IR, while in 2022-23, Tata Steel and JSW Steel again secured the first and second positions with scores of 63.19% and 59.36%.

Power Grid Corporation and Power Finance Corporation manifested lower disclosure scores from 2017-18 to 2021-22. However, in 2022-23, Sanofi Ltd. and ABB Ltd. had the lowest IR disclosures of 13.40% and 15.96%, respectively. The disclosures of Power Finance Corporation slightly increased over six years, while they remained stagnant for Power Grid Corporation.

5. Discussion

The present study addresses two research questions. Based on the RQ1, the results display the increasing trend of IR disclosure scores from 2017-18 to 2022-23. The reason behind this trend might be several factors. Firstly, SEBI issued a circular in 2017-18 stating that 500 companies with the highest market capitalization can voluntarily publish IR to ameliorate their disclosure practices. The "ICAI Awards for Excellence in Financial Reporting" also included the IR category from 2018 onwards. Between 2018-19 and 2019-20, there was a slight increase in IR scores. Moreover, there is an escalation in mean IR scores from 2019-20 to 2022-23. It might be due to the COVID-19 pandemic and the introduction of a revised <IR> framework in 2021. The COVID-19 has created severe economic repercussions and affected Indian companies financially (Kumar et al., 2020). Therefore, the detailed disclosure of a pandemic's impact on financial results and measures taken to alleviate current risks for employees and community members are essential (Deloitte, 2020). It will enhance goodwill and assist stakeholders in making future projections about the company during times of uncertainty. Additionally, IIRC released a revised framework in 2021, which clarifies the distinction between outputs and emphasizes balanced reporting (IIRC Revisions, 2021). It might have resolved differences in IR concepts and definitions among Indian companies, contributing to the increasing trend observed in 2022-23. From the stakeholder theory, it can be concluded that companies are satisfying stakeholders' needs by providing detailed IR disclosures.

Based on the second research question, RQ2, the results show that among guiding principles, 'Conciseness,'' Connectivity,' 'Strategic focus, and future orientation' are the categories that have been disclosed the most for six years.

Conversely, the lowest disclosed category in 2017-18 is 'Stakeholders relationship.' However, its trend has increased over six years. The increasing trend of engagement of stakeholders and enhancing obligations for organizational actions exhibit companies as 'socially aware' (Haji & Anifowose, 2016). Some companies also attempted to furnish connectivity and forward-looking information, such as intangible resources and social and environmental information, to meet stakeholders' demands and regain their trust. However, many companies exhibit imbalanced information, failing to present the different capitals' positive and negative aspects. Additionally, biases in presenting capitals signify IR as a legitimation tool.

The highest disclosure categories among content elements include 'Outlook' and 'Organizational overview and external environment.' Companies display their vision, mission, challenges, and uncertainties, indicating stakeholder engagement. Additionally, several companies have independent IR assurance. It signifies their commitment to the social contract. The content elements' disappointing areas are 'Basis of preparation and presentation' and 'Performance.' The low disclosure of performance implies the unwillingness of companies to disclose forward-looking information as they fear that their competitors might gain an advantage by utilizing it.

Furthermore, the increasing trend of frameworks and standards used to evaluate material matters manifests companies' commitment to stakeholders by ensuring transparency (Cooray et al., 2021). Companies are disclosing their business model to assist stakeholders in understanding the value creation process. Similarly, disclosure of risks and opportunities ameliorates investors' decision-making abilities. It further escalates the organization's goodwill, improves stakeholders' trust, and gains legitimacy (Moolman et al., 2016).

Among six capitals, the 'Financial and Human capital' has the highest disclosure, while natural, social and relationship capital have disappointed. Abang et al. (2020) revealed that the highest disclosure of financial capital over six years might be because of the dependency of other capitals on it. Furthermore, the going concern principle might also be threatened due to the absence of financial capital. Despite the initial disappointment in social relationships and natural capital, their increasing trend displays that companies utilize corporate reporting to maintain legitimacy and goodwill.

The findings suggest that although few companies prepare IR in the Indian context, the trend has increased from 2017-2018 to 2022-2023 for all its categories. This can be viewed as an improvement in understanding IR and a commitment to meeting stakeholders' informational needs. Moreover, it serves as a way for companies to maintain legitimacy beyond the COVID-19 era by disclosing content elements, guiding principles, and six capitals. Additionally, it helps stakeholders make informed decisions about the company's future actions. (Orobia et al., 2021).

Among top performers, Tata Steel led the way by adopting IR practices from 2015-16, and it also received Asia's Best IR Award in 2018. JSW Steel, a prominent player among steel manufacturers, was recognized as an "Industry mover" by Dow Jones Sustainability Indices' corporate sustainability evaluation. Additionally, L&T, one of the leading construction, manufacturing, and technology companies, was recognized as the first among engineering and construction companies to publish a sustainability report (Mishra et al., 2021). Notably, Tata Steel, JSW Steel, and Tata Power are among the highest IR disclosure companies, openly displaying positive and negative trade-offs between capital and factors and material matters affecting the organization's value creation. Conversely, despite being an early adopter of environmental and social policies in Asia (Power Grid Corporation), Power Grid Corporation has been disappointed in IR disclosures for six years.

6. Conclusion

The study assesses the IR disclosures of 82 Indian listed companies from 2017 to 2023 by formulating an IR checklist following <IR> framework. The results exhibit an increase in the trend of IR disclosures and their categories for six years after the issuance of the SEBI circular. These findings imply that businesses are acquiring legitimacy while also satisfying the demands of stakeholders by disclosing in-depth information to them. Furthermore, these results are congruent with the stakeholder's and legitimacy theories. Similar results are revealed by Setia et al. (2015) and Manes-Rossi et al. (2020). India holds an eminent position in the global economy. The implementation of various economic reforms like Goods and Service Tax (GST), demonetization, and the COVID-19 pandemic (Rakshit & Basistha, 2020) necessitate a more comprehensive view of the organizational activities (Grant et al., 2020). Events like the economic crisis and the COVID-19 pandemic created severe economic effects on businesses and society, thus underscoring the

relevance of voluntary disclosures such as sustainability and IR to remain competitive globally (Cooray et al., 2021). The pandemic has presented numerous difficulties for businesses (KPMG, 2021). It emphasizes the need to provide detailed information regarding the strategies to mitigate risks for employees and other stakeholders (Deloitte, 2020). It is essential not only for the survival of a business but also for maintaining a positive public perception. During uncertain times, to maintain positive relationships with stakeholders, providing frequent information through IR becomes essential (Suttipun, 2017). The increasing and positive pattern of IR disclosures indicates that Indian-listed companies are exploiting the potential of IR. The findings are inconsistent with (Setia et al., 2015; Manes-Rossi et al., 2020; Cooray et al., 2021).

The leading companies must display less than 65% (approx.) of IR disclosures. Furthermore, most companies need to exhibit the connectivity between multiple business models and the quantitative effects of risks on business activities. The disclosure of methods and standards to evaluate material matters and 'Performance' is also discouraging. It might be because they fear that its disclosure can cause a competitive disadvantage to the companies (Cooray et al., 2021). Despite efforts made by the revised framework to focus on a balanced reporting system, most companies are not displaying both positive and negative aspects of capital.

Moreover, low interdependency, the trade-off between capital, and the limited connection between business model and strategy portray a lack of IT in IR (Liu et al., 2019), possibly due to the need for comprehensive guidelines on IR. In India, leading companies are inclined to disclose qualitative rather than quantitative information. In their study, similar results are also observed by Sekhon and Kathuria (2019) and Kılıç and Kuzey (2018b). The low disclosure of quantitative information may hinder stakeholders' ability to evaluate the company's value creation ability holistically (IIRC Revisions, 2021). From the above discussion, it can be inferred that the full incorporation of an IR by Indian companies is a long road ahead.

The study has several implications. The findings of the study help organizations to determine their adherence level and assist policymakers in ascertaining whether the execution of IR in a voluntary setting attained desired objectives or not. It suggests a need for rigorous regulations to mandate IR in the Indian context. Moreover, it would assist the government and society determine whether it enhanced transparency and accountability and preserved the environment by ameliorating living conditions. The study pinpoints the need for more detailed IR guidelines and IT in India. Therefore, researchers and policymakers should cooperate with social, sustainable, and educational institutions to create awareness and clarify its format and structure. Further, there is a need to guide international policymakers such as IIRC and GRI to develop a matrix; otherwise, it will stimulate symbolic reporting practices (Cooray et al., 2021).

Further, practitioners should identify the best reporting practices to change other organizations' internal systems and processes. Senior managers and accountants should promote long-term thinking about business models and provide stakeholders with information about value creation through IR. Accounting professionals like ICAI should develop evaluation criteria in its IR award scheme to evaluate the extent and quality of IR practices. Companies could opt for third-party verification and external assurance to ensure the reliability of disclosures. Further, standard setters can utilize the study's methodology as a benchmark for other firms. Due to the failure of Indian companies to disclose quantitative information, detailed guidelines should be provided by Indian regulators such as SEBI or the Companies Act to escalate transparency and trustworthiness. One of the most critical barriers to the IR framework's execution is its unawareness regarding its benefits and value-added information.

Further, to bridge the gap between the preparation of the annual reports (traditional) and IR, the CIICESD, in alliance with IIRC, should set up training programs for companies to reap the benefits of IR. Accounting professionals like ICAI and other business schools should include it in their curricula. Early adopters or leading companies should also stimulate the espousal of IR among underperforming companies. Mutual communications between companies and IR facilitating institutes must resolve the differences in IR concepts and definitions. Finally, the board and management should think in an integrated way to publish superior-quality IR (Ernst & Young, 2014, p.23). Despite the requirement of rules and regulations for IR adoption, its adoption should be dynamic.

Despite having several vital implications, this study has certain limitations:

1. The sample size is small because only a handful of companies execute IR in India.
2. While the development of the IR checklist is based on an extensive review of past literature and reports, some items might be excluded from the study.
3. This study explores the IR disclosure practices in the Indian context. It does not consider cross-country analysis.
4. It focuses on two theories: legitimacy and stakeholders' theory.
5. Since few companies prepare IR in India, the study has not been segregated into financial and non-financial sectors.
6. It does not consider other aspects, such as the impact of IR disclosure on the firm's value and its determinants. Hence, future research should focus on the above aspects, such as investigating the influence of IR disclosures on firm value and on the determinants of the Indian listed companies. It should also focus on cross-country analysis and comparison in the Indian context, which should be done in both financial and non-financial sectors.
7. A comparison between IR practices in both voluntary and mandatory settings can be made by using more theoretical approaches.

References

Abang, S., Anifowose, M. & Alhaji Zakari, M. (2020). The Trend of Integrated Capitals Reporting: The Asian perspective. *Asian Journal of Accounting Perspectives*, 13 (2), 1-16.

Abhishek, N., & Divyashree, M.S. (2019). Integrated Reporting Practices in Indian Companies. *FOCUS : Journal of International Business*, 6 (1), 140–151.

Adhikariparajuli, M., Hassan, A., Fletcher, M., & Elamer, A. A. (2020). Integrated reporting in higher education: insights from Scotland, Northern Ireland and Wales. *Social Responsibility Journal*, 17 (3), 321-342.

Aggarwal, P. & Singh, A.K. (2019). CSR and sustainability reporting practices in India: An in-depth content analysis of top-listed companies. *Social Responsibility Journal*, 15 (8), 1033–1053.

Ahmed Haji, A., & Anifowose, M. (2017). Initial trends in corporate disclosures following the introduction of integrated reporting practice in South Africa. *Journal of Intellectual Capital*, 18 (2), 373–399.

Al-Tuwaijri, S.A., Christensen, T.E., & Hughes, K.E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach. *Accounting, Organizations and Society*, 29 (5–6), pp. 447–471.

Akisik, O., & Gal, G. (2019). Integrated reports, external assurance, and financial performance. *Sustainability Accounting, Management and Policy Journal*, 11 (2), 317-350.

Bhatia, A., & Dhawan, A. (2018). Extent of corporate social responsibility reporting: India's transition from voluntary to mandatory regime. *International Journal of Sustainable Strategic Management*, 6 (1), 73-99.

Bananuka, J., Tumwebaze, Z., & Orobia, L. (2019). The adoption of integrated reporting: a developing country perspective. *Journal of Financial Reporting and Accounting*, 17 (1), 2-23.

Barin, A., & Ansari, A.A. (2016). Integrated reporting practices in select Indian petroleum companies analysis. *EPRA International Journal of Economic and Business Review*, 4 (12), 119-135.

Basu, A. (2017). Integrated Reporting: An Indian perspective. *International Journal of Business and Administration Research Review*, 3 (20), 77–82.

Buallay, A., Al Hawaj, A. A., & Hamdan, A. (2020). Integrated reporting and performance: A cross-country comparison of GCC Islamic and conventional banks. *Journal of Islamic Marketing*, 12 (8), 1619-1636.

Camilleri, M. A. (2017). The integrated reporting of financial, social and sustainability capitals: A critical review and appraisal. *International Journal of Sustainable Society*, 9 (4), 311-326.

Clayton, A.F., Rogerson, J., & Rampedi, I. (2015). Integrated reporting vs. sustainability reporting for corporate responsibility in South Africa. *Bulletin of Geography. Socio-Economic Series*, 29 (29), 7–17.

Cooray, T., Senaratne, S., Gunarathne, N., Herath, R., & Samudrage, D. N. (2021). Adoption of integrated reporting in Sri Lanka: Coverage and trend. *Journal of Financial Reporting and Accounting*.

Deloitte. (2020). Retrieved from https://www2.deloitte.com/ch/en/pages/audit/articles/financial-reporting-survey-q1-2020.html.

Eccles, R.G., & Serafeim, G. (2011). Accelerating the adoption of integrated reporting, in DeLeo, F & Vollbracht, M, (Eds.), *C.S.R. Index*, 2011, Innovation Publishing, Zurich, 70-92.

Elisa, M., & Guido, P. (2018). Forward-looking information in integrated reporting: A theoretical framework. *African Journal of Business Management*, 12 (18), 555-567.

EY's Excellence in Integrated Reporting Awards. (2014). A survey of integrated reports from South Africa's top 100 JSE listed companies and top 10 state-owned companies. Retrieved from https://www.yumpu.com/en/document/read/28471960/ey-excellence-in-integrated-reporting-2014.

Fakhro, M., Kukreja, G., & Sarea, A. M. (2020). Enhanced disclosure practice towards integrated reporting: Evidence from Bahrain. *International Journal of Critical Accounting*, 11 (2), 144-159.

Garg, P. (2017). Development of sustainability reporting index (SRI) with particular reference to companies in India. *Decision*, 44 (4), 259–273.

GGA-3rd Colloquium. Retrieved from C:\Users\rasto\Downloads\GGA-3rd-Colloquium-Memorandum-20200527.pdf.

Ghosh, S. (2019). Integrated Reporting in India: research findings and insights. in: Idowu S., Del Baldo M. (Ed.s) Integrated Reporting. CSR, Sustainability, Ethics & Governance, *Springer, Cham*, pp. 365–386.

Gibassier, D., Rodrigue, M., & Arjaliès, D.L. (2018). Integrated reporting is like God: no one has met Him, but everybody talks about Him: The power of myths in the adoption of management innovations. *Accounting, Auditing and Accountability Journal*, 31 (5), 1349-1380.

Gunarathne, N., & Senaratne, S. (2017). Diffusion of integrated reporting in an emerging South Asian (SAARC) nation. *Managerial Auditing Journal*, 32 (4–5), 524-548.

Gupta, S., & Bhalla, L. (2022). Impact of integrated reporting on firm value: An Indian perspective. *International Journal of Sustainable Society*, 14 (4), 323–334.

Guthrie, J., & Petty, R. (2000). Intellectual capital: Australian annual reporting practices. *Journal of Intellectual Capital*, 1 (3), 241–251.

Haji, A.A., & Anifowose, M. (2016). The trend of integrated reporting practice in South Africa: ceremonial or substantive? *Sustainability Accounting, Management and Policy Journal*, 7 (2), 190-224.

Haji, A.A., & Anifowose, M. (2017). Initial trends in corporate disclosures following the introduction of practice in South Africa. *Journal of Intellectual Capital*, 18 (2), 373-399.

Higgins, C., Stubbs, W., Tweedie, D., & McCallum, G. (2019). Journey or toolbox? Integrated reporting and processes of organizational change. *Accounting, Auditing and Accountability Journal*, 32 (6), 1662–1689.

ICAI. (2018). Retrieved from https://www.icai.org/post/icai-announces-introduction-of-integrated-reporting-category-in-icai-awards-for-excellence-in-financial-reporting-16-08-2018.

Ioana, D., & Adriana, T.T. (2014). Research Agenda on Integrated Reporting: New emergent theory and practice. *Procedia Economics and Finance*, 15 (14), 221-227.

IR revisions 2021. Retrieved from https://www.integratedreporting.org/wp-content/uploads/2021/03/Framework-comparison-2013-to-2021.pdf

Kaura, P. (2022). Importance of integrated reporting from the perspective of stakeholders in India. *International Journal of Indian Culture and Business Management*, 27 (2), 191–207.

Kılıç, M., & Kuzey, C. (2018a). Assessing current company reports according to the IIRC integrated reporting framework. *Meditari Accountancy Research*, 26 (2), 305-333.

Kılıç, M. & Kuzey, C. (2018b). Determinants of forward-looking disclosures in integrated reporting. *Managerial Auditing Journal*, 33 (1), 115-144.

Kumar, K., & Prakash, A. (2019). Examination of sustainability reporting practices in the Indian banking sector. *Asian Journal of Sustainability and Social Responsibility*, 4 (1), 1-16.

Kumar, S., Maheshwari, V., Prabhu, J., Prasanna, M., Jayalakshmi, P., Suganya, P., Malar, B.A., & Jothikumar, R. (2020). The social and economic impact of the COVID-19 outbreak in India. *International Journal of Pervasive Computing and Communications*, 16 (4), 309-319.

Kundu, B. (2017). Application of Integrated Reporting in Indian Corporate Scenario. *Prestige International Journal of Management & IT. - Sanchayan*, 6 (1), 99-110.

Lee, K.W., & Yeo, G.H.H. (2016). The association between integrated reporting and firm valuation. *Review of Quantitative Finance and Accounting*, 47 (4), 1221–1250.

Li, S., & Gaur, A. (2014). Financial giants and moral pygmies? Multinational corporations and human rights in emerging markets. *International Journal of Emerging Markets*, 9 (1), 11-32.

Liu, Z., Jubb, C., & Abhayawansa, S. (2019). Analyzing and evaluating integrated reporting: Insights from applying a normative benchmark. *Journal of Intellectual Capital*, 20 (2), 235-263.

Manes-Rossi, F., Nicolò, G., Tiron Tudor, A., & Zanellato, G. (2020). Drivers of integrated reporting by state-owned enterprises in Europe: A longitudinal analysis. *Meditari Accountancy Research*, 29 (3), 586-616.

Marasca, S., Montanini, L., D'Andrea, A., & Cerioni, E. (2020). The how and why of integrated reporting in a public health care organization: The stakeholders' perspective. *Business Strategy and the Environment*, 29 (4), 1714-1722.

Mirsadri, S. M., Bardinet-Evraert, F., & Evraert, S. (2021). To what extent are the underlying concepts of integrated reporting applicable to hi-tech, knowledge-based organizations? *Sustainability Accounting, Management and Policy Journal*, 12 (3), 522-547.

Mishra, N., Nurullah, M., & Sarea, A. (2021). An empirical study on company's perception of integrated reporting in India. *Journal of Financial Reporting and Accounting*.

Moolman, J., Oberholzer, M., & Steyn, M. (2016). The effect of integrated reporting on integrated thinking between risk, opportunity, and strategy and the disclosure of risks and opportunities. *Southern African Business Review*, 20 (1), 600-627.

Nguyen, H. C., Nguyen, P. M. H., Tran, B. H., Nguyen, T. T. N., & Do, T. T. H. (2021). Integrated reporting disclosure alignment levels in annual reports by listed firms in Vietnam and influencing factors. *Meditari Accountancy Research*, 30(6), 1543-1570.

Nistor, C.S., Stefanescu, C.A., Oprisor, T., & Crisan, A.R. (2019). Approaching public sector transparency through an integrated reporting benchmark. *Journal of Financial Reporting and Accounting*, 17 (2), 249-270.

Orobia, L., Nturaninshaba, R., Bananuka, J., & Dakung, K. R. (2021). The association between accountant's competencies, organizational culture, and integrated reporting practices. *Journal of Financial Reporting and Accounting*. Vol. ahead-of-print. https://doi.org/10.1108/JFRA-01-2021-0027

Patten, D.M. (2002). The relation between environmental performance and environmental disclosure: a research note. *Accounting, Organizations and Society*, 27 (8), 763–773.

Petcharat, N., & Zaman, M. (2019). Sustainability reporting and integrated reporting perspectives of Thai-listed companies. *Journal of Financial Reporting and Accounting*, 17 (4), 671–694.

Power Grid Corporation. Retrieved from https://www.powergrid.in/csr/overview-0

Pratama, A. (2017). Clustering Indonesian companies' Annual Reports: Preliminary assessment of the implementation of integrated reporting by Indonesian listed companies. *International Journal of Globalisation and Small Business*, 9 (1), 46–54.

SEBI. (2017) Retrieved from http://www.sebi.gov.in/cms/sebi_data/attachdocs/1486375066836.pdf. https://www2.deloitte.com/ ch/en/pages/audit/articles/financial-reporting-survey-q1-2020.html

Sekhon, A.K., & Kathuria, L.M. (2019). Analyzing the corporate social responsibility disclosures of selected companies in India. *Corporate Communications*, 24 (4), 686-701.

Senani, K. G. P., Ajward, R., & Kumari, J. S. (2022). Determinants and consequences of integrated reporting disclosures of non-financial listed firms in an emerging economy. *Journal of Financial Reporting and Accounting*.

Setia, N., Abhayawansa, S., Joshi, M., & Huynh, A.V. (2015). Integrated reporting in South Africa: some initial evidence. *Sustainability Accounting, Management and Policy Journal*, 6(3), 397-424.

Soriya, S., & Rastogi, P. (2021). A systematic literature review on integrated reporting from 2011 to 2020. *Journal of Financial Reporting and Accounting*, 20 (¾), 558-579.

Soriya, S. & Rastogi, P. (2023). The impact of integrated reporting on financial performance in India: a panel data analysis, *Journal of Applied Accounting Research*, Vol. 24 No. 1, pp. 199-216.

Steenkamp, N. (2018). Top ten South African companies' disclosure of materiality determination process and material issues in integrated reports. *Journal of Intellectual Capital*, 19 (2), 230-247.

Stubbs, W., & Higgins, C. (2014). Integrated reporting and internal mechanisms of change. *Accounting, Auditing and Accountability Journal*, 27 (7), 1068–1089.

Suttipun, M. (2017). The effect of integrated reporting on corporate financial performance: Evidence from Thailand. *Corporate Ownership and Control*, 15 (1), 133–142.

Wahl, A., Charifzadeh, M., & Diefenbach, F. (2020). Voluntary Adopters of Integrated Reporting: evidence on forecast accuracy and firm value. *Business Strategy and the Environment*, 29 (6), 2542-2556.

Wartick, S.L., & Mahon, J.F. (1994). Toward a Substantive Definition of the Corporate Issue Construct: Are view and synthesis of the literature. *Business & Society*, 33 (3), 293–311.

Zinsou, K. M. C. (2018). Integrated or non-integrated reports: French listed companies at a crossroads? *Sustainability Accounting, Management and Policy Journal*, 9 (3), 253-288.

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Click, Customize, Conquer: Sentiment Analysis and Strategies for Optimizing Online Travel Agencies

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Abstract

Customers prefer to use various social media platforms to read reviews or share complaints/suggestions about offerings by the specific company. This research paper investigates user sentiments towards prominent online travel agencies (OTA's) offering their services in India, focusing on customer feedback shared on social media platforms like Twitter. A qualitative analysis was performed to analyze the data collected using the micro-blogging platform Twitter through the Ncatpure tool. Results indicate positive sentiments towards OTAs, reflecting customer centricity, while negative feelings are associated with unresolved complaints, especially regarding service cancellations and refunds. This study would help online travel agency managers improve customer relationships by identifying pain points and charting a plan to make a positive impression on existing and potential customers. The contribution of this research paper will help in further academic and online travel industry research. This study would help online travel agency managers improve customer relationships by identifying pain points and charting a plan to make a positive impression on existing and potential customers.

Keywords: *Customer Centricity, Sentiment Analysis, Twitter, Social Media, Online Travel Agencies, OTAs*

1. Introduction

The emergence of revolutionary technological innovations has changed the social media environment. Even businesses today are communicating, understanding, and growing their products and services through relationships made on social media. Social media platforms are useful for networking, disseminating knowledge or information, and voicing one's opinions to others. (Gilstrap & Park, 2023, Rita et al., 2022). There is an abundance of unfiltered, raw data there, but technological advancements (Neuhofer et al., 2015), in particular those of artificial intelligence and machine learning, have made it possible to filter this data and turn it into something that may be helpful to most commercial organizations (Sivarajah et al., 2017; Puh & Bagic, 2022). Social media is a resource for marketers looking for ways to comprehend consumer and customer behavior since it allows for the sharing of a wide variety of information, including text, videos, photographs, and music (Ounacer et al., 2023). Sentiment analysis is the process of identifying and separating subjective information from base materials using computational linguistics, text analysis, and NLP (natural language processing). For a variety of purposes, including marketing and customer service, it is frequently used with regard to social media evaluations (Kaur & Kautish, 2022; Verma, 2022; Alzate et al., 2021). Sentiment analysis is the technique used to ascertain the contextual polarity of the text (D'Aniello et al., 2022). It establishes if a text is neutral, negative, or positive (Ligthart et al., 2021). The alternative term for this activity is opinion gathering because it extracts the speaker's viewpoint or perspective. Due to the intense rivalry in marketing and the shifting wants of consumers, the need emerges for techniques like sentiment analysis that help in creating a meaningful relationship in consumer-generated content using natural language processing.

2. Literature Review

2.1 Sentiment Analysis

There have been numerous review papers on sentiment analysis in computer science-related subjects (Chopra & Bhatia, 2016; Mäntylä et al., 2018), yet in management, there have been many fewer.(Rambocas & Pacheco, 2018; Alaei et al., 2019), And just three work in the travel and hospitality industry (Jain & Pamula, 2021). Using TripAdvisor data, Ma et al. (2018) examined the technologies for sentiment analysis utilized in hospitality, tourism, and hotels and showed their worth (Chand et al., 2023). In sentiment analysis of the studies, the machine learning, rule-based, and lexicon-based approaches are a few commonly deployed techniques (Wankhade et al., 2022). In a research study of the selected text analysis methods, it was observed that the sentiment (analysis) evaluation technique can be used to regulate even if people have commendable or cynical feelings about the features of online travel agency applications (Masrury & Alamsyah, 2019).

Machine learning techniques initially train the algorithm using a set of particular inputs and known outputs to eventually be able to deal with new, uncertain data (He, 2012; Yadav & Vishwakarma, 2020). The rule-based technique is applied to construct different rules for collecting the viewpoints by tokenizing each sentence in every document and then checking each token, or word, for its occurrence. Most research studies used the opinion-lexicon method to analyze text sentiment in social media platforms; data were gathered from microblogging sites, mostly Twitter, and applications of sentiment analysis may be found in business, politics, healthcare, hospitality, management, and other fields (Drus & Khalid, 2019).

Social networking sites like Facebook and LinkedIn, content community platforms like YouTube and Instagram, blogs like Reddit and Quora, and microblogs can all be classified as social information service platforms or social media based on the applications they use (Twitter, Tumblr) (Ali et al., 2017; Kumar & Jaiswal, 2020). Twitter, among all four categories of social media services, is the most well-liked and admired social media network for gathering data on user opinion (Gulati, 2021). 85% of the studies we analyzed used Twitter to gather data for sentiment analysis. Twitter is a well-known social media site for microblogging (Li et al., 2022; Pota et al., 2020) and is utilized by academics, businesses, and even the government to voice their thoughts and disseminate vital information (Kaurav et al., 2020; Adwan et al., 2020).

The instantly accessible information or content on Twitter is what makes it so popular. People can utilize the data (facts, figures, and materials) on any topic they selected based on keywords or hashtags by using API (Hao & Hongying, 2016; Hassonah et al., 2020). Since there are 500+ million tweets every day on Twitter and the public can access its data through an API, Twitter can carry out real-time analyses and closely observe public sentiments (Mansour, 2018; Ullah et al., 2020). Twitter has users from across the world, creating it rich with thoughts, ideas, and recommendations from people who come from different countries, languages, views, etc. (Yuliyanti et al., 2017; Tokarchuk et al., 2022; Sahu et al.,

2020). Twitter accounts for 88% of the user opinion data because fewer facts or opinions can be taken from other social media sources, such as Blogspot, YouTube, WordPress, etc. (Shayaa et al., 2017). Most social media users worldwide are on Facebook (Buffard & Papasava, 2020). However, sentiment analysis using Facebook Data is not particularly widespread because of the data's unstructured nature, poor organization, frequent use of short forms, and high rate of spelling mistakes (Isah et al., 2014).

2.2 Sentiment Analysis in Hospitality and Tourism

Several disciplines, including hospitality, business, management, marketing, politics, arts, science, and social policy, employ sentiment analysis (Kumar & Garg, 2020). Sentiment analysis provides a wide range of solutions that can assist with decision-making in many different sectors. Sentiment analysis can be implemented to investigate responses to significant world occurrences, such as ongoing wars, major athletic events, and natural disasters (Obaidi & Klünder, 2021; Karamollao lu et al., 2018). Sentiment analysis is also helpful to increase knowledge about information security and the danger of security infringements. It also provides a model for how businesses and institutions should respond to security breaches to influence public thinking (Hao & Hongying, 2016; Bueno et al., 2022). Sentiment analysis uses over-serving and text-based emotion analysis to determine a person's level of despair (Hassan et al., 2017; Mehara, 2023). Using sentiment analysis, it is possible to foretell political elections at any level. The outcomes demonstrate that data from Twitter is more dependable as a platform, with a 94% correlation to polling data and the potentiality to compete with more sophisticated polling techniques (Joyce & Deng, 2017; Jain et al., 2021; Becken et al., 2020). Sentiment analysis also enables the identification of areas for service quality improvement and the deployment of suitable remedial estimates, such as paying observation to customer assessment on online social media platforms (Martin-Domingo et al., 2019; Abbasi-Moud et al., 2021). Sentiment analysis can be used by corporate organizations to research societal trends and individual characteristics when formulating their product and marketing strategies (Akter & Aziz, 2016; Lv et al., 2021). Sentiment analysis gives business owners advantages by allowing them to determine how well-liked their products or services are by customers, as well as by gauging how well they communicate with them on social media and how well their brand is performing overall (El Rahman et al., 2019; Poecze et al., 2018 and Suman et al., 2017). As demonstrated in a case where a tweet done by the organizer on a community growth program had a highly favorable sentiment, sentiment analysis on online social media enables a consortium to assess the degree of program performance. The results may contribute to raising the community's overall living standard (Yuliyanti et al., 2017; Bose et al., 2021).

Despite the growing popularity of OTAs (online travel agencies) and the increasing amount of research on sentiment analysis, there is a shortage of broad studies on the sentiment of consumers toward OTAs. While there have been some studies that have explored aspects of consumer sentiment towards OTAs, such as trust, satisfaction, and loyalty, there is a need for more research that examines these factors to overall sentiment. A study by Fuchs et al. (2011) found that sentiment toward online travel agencies was positively correlated with customer loyalty. There are still certain gaps in research that have yet to be filled, including those regarding the influence of social media platforms on consumers' attitudes toward OTAs, the importance of online reviews in influencing consumers' attitudes toward OTAs, and the variations in consumers' attitudes toward various OTA types (such as meta-search engines, online travel agencies, and hotel websites). Research on sentiment analysis toward online travel agencies (OTAs) has been a topic of interest in the area of travel, tourism, and hospitality (Wang et al., 2023). While some studies have focused on exploring customer satisfaction and loyalty toward OTAs (Yoo & Kim, 2014), there is a need for more research to examine the factors that influence consumers' sentiments toward OTAs. One research gap is the lack of attention paid to the role of trust in shaping consumers' attitudes toward OTAs. As online transactions involve a degree of risk, trust is a critical factor in determining consumers' decision-making process (Yeh & Li, 2009). Research has given the idea that trust has a considerable impact on customers' satisfaction and loyalty toward OTAs (Hu et al., 2009). However, there is a need for further research to examine how trust can be built and maintained in the context of OTAs.

3. Research Methodology

This is a qualitative research study, and secondary data were used for the analysis of the sentiments of users towards online travel agencies. Eleven prominent online travel agencies-related hashtags were used to extract the data from the Twitter microblogging platform. For the qualitative data analysis of extracted data from the Twitter platform, available till December 2022, NVIVO software was utilized. The reason Twitter was chosen for this study is that, unlike other social networking platforms, it enables users to readily

"retweet" content from others, thus broadening both their own and others' audiences. Users can build virtual webs of influence on a variety of social networking platforms, including Twitter. Tweets that are viewed as public conversations can promote public opinion inclusion in policy creation by leading to increased transparency, accountability, and information aggregation (Ross et al., 2011).

4. Results and Analysis

For analysis purposes, the top 11 prominent online travel agencies that offered complete travel services to users in India were selected for the data extraction with their brand names through qualitative data analysis using the qualitative data analysis tool NVIVO. These top 11 online travel agencies were selected from similar. Similarweb is a tool that

Figure 1. MakeMyTrip Word Cloud

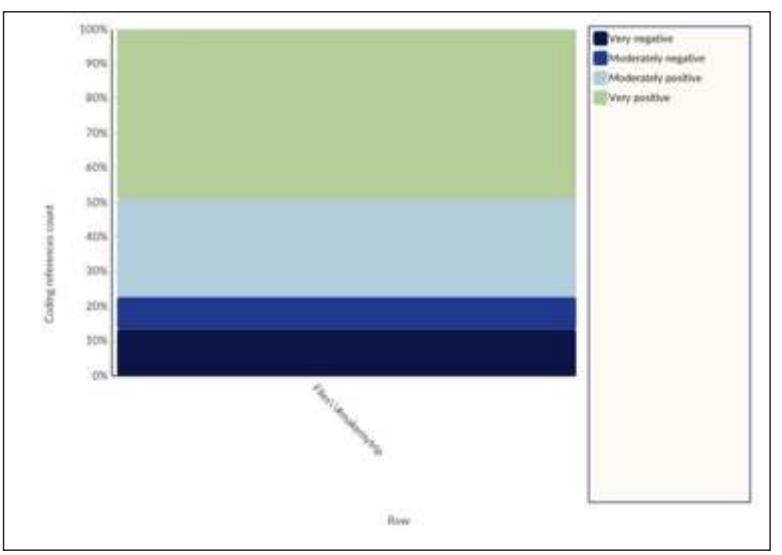

Figure 2. hashtag MakeMyTrip Auto Code Sentiment Result

provides information about the website or app, such as monthly site visitors, bounce rate, average site duration and competitor details, etc. These top 11 online travel agencies include MakeMyTrip, Yatra, Goibibo, Cleartrip, Booking.com, EaseMyTrip, Expedia, CoxandKings, Ixigo, Thomascook, and Via. Each extracted n-capture file through the Chrome web browser extension of all 11 brand name hashtags was imported into the NVIVO software, and sentiment analysis was applied. Tables 1 and 2 show compiled results for the sentiment analysis of online travel agencies.

While analyzing each exported capture data in the Nvivo software, it was found sentiment codes related to each OTA were positive, neutral, negative, and mixed sentiments. After analyzing the data of MakeMyTrip in the tool, it was found that there were a total 97 numbers of coding references while analyzing data of MakeMyTrip OTA, where there were 38 positive, 36 neutral, 22 negative, and one mixed coding. There was almost 73% positive sentiment and 27% negative sentiment toward the MakeMyTrip online travel agency. Travelers were happy with the Makemytrip online travel agency because of their travel services related to air ticket booking, hotel bookings, taxis, etc. Few travelers had negative sentiments because they did not get timely cancellation refunds and proper customer support responses regarding their problems.

Figure 1 shows the word cloud related to the hashtag MakeMyTrip, and Figure 2 shows the hashtag MakeMyTrip auto-code sentiment result.

Figure 3. Yatra Word Cloud

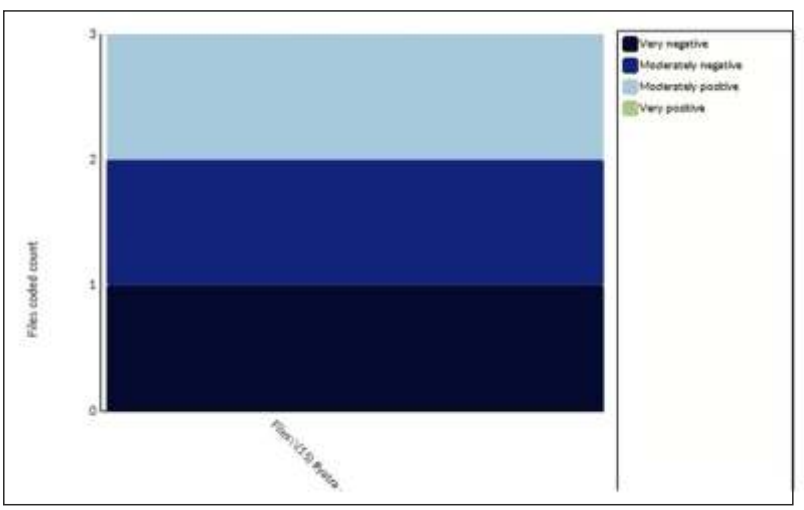

Figure 4. Hashtag Yatra Auto Code Sentiment Result

Data from hashtag #yatra was analyzed, and it found that there were a total of 8024 numbers coding references while analyzing data of Yatra OTA, where there was 1 positive, 8021 neutral, two negative, and no mixed coding. There was almost 30% positive sentiment and 70% negative sentiment towards the Yatra online travel agency. It was found that there are more negative sentiments towards the Yatra travel agency because travelers did not receive the proper help from customer care for their complaints about the services they availed. Since Yatra is a general term, travelers use the hashtag yatra for both as a company yatra.com and otherwise to share their travel (means Yatra in Hindi) related content. All the tweets that were extracted with Yatra as a reference different from Yatra.com were removed.

Figure 3 shows the word cloud related to the hashtag yatra, and Figure 4 shows the hashtag yatra auto-code sentiment result.

After analyzing the data related to the Goibibo travel agency, hashtag #goibibo, it was found that there were a total 22 numbers of coding references while analyzing data of Goibibo OTA, where there were 0 positive, 11 neutrals, 10 negatives, and 1 mixed coding. There was almost 9% positive sentiment and 91% negative sentiment towards the

Figure 5. Goibibo Word Cloud

Figure 6. Goibibo via Auto Code Sentiment Result

Goibibo online travel agency. Travelers were unhappy with the booking services, hotels, travel packages, etc. Maximum tweets are related to the complaint against the refund of booking and holiday package cancellations.

Figure 5 shows the word cloud related to the hashtag goibibo, and Figure 6 shows the hashtag goibibo auto-code sentiment result.

Hashtag #cleartrip, related to the ClearTrip online travel agency, found that there were a total 34 numbers of coding references, where there were nine positives, 11 neutral, 0 negatives, and 14 mixed codings. There was almost 61% positive sentiment and 39% negative sentiment towards the ClearTrip online travel agency. Travelers have both positive and negative sentiments as they have utilized ClearTrip's travel services. Like other OTAs, travelers' tweets were related to complaints about poor experiences.

Figure 7 shows the word cloud related to the hashtag cleartrip, and Figure 8 shows the hashtag cleartrip auto-code sentiment result.

Figure 7. Cleartrip Word Cloud

Figure 8. Hashtag Cleartrip Auto Code Sentiment Result

Data of hashtag #Booking was analyzed, and it was found that there were total 37 numbers of coding references while analyzing data of Booking.com OTA, where there were 15 positive, 22 neutral, no negative, and no mixed coding. There were 100% positive sentiments and no negative sentiments towards the Booking.com online travel agency. Travelers were fully satisfied with services from booking.com and they did not have any bad experiences.

Figure 9 shows the word cloud related to the hashtag booking, and Figure 10 shows the hashtag booking auto-code sentiment result.

Figure 9. Booking Word Cloud

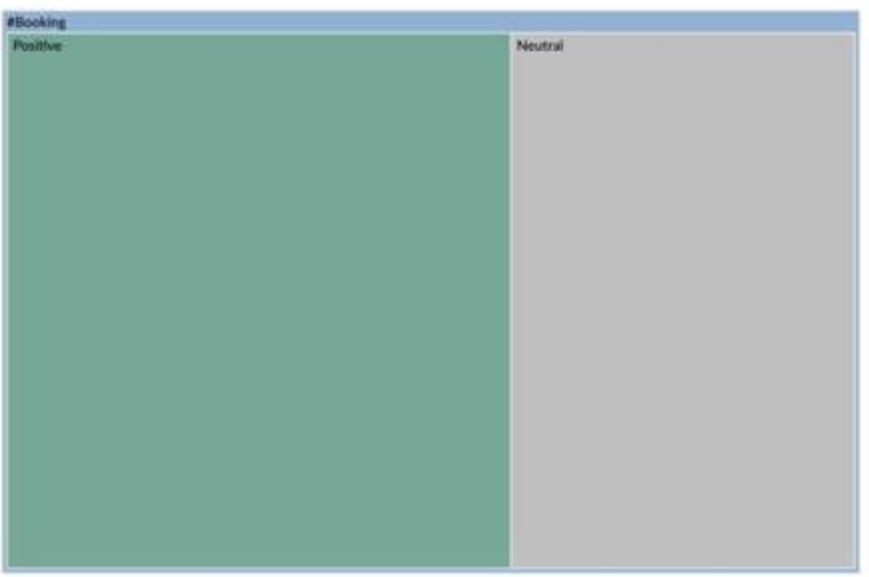

Figure 10. Hashtag Booking Auto Code Sentiment Result

Hashtag #easemytrip was analyzed, and it found that there were a total 156 numbers of coding references while analyzing data of EaseMyTrip OTA, where there were 31 positives, 102 neutral, 17 negatives, and six mixed codings. There was almost 64% positive sentiment and 36% negative sentiment toward the EaseMyTrip online travel agency. Most travelers had positive sentiments but a few negative ones due to the bad travel experiences, which were the holiday packages they had availed from EaseMyTrip.

Figure 11 shows the word cloud related to the hashtag easemytrip and Figure 12 shows the hashtag easemytrip auto-code sentiment result.

Figure 11. EaseMyTrip Word Cloud

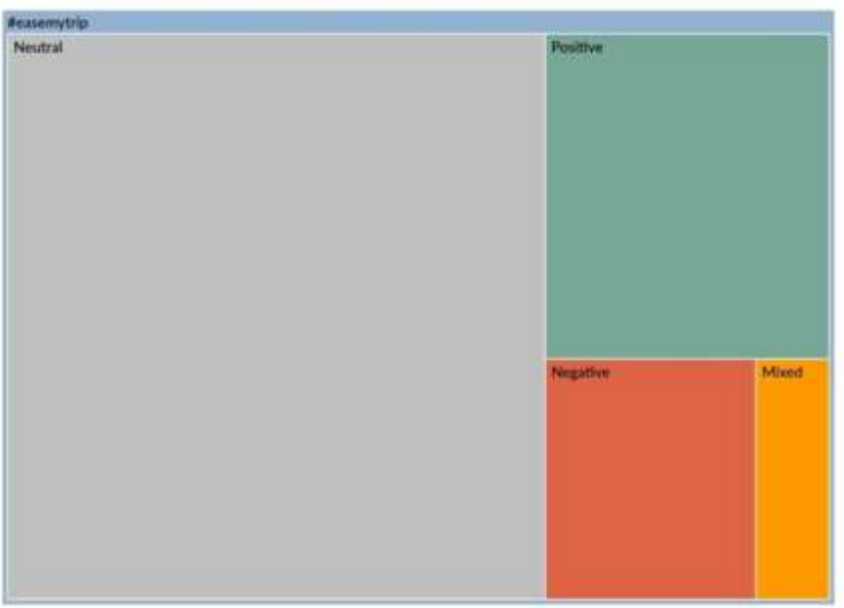

Figure 12. Hashtag EaseMyTrip Auto Code Sentiment Result

The hashtag #expedia was analyzed, and it found that there were a total 41 numbers of coding references while analyzing data from Expedia OTA, where there were 32 positive, 9 neutral, and no negative and mixed coding. There were 100% positive sentiments towards the Expedia online travel agency among travelers. Travelers were happy with the travel services from Expedia travel agency.

Figure 13 shows the word cloud related to the hashtag Expedia, and Figure 14 shows the hashtag Expedia auto-code sentiment result.

Figure 13. Expedia Word Cloud

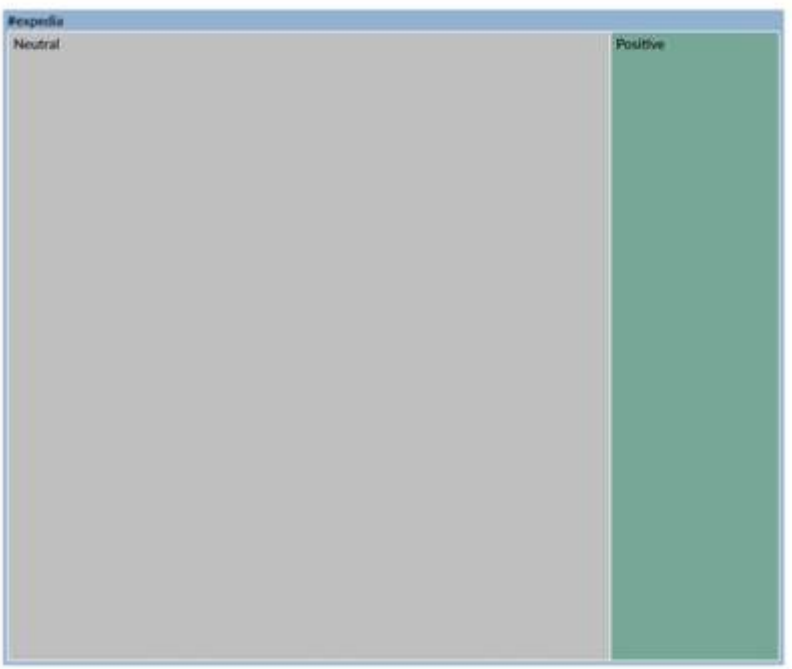

Figure 14. Hashtag Expedia Auto Code Sentiment Result

After analyzing the hashtag #coxandkings, it was found that there were 42 coding references while analyzing data of CoxandKings OTA, where there were 14 positive, 28 neutral; and no negative, and mixed coding. There was a 100% positive sentiment towards the Cox & Kings online travel agency. Travelers tweeted about their good experiences with the Coxandkings.

Figure 15 shows the word cloud related to the hashtag coxandkings and Figure 16 shows the coxandkings yatra auto-code sentiment result.

Figure 15. Cox & Kings Word Cloud

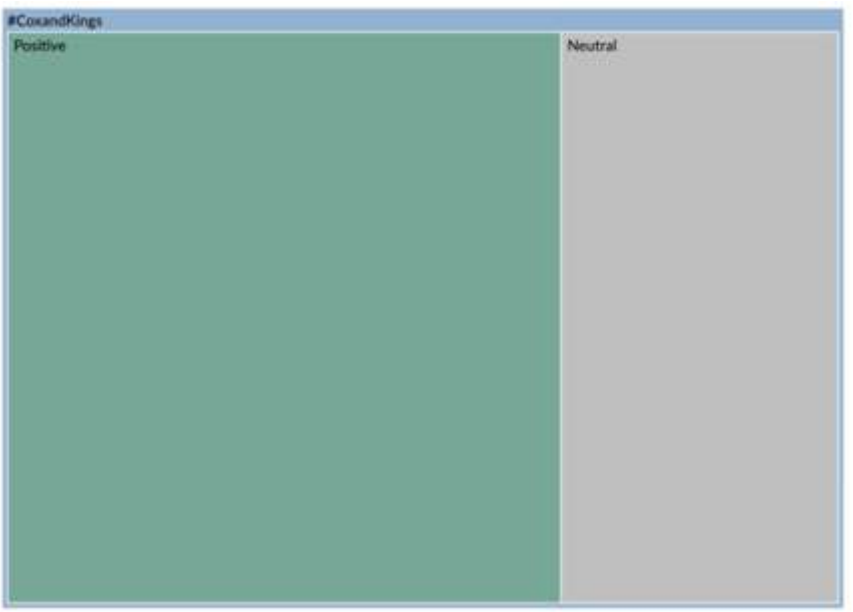

Figure 16. Hashtag Cox & Kings Auto Code Sentiment Result

The hashtag #ixigo data was analyzed, and it found that there were a total 39 numbers of coding references while analyzing data of Ixigo OTA, where there were 15 positive, 24 neutral, and no negative, and mixed coding. There was a 100% positive sentiment towards the Ixigo online travel agency. Travelers were happy with Ixigo's holiday booking-related services.

Figure 17 shows the word cloud related to the hashtag ixigo, and Figure 18 shows the hashtag ixigo auto-code sentiment result.

Figure 17. Ixigo Word Cloud

Figure 18. Hashtag Ixigo Auto Code Sentiment Result

For the Thomas Cook OTA, data extracted from the hashtag #thomascook was analyzed, and it found that there were 24 numbers of coding references where there were 1 positive, 20 neutral, 1 negative, and 2 mixed codings. There was almost 38% positive sentiment and 62% negative sentiment towards the Thomas Cook online travel agency. Travelers were not satisfied with the travel services they had booked with Thomas Cook even though they had the worst experience. Travelers tweeted about their negative experiences with the hotels they booked through the Thomas Cook platform.

Figure 19 shows the word cloud related to the hashtag thomascook, and Figure 20 shows the hashtag Thomas Cook auto-code sentiment result.

Figure 19. Thomas Cook Word Cloud

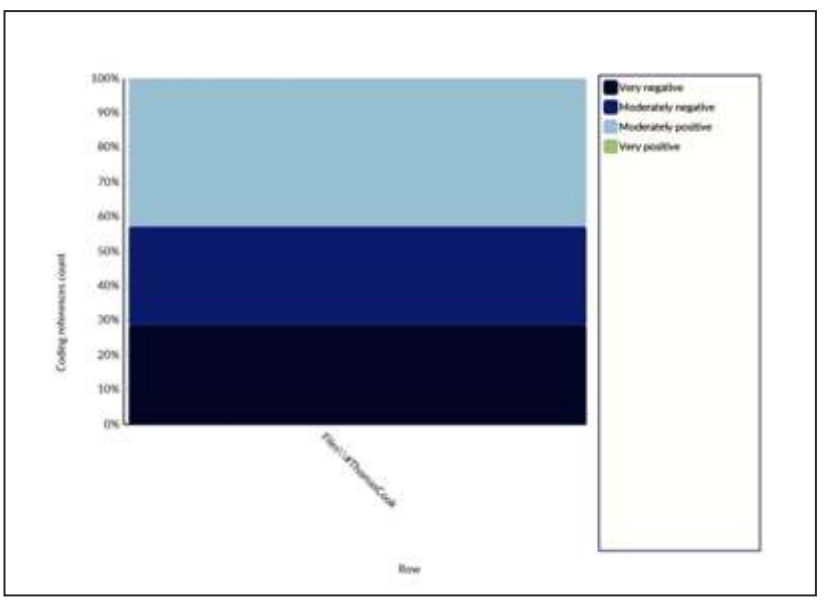

Figure 20. Hashtag Thomas Cook Auto Code Sentiment Result

The extracted data for hashtag #via was analyzed for via.com travel agency, and it was found that there were a total 38 coding references, where there were 16 positives, 22 neutral; no negative, and mixed coding. There were 100% positive sentiments towards the via.com online travel agency. Travelers' tweets were related to good travel experiences.

Figure 21 shows the word cloud related to the hashtag, and Figure 22 shows the hashtag vai auto-code sentiment result.

Figure 21. Via Word Cloud

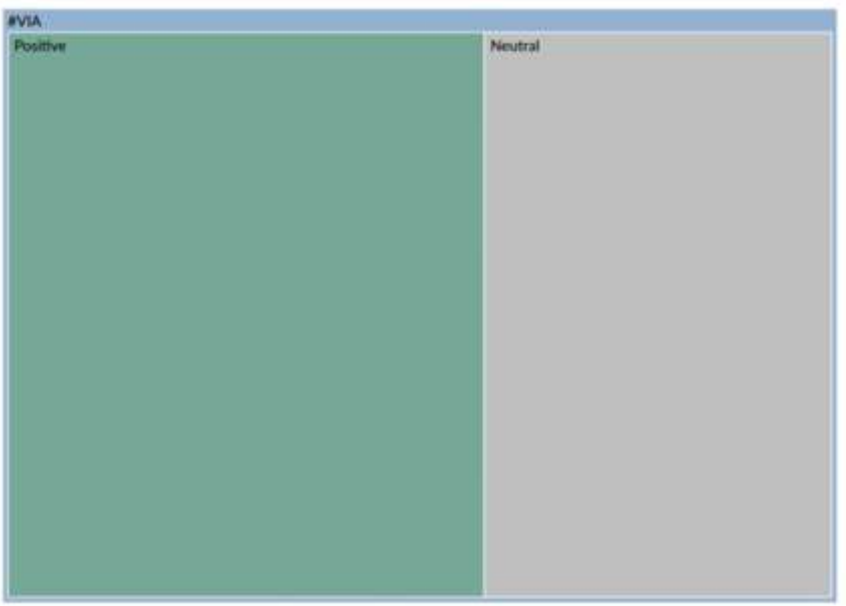

Figure 22. Hashtag Via Auto Code Sentiment Result

Table 1 shows the number of coding references of sentiments, and Table 2 is a Percentage-wise depiction of sentiments.

Table 1. Number Coding References of Sentiments

Sr. No.	Online Travel Agency	Hashtags used for the analysis	Number of Coding References	Mixed	Negative	Neutral	Positive
1	MakeMyTrip	#makemytrip	97	1	22	36	38
2	Yatra	# Yatra	8024	0	2	8021	1
3	Goibibo	#goibibo	22	1	10	11	0
4	ClearTrip	#cleartrip	34	14	0	11	9
5	Booking.com	#booking	37	0	0	15	22
6	EaseMyTrip	#easemytrip	156	6	17	102	31
7	Expedia	#expedia	41	0	0	32	9
8	CoxandKings	#CoxandKings	42	0	0	14	28
9	Ixigo	#ixigo	39	0	0	15	24
10	ThomasCook.com	#thomascook	24	2	1	20	1
11	Via.com	#via	38	0	0	16	22

Table 2. Percentage-wise Depiction of Sentiments

Sr. No.	Online Travel Agency	Hashtags used for the analysis	Very Negative	Moderately Negative	Moderately Positive	Very Positive
1	MakeMyTrip	#makemytrip	16.29%	11.40%	28.97%	43.34%
2	Yatra	#yatra	18.18%	51.52%	30.30%	0%
3	Goibibo	#goibibo	63.75%	26.86%	9.39%	0%
4	ClearTrip	#cleartrip	0%	39.07%	39.07%	21.85%
5	Booking.com	#booking	0%	0%	62.50%	37.50%
6	EaseMyTrip	#easemytrip	4.97%	31.39%	42.35%	21.29%
7	Expedia	#expedia	0%	0%	0%	100%
8	CoxandKings	#CoxandKings	0%	0%	76.81%	23.19%
9	Ixigo	#ixigo	0%	0%	64.44%	35.56%
10	ThomasCook.com	#thomascook	48.73%	13.29%	37.97%	0%
11	Via.com	#via	0%	0%	67.96%	32.04%

After analyzing the tweets and online travel agency websites, It was observed that India-specific online travel agencies are not focusing primarily on customer satisfaction as a gap has been examined in marketing information shared by the company and the views of the customers who have experienced the services. India-specific online travel agencies (OTAs) fail to fulfill the promises made to the customers during the booking process. Customers have numerous complaints like not being able to connect with customer service executives (once the booking is made), dubious information about the applicability of discount coupons, long and tiring processes in case of a refund or for any other payment-related issues (refunds after canceling the hotel reservation charges, etc.) and customers have also pointed towards the problem of false resolution of complaints i.e., closing the customer complaint without actual solution of the same. Online travel agencies (OTAs) with global targeting offer standard services to travelers, while OTAs with India-specific services could not provide the up-to-date service due to the low cost. Globally services providing online travel agencies provide complete services to the travelers that they had promised on their platforms; they also make refunds timely if the travelers opt to cancel the bookings. Travelers felt satisfaction from the customer

care, which means that global targeting companies give complete satisfaction to the travelers.

5. Implications

The implications of this research study have been discussed below;

5.1 Theoretical Implications

The findings of this research paper highlight that OTAs (online travel agencies) can utilize the discoveries of this research to pinpoint possible opportunities for enhancement in their services, websites, or applications. By learning what customers like and dislike about their services or platform, online travel agencies can make changes that may improve the user experience, resulting in higher customer satisfaction and loyalty. Online travel agencies operate in a highly competitive industry. By staying up to date with consumer sentiments/feedback/views, they can adapt their platform to meet changing customer preferences and demands. This can help them stay competitive and retain or gain market share.

5.2 Managerial Implications

This research study will help OTA not only enhance its customer experiences but also support learning about its current brand reputation. Online travel agency managers can reduce negative sentiments with travelers by addressing travelers' issues raised on Twitter and other social networking platforms and can also create positive impressions on users. Knowing consumer sentiments can further help online travel agencies tailor their marketing strategies to appeal to their target audience. For example, if customers are placing more importance on timely refunds or hassle-free cancellations, then companies need to streamline this aspect of their service offerings. Using the strengths and shortcomings that users have revealed, managers can define the future communication strategy of the company. OTA's managers can highlight the resolutions of their users' problems on their websites and social media platforms with pictures that would impact potential customers positively.

6. Conclusion

After analyzing users' sentiments related to the various online travel agencies, it was observed that the sentiments towards the respective OTAs were moderately positive, very positive, moderately negative, and very negative sentiments towards online travel agencies. While analyzing the extracted data users about the various online travel agencies, it was observed that OTAs that have a global presence have positive sentiments. In contrast, OTAs in India specifically have both moderately positive and moderately negative sentiments due to their travel services to travelers. Online travel agencies (OTAs) that are India specific; must improve their customer support services and resolve customer complaints quickly, complete the promises that they offer at the time of booking flights, hotels, and other services to the travelers, and provide easy refunds while canceling the services the customers availed.

7. Limitations and Future Research

There are numerous limitations to this study, similar to other research studies. The study's limitations include the focus on Indian OTAs and Twitter data, which may restrict the generalizability of findings. Only online travel agencies operating in India and the social media platform Twitter were utilized, which limits the scope of this research study. Because social media sites frequently have a huge size of unstructured data, it can be arduous to find and extract pertinent data for research. As with Twitter, sentiment analysis on social media platforms is complex due to the nuances and ambiguities in user-generated content. There is a limitation of NVIVO software to differentiate between company purpose usage and general purpose. Future research could explore sentiment analysis across different markets, develop more accurate algorithms for social media sentiment analysis, and delve deeper into the nuances of user-generated content for enhanced insights. Further research studies can be performed on other social media platforms like YouTube, LinkedIn, Facebook, Instagram, and other online travel agency platforms. Besides the brand name, other hashtags can be utilized for future studies. Future studies could examine user-generated content on different social media sites like Facebook, Instagram, and TripAdvisor to find variations and continuities in attitudes regarding OTAs. Future research could explore how sentiment towards OTAs varies across different demographic groups, such as age, gender, income, or location, across social media platforms. Future research could examine how different factors, such as pricing, customer service, or brand reputation, influence sentiment toward OTAs across different social media platforms. Future research could compare sentiment towards OTAs across different regions or markets, taking into account cultural and linguistic differences. Future research should examine the elements of service quality that are the most important to customers when using OTAs. In the future, research might

focus on creating sentiment analysis algorithms that are more accurate and can better capture the nuances and context of user-generated content (UGC) on various online social media websites. This could involve using machine learning techniques to improve sentiment analysis accuracy. Since this research is done in the service industry, further studies can be performed on other industries too.

References

Abbasi-Moud, Z., Vahdat-Nejad, H., and Sadri, J. (2021). Tourism recommendation system based on semantic clustering and sentiment analysis. *Expert Systems with Applications*, 167, 114324. https://doi.org/10.1016/j.eswa.2020.114324

Abdullah, A. M., and Aziz, R. H. H. (2014). International Journal of Advanced Research in Computer Science and Software Engineering. *International Journal*, 4(11).

Adwan, O., Al-Tawil, M., Huneiti, A., Shahin, R., Zayed, A. A., & Al-Dibsi, R. (2020). Twitter sentiment analysis approaches A survey. *International Journal of Emerging Technologies in Learning (iJET*), 15(15), 79–93.

Akter, S., and Aziz, M. T. (2016, September). Sentiment analysis on Facebook group using lexicon-based approach. *In 2016, 3rd International Conference on Electrical Engineering and Information Communication Technology (ICEEICT)* (pp. 1-4). IEEE. https://doi.org/10.1109/CEEICT.2016.7873080

Alaei, A. R., Becken, S., & Stantic, B. (2019). Sentiment analysis in tourism: capitalizing on big data. *Journal of Travel Research*, 58(2), 175–191. https://doi.org/10.1177/0047287517747753

Ali, K., Dong, H., Bouguettaya, A., Erradi, A., and Hadjidj, R. (2017, June). Sentiment analysis as a service: a social media-based sentiment analysis framework. *In 2017 IEEE International Conference on Web Services (ICWS)* (pp. 660-667). IEEE. https://doi.org/10.1109/ICWS.2017.79

Alzate, M., Arce-Urriza, M., and Cebollada, J. (2021). What are consumers saying online about your products? Mining the text of online reviews to uncover hidden features. *Journal of Digital and Social Media Marketing*, 9(2), 169-186.

Becken, S., Alaei, A. R., and Wang, Y. (2020). Benefits and pitfalls of using tweets to assess destination sentiment. *Journal of Hospitality and Tourism Technology*, *11*(1), 19-34. https://doi.org/10.1108/JHTT-09-2017-0090

Bose, D., Aithal, P. S., and Roy, S. (2021). Survey of Twitter viewpoint on the application of drugs by Vader sentiment analysis among distinct countries. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 6(1), 110-127.

Bueno, I., Carrasco, R. A., Ureña, R., and Herrera-Viedma, E. (2022). A business context-aware decision-making approach for selecting the most appropriate sentiment analysis technique in e-marketing situations. *Information Sciences*, 589, 300-320. https://doi.org/10.1016/j.ins.2021.12.080

Buffard, J., and Papasava, A. (2020). A quantitative study on the impact of emotion on social media engagement and conversion. *Journal of Digital and Social Media Marketing*, 7(4), 355-375.

Chang, V., Liu, L., Xu, Q., Li, T., & Hsu, C. H. (2023). An improved model for sentiment analysis on luxury hotel review. *Expert Systems*, 40(2), e12580. https://doi.org/10.1111/exsy.12580

Chopra, F. K., & Bhatia, R. (2016). A critical review of sentiment analysis. *International Journal of Computer Applications,* 149(10), 37–40.

D'Aniello, G., Gaeta, M., and La Rocca, I. (2022). KnowMIS-ABSA: An overview and a reference model for applications of sentiment analysis and aspect-based sentiment analysis. *Artificial Intelligence Review*, 55(7), 5543-5574.

Drus, Z., & Khalid, H. (2019). Sentiment analysis in social media and its application: Systematic literature review. *Procedia Computer Science*, 161, 707-714. https://doi.org/10.1016/j.procs.2019.11.174

El Rahman, S. A., AlOtaibi, F. A., & AlShehri, W. A. (2019, April). Sentiment analysis of Twitter data. *In 2019 International Conference on Computer and Information Sciences (ICCIS*) (pp. 1–4). IEEE. Sentiment analysis of Twitter data.

Fuchs, C., and Schreier, M. (2011). Customer satisfaction and loyalty in an online travel agency: Exploring the role of user-generated content. *Journal of Travel Research,* 50(4), 417-429.

Gilstrap, C., & Park, S. Y. (2022). The language of social media contests: A lexical analysis of contests across social platforms. *Journal of Digital and Social Media Marketing*, 10(3), 249–269.

Gulati, S. (2021). Tapping public sentiments on Twitter for tourism insights: a study of famous Indian heritage sites. *International Hospitality Review*, (ahead-of-print). https://doi.org/10.1108/IHR-03-2021-0021

Hao, J., & Dai, H. (2016). Social media content and sentiment analysis on consumer security breaches. *Journal of Financial Crime*, 23(4), 855–869. https://doi.org/10.1108/JFC-01-2016-0001

Hassonah, M. A., Al-Sayyed, R., Rodan, A., Ala'M, A. Z., Aljarah, I., and Faris, H. (2020). An efficient hybrid filter and evolutionary wrapper approach for sentiment analysis of various topics on Twitter. *Knowledge-Based Systems*, 192, 105353. https://doi.org/10.1016/j.knosys.2019.105353

He, Y. (2012). Incorporating sentiment prior knowledge for weakly supervised sentiment analysis. *ACM Transactions on Asian Language Information Processing (TALIP),* 11(2), 1-19. https://doi.org/10.1145/2184436.2184437

Hu, L., Liu, Z., & Zhang, L. (2009). Understanding the antecedents of customer loyalty in the Chinese mobile service context: An exploratory study. *Journal of Electronic Commerce Research*, 10(1), 47-57. https://doi.org/10.1504/IJMC.2014.064901

Isah, H., Trundle, P., & Neagu, D. (2014, September). Social media analysis for product safety using text mining and sentiment analysis. *In 2014 14th UK workshop on computational intelligence (UKCI)* (pp. 1–7). IEEE. https://doi.org/10.1109/UKCI.2014.6930158

Jain, P. K., Pamula, R., and Srivastava, G. (2021). A systematic literature review on machine learning applications for consumer sentiment analysis using online reviews. *Computer Science Review*, 41, 100413. https://doi.org/10.1016/ j.cosrev.2021.100413

Joyce, B., & Deng, J. (2017, November). Sentiment analysis of tweets for the 2016 US presidential election. *In 2017 IEEE MIT Undergraduate Research Technology Conference (URTC)* (pp. 1–4). IEEE. https://doi.org/10.1109/URTC.2017.8284176

Karamollao lu, H., Do ru, . A., Dörterler, M., Utku, A., and Yıldız, O. (2018, September). Sentiment analysis on Turkish social media shares through a lexicon-based approach. *In 2018 3rd International Conference on Computer Science and Engineering (UBMK)* (pp. 45-49). IEEE. https://doi.org/10.1109/ UBMK.2018.8566481

Kaur, R., and Kautish, S. (2022). Multimodal sentiment analysis: A survey and comparison. *Research Anthology on Implementing Sentiment Analysis Across Multiple Disciplines*, 1846-1870. https://doi.org/10.4018/978-1-6684-6303-1.ch098

Kaurav, R. P. S., Suresh, K. G., Narula, S., and Baber, R. (2020). New education policy: qualitative (contents) analysis and Twitter mining (sentiment analysis). *Journal of Content, Community, and Communication*, 12(1), 4-13.

Kumar, A., & Garg, G. (2020). Systematic literature review on context-based sentiment analysis in social multimedia. *Multimedia Tools and Applications,* 79, 15349-15380. https://doi.org/10.1007/s11042-019-7346-5

Kumar, A., & Jaiswal, A. (2020). Systematic literature review of sentiment analysis on Twitter using soft computing techniques. *Concurrency and Computation: Practice and Experience*, 32(1), e5107. https://doi.org/10.1002/cpe.5107

Li, H., Chen, Q., Zhong, Z., Gong, R., & Han, G. (2022). E-word-of-mouth sentiment analysis for user behavior studies. *Information Processing and Management*, 59(1), 102784. https://doi.org/10.1016/j.ipm.2021.102784

Ligthart, A., Catal, C., and Tekinerdogan, B. (2021). Systematic reviews in sentiment analysis: a tertiary study. *Artificial Intelligence Review*, 1-57. https://doi.org/10.1007/s10462-021-09973-3

Lee, C. K., Yoon, Y. S., & Lee, S. K. (2007). Investigating the relationships among perceived value, satisfaction, and recommendations: The case of the Korean DMZ. *Tourism Management*, 28(1), 204–214. https://doi.org/10.1016/j.tourman.2005.12.017

Lv, Y., Wei, F., Cao, L., Peng, S., Niu, J., Yu, S., and Wang, C. (2021). Aspect-level sentiment analysis using context and aspect memory network. *Neurocomputing*, 428, 195-205. https://doi.org/10.1016/j.neucom.2020.11.049

Ma, E., Cheng, M., & Hsiao, A. (2018). Sentiment analysis–a review and agenda for future research in hospitality contexts. *International Journal of Contemporary Hospitality Management*, 30(11), 3287–3308. https://doi.org/10.1108/IJCHM-10-2017-0704

Mansour, S. (2018). Social media analysis of user's responses to terrorism using sentiment analysis and text mining. *Procedia Computer Science*, 140, 95-103. https://doi.org/10.1016/j.procs.2018.10.297

Mäntylä, M. V., Graziotin, D., and Kuutila, M. (2018). The evolution of sentiment analysis—A review of research topics, venues, and top cited papers. *Computer Science Review*, 27, 16-32. https://doi.org/10.1016/j.cosrev.2017.10.002

Martin-Domingo, L., Martín, J. C., and Mandsberg, G. (2019). Social media as a resource for sentiment analysis of Airport Service Quality (ASQ). *Journal of Air Transport Management*, 78, 106-115. https://doi.org/10.1016/j.jairtraman.2019.01.004

Masrury, R. A., and Alamsyah, A. (2019, July). Analyzing tourism mobile applications' perceived quality using sentiment analysis and topic modeling. *In 2019 7th International Conference on Information and Communication Technology (ICoICT)* (pp. 1-6). IEEE. https://doi.org/10.1109/ICoICT.2019.8835255

Mehra, P. (2023). Unexpected Surprise: Emotion analysis and aspect-based sentiment analysis (ABSA) of user-generated comments to study the behavioral intentions of tourists. *Tourism Management Perspectives*, p. 45, 101063. https://doi.org/10.1016/j.tmp.2022.101063

Neuhofer, B., Buhalis, D., and Ladkin, A. (2015). Technology as a catalyst of change: Enablers and barriers of the tourist experience and their consequences. *In Information and Communication Technologies in Tourism 2015: Proceedings of the International Conference in Lugano, Switzerland*, February 3-6, 2015 (pp. 789-802). Springer International Publishing. https://doi.org/10.1007/978-3-319-14343-9_57

Obaidi, M., and Klünder, J. (2021). Development and application of sentiment analysis tools in software engineering: A systematic literature review. *Evaluation and Assessment in Software Engineering,* 80-89. https://doi.org/10.1145/3463274.3463328

Ounacer, S., Mhamdi, D., Ardchir, S., Daif, A., and Azzouazi, M. (2023). Customer Sentiment Analysis in Hotel Reviews Through Natural Language Processing Techniques. *International Journal of Advanced Computer Science and Applications*, 14(1). https://doi.org/ 10.14569/IJACSA.2023.0140162

Poecze, F., Ebster, C., & Strauss, C. (2018). Social media metrics and sentiment analysis to evaluate the effectiveness of social media posts. *Procedia Computer Science*, 130, 660-666 https://doi.org/10.1016/j.procs.2018.04.117

Pota, M., Ventura, M., Catelli, R., and Esposito, M. (2020). An effective BERT-based pipeline for Twitter sentiment analysis: A case study in Italian. *Sensors*, 21(1), 133. https://doi.org/10.3390/s21010133

Puh, K., and Bagi Babac, M. (2022). Predicting sentiment and rating of tourist reviews using machine learning. *Journal of Hospitality and Tourism Insights*. https://doi.org/10.1108/JHTI-02-2022-0078

Rambocas, M., and Pacheco, B. G. (2018). Online sentiment analysis in marketing research: a review. *Journal of Research in Interactive Marketing. https://doi.org/10.1108/JRIM-05-2017-0030*

Rita, P., Ramos, R., Borges-Tiago, M. T., and Rodrigues, D. (2022). Impact of the rating system on sentiment and tone of voice: A Booking. com and TripAdvisor comparison study. *International Journal of Hospitality Management*, *104*, 103245. https://doi.org/10.1016/j.ijhm.2022.103245

Ross, C., Terras, M., Warwick, C., & Welsh, A. (2011). Enabled backchannel: Conference Twitter is used by digital humanists. *Journal of Documentation*. https://doi.org/10.1108/00220411111109449

Sahu, K., Bai, Y., & Choi, Y. (2020, January). Supervised sentiment analysis of President Trump's Twitter handle with data visualization technique. *In 2020 10th Annual Computing and Communication Workshop and Conference (CCWC)* (pp. 0640–0646). IEEE. https://doi.org/10.1109/CCWC47524.2020.9031237

Shayaa, S., Wai, P. S., Chung, Y. W., Sulaiman, A., Jaafar, N. I., and Zakaria, S. B. (2017, October). Social media sentiment analysis on employment in Malaysia. *In the Proceedings of 8th Global Business and Finance Research Conference*, Taipei, Taiwan.

Sivarajah, U., Kamal, M. M., Irani, Z., and Weerakkody, V. (2017). Critical analysis of Big Data challenges and analytical methods. *Journal of Business Research,* 70, 263-286. https://doi.org/10.1016/j.jbusres.2016.08.001

Suman, N., Gupta, P. K., & Sharma, P. (2017, December). Analysis of stock price flow based on social media sentiments. *In 2017 International Conference on Next Generation Computing and Information Systems (ICNGCIS)* (pp. 54–57). IEEE. https://doi.org/10.1109/ICNGCIS.2017.34

Tokarchuk, O., Barr, J. C., and Cozzio, C. (2022). How much is too much? Estimating tourism carrying capacity in an urban context using sentiment analysis. *Tourism Management*, 91, 104522. https://doi.org/10.1016/j.tourman.2022.104522

Ullah, M. A., Marium, S. M., Begum, S. A., and Dipa, N. S. (2020). An algorithm and method for sentiment analysis using the text and emoticon. *ICT Express*, 6(4), 357-360. https://doi.org/10.1016/ j.icte.2020.07.003

Verma, S. (2022). Sentiment analysis of public services for smart society: Literature review and future research directions. *Government Information Quarterly*, 39(3), 101708. https://doi.org/10.1016/j.giq.2022.101708

Wankhade, M., Rao, A. C. S., and Kulkarni, C. (2022). A survey on sentiment analysis methods, applications, and challenges. *Artificial Intelligence Review*, 55(7), 5731-5780. https://doi.org/10.1007/s10462-022-10144-1

Wang, Q., Ch'ng, E., Xu, X., Wang, J., & Zhang, Y. (2023). Perception and gaze of diaspora: Analysis of affective, cognitive, and cultural factors in tourism. *Journal of Vacation Marketing*, 13567667231161843. https://doi.org/10.1177/13567667231161843

Yadav, A., & Vishwakarma, D. K. (2020). Sentiment analysis using deep learning architectures: a review. *Artificial Intelligence Review,* 53(6), 4335–4385. https://doi.org/10.1007/s10462-019-09794-5

Yeh, S.-C., and Li, Y.-M. (2009). The impact of trust on customer purchase intentions in e-commerce settings: A trust model from both the customer and supplier perspectives. *International Journal of Information Management*, 29(2), 139–144.

Yoo, J., & Kim, M. (2014). The effects of online product presentation on consumer responses: A mental imagery perspective. *Journal of Business Research*, 67(11), 2464–2472. https://doi.org/10.1016/j.jbusres.2014.03.006

Yuliyanti, S., Djatna, T., and Sukoco, H. (2017). Sentiment mining of community development program evaluation based on social media. *TELKOMNIKA (Telecommunication et al.)*, 15(4), 1858-1864. http://doi.org/10.12928/telkomnika.v15i4.4633

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Nexus between Macroeconomic Factors and Share Buyback: Insights from India

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Abstract

The present study intends to investigate the impact of the business cycle and stock market on the share buyback activity in India, comprising both long-term equilibrium relationships and short-term adjustment mechanisms, by employing the Autoregressive Distributed Lag Model (ARDL) methodology. The empirical evidence supports the statistically significant long-run association between the share buyback activity and economic indicators. It is found that the number of share buybacks has a positive association with GDP in the long run. Stock market price is a crucial determinant influencing short-term and long-term buyback announcements. Further, the coefficient of ECM, i.e. (-0.964), implies that the long-run equilibrium will adjust by 96.4 % after a short-run shock. Hence, the present research enriches the existing literature by being one of the first to investigate the impact of the business cycle and the share market price on share buyback activity, particularly for an emerging economy, i.e., India. Based on findings, policymakers can utilize data from the stock market and historical values of economic growth to formulate appropriate policies and provisions regarding share buyback decisions by making precise predictions about potential crises.

Keywords*: Share Buyback, ARDL, Economy, India, Stock market, GDP, Business cycle, Cointegration, Payout policy, Macroeconomic variable*

1. Introduction

According to conventional wisdom, if a firm has surplus cash flow but no investment prospects, it can retain or distribute it to the shareholders (Jenson, 1986). Divided distribution and share buyback are the two most popular payout strategies available to a firm (Truong et al., 2023). Straehl and Ibbotson (2017) demonstrated that distinguishing the long-term growth rate of total payout from the macroeconomic growth rates is statistically impossible. The researchers further stated, "The total payouts increase in tandem with the real economy." Diverse economic states substantially impact payout decisions (Benartzi et al., 1997; Goel, 2016). It is advocated that dividend distribution should be selected when economic conditions are stable, whereas share repurchases should be chosen when unstable economic situations (Bhabra & Luu, 2015). Economic growth yields varying uncertainty, which induces businesses to engage in buybacks during uncertain periods (Hamounda, 2021). The prior literature has documented the significant relationship between buyback and economic growth (Dittmar, 2007; Hamouda et al, 2020; Hamouda, 2021; Wang et al., 2021). Farrugia et al. (2011) revealed that buyback activity decreased in the "low economic state" while a substantial increase in buyback activity was observed in the "middle and high economic state" of the country. Prior research concluded that the business cycle plays a crucial role in influencing companies' decisions to repurchase shares, and corporates may employ buyback as a strategic technique to alleviate the adverse consequences of financial crises (Hamounda, 2021). Literature also supports that buyback activities are significantly associated with the stock market's performance (Wolf, 2020). Stock price indices drive economic growth as stock prices are a prior indicator representing an index reflecting future economic conditions (Varughese & Abraham, 2021).

It is observed that previous studies had concentrated on the buyback decision concerning firm-specific or microeconomic parameters. Researchers have examined the buyback decision from various perspectives such as the motives behind the share buyback activity (Varmalen, 1981; Dittmar, 2000; Dixon et al., 2008; Dayanandan et al., 2020; Chen & Liu, 2023; Saxena & Saho, 2023; Ma & Wang, 2024) and the impact of buyback on the shareholder's value (Evans & Evans, 2001; Pradhan, 2017; Mukherjee & Chatterjee, 2019; Pandey & Kavidayal, 2023; Huang & Jin, 2024; Goyal & Mangala, 2024a). However, a shortage of literature focused on the linkage between the macroeconomic environment and share buyback decisions. Only a few research has investigated the relationship between macroeconomic indicators and buyback activity with respect to developed economies, i.e., the USA and the UK (Korajczyk & Levy, 2003; Dittmar, 2008; Sodhi, 2018). These studies are also inconclusive due to contradictory results. Therefore, the current study is undertaken 'to examine the relationship between buyback activities and macroeconomic factors' by considering real gross domestic product and stock market price as appropriate indicators to measure economic growth. GDP is the primary lagging indicator of measuring economic growth and a vital business cycle component (Artish, 2004; Bhalla et al., 2022; Bhat & Kaur, 2022; Ahmad & Elseoud, 2019).

The use of Indian buyback data is motivated by several reasons. Differing taxation systems on the dividend payout and share buyback, legal and regulatory structure variation, dynamic economic environment and widening scope of buyback activity provide the unique opportunity to study the share buyback relationship with macroeconomic variables. This study aims to determine whether or not changes influence buyback activity in particular macroeconomic conditions (GDP and stock market price index). To demonstrate the effect, the study analyzed the period from 2012 to 2022, which encompasses several structural constraints, including demonetization in 2016, implementation of goods and service tax (GST) in 2017, the crude oil crisis, the NBFC crisis of 2019, the outbreak of COVID-19 and so on. Therefore, it becomes essential to study buyback activity by considering the macroeconomic environment as globalization integrates the domestic economy with the worldwide economy. The research conundrum arises from the inconclusive and disparate findings of prior studies regarding the effects of macroeconomic indicators on share buyback activity. In light of this, the current research is designed to explore the relationship of share buyback activity with macroeconomic variables. This study contributes to the current body of knowledge by being among the initial investigations "to examine the impact of the business cycle and stock market on share buyback activity" in the Indian context. Hence, this research will enrich the existing literature and assist future researchers in examining the buyback decision in the context of the macroeconomic environment.

This paper's further sections are structured as follows: Section 2 discusses the literature on share buyback activity. Section 3 covers the data and methodology employed. Section 4 presents an in-depth analysis of the results

obtained and facilitates a thorough discussion of these findings. Section 5 concludes the study and states avenues for future research, and Section 6 provides implications of the study.

2. Literature Review

Since the 1990s, when share buyback became a visible form of business transaction in the US and other developed and developing economies, the economic and financial literature has explored buyback events from various perspectives. Most of the researchers have concentrated on the motives behind the share buyback activity (Varmalen, 1981; Dittmar, 2000; Dayanandan et al., 2020; Chen & Liu, 2023; Saxena & Saho, 2022; Chen et al., 2022, Ma & Wang, 2024) and the impact of buyback on the shareholder's value (in terms of stock price) and on the operating performance of the corporates (Evans & Evans, 2001; Mukherjee & Chatterjee, 2019; Sharawi, 2022; Sodhi et al., 2023; Ghoul et al., 2024; Ren & Zheng, 2024). Every restructuring decision carries a strong signal to various interest groups and buyback is one of them. A buyback is a very significant event in the lifespan of a business that brings both short-term and long-term changes. The short-term impact may be seen in terms of stock price movements when news of a buyback breaks out (Reddy et al., 2013; Hyderabad, 2009; Agarwalla et al., 2015; Gupta, 2017; Goyal & Mangala, 2024b). The long-term impact of buyback gets reflected through the accounting performance of companies in the coming years (Evans & Evans, 2001; Lie, 2005; Gupta, 2016; Ren & Zheng, 2024). Several researchers documented a variety of reasons for share buyback. Signaling theory is widely regarded as the primary rationale behind a company's decision to engage in share buybacks to correct the market price of shares and inform the investors about the strong fundaments of the companies (Varmalen, 1981; Dittmar, 2000; Bhargava & Agrawal, 2015; Ma & Wang, 2024). Besides it, a firm opts the option of buyback to elevate the earning per share, to reach the optimum leverage ratio, increase the promoter's holding, distribute the excess idle cash, to take tax advantage by using it as a substitute of dividend payout, as a takeover deterrence (Thein, 2013; Agarwalla et al., 2015; Arora, 2019; Jena et al., 2018; Dayanandan et al., 2020; Chatterjee & Tiwari, 2022; Chen & Liu, 2023; Saxena & Saho, 2023). Hence, previous studies concentrated on the buyback decision concerning firm-specific or microeconomic parameters. A literature shortage focused on the linkage between the macroeconomic environment and share buyback decisions. Only a few research studies have examined the relationship between macroeconomic indicators and buyback activity concerning developed economies, i.e., the USA and the UK. In the USA, Korajczyk and Levy (2003) found that share buybacks were counter-cyclical with macroeconomic indicators, while Dittmar and Dittmar (2008) concluded it to be pro-cyclical. However, in a study on UK repurchases, GDP was found to be counter-cyclical with buyback activity, while the stock market was pro-cyclical (Sodhi, 2018). Here, counter-cyclical refers to "an influence opposite to the strengthening of the economy."

In contrast, pro-cyclical refers to "an influence consistent with the strengthening of the economy" (Sodhi, 2018). Moreover, Kondrateva and Hundal (2022) explored the relationship between business cycles and share buybacks within the Finnish stock market. They noted that their regression analysis across recession and expansion phases yielded few statistically significant findings. However, when considering these theoretical frameworks, the key question of share buybacks and their relationship with macroeconomic indicators is somewhat left aside empirically. Given the essential aspect of this practice, the present paper aims to offer a remedy for this lacuna. Hence, contradictory results across various developed economies, the increasing popularity of share buyback as an important payout method, the dynamic economic environment in emerging economies, etc., motivated the researchers to consider the macroeconomic variables for the current study. To the best of our knowledge, there are no existing India-centric studies that specifically examine the influence of the macroeconomic variables on the share buyback activities. Therefore, this study contributes to the current body of knowledge by being among the initial investigations to examine the impact of the business cycle and the stock market on share buyback activity, particularly for an emerging economy i.e. India.

3. Data and Methodology

3.1 Data Source and Classification

This study examines share buyback activity in India from fiscal year 2012 to 2022. Firstly, lists of buyback companies were compiled. The companies under study were selected from the Securities & Exchange Board of India website. GDP data published by the International Monetary Fund (IMF) is used, and S&P BSE Sensex data is collected from the BSE website.

To achieve the objective, quarterly data from 2012 to 2022 has been used to investigate the impact of the macroeconomic variables on buyback activity. The number of share

buybacks (NSB) represents the share buyback activity. The gross domestic product represents the business cycle, as suggested by Artis et al. (2004). Real Gross Domestic Production (GDP) has been used to measure economic growth, and S&P BSE Sensex's average quarterly price has been used to gauge stock market performance. Log of GDP and Stock Market Price has been taken for applying tests. The logarithm is used to simplify the interpretation of the findings and lessen heteroscedasticity's potential.

3.2 Model Specification

The data obtained for the macroeconomic indicators utilized in modeling constitute a time series, showing changes over time and often displaying non-stationarity, resulting in unit root challenges. The initial step in time series data modeling is to determine if the variables are stationary. Researchers have recognized that the statistical assumptions of ordinary least squares (OLS) apply exclusively to stationary variables. If the data is nonstationary, using the OLS estimator can result in spurious findings, making it unsuitable for reliable analysis (Tahir, 2020). To address nonstationary time series data, the cointegration approach is recommended, with several available procedures to handle nonstationary variables effectively.

The present study uses the "ARDL approach to cointegration" to determine the relationship between the share buyback activity and economic indicators. ARDL approach provides several econometric advantages in comparison to the cointegration techniques proposed by Engle and Granger (1987) and Johansen and Juselius (1990) due to its applicability on variables integrated of distinct orders i.e. I(0) and I(1) and efficient working with a small and finite sample size (Oskenbayev et al., 2011; Hasan & Nasir, 2008). It further helps to derive unbiased estimates of the long-run model (Belloumi, 2014). Given the benefits above, the ARDL framework has been adopted as an appropriate model for the present study.

For estimation purposes, the following baseline model is specified:

$$NSB = \alpha + \beta_1 \operatorname{Ln} GDP_t + \beta_2 \operatorname{Ln} SMP_t + \varepsilon_t \quad (1)$$

Where NSB, LnGDP, and LnSMP represent the number of share buybacks, the natural logarithm of GDP, and the natural logarithm of stock market price, respectively. NSB is the dependent variable and GDP and SMP are used as indicators of the macroeconomic environment variable. b_1 and b_2 represent the coefficients of LnGDP and LnSMP, respectively, and e represents the error term.

Expression 1 is represented in the ARDL framework as shown below:

$$\Delta NSB_t = \beta_0 + \sum_{i=1}^{n1} \beta_{1i} \Delta NSB_{t-i} + \sum_{i=0}^{n2} \beta_{2i} \Delta \operatorname{Ln} GDP_{t-i} + \sum_{i=0}^{n3} \beta_{3i} \Delta \operatorname{Ln} SMP_{t-i} + \gamma_1 NSB_{t-1} + \gamma_2 \operatorname{Ln} GDP_{t-1} + \gamma_3 \operatorname{Ln} SMP_{t-1} + \varepsilon_t \quad (2)$$

In Expression 2, the parameters associated with the lagged terms signify long-run relationships, while the parameters associated with the difference operators (Δ) capture the short-run dynamics. The ARDL framework allows for testing the presence of a long-run cointegrating relationship by setting up the null and alternative hypotheses as outlined below:

H_0 : If $g_1 = g_2 = g_3$ long run relationship does not exist

H_1 : If, $g_1 \neq g_2 \neq g_3$ long-run relationship exists

Determining a long-run cointegrating relationship within the ARDL framework involves assessing the calculated F-test value against the critical values proposed by Narayan (2004). A long-run cointegrating relationship is confirmed if the F-test value exceeds the upper bound critical value. The long-run relationship is rejected if the F-test value is below the lower bound critical value. If the F-test value falls between the lower and upper bound critical values, the evidence for a cointegrating relationship is inconclusive.

4. Results Discussion

The descriptive statistics of the number of share buybacks, GDP, and stock market price are provided in Table 1. During the study frame, NSB exhibits a mean value of 10.05. With a standard deviation of 6.313 and a coefficient of variation of 0.644, it is highly volatile. GDP, a gauge of actual economic activity, has a decade-long average value of 30791808 and is the least volatile variable. BSE SENSEX, a commonly employed indicator of stock market prices, exhibits a mean value of 32502.77 with the corresponding minimum and maximum values of 16791 and 58208.54, respectively. The standard deviation is 11307.47, and the coefficient of variation is 0.347, indicating that it is relatively volatile. In order to demonstrate the distribution's symmetry, the skewness has been estimated. With the exception of GDP, all the variables exhibit a positive skewness. The kurtosis statistic measures the degree of peakedness in a dataset. Every distribution exhibits platykurtosis, leading to lower peaks than the normal distribution. Finally, the normality of data is checked through the Jarque-Bera test. The null hypothesis that data is normally distributed is accepted for all the series.

Table 1. Descriptive Statistics of NSB, GDP and SMI

	NSB	GDP (millions)	SMP
Mean	9.8	30791808	32502.77
Median	8	31129800	29510
Maximum	25	40780300	58208.54
Minimum	0	21959500	16791
Standard variance	6.313193	5202972	11307.47
Coefficient of Variation	0.644203	0.168972605	0.347892503
Skewness	0.631073	-0.009753	0.777756
Kurtosis	2.566169	1.894401	2.84207
Jarque-Bera	2.968701	2.037884	4.074267
Probability	0.22665	0.360977	0.130402
Observations	40	40	40

Source: Result output of E-views 10

Table 2. ADF and PP unit-root tests

	ADF Unit Root Test				PP Unit Root Test			
Variables	At Level (with intercept)	At Level (with intercept and trend)	At 1st Difference (with intercept)	At 1st Difference (with intercept and trend)	At Level (with intercept)	At Level (with intercept and trend)	At 1st Difference (with intercept)	At 1st Difference (with intercept and trend)
NSB	-3.48**	-4.14**	-7.12***	-7.06***	-3.35**	-4.09**	-11.60***	-12.81***
LnGDP	-1.46	-4.45***	-8.66***	-8.73***	-1.29	-4.41***	-14.17***	-15.40***
LnSMP	-0.46	-2.32	-5.38***	-5.31***	-0.41	-2.56	-5.52***	-5.42***

*Note: *, ** and *** indicate significance at 10, 5 and 1 per cent levels respectively*
Source: Result output of E-Views 10

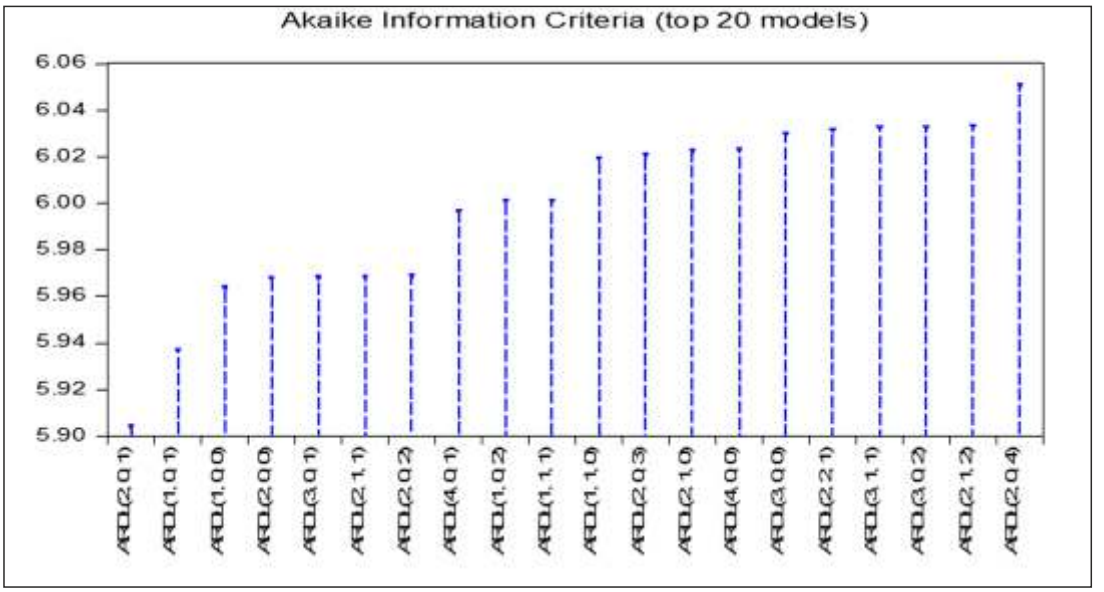
4.1 Stationarity of Series

Checking the stationarity of the data is the foremost assumption of employing time series techniques. "Augmented Dickey-Fuller (1981) and Phillips-Perron (PP) unit root tests (1988)" are applied to examine the existence of the unit root in the series. Table 2 exhibits the findings of the ADF and PP unit root test for specified variables. The test results show that the number of share buyback series is stationary for both with and without deterministic trends at a 5% significance level. GDP is found nonstationary with intercept while stationary with trend and intercept. SMP is nonstationary at level but becomes stationary at first difference.

The results of unit root tests confirmed that the variables exhibit stationarity at varying levels of integration, specifically I(0) and I(1). Hence, the cointegration tests such as those by Engle and Granger (1987) and Johansen and Juselius (1990) can only be applied if those tests are suitable when all variables are integrated in order 1. Thus, the ARDL bounds testing approach is applied in this study due to the mixed order of integration of variables with a small sample size.

4.2 ARDL Model Selection

After identifying the integration order, the optimum ARDL model is selected. Figure 1 represents the top 20 ARDL models as the resulting output of Eviews 10. The ARDL (2,0,1) model is selected as the optimal model for further estimation based on its lowest Akaike Information Criterion (AIC) value 5.90.



Source: Result output of E-views 10

Figure 1. ARDL Model selection

Table 3. F- Statistics of Cointegration Relationship

Dependent Variable	**NSB**	
F-Statistics	**9.209*** **	
Critical Value Bounds		
Significance	L	U
10%	2.845	3.623
5%	3.478	4.335
1%	4.948	6.028

**Denotes test statistical significance at the 1% level*
Source: Eviews-10

The equation of the estimated ARDL model is as follows:

NSB = C(1)*NSB(-1) + C(2)*NSB(-2) + C(3)*LnGDP + C(4)*LnSMP + C(5)*LnSMP(-1) + C(6) (3)

The model's R-square is 0.571 which indicates that it explains 57.1% of the variation in the dependent variable. The model is statistically significant since the p-value for the model i.e. 0.001 is less than the threshold for statistical significance limit.

4.3 ARDL Bounds Test

Subsequently, bound cointegration testing is conducted to examine the long-term association among the variables. The combined null hypothesis that the coefficients of lagged-level variables are equal to zero is evaluated using the F-test. According to equation 1, the coefficients of lagged variables are β1 and β2 of LnGDP and LnSMP, respectively. The F-value derived from the computation is compared to the threshold values tabulated by Pesaran et al. (2001) to determine whether the following null hypothesis should be accepted or rejected.

As depicted in Table 3, the cointegration between NSB and economic indicators (GDP and SMP) in the ARDL framework can be inferred as the bound test value surpasses the upper critical values across all significance levels. Cointegration indicates that the set of macroeconomic indicators and share buyback activities exhibit similar long-term tendencies.

4.4 ARDL long-run and short-run approach

Following the confirmation of cointegration, the estimation of the coefficients for the long-run relationship and the associated error correction model (ECM) is conducted. Analysis revealed that the number of share buybacks formed a significant long-term relationship with the tested LnGDP and LnSMP variables. In the long run, GDP exerts a favorable and substantial influence on NSB. The results indicate that if GDP increases by 1%, the number of share buyback would increase by 57%. The existing literature has documented that economic growth contributes to the expansion of the share buyback activity. The free cash flow hypothesis justifies it (Dittmar, 2007). The status of a country's economy has a considerable impact on share buyback announcements (Farrugia et al, 2011). In a booming economy, firms experience excess cash flow that leads firms to initiate more buyback announcements (Benortzi et al., 1997). LnSMP is another significant variable that negatively influences the number of share buybacks in India in the long run. The estimated long-run coefficient demonstrates that a 1% increase in SMP would result in a 17.42% decline in share repurchases. The result of the present study is different from that of the developed economy. Buybacks are found to be positively correlated with stock market returns in the USA (Wolf, 2020).

From the short-run results, it can be inferred that the level of statistical significance and direction of the relationship of LnSMP changed in the short-run. In contrast to the long run, LnSMP is positively associated with the number of buybacks in the short run. Whereas, LnGDP has no influence on share buyback in the short run. The error correction term ECM (-1) represents the rate at which the model is adjusted to re-establish equilibrium. Lastly, the Error Correction Term exhibits a negative coefficient and demonstrates statistical significance. The coefficient of ECM, i.e. (-0.964), implies that long-run equilibrium will adjust by around 96.4 % following a short-run disturbance.

4.5 Diagnostic Tests

The ARDL model's robustness is evaluated through diagnostic tests. The findings of the diagnostic examinations are depicted in Table 5. The statistical data and corresponding p-values have verified that there are no econometric severe problems in the predicted model. The analysis indicates that the stated model is devoid of the 'serial correlation' issue, as the LM test does not support the existence of such a problem. Likewise, the Breusch-Pagan-Godfrey test rejected 'heteroscedasticity' in the estimated model. Furthermore, the Jarque–Bera statistic validates the normality of data. Lastly, the Ramsey test confirmed that the functional form is error-free.

Table 4. Long-run and Short-run Results

Variables	Coefficient	Std. Error	t-Statistic	p-value
Long-run				
LnGDP	57.00598	13.41871	4.248246 ***	0.0002
LnSMP	-17.42528	6.513730	-2.675161**	0.0121
C	-793.4372	170.8737	-4.643415 ***	0.0001
Short-run				
D(NSB(-1)	0.213636	0.136707	1.562729	0.1290
D(LnSMP)	18.78077	10.60502	1.770932 *	0.0871
ECM(-1)	**-0.964271**	**0.151243**	**-6.375622 *****	**0.0000**

*Note: *, **, *** represent significance at 10% level, 5% level and 1% level respectively*

Source: Result output of E-Views 10

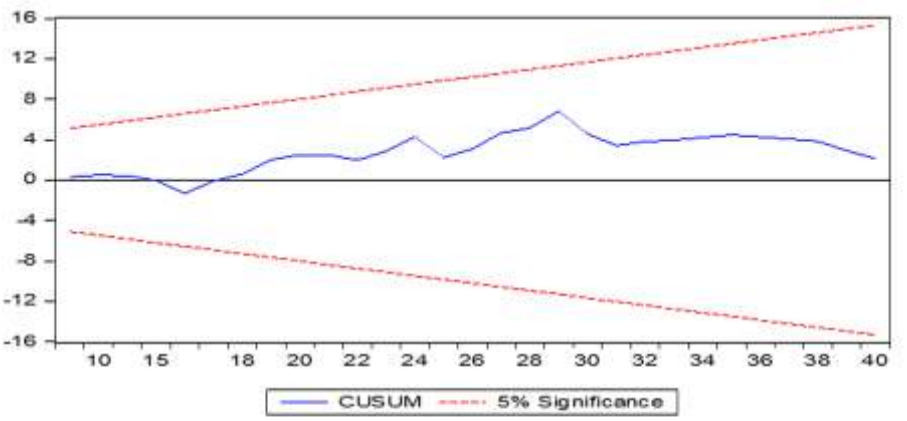
Table 5. Results of Diagnostic Tests

Diagnostics	Test Applied	F-Statistics	P Value
Serial Correlation	Breusch- Godfrey Serial Correlation LM Test	0.204	0.8163
Heteroscedasticity	Breusch-Pagan- Godfrey	2.269	0.079
Normality	Jarque-Bera	0.417	0.811
Functional form	Ramsey Test	2.89	0.100

Source: Authers' Compilation

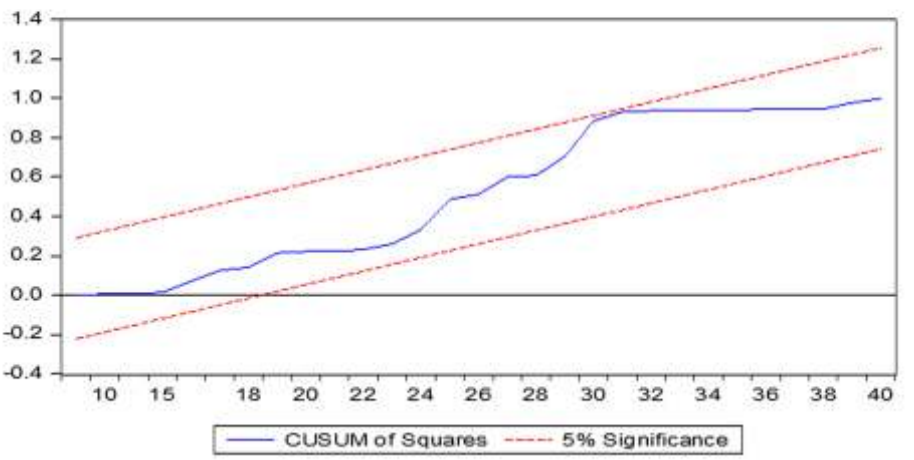
4.6 Stability Tests

The stability of residuals is essential in ARDL Modeling. "The cumulative sum (CUSUM) and the cumulative sum of square (CUSUMSQ) tests" validate the stability of long-run and short-run parameters. Both Figures 2 and 3 demonstrate that residuals are stable, as the estimated lines remain within the critical values. Consequently, it can be claimed that the previously documented results are reliable, stable, and suitable for policy formulation.



Source: E-views 10

Figure 2. CUSUM Test



Source: E-views 10

Figure 3. CUSUM of Squares Test

5. Conclusion and Scope for Future Research

The paper examines the relationship between share buyback activity and economic environment variables in India. Using the ARDL approach, the findings offer compelling evidence that GDP and stock market price are significantly cointegrated and have a long-run association with the share buyback activity. It was found that NSB and GDP have positive associations in the long run. However, in the short run, no influence of GDP is observed on the number of buyback announcements. The stock market price is a crucial determinant influencing short-term and long-term buyback announcements, consistent with Wolf (2020). However, the direction of influence is harmful in the long run while found to be positive in the short run. Further, the coefficient of ECM, i.e. (-0.964), implies that the long-run equilibrium will adjust by around 96.4 % following a short-run shock. Consequently, the present research provides empirical evidence that macroeconomic indicators such as GDP and Sensex are the most significant determining factors affecting the buyback activity in India.

The scope of current research is limited to the geographical boundaries of India. As a result, the current study's findings cannot be generalized at the world level. Therefore, additional investigation could be conducted by incorporating a cross-country dimension, thereby enabling a comparative analysis to explore the impact of macroeconomic variables on share buyback announcements in varying regulatory frameworks. Further, the present study has concentrated only on two variables i.e. GDP and the stock market which assists future researchers to conduct the study further by including the industrial production index, inflation, exchange rates and other relevant macroeconomic variables. Including more macroeconomic variables will help develop a more stable model with a high R-square value. Furthermore, future research can be undertaken to explore the impact of the Covid-19 crisis on buyback activity. Subsequent research endeavors could explore specific industry contexts, geographical variations, or methodological refinements to deepen the understanding of this complex phenomenon.

6. Implications of the Study

The current study holds significance for multiple stakeholders, including policymakers, corporate entities, and stock market investors. Policymakers can utilize data from the stock market and historical values of economic growth to formulate appropriate policies and provisions regarding share buyback decisions by making precise predictions about potential crises. The findings of the study have important implications for stock market investors and corporate firms in formulating investment strategies and the construction of profitable portfolios. Specifically, when GDP and the stock market are rising in economic growth, both the firms and stock market investors can make timely decisions to participate in the share buyback programme.

References

Agarwalla, S. K., Jacob, J., & Vasudevan, E. (2015). Market overreaction to poor long-run performance? A case of repurchase firms in India (No. WP2015-02-01). Indian Institute of Management Ahmedabad, Research and Publication Department. http://hdl.handle.net/11718/16586

Ahmad, M. U., & Abou Elseoud, M. S. (2019). Macroeconomic Variables in India with a Focus on Interest Rates. *SCMS Journal of Indian Management*, *16*(3), 38-48.

Al Sharawi, H. H. M. (2022). The impact of the share buyback process on financial performance: An economic and accounting perspective: Evidence from Egypt. *Investment Management and Financial Innovations*, *19*(1), 210-224.

Arora, R. K. (2019). Why Do Indian Companies Repurchase Their Shares? *Global Business Review*, 1–13. DOI:10.1177/0972150919854935

Artis, M., Krolzig, H. M., & Toro, J. (2004). The European business cycle. *Oxford Economic Papers*, *56*(1), 1-44.

Belloumi, M. (2014). The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. *Economic Systems*, *38*(2), 269–287. https://doi.org/10.1016/j.ecosys.2013.09.002

Benartzi, S., Michaely, R., & Thaler, R. (1997). Do changes in dividends signal the future or the past? *The Journal of Finance*, *52*(3), 1007-1034. https://doi.org/10.1111/j.1540-6261.1997.tb02723.x

Bhabra, G., & Luu, K. H. (2015). Growth, governance, and corporate payout policy. *Accounting & Finance*, *55*(3), 659-681. https://doi.org/10.1111/acfi.12070

Bhalla, N., Kaur, I., & Sharma, R. K. (2022). Do Macroeconomic Variables Discriminate Stock Market Returns in Pre and Post-Tax Reform Era? *SCMS Journal of Indian Management*, *19*(3), 124-138.

Bhargava, S., & Agrawal, P. (2015). Announcement effect of share buyback on share price at National Stock Exchange: An empirical investigation. *Annual Research Journal of Symbiosis Centre of Management Studies*, *3*, 89-105.

Bhat, G. F., & Kaur, S. (2022). The Determinants of Economic Growth: Experience of China, Japan, South Korea and India. *SCMS Journal of Indian Management*, *19*(3), 139–151.

Chatterjee, C., & Tiwari, S. (2022). Dividend reduction and stock price reaction in Indian market: is there a role of share repurchase? *Journal of Indian Business Research*, *14*(4), 447–471. https://doi.org/10.1108/JIBR-11-2020-0348

Chen, Alvin & Obizhaeva, O. (2022). Stock Buyback Motivations and Consequences: A Literature Review. *CFA Institute Research Foundation Books*, February 2022, ISBN 978-1-952927-26-3, http://dx.doi.org/10.2139/ssrn.4063977

Chen, N. Y., & Liu, C. C. (2023). The impact of share repurchases on equity finance and performance. *The Quarterly Review of Economics and Finance*, *91*, 198-212. https://doi.org/10.1016/j.qref.2022.12.004

Dayanandan., A., Donker, H., Kuntluru, S., & Nofsinger, J. (2020). Share buybacks in India. *Research in International Business and Finance*, *54*, 101296. https://doi.org/10.1016/j.ribaf.2020.101296

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: Journal of the Econometric Society*, 1057–1072. https://doi.org/10.2307/1912517

Dittmar, A. K. (2000). Why do firms repurchase stock? *The Journal of Business*, *73*(3), 331-355. https://doi.org/10.1086/209646

Dittmar, A. K., & Dittmar, R. F. (2007). The timing of stock repurchases. *Available at SSRN 911308*. https://dx.doi.org/10.2139/ssrn.911308

Dittmar, A. K., & Dittmar, R. F. (2008). The timing of financing decisions: An examination of the correlation in financing waves. *Journal of Financial Economics*, *90*(1), 59-83. https://doi.org/10.1016/j.jfineco.2007.11.007

El Ghoul, S., Guedhami, O., Kim, H., & Suh, J. (2024). The persistence and consequences of share repurchases. *Journal of Business Finance & Accounting*, *51*(1-2), 431-472. https://doi.org/10.1111/jbfa.12699

Engle, R. F., & Granger, C. W. (1987). Cointegration and error correction: representation, estimation, and testing. Econometrica*: Journal of the Econometric Society*, 251-276. https://www.jstor.org/stable/1913236

Evans, J. P., & Evans, R. T. (2001). Accounting performance of firms pursuing a share repurchase strategy. *Asian Review of Accounting*, *9*(2), 56-74. https://doi.org/10.1108/eb060743

Farrugia, D., Graham, M., & Yawson, A. (2011). Economic conditions and the motives for multiple open-market share buybacks. *Research in International Business and Finance*, *25*(2), 156-168. https://doi.org/10.1016/j.ribaf.2011.01.003

Goel, A. (2016). Impact of Macro-economic Variables: Dividend Policy of Indian Companies. *SCMS Journal of Indian Management*, *13*(2).

Goyal, P. & Mangala, D. (2024a). Impact of corporate governance and traditional motivations on share buyback. Global Business and Economics Review (in press). DOI: 10.1504/GBER.2026.10066873

Goyal, P. & Mangala, D. (2024a). Impact of corporate governance and traditional motivations on share buyback. Global Business and Economics Review (in press). DOI: 10.1504/GBER.2026.10066873

Gupta, M. (2017). Share Buyback and Announcement Effects: An Industry Wise Analysis. *FIIB Business Review*, *6*(2), 43–50. https://doi.org/10.1177/2455265820170207

Gupta, V. (2016). Impact of Buyback of Shares on Stock Prices and Financial Performance of Companies in India. *Prajnan*, *45*(1), 61-82.

Hamouda, F. (2021). Identifying economic shocks with stock repurchase programs. *Cogent Economics & Finance*, *9*(1), 1968112. https://doi.org/10.1080/23322039.2021.1968112

Hamouda, F., Riahi, R., & Sadraoui, T. (2020). The nexus between buyback, business cycle, and stock market volatility. *International Journal of Econometrics and Financial Management*, *8*(2), 61-65. DOI:10.12691/ijefm-8-2-3

Hasan, A., & Nasir, Z. M. (2008). Macroeconomic factors and equity prices: An empirical investigation by using ARDL approach. *The Pakistan Development Review*, 501-513. https://www.jstor.org/stable/41261237

Huang, C., & Jin, Z. (2024). Share repurchase and stock price synchronicity. *China Journal of Accounting Studies*, 1-29. https://doi.org/10.1080/21697213.2024.2336090

Hundal, S., & Kondrateva, D. (2022). Impact of business cycles on share repurchase in the Finnish stock market. *From Globalization to Regionalization in a Time of Economic, Socio-Political, Competitive, and Technological Uncertainties: Current Issues and Future Expectations. Twenty-Ninth World Business Congress. June 12-16, 2022, JAMK University of Applied Sciences Jyväskylä, Finland*.

Hyderabad, R. L. (2009). Price performance following share buyback announcements in India. *Vision*, *13*(1), 59–78. https://doi.org/10.1177/097226290901300105

International Monetary Fund, Real Gross Domestic Product for India [NGDPRNSAXDCINQ], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/NGDPRNSAXDCINQ, September

Jena, S. K., Mishra, C. S., & Rajib, P. (2018). Factors Influencing Share Buyback Decisions of Indian Companies. *South Asian Journal of Management*, *25*(2), 31-65. http://dx.doi.org/10.2139/ssrn.2886739

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, *76*(2), 323-329. https://www.jstor.org/stable/1818789

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, *52*(2), 169-210.

Korajczyk, R. A., & Levy, A. (2003). Capital structure choice: macroeconomic conditions and financial constraints. *Journal of Financial Economics*, *68*(1), 75-109.https://doi.org/10.1016/S0304-405X(02)00249-0

Lie, E. (2005). Operating performance following open market share repurchase announcements. *Journal of Accounting and Economics*, *39*(3), 411-436. https://doi.org/10.1016/j.jacceco.2005.04.001

Ma, P., Li, C., & Wang, X. (2024). Why do undervalued firms repurchase shares? Evidence based on the market-timing effect in China. *Global Finance Journal*, *59*, 100926. https://doi.org/10.1016/ j.gfj.2023.100926

Mukherjee, P., & Chatterjee, C. (2019). Does Shar e Repurchase Announcement Lead to Rise in Share Price? Evidence from India. *Global Business Review*, *20*(2), 420-433. https://doi.org/ 10.1177/0972150918825327

Oskenbayev, Y., Yilmaz, M., & Chagirov, D. (2011). The impact of macroeconomic indicators on stock exchange performance in Kazakhstan. *African Journal of Business Management*, *5*(7), 2985. DOI: 10.5897/AJBM10.1480

Pandey, J., & Kavidayal, P. C. (2023). Stock Returns in the Context of Share Buybacks: A Case of the BSE 500 Index. *SCMS Journal of Indian Management*, *20*(2), 133-144.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289-326. https://doi.org/10.1002/jae.616

Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, *75*(2), 335-346. https://doi.org/10.2307/2336182

Pradhan, S. K. (2017). Effect of Buyback Announcements and Tax Implication: Study on Indian Context. *SCMS Journal of Indian Management*, *14*(4), 14-24.

Reddy, K. S., Nangia, V. K., & Agrawal, R. (2013). Share repurchases, signalling effect and implications for corporate governance: Evidence from India. *Asia-Pacific Journal of Management Research and Innovation*, *9*(1), 107-124. https://doi.org/10.1177/2319510X13483518

Ren, H., Ye, L., & Zheng, S. (2024). Share repurchase and capital market pricing efficiency. *Finance Research Letters*, p. *60*, 104904. https://doi.org/ 10.1016/ j.frl.2023.104904

Saxena, V., & Sahoo, S. (2022). Share repurchase: a review of the literature. *International Journal of Indian Culture and Business Management*, 25 (1), 38-71. https://doi.org/10.1504/IJICBM.2022.120918

Saxena, V., & Sahoo, S. (2023). Corporate cash holdings and share buyback: Evidence from emerging markets. *Journal of Emerging Market Finance*, *22*(4), 437-463. https://doi.org/10.1177/0972652723118455

Sodhi, A., Mateus, C., Mateus, I., & Stojanovic, A. (2023). The market reaction to repurchase announcements. *Journal of Risk and Financial Management*, *16*(10). https://doi.org/10.3390/jrfm16100443

Straehl, P. U., & Ibbotson, R. G. (2017). The long-run drivers of stock returns: Total payouts and the real economy. *Financial Analysts Journal*, *73*(3), 32-52.

Tahir, M. (2020). Trade and life expectancy in China: a cointegration analysis. *China Economic Journal*, *13*(3), 322–338. https://doi.org/10.1080/ 17538963.2020.1783745

Thein, M. (2013). Share Buyback: A Blank Check for Management? *ABAC Journal*, *33*(1), 74-81.

Truong, L. D., Ngo, T. M., & Huynh, N. N. (2023). Effects of Dividend Policy on the Value of Listed Companies: Evidence from Vietnam. *SCMS Journal of Indian Management*, *20*(2).

Varughese, A., & Abraham, R. M. (2021). Determinants of Indian stock market movements: An empirical study. *SCMS Journal of Indian Management*, *18*(2), 139–152.

Vermaelen, T. (1981). Common stock repurchases and market signaling: An empirical study. *Journal of Financial Economics*, *9*(2), 139-183. https://doi.org/ 10.1016/0304-405X(81)90011-8

Wang, Z., Yin, Q. E., & Yu, L. (2021). Global Share Repurchases Over the Business Cycle. *Available at SSRN 3791110*.

Wolf, P. (2020). Stock Market Drivers: Corporate Share Repurchases. *Business and Economics Honors Papers*. https://digitalcommons.ursinus.edu/ bus_econ_hon/46

Websites links

https://www.sebi.gov.in/sebiweb/home/HomeAction.do?doListing=yes&sid=3&ssid=22&smid=17

https://fred.stlouisfed.org/series/GDP

https://www.bseindia.com/Indices/IndexArchiveData.html

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The Absent Element in Participative Management: Informal Acquisition of Information

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Abstract

This study addresses the informal acquisition of information (IAI) as a tool for the involvement of lower organizational levels in participative managerial practices. The adoption of participatory models involving the lower levels is an uncommon practice. IAI is a tool for implementing High-Performance Work Systems (HPWS) that can be effective in this respect, but the topic needs to be addressed in the management literature. This research is an effort to bridge the knowledge gap by investigating the importance of and the contours of the phenomenon of IAI in a culture of high-power distance like that of India. Through a two-stage research process, which engaged over a hundred professionals, Q methodology was utilized to explore the phenomenon's subjective and objective dimensions. It examines the perspectives of senior and middle-level management regarding feedback and suggestions provided by junior-level employees, categorizing these viewpoints and assigning ratings. The research revealed that IAI plays a crucial role in breaking initial barriers and is essential for uncovering valuable workplace insights, particularly in cultures characterized by a high power distance. This is because junior employees often have access to intricate details of the organizational dynamics. It was observed that IAI is perceived as a more authentic form of participation than formal mechanisms of participative management.

Keywords: *High-power distance culture, relational coordination, participative management, informal acquisition of information, HPWS, Q methodology*

1. Introduction

Organizations are embracing HPWS to leverage their competitive advantages, enhancing employee and organizational success. HPWS are "human resource (HR) practices designed to enhance employees' skills, commitment, and productivity" (Datta et al., 2005, p. 135). Several HR practices, such as performance management, training and development, selective hiring, etc., are included in HPWS. Information acquisition and participative management are crucial factors in HPWS (Godard, 2004; Jiang et al., 2012; Riaz et al., 2020). For newcomers, in particular, communication and participative decision-making represent a relevant part of the process of learning and inclusion (Ostroff & Kozlowski, 1995; Cooper Thomas & Anderson, 2002).

However, these two components are exclusively intended in the framework of a formal approach to HR, e.g., “formal participatory practices” (Becker & Gerhart, 1996, p. 785); "formal HPWS" (Xi et al., 2016, p.15245); “formal training” (Way, 2002, p. 762); “formal communication” (Way, 2002, p. 762); “formal information-sharing program…” (Huselid, 1995, p.646). Although formal participation has been acknowledged and researched by scholars, informal participation is still a grey area (Wang & Yang, 2015). A few studies suggest the inclusion of a combination of both formal and informal practices in HPWS (Mustafa et al., 2018; Steijvers et al., 2017; Green & Brock, 2005), but stating which approach (only formal communication or hybrid) leads to a deeper perception of participatory management, is still a relatively neglected topic. Contexts characterized by hierarchical and power distance cultures suffer particularly from poor communication and information sharing with lower-level employees (Lin et al., 2019; Morrison et al., 2015; Hofstede, 2001), affecting the quality of decisions (Katri, 2009).

A few questions still need to be addressed in the literature. Among these are: 1) Is the attitude towards IAI in a high-power distance culture necessarily negative? Are senior managers working in a high-power distance culture reluctant both to reach out to junior employees and use informal information channels? 2) What are the different perspectives of IAI, priority-wise? 3) What facilitates the process of IAI?

Starting from these considerations, our research goal is to study the perceptions of middle and senior management regarding the role of informal information acquisition within the framework of high-power distance cultures such as India.

1.1 Cultural Impact

Concerning culture, India exhibits distinct characteristics, including a notably high power distance score of 77, which surpasses the global average of 56.5. Additionally, India demonstrates a relatively low uncertainty avoidance ranking of 40 compared to the world's average of 65 (Juhasz, 2014). This indicates that the Indian workforce is highly centralized and rigid in the hierarchy (Walker, 2007). They are high on innovation (Bruche, 2009) and highly tolerate deviant ideas (Thakur, 2010). This suggests that there should be fewer laws and regulations to manage every unknown and unforeseen occurrence or circumstance. (Juhasz, 2014).

Employees may not consider their junior counterparts competent (Kirkman & Shapiro, 2001) and prefer to consult experts (Stefl-Mabry, 2003). They may find it below their dignity to have informal relations with juniors to seek information (Javidan et al., 2006). This phenomenon may be strengthened in high power distance cultures like India.

In the next section, we frame this gap within the theoretical framework of participative decision-making and information acquisition.

2. Theoretical discussion

The underlying principle of our research is that achieving an effective High-Performance Work System (HPWS) necessitates effective decision-making. Relying solely on formal information acquisition for decision-making constrains its capacity to attain its goals; using IAI may enhance the decision quality. The link between informal communication processes and organizational effectiveness lies in the relational coordination theory. As per the literature, Relational coordination is used in formal setup; it is a construct describing "a mutually reinforcing process of interaction between communication and relationships carried out for task integration" (Gittell, 2002, p. 301). Relational coordination requires common objectives, expertise, and respect, an approach that evokes breaking hierarchy silos, helps achieve a holistic perspective, sharpens problem-solving (Gittell & Suchmann, 2013), and positively moderates the organizational performance under HPWS (Gittell et al., 2010). Within such a framework, there is broad agreement in the literature that organizational knowledge and successful strategy are linked by the capacity to collect reliable and valid information on the actual organizational environment from all sources. (Ibidunni et al., 2017; Van Ginkel & Knippenberg, 2009). The benefits of having constant information on the state of the organization range from reduction of uncertainty, managerial

effectiveness, and improved job performance and attitude (Cross & Sproull, 2004; Hays & Williams, 2011). Incorporating the informal dimension of relational coordination will bolster the effectiveness of HPWS.

'Least effort' is another phenomenon that further justifies the use of IAI. The information-seeking client (manager) looks for informal information for two reasons: he/she finds formal information insufficient or wants to get it corroborated. In both cases, the manager will use a convenient search method by following Zipf's proposition (1949, p.1): "Every individual's movement, of whatever sort, will always be over paths and will always tend to be governed by one single primary principle ... [i.e.] the Principle of Least Effort". From the theory, it can be inferred that individuals use familiar and easy-to-use tools. Some scholars have proposed that employees prefer to retrieve information from other people as, in this way, it is easy to collect and provide the micro-organizational details and happenings (e.g., Tombros et al., 2005; García-Peñalvo & Conde, 2014; Mukerjee & Garud, 2020). Kaye (1995) defines sources of information that are considered formal as those that have been established in a formalized or lawful way. As opposed to it, informal communication is unofficial and does not follow the standard hierarchy of the organization's structure. It is not covered under the purview of formal structure, chart, procedures, policies, work description, documentation, and formal feedback mechanism of the organization. It can be a casual conversation and may include rumours, too.

Liu and Yang (2004) found that students under the influence of 'least effort' use informal information sources rather than formal sources to control respondent selection. Applying the same theory to managers, we assume that if they go through a formal channel, then a) more time is consumed, b) chances of the request being just complied for compliance, and c) there is a high chance of not getting the ground reality.

2.1 Exploring Informal Acquisition of Information (IAI) in the Indian context based on Literature Review, Theory, Culture, and Propositions

Despite the cultural constraints in a high-power-distance culture, we believe that under the influence of relational coordination and least effort, managers will go for IAI. Based on our discussion, we can't ignore the benefits of IAI. We propose that Indian senior managers understand the importance of IAI and don't hesitate to approach juniors to get information.

A series of questions still need to be addressed in the literature. Among these:

- Is the attitude towards IAI in a high-power distance culture necessarily negative? Are senior managers in such a culture reluctant to use informal information channels?
- What are the different perspectives of informal information acquisition, priority-wise?
- What facilitates the process of IAI?

Placing these gaps in the Indian context, the specific research questions we have posed can be formulated as follows

- Will Indian seniors approach juniors to get information, that too informally, because informal dealings break hierarchal structures?
- Do senior managers perceive informal dealing as breaking the hierarchal structure as an unethical issue?
- Do Indians get informal information because they are open to deviant and varied ideas?' if so, 'What are the different aspects they look into?'
- Does IAI is also perceived as participative management

In addition to the above research questions, we also wanted to enquire about the different aspects of priority-wise which are instrumental in the decisions for approaching junior-level employees by Indian senior managers. Together, these concerns form the basis of our research design.

3. Research Design

To investigate our queries, we have undertaken a two-stage research approach encompassing a combination of middle and senior managers. In the first stage, there were 32 managers, and in the second stage, we involved 112 managers.

We aim to understand the issues related to acquiring informal information from junior employees for participative management. Attitude towards IAI is a significant part of our focus, and it is widely affected by subjectivity. Therefore, triangulation is recommended as the methodology. Q methodology, being more robust in evaluating subjectivity, is better suited to evaluate attitudes towards the IAI. Q methodology uses both qualitative and quantitative rigor to evaluate the subjectivity of participants (Lundberg et

al., 2020). In Q methodology, participants rank different perspectives (within the framework of a series of assertions) in order from *agree* to *disagree,* and they fit the statements into a forced distribution within a universe of discourse. Firstly, we attempted to understand the different perspectives of IAI through interviews, developed a Q set based on the interviews, and then used the Q methodology to rank the priority related to issues of IAI. We tried to address two important perspectives of the sample: the practitioner's view and social context (see Ika & Donnelly, 2017). So, we confined our sample to the Indian IT sector and selected professionals with a minimum experience of twelve years[1] For the study, we included middle—and senior-level managers in our sample as we wanted to understand their perspectives, and juniors were excluded: 32 for Phase 1 and 112 for Phase 2.

Figure 1 provides an overview of the research process, including the various stages and the subject field.

Despite the slowdown due to COVID-19, the Indian IT sector is growing at more than 7%, confident of hitting $350 billion in revenues by 2025. It is adding two lakh jobs as compared to 1.8 lakh last year (NASSCOM, 2020), which is significant for India's growth.

3.1 Phases of the Research

We made participants comfortable and promised anonymity (see Wolgemuth et al., 2015), defined informal information, and explained that we are not looking at information evaluation but at long-term and strategic issues. We also explained in detail the meaning of junior employees – the employees who make up the lower organizational strata, working in line tasks such as line managers, shift managers, nurse/head nurses, supervisors, foremen, etc., or in general, the first level or supervisory managers or entry-level personnel. Before starting the process, we cross-question and confirm the prerequisites of our study.

Phase 1

The first step was to understand the different aspects related to the inclusion of junior employees in information acquisition for decision-making. Thirty-two top and middle-

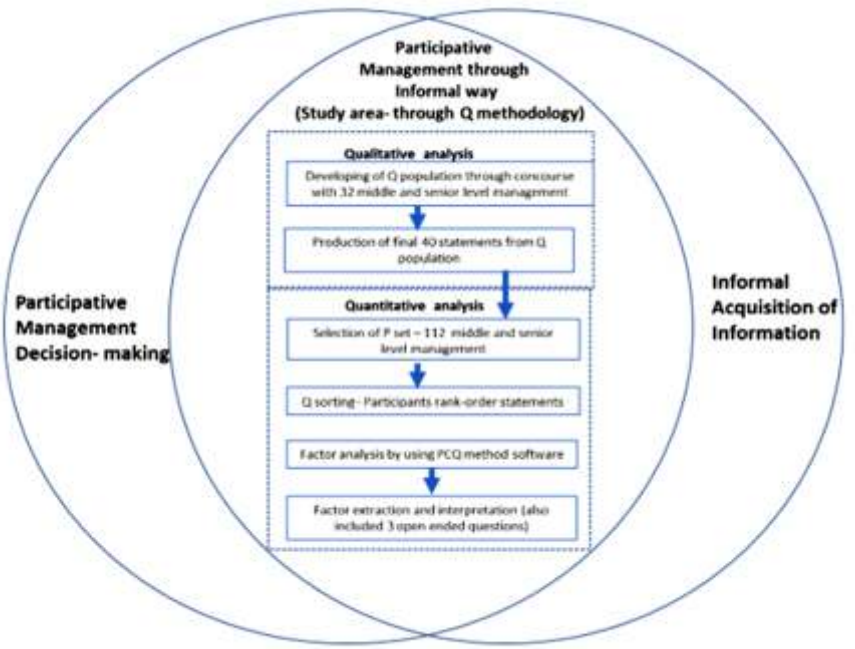

Figure 1. Research Stages and Study Area

1. A typical IT organization has 9–12 levels of hierarchy; strategic intervention starts at the 5th or 6th level. The average experience required to reach that level is 12–13 years. We opted out of the startups for obvious reasons.

level managers from the IT sector were interviewed to discover the dominant discourses on acquiring informal information from junior employees for decision-making. Each interview was audio–recorded. A few executives were not able to meet in person. So virtual meetings and telephonic conversations were arranged for them. Saturation was reached after the twenty-seventh participant (Sparkes et al., 2012), so we stopped at thirty-two. Appendix A includes transcribed excerpts of the interview questions that were posed.

A sample question was, 'Is it a good idea to acquire information informally from junior employees?' An example of an interview response was Participant 5 (Phase 1), who gave 4 points (a summary of his interview follows).

1) Junior employees [by age and work experience] generally have a fresher outlook, so their feedback helps us get an unbiased view.
2) Taking their feedback would perhaps help them see that they are part of a team, which would grow team spirit
3) and help establish transparency in communication within the group.

The responses were analyzed through cluster analysis (Guest & McLellan, 2003). Premising on the interview of 32 participants, we framed 48 statements and then referred them to five senior professors' validation. A few were repetitive and were removed; a few wordings were changed as per their advice; and after three rounds, we finalized 40 statements for our research (see Appendix B). These statements were used in Phase 2 for Q sorting.

Seven groups of statements emerged after the Phase 1 interview (refer to Table 1 for the top five factors; the other were: positive politics is justified for better decision making, informal acquisition of information is an ethical issue)

Phase 2

We gave these 40 statements to the P set of 112 participants (out of the selected 131, only 112 gave consent) for Q-sorting. We randomly selected a few managers, and through the snowball method, we got a representative sample. At a time, the sample batch size was six to ten. The process was repeated for one and a half years to reach a figure of 112.

Our umbrella question for the P set was, 'In acquiring informal information from your juniors, which statement would you prefer?' The participants were asked to Q-sort the 40 testimonies on a scale of -4 (representing strongly disagree) to 4 (representing strongly agree). They followed the score sheet as mentioned in Figure 3.

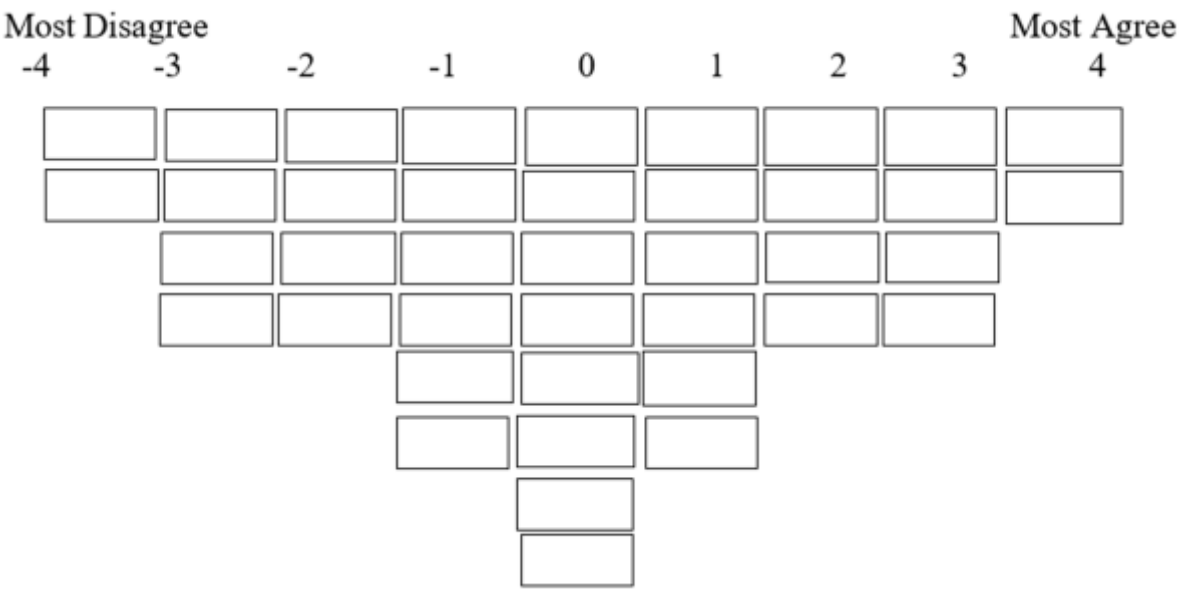

Figure 3. Sample score sheet

At the end of Q sort, we asked three open-ended questions about reasons to rate +4 or -4 and any other thoughts they had regarding the informal acquisition of information from juniors.

4. Findings

The Phase 2 data was subjected to Principal Component Analysis (PCA), and rotation was done using the PQ Method software package (Appendix B contains a rating of each proposition based on their total score). Factorization (Kaiser–Meyer–Olkin measure of sampling adequacy was .856, and Bartlett's test of sphericity was significant ($p < .01$) of 40 sorts revealed six factors (first two groups of statements combined to form one factor, which resulted in six factors) which cumulatively explained 84% of the overall variation and top five factors attributed for 76.6% of the total variation. Items of the sixth factor overlapped with other factors and had a weaker loading. This was why it was removed (Bozeman & Perrewe, 2001, for justification). A summary of the topmost two and the lowest two statements as per their rating from the five factors is given in Table 1 (sort number is in parenthesis).

Table 1. Summary of top five factors with the highest and lowest rated statements

Factor (all with eigenvalue >1)	Statements attracting the highest rating (+ve as well -ve loadings)	Statements with the lowest rating (+ve as well -ve loadings)
A: Information acquisition through informal modes is better than formal ones and creates a deeper impact than formal participative methods. It explains 31% of the total variance.	Informal acquisition of information works as a sensemaking process and gives a collective interpretation. (23) Formal acquisition of information prohibits defensive functioning of the organization. (27, -ve)	Juniors open up in formal meetings and are confident in cross -questioning and backfiring. (28) During informal interaction, juniors are hesitant and need to open up. (11, -ve)
B: Reliability and acceptability of informal information. It explains 13.4% of the total variance.	I refer to juniors for ground -level information. (38) I depend on formal information for strategic issues. (6, -ve)	Formal information is transparent and thus can be a referral point for policy /rules/strategy formulation . (8, -ve) Informal consultation is not a free flow of communication, so it may lead to clearer decisions. (22)
C: Informal involvement of juniors enhances their engagement. It explains 12.8% of the total variance.	Informal acquisition of information irritates juniors, and they get disengaged. (9, -ve) Mutual consistent practices have a more profound impact; Juniors feel obligated and privileged when I approach them informally. (19)	Formal acquisition of information is policy based so obviously it leads to engagement. (12, -ve) Junior, in my close contact, portrays high job satisfaction and a low attrition rate. (36)
D: Informal acquisition of information is not about politics. It explains 10% of the total variance.	To be successful, it's okay to leave a prescribed path. (4) My colleagues approach me for hidden information. (30)	My decision's success is important to me; I must check the facts with juniors. (15) Politics is must for information acquisition. (40)
E: ROI of informal consultation. It explains 9.2% of the total variance.	For effective decision -making, I frequently meet my juniors. (34) Informal consultation brings out hidden facts with minimal time and effort. (39)	Informal information is double -edged and risks playing into bias and prejudices. (14) Most of the time, I avoid it; I must be extra careful. (25)

The participants mostly agreed with statements 17 and 32, rating them +4, and mostly disagreed with statements 1 and 24 and rated them – 4. The crux was that informal acquisition is better than formal participative management policy, allows understanding of junior's skill set beyond resumes, and builds stronger relationships. Informal acquisition of information was perceived as a better mechanism for getting deeper truths and understanding the pulse of employees. Managers neither hesitate to reach out to junior employees nor consider breaking the hierarchy and reaching out directly to junior employees as unethical. Gamez-Djokic et al. (2019) discussed the moral impact of formal information sharing, but, in this case, participants considered breaking formal routines as an ethical issue and, therefore, favorable loading of Statement 7.

Despite the benefits of informal information acquisition, participants also revealed that it takes work to make decisions on informal information (see Appendix B, statements no. 22, 14, and 25). This aligns with the findings of Kouakou (2022), which state that formal participative management has some advantages.

We further analyzed the responses to three open-ended questions. A manual thematic analysis approach was adopted to systematically generate relevant agendas (Nowell et al., 2017; Terry et al., 2017). After a series of reviews, we zeroed in on three broad themes: 'Perception of participation', 'Strategic importance of IAI', and 'Do's and Don'ts while informally approaching juniors' (see Table 2).

Table 2. Critical themes

Critical themes with illustrative data extracts (Direct Quotes)		
Perception of participation	**Strategic importance of IAI**	**Dos and Don'ts while informally approaching juniors**
" *…. it gives instant perception of involvement …….formal methodology of information seeking is not an attractive way my subordinates become extra cautious during every formal meeting* ……" (Participant 68).	*"If we do not trust their [junior's] capabilities, we can test it by engaging in temporary decisions."* (Participant 13)	*"Understand the boundaries" (Participant 16); do not enter areas that may backfire on you.*
"*Informal interactions help build a sense of belongingness with the juniors*." (Participant 95)	*"Formal processes are viewed as another relational aspect of organization processes… " (Participant 33)*	*"Don't waste time…. Do not engage in gossips" (Participant 16).*
"*Formal participative management is eyewash….. juniors do not say a word …tick on whatever we propose…"* (Participant 48)	*"This [informal acquisition of information] is the best way to intensify loyalty and ownership…..why to avoid it" (Participant 105)*	*"Do not be assertive while explaining the greatness of your strategy/project rather than discuss the logic and benefits behind the strategy…" (Participant 7)*
	"Preoccupation with functional accountability shields our mind from paying due attention to overall perspectives….. it results in an information shortage…..inclusion of juniors fill that gap."(Participant 78)	*"You do not have to approach people for information necessarily…… there are many who are enthusiastic to share information…. [but] be careful most of the time they will try to serve their agendas…." (Participant 22)*
	"… I could showcase my talent and what I can bring to the table… aligning with the organization structure also helped to perform better as it made me feel a part of bigger team …." (Participant 87 gave an example of his experience as a junior and how informal meetings helped him)	*"Do not be dependent on the same person, sometimes cross check it….. have a pool of confidants" (Participant 17)*

The message was clear: IAI gives a perception of participation. It is better than formal participative management processes as it enhances interpersonal relationships. Formal processes are just another process that junior employees comply with. IAI fosters closeness to seniors as it intensifies organizational loyalty among junior employees. It also helps managers to know the junior employees beyond their curriculum vitae. Some recommendations were made, such as avoiding excessive time wastage and maintaining focus during discussions with junior employees. To validate the information provided by junior employees, managers should occasionally verify it through cross-checks. Despite a few weaknesses, IAI is the best way to understand ground reality, promote participative management, and enhance organizational performance.

5. Discussion

5.1 Theoretical Implications

This article contributes to the existing body of research in five different areas. Our first findings give a new perspective on participative management—informal information acquisition gives a deeper perception of participation than the formal process. Most of the work (e.g., Foster et al., 2011) has only discussed the benefits of one channel or a combination of both. However, none of the researchers have specified the superiority of a specific communication channel—formal or informal. Our article may add some value in that direction.

Fiske (1991) acknowledged the role of cultural inequality in matching the exchange value. Per our findings, formal information acquisition is perceived as compliance in high power distance, which may be motivated by perceived instrumentality. This may deter the juniors from sharing real information. They rather prefer to share what pleases the seniors. Informal settings give a perception of equality and psychological contract, which enriches the participative exercise (Participant 53).

Second, we offer a few insights related to IAI from junior employees. The aspects related to it weightage-wise are:

1) Information acquisition through informal modes is better than formal ones and creates a more profound impact than formal participative methods.

2) There is no issue with the reliability and acceptability of informal information.

3) Informal involvement of juniors enhances their engagement.

4) Informal acquisition is not perceived as politics.

5) The ROI of informal consultation is high.

Third, it adds a novel perspective to participative management, which upgrades traditional participative management -HR function to HPWS: (i) formal participative process may be just an eyewash procedure in a high-power

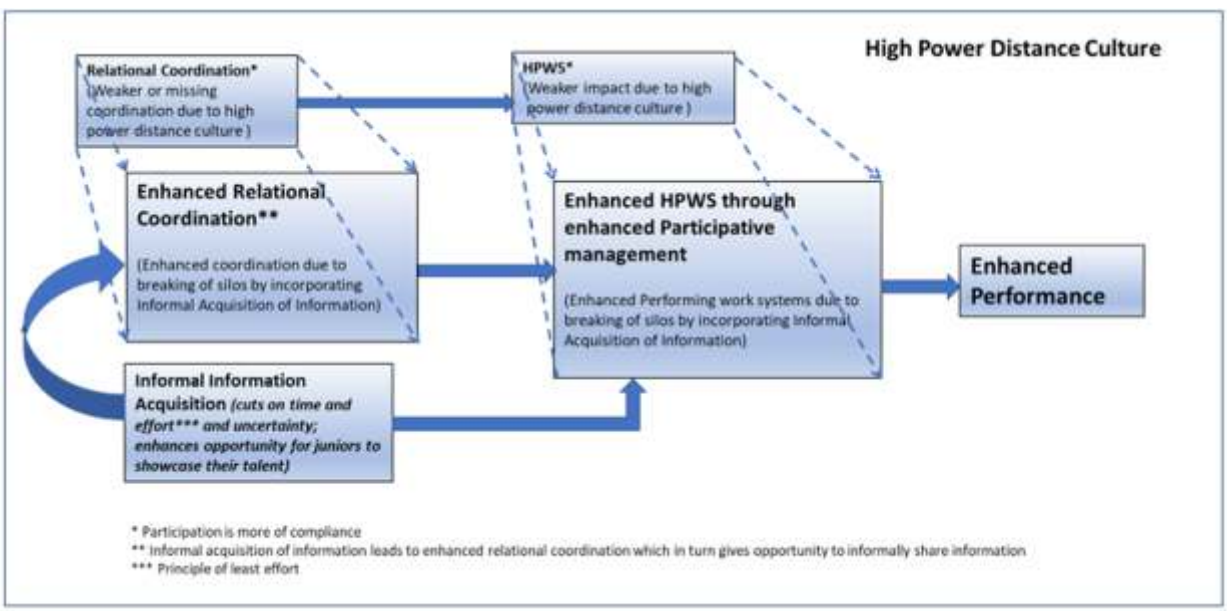

Figure 2. Theoretical model: Enhanced relational coordination and enhanced performance

Fifth, it provides an example of how to use the less common Q methodology to combine the best of positivist and post-positivist approaches (Durning, 1999).

5.2 Managerial Implications

Contemporary managerial practices involve significant time and energy to facilitate information flow for better decisions. However, such information tends to be incomplete or biased if it does not consider and include junior employees' feedback.

When seniors reach out to juniors, it is perceived as recognition, participation, and appreciation. If managers get more through informal relation, they will make extra effort to work towards relational coordination and maintain networking even outside of work; in other words, true realization of social capital (Fukuyama, 2002). “Juniors will also support the same if they perceive that their suggestions matter, they have some control over organizational matters, and superiors consider them at par with any other senior employee" (Participant 52-Phase 1). Guan and Frenkel (2019) mention the positive impact of supervisor and subordinate networking outside the workplace and encourage juniors to share information. HPWS is all about high-quality relationships that help in rapid error detection and correction (Vogus, 2006). So, managers must be encouraged to go for policies allowing informal relational coordination. They can conduct a social network analysis (Hollenbeck & Jamieson, 2015), understand the workflow that drives decision-making, and derive their preferred social network (Hatala, 2006).

Juniors hesitate to participate if they lack confidence about the importance of the information they have provided; managers play an important role in building the confidence to share information. Managers should be careful while interacting with juniors and not get overwhelmed with unexpected information. Strong informal relations may impose costs, too; juniors may influence managers for poor alternatives (Leana, 1985). Information sharing appears to be participative management, which causes difficulty in cases where seniors share information on sensitive issues with junior employees. Scholars have advocated for restraint while using informal information in the decision-making process (Aalbers & Dolfsma,2019). For effective participative management, performance measures should hold shared accountability for outcomes, which will boost relational coordination (Gittell & Douglass, 2012).

In high power distance culture, managers should go one step ahead by informally approaching juniors. Accessibility brings out a collectivist feeling and boosts skills of coordination, resilience, and dyadic trust (Leana III & Van Buren, 1999), which is the essence of participative management but is a missing factor in high-power distance cultures (Ji et al., 2015). Premising, informal accessibility will have a multiplier impact on the effectiveness of organizational social capital, especially in a high-power distance culture.

For 'fluid expertise, ' managers must willingly step away from expert roles to learn and be influenced by juniors (Fletcher, 2001). Any seasoned professional would vouch for information that lies in the most unsuspecting places, like junior staff. The more accurate version of organizational reality is usually found in people who are closer to the ground reality. The best information often needs more motivation and comes from the bottom rungs of an organizational hierarchy. Junior employees in an informal setup are one of the most strategic sources of reliable and valid information for the effectiveness of HPWS.

5.3 Future Research and Limitations

This research has a series of limitations. The first concern is that the findings might not be applicable in a different culture. Jago (2017) suggests a possible test for such limitation, comparing within-country differences (among persons) with between-country differences (among cultures). This analysis would require an international comparison, which has not been carried out here.

The second one is that individuals have a limited capacity to assimilate and comprehend all the information in their environment (Asamoah & Sharda, 2021). Situation and environment also impact an individual's capability of assimilation and comprehension of the information; this aspect was not addressed. For instance, it would be important to find out the difference in a manager's orientation towards informal information in different situations, e.g., when personal aspects are at stake, the organization is at stake, the team is at stake, etc.

Third, the practice of informal acquisition of information may lead to the development of a robust informal network, which can create a “black box” (Minbaeva et al., 2023, p. 557) if it is “relatively closed” (Minbaeva et al.,2023, p.557) and thus this can be a matter of research.

Fourth, evaluating and comparing individual aspects related to the impact of formal and informal information acquisition could have given a better understanding. For instance, employees who have a high propensity for feedback respond favorably to the information (London & Smither, 2002). Considerations like these need to be given priority in further research.

6. Conclusion

IAI is a strategically important tool for managers. Little alertness and cross-verification of information increase its impact. In a high-distance culture, it further increases its importance as it is perceived as another participative management style and better than a formal participative program.

This study's findings are summarized in Participant 91: '[T]*here is no second thought that the authentic information comes from sources near to ground ... they open up only when they feel valued.... in our culture these HR formal information-seeking options don't work.... you have to go up to them .... and they will happily give more than your expectations.....they feel that they are participating*….'

References

Aalbers, H. L., & Dolfsma, W. (2019). Resilience of information flow during restructuring: Characterizing information value being exchanged and the structure of a network under turmoil. *Journal of Business Research*, 100, 299-310. https://doi.org/10.1016/ j.jbusres. 2019.03.003

Al-Ajlouni, M.I. (2021). Can high-performance work systems (HPWS) promote organisational innovation? Employee perspective-taking, engagement, and creativity in a moderated mediation model. *Employee Relations,* 43(2), 373- 397. https://doi.org/10.1108/ER-09-2019-0369

Asamoah, D. A., & Sharda, R. (2021). What should I believe? Exploring information validity on social network platforms. *Journal of Business Research*, pp. 122, 567–581. https://doi.org/10.1016/ j.jbusres. 2020.09.019

Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal.* 39 (4), 779–801. https://doi.org/10.2307/ 256712

Boselie, P., Dietz, G., & Boon, C. (2005). Commonalities and contradictions in HRM and performance research. *Human Resource Management Journal*, 15(3), 67-94. https://doi.org/10.1111/j.1748-8583.2005.tb00154.x

Bozeman, D. P., & Perrewe, P. L. (2001). The effect of item content overlap on Organizational Commitment Questionnaire–turnover cognitions relationships. *Journal of Applied Psychology*, 86(1), 161. https://doi.org/10.1037//0021-9010.86.1.161

Bruche, G. (2009). The emergence of China and India as new competitors in MNC's innovation networks. *Competition and Change*, 13(3), 267–88.

https://doi.org/10.1179%2F102452909X451378

Chen, Z. X., & Aryee, S. (2007). Delegation and employee work outcomes: An examination of the cultural context of mediating processes in China. *Academy of Management Journal*, 50(1), 226–238. https://doi.org/10.5465/AMJ.2007.24162389

Cooper Thomas, H., & Anderson, N. (2002). Newcomer adjustment: The relationship between organizational socialization tactics, information acquisition, and attitudes. *Journal of Occupational and Organizational Psychology.* 75 (4), 423–437. https://doi.org/10.1348/ 096317902321119583

Cross, R., & Sproull, L. (2004). More than an answer: Information relationships for actionable knowledge. *Organization Science*, 15(4), 446–462. https://doi.org/ 10.1287/orsc.1040.0075

Daniels, M. A., & Greguras, G. J. (2014). Exploring the nature of power distance: Implications for micro- and macro-level theories, processes, and outcomes. *Journal of Management,* 40(5), 1202–1229. https://doi.org/ 10.1177/0149206314527131

Datta, D., Guthrie, J. & Wright, P. (2005). Human resource management and labor productivity: Does industry matter? *Academy of Management Journal*, 48(1), 135–145. https://doi.org/10.5465/amj.2005.15993158

Delbridge, R., & Keenoy, T. (2010). Beyond managerialism? *The International Journal of Human Resource Management*, 2(6), 799-817. https://doi.org/ 10.1080/09585191003729309

Dorta-Afonso D, González-de-la-Rosa M, García-Rodríguez FJ, Romero-Domínguez L. (2021). Effects of High-Performance Work Systems (HPWS) on Hospitality Employees' Outcomes through their Organizational Commitment, Motivation, and Job Satisfaction. *Sustainability*, 13(6), 3226. https://doi.org/10.3390/su13063226

Drummond, I., & Stone, I. (2007). Exploring the potential of high-performance work systems in SMEs. *Employee Relations,* 29(2), 192–207. https://doi.org/10.1108/01425450710720011

Durning, D. (1999). The transition from traditional to postpositivist policy analysis: A role for Q methodology. *The Journal of the Association for Public Policy Analysis and Management*, 18(3*),* 389–410. https://doi.org/10.1002/(SICI)1520-6688(199922)18:3%3C389::AID-PAM4%3E3.0.CO;2-S

Edwards, J. R., & Cable, D. M. (2009). The value of value congruence. *Journal of Applied Psychology*, 94(3), 654–677. https://doi.org/10.1037/a0014891

Fiske, A. P. (1991). *Structures of social life: The four elementary forms of human relations: Communal sharing, authority ranking, equality matching, and market pricing*. Free Press.

Fletcher, J. K. (2001). *Disappearing acts: Gender, power, and relational practice at work*. Cambridge, Mass. MIT Press.

Foster, A. (2004). A nonlinear model of information seeking behavior. *Journal of the American Society for Information Science and Technology*, 55(3), 228–237. https://doi.org/10.1002/asi.10359

Fukuyama, F. (2002). Social capital and development. *SAIS Review (1989-2003)*, 22(1), 23-37. https://doi.org/10.1353/sais.2002.0009

Gahan, P., Theilacker, M., Adamovic, M., Choi, D., Harley, B., Healy, J., & Olsen, J. E. (2020). Between fit and flexibility? The benefits of high performance work practices and leadership capability for innovation outcomes. *Human Resource Management Journal*, 45(5), 599-636. https://doi.org/10.1111/1748-8583.12316.

Gamez-Djokic, M., Gaspar, J. P., Gunia, B., Kouchaki, M., Lee, J., Lewin, L., & Warren, D. E. (2019, July). The Unintended Moral Consequences of Passion, Proactivity, and Information Sharing in *Academy of Management Proceedings.* Vol. 2019 (1), 13436. Briarcliff Manor, NY 10510: Academy of Management. https://doi.org/10.5465/AMBPP.2019.13436symposium

García-Peñalvo, F. J., & Conde, M. Á. (2014). Using informal learning for business decision-making and knowledge management. *Journal of Business Research*, 67(5), 686–691. http://dx.doi.org/10.1016/j.jbusres.2013.11.028

Gittell, J. H. (2002). Relationships between service providers and their impact on customers", *Journal of Service Research*, 4 (4), 299-311. https://doi.org/10.1177/1094670502004004007

Gittell, J. H., & Douglass, A. (2012). Relational bureaucracy: Structuring reciprocal relationships into roles. *The Academy of Management Review*, 37 (4), 709–733. https://doi.org/10.5465/amr.2010.0438

Gittell, J. H., & Suchmann, A. L. (2013). An overview of relational coordination adapted from New Directions for Relational Coordination Theory in *Oxford Handbook of Positive Organizational Scholarship*. Microsoft Word - Overview of Relational Coordination with Blog Posts.docx (rchcweb.com),

Gittell, J. H., Seidner, R., & Wimbush, J. (2010). A relational model of how high-performance work systems work. *Organization Science*, 21(2), 490–506. https://doi.org/10.1287/orsc.1090.0446

Godard, J. (2004). A critical assessment of the high performance paradigm. *British Journal of Industrial Relations*, 42(2), 49–378. https://doi.org/10.1111/j.14678543.2004.00318.x

Gong, Y., Chang, S., & Cheung, S. Y. (2010). High-performance work system and collective OCB: A collective social exchange perspective. *Human Resource Management Journal*, 20(2), 119-137. https://doi.org/10.1111/j.1748-8583.2010.00123.x

Green, M., & Brock, T. (2005). Organizational Membership versus Informal Interaction: Contributions to Skills and Perceptions That Build Social Capital. *Political Psychology,* 26(1), 1-25. http://www.jstor.org/stable/3792497

Guan, X., & Frenkel, S. J. (2019). Explaining supervisor-subordinate guanxi and subordinate performance through conservation of resources lens. *Human Relations*, 72(11), 1752- 1775. https://doi.org/10.1177%2F0018726718813718

Guest, G., McLellan, E. (2003). Distinguishing the trees from the forest: Applying cluster analysis to thematic qualitative data. *Field Methods*, 15(2), 186-201. https://doi.org/10.1177%2F1525822X03015002005

Hatala, J. P. (2006). Social network analysis in human resource development: A new methodology. *Human Resource Development Review*, 5(1), 45-71. https://doi.org/10.1177%2F1534484305284318

Hays, J. C., & Williams, J. R. (2011). Testing multiple motives in feedback seeking: The interaction of instrumentality and self-protection motives. *Journal of Vocational Behavior*, 79(2), 496–504. https://doi.org/10.1016/j.jvb.2011.01.007

Hewes, D. E., Graham, M. L., Doelger, J., & Pavitt, C. (1985). Second guessing Message interpretation in social networks. *Human Communication Research*, 11(3), 299-334. https://doi.org/10.1111/j.1468-2958.1985.tb00050.x

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Thousand Oaks, CA: Sage publications. https://doi.org/10.1177/1094670502004004007

Hollenbeck, J. R., & Jamieson, B. B. (2015). Human capital, social capital, and social network analysis: Implications for strategic human resource management. *The Academy of Management Perspectives*, 29(3), 70- 385. https://doi.org/10.5465/amp.2014.0140

Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38(3), 635–672. https://doi.org/10.2307/256741

Ibidunni, A. S., Ogunnaike, O. O., & Abiodun, A. J. (2017). Extending the knowledge strategy concept: Linking organizational knowledge with strategic orientations. *Academy of Strategic Management Journal*, 16(3). https://shorten.one/BZPuP

Ika, L. A., & Donnelly, J. (2017). Success conditions for international development capacity building projects. *International Journal of Project Management*, 35(1), 44-63. https://doi.org/10.1016/j.ijproman.2016.10.005

Jago, A. G. (2017). A contrarian view: Culture and participative management. *European Management Journal*, 35(5), 645–650. https://doi.org/10.1016/j.emj.2016.10.001

Leana, C... (1985). A partial test of Janis' groupthink model: Effects of group cohesiveness and leader behavior on defective decision making. *Journal of Management*, 11(1), 5-18. https://doi.org/10.1177%2F014920638501100102

Javidan, M., House, R. J., Dorfman, P. W., Hanges, P. J., & De Luque, M. S. (2006). Conceptualizing and measuring cultures and their consequences: a comparative review of GLOBE's and Hofstede's approaches. *Journal of International Business Studies*, 37 (6), 897-914. https://doi.org/10.1057/palgrave.jibs.8400234

Ji, Y., Zhou, E., Li, C., & Yan, Y. (2015). Power distance orientation and employee help-seeking: Trust in supervisor as a mediator. *Social Behavior and Personality: An International Journal,* 43(6), 1043–1054. https://doi.org/10.2224/sbp.2015.43.6.1043

Jiang, J. Y., & Liu, C. W. (2015). High-performance work systems and organizational effectiveness: The mediating role of social capital. *Human Resource Management Review*, 25(1), 126-137. http://dx.doi.org/10.1016/j.hrmr.2014.09.001

Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55(6), 1264–1294. https://doi.org/10.5465/amj.2011.0088

Juhasz, I. (2014). The workforce in Indian organizations: an analysis based upon the dimensions of Hofstede's model. *Economics Questions, Issues and Problems*, pp. 1, 38–45. https://doi.org/10.32535/jicp.v2i4.780

Khatri, N. (2009). Consequences of power distance orientation in organizations. *Vision, The Journal of Business Perspective*, 13(1), 1–9. https://doi.org/10.1177%2F097226290901300101

Kaye, D. (1995). Sources of information, formal and informal. *Management Decision*, 33(5), 13–15. https://doi.org/10.1108/EUM0000000003898

Kirkman, B. L., & Shapiro, D. L. (2001). The impact of cultural values on job satisfaction and organizational commitment in self-managing work teams: The mediating role of employee resistance. *Academy of Management Journal*, 44(3), 557–569. https://doi.org/10.5465/3069370

Kouakou, D. C. (2022). Determinants of employees' participation in decision making in developing countries: Does a firm's formal versus informal status matter? *Managerial and Decision Economics*, 43(5), 1501-1514. https://doi.org/10.1002/mde.3470

Leana III, C. R., & Van Buren, H. J. (1999). Organizational social capital and employment practices. *Academy of Management Review*, 24(3), 538-555. https://doi.org/10.5465/amr.1999.2202136

Lin, X., Chen, Z. X., Herman, H. M., Wei, W., & Ma, C. (2019). Why and when employees like to speak up more under humble leaders? The roles of a personal sense of power and power distance. *Journal of Business Ethics*, 158(4), 937-950. http://dx.doi.org/10.1007/s10551-017-3704-2

Liu, Z., &Yang, Z. Y. L. (2004). Factors influencing distance-education graduate students' use of information sources: A user study. *The Journal of Academic Librarianship*, 30(1), 24- 35. https://doi.org/10.1016/j.jal.2003.11.005

London, M., & Smither, J. W. (2002). Feedback orientation, feedback culture, and the longitudinal performance management process. *Human Resource Management Review*, 12(1), 81–100. https://doi.org/10.1016/S1053-4822(01)00043-2

Lundberg, A., de Leeuw, R., & Aliani, R. (2020). Using Q methodology: Sorting out subjectivity in educational research. *Educational Research Review*, 31, 100361. https://doi.org/10.1016/j.edurev.2020.100361

Minbaeva, D., Ledeneva, A., Muratbekova-Touron, M., & Horak, S. (2023). Explaining the persistence of informal institutions: The role of informal networks. *Academy of Management Review*, 48(3), 556-574. https://doi.org/10.5465/amr.2020.0224

Morrison, E. W., See, K. E., & Pan, C. (2015). An approach inhibition model of employee silence: The joint effects of a personal sense of power and target openness. *Personnel Psychology,* 68(3), 547–580. https://doi.org/10.1111/peps.12087

Mukerjee, J., & Garud, R. (2020). Institutionalizing Informal Interactions: The Daily Stand-Up Meeting as an Interaction Work Ritual in *Academy of Management Proceedings,* 2020(1), 14797, Briarcliff Manor, NY 10510: Academy of Management. https://doi.org/10.5465/AMBPP.2020.14797abstract

Mustafa, M. J., Caspersz, D., Ramos, H. M. L., & Siew, C. M. M. (2018). The satisfaction of non-family employees with high involvement HR practices: Evidence from family SMEs. *Human Resource Development International*, 21(3), 163-185.
https://doi.org/10.1080/13678868.2017.1410005

NASSCOM. (2020, February 1). India's IT sector to grow 7.7% in FY20. *The Economic Times.* India's IT sector to grow 7.7% in FY20: Nasscom - The Economic Times (indiatimes.com)

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 837–851.https://doi.org/10.1177%2F1609406917733847

Ostroff, C., & Kozlowski, S. W. (1992). Organizational socialization as a learning process: The role of information acquisition. *Personnel Psychology*, 45(4), 849-874. https://doi.org/10.1111/j.1744-6570.1992.tb00971.x

Payne, G. T., Moore, C. B., Griffis, S. E., & Autry, C. W. (2011). Multilevel challenges and opportunities in social capital research. *Journal of Management*, 37(2), 491–520. https://doi.org/10.1177%2F0149206310372413

Riaz, S., Townsend, K., &Woods, P. (2020). Understanding HRM philosophy for HPWS and employees' perceptions. *Personnel Review,* 50(3), 812–828. https://doi.org/10.1108/PR-11-2019-06

Shin, D., & Konrad, A. M. (2017). Causality between high-performance work systems and organizational performance. *Journal of Management*, 43(4), 73–997.
https://doi.org/10.1177/0149206314544746

Somech, A. (2006). Women as participative leaders: Understanding participative leadership from a cross-cultural perspective in *Women Principals in a Multicultural Society*, 155–171. Brill Sense. https://doi.org/10.1163/9789087901141_011

Sparkes, E., Duarte, R. V., Raphael, J. H., Denny, E., & Ashford, R. L. (2012). Qualitative exploration of psychological factors associated with spinal cord stimulation outcome. *Chronic Illness*, 8(4), 239–251. https://doi.org/10.1177%2F1742395311433132

Swearingen, M. H. (2017). *Participative Management: An Analysis of its Effect on Productivity*, Vol. 13, London: Routledge.

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. *The SAGE Handbook of Qualitative Research in Psychology*, *2*, 17–37. London: Sage Publications

Thakur, M. (2010). Indian cultural analysis using Hofstede's cultural dimension analysis and Schein modeling. *Toronto: Schulich School of Business–York University*.

Tombros, A., Ruthven, I., & Jose, J. M. (2005). How users assess web pages for information seeking. *Journal of the American Society for Information Science and Technology*, 56(4), 327–344. https://doi.org/10.1002/asi.20106

van Ginkel, W. P., & van Knippenberg, D. (2009). Knowledge about the distribution of information and group decision-making: When and why does it work? *Organizational Behavior and Human Decision Processes*, 108(2), 18–29. https://doi.org/10.1016/j.obhdp.2008.10.003

Vogus, T. J. (2006). What is it about relationships? A behavioral theory of social capital and performance. *Labor and Employment Relations Proceedings*, pp. 58, 164–173. What is it about Relationships? A Behavioral Theory of Social Capital and Performance | Vogus | LERA for Libraries (lerachapters.org)

Walker, T. (2007). Competing in the global market: the influence of culture. *The Way Ahead*, 3(1), 18–22. https://doi.org/10.2118/0107-018-TWA

Wang, W., & Yang, X. (2015). Does informal participation increase job satisfaction in public organizations? A study on civil servants in Beijing, China. *Public Personnel Management*, 44(3), 356-374. https://doi.org/10.1177%2F0091026015586264

Way, S. A. (2002). High-performance work systems and intermediate indicators of firm performance within the US small business sector. *Journal of Management,* 28(6), 765–785. https://doi.org/10.1177/01492063020280060 4

Wolgemuth, J. R., Erdil-Moody, Z., Opsal, T., Cross, J. E., Kaanta, T., Dickmann, E. M., & Colomer, S. (2015). Participants' experiences of the qualitative interview: Considering the importance of research paradigms. *Qualitative Research*, 15(3), 351-372. https://doi.org/10.1177%2F1468794114524222

Xi, M., Chen, Y., & Zhao, S. (2016). The Role of Employees' Perceptions in the HPWS-Performance Relationship: A Multilevel Perspective. In *Academy of Management Proceedings*, Vol. 2016(1), 15245. Briarcliff Manor, NY 10510: Academy of Management. https://doi.org/10.5465/ambpp.2016.72

Yang, I., & Horak, S. (2019). Formal and informal practices in contemporary Korean management. *The International Journal of Human Resource Management*, 30(22), 3113-3137. https://doi.org/10.1080/09585192.2017.1342683

Zipf, G. K. (1949). *Human behavior and the principle of least effort: An introduction to human ecology*. Cambridge: Wesley Press Inc.

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Exploring Relationship between ESG Practices and Financial Attributes of Leading Companies

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Abstract

Today's business world must address the critical issue of sustainability as it is associated with an organization's comprehensive strategy. In response to the increasing focus on 'sustainable' issues, corporations are now disclosing more information about their environmental, social, and governance (ESG) activities. Most business leaders are becoming more conscious of the importance of ESG concerns outside of their financial results, which could affect a company's capacity to maintain its financial stability and reputation as a trusted brand. This research paper collects the ESG scores of Indian companies included in the NIFTY 50 for the financial year 2021-2022 from CRISIL and investigates the relationship between ESG scores and financial attributes of companies using a correlation matrix and multiple regression analysis. The findings indicate a positive relationship between profitability and ROCE (Return on Capital Employed) with overall ESG disclosure scores and environmental disclosure scores, followed by the companies' governance and social disclosure scores. The study emphasizes the rising need to implement ESG factors in business strategies and investment decisions. It implies that sustainable practices are more than just compliance or corporate responsibility; they can also be an important driver of financial success. Companies must strike a balance between expansion and ethical ESG policies to prevent negative consequences. Additionally, investors and other stakeholders could use ESG scores to manage risks to identify companies with greater potential for long-term resilience and sustainability. The results from cluster analysis and sector-wise share of disclosure scores depict that the information technology sector and the fast-moving consumer goods sector disclose more information on ESG aspects. The study also reveals that not all industrial sectors perform similarly in ESG aspects, providing valuable insights for investors to identify sectors that are inconsistent with their investment plan. In addition, firms can ascertain their ESG performance gaps, enabling them to develop customized sustainability strategies that address industry-specific boundaries.

Keywords: *Sustainability, Environment, Social, Governance, ESG scores, CSR, Financial performance, Sectors*

1. Introduction

Sustainability is presently a prominent area of concern and discussion around the globe. Businesses nowadays must take responsibility for the several positive and negative repercussions of their activities on society at large in addition to the environment in which they operate. Additionally, companies are required to disclose these implications accurately in a sustainability report that fully outlines their governance system, stakeholder engagement approach, and achievement of the triple bottom line (Aggarwal, 2013). For businesses worldwide, the emergence of sustainable organizations via strengthening environmental and social performance has emerged as a key concern (Marrewijk, 2003). As a part of the governance process, the company's management structure, including the board of directors, is integrated with the firm's integrity and ethical behaviour (Almeyda & Darmansyah, 2019). To attract investment capital, it is crucial for businesses to enhance their corporate governance competencies (Fung, 2014).

Governance has a significant effect on corporate social responsibility (CSR) because more honest executives and board members have a better understanding of societal concerns that are relevant to the brand. The integration of ESG aspects as an instrument for making investment choices has been more recently made accessible on global financial markets (Bianchi et al., 2010). There are various ways to evaluate and quantify environmental and social responsibilities and a part of governance by gathering measurements and figuring out how to strengthen regulations that improve a company's reputation.

The impetus for this study comes from the significance of upholding good corporate governance, resolving social concerns, and conserving the environment. To safeguard companies and the confidence of shareholders, SEBI (Securities and Exchange Board of India) has been continuously striving to implement more stringent regulations to prevent business conflicts (Sexena et al., 2017). The purpose of the present study is to provide an extensive literature review on the linkage between ESG and various financial attributes. This study is also an attempt to explore the current reporting framework prevailing in the context of the developing nation, India. Further, the study also tries to investigate the relationship between ESG scores and various key financial attributes of the selected Indian companies.

2. Theoretical Framework of the Study

Numerous theoretical viewpoints can be used to provide a strong theoretical basis for examining the association between financial success and ESG scores from many angles, which aids in explaining the immediate as well as long-term impacts of ESG initiatives.

2.1 Stakeholder Theory

According to stakeholder theory, businesses should consider the interests of all the parties involved while making decisions, not only shareholders (Freeman & McVea, 2001).

Firms that concentrate on ESG issues respond to the requirements and concerns of different stakeholders, including employees, consumers, vendors, and the community. A favorable correlation between ESG ratings and financial performance is supported by stakeholder theory. Firms that prioritize ESG activities are probably addressing the problems of different stakeholders, which could enhance their reputations, build consumer loyalty, boost employee satisfaction, and even assist risk management. Firms that disregard ESG factors risk losing stakeholders, harming their brand, or experiencing operational discomfort, resulting in poor financial performance. Companies can increase their legitimacy and lower risks (such as legal risks or social backlash) by concentrating on social and environmental aspects. This could eventually contribute to an advancement in long-term financial performance. The study under stakeholder theory might support this notion of whether companies with higher ESG scores are more likely to be able to strengthen stakeholder loyalty and trust, which has a positive long-term financial result in terms of profitability.

2.2 Agency Theory

Agency theory addresses the conflict that occurs when the interests of principals (owners or shareholders) and agents (managers) are not completely balanced. Agents may act in their own best interests rather than the interests of the principals (Jensen, 1986).

Comprehensive ESG policies can potentially reduce reputational hazards and foster a more favourable brand perception, improving decision-making and risk management and eventually improving financial performance. ESG initiatives may incur agency costs if managers prioritize them over shareholder profit. Managers

may engage in initiatives on ESG to boost their own reputations or social status rather than to increase financial returns. Modern interpretations suggest that ESG activities can align with shareholder interests by mitigating long-term risks (e.g., environmental and regulatory fines) or capitalizing on emerging market opportunities (e.g., demand for sustainable products), potentially improving financial performance. ESG investments can be justified as long-term value-generation initiatives, not short-term costs. The study under agency theory might explore whether companies with effective corporate governance (which lowers agency difficulties) reveal a higher positive association between ESG scores and financial performance, such as profitability.

2.3 Resource Based View (RBV) Theory

RBV theory concentrates attention on internal resources inside an organization in order to streamline workflows and gain a competitive edge. According to this concept, organizations need to have distinct, firm-specific core competences in order to surpass rivals by taking alternative approaches (Barney, 1991).

ESG variables can be viewed as crucial resources that support a company's long-term performance from an RBV standpoint. Firms that implement ESG into their core strategy may create distinctive capabilities, such as creative sustainable goods, effective supply chains or solid linkages with the community, and efficient operations (such as lower waste and energy consumption) that are hard for rivals to imitate. Effective ESG risk management may help businesses to protect important assets like a solid corporate reputation. As a result, ESG initiatives collectively become a strategic tool that boosts financial performance and competitive advantage. The study under RBV theory might explore whether companies with high ESG scores have unique advantages that enable them to outperform rivals financially regarding their profitability.

3. Literature Review

ESG information has recently been a concern for everyone in light of the significant long-term impact given to stakeholder investments rather than just those of the shareholders (Buniamin & Ahmad, 2015). All stakeholders, both inside and outside of business are held accountable through measurement, reporting and other practices. A company's ESG score provides information on how well it is doing in terms of achieving sustainable development.

3.1 Environmental Disclosure Practices

Climate change is a subject that has been discussed since the beginning of the twenty-first century and remains among the most serious and prominent concerns confronting the whole human species. Outcomes of environmental disclosure by corporations are typically analyzed using information that is made accessible to the public by the company, such as annual reports, reports of environmental initiatives, websites, etc. It encompasses every aspect of the environment (Clarkson et al., 2008). The degree of environmental disclosure was examined in a sample of Indian pharmaceutical companies' annual and sustainability reports. The study concluded that the selected companies' degree of environmental disclosure was not particularly encouraging and discovered significant differences in the disclosure scores (Dangwal & Sharma, 2014). A study was conducted to assess the extent of environmental information disclosure by listed companies on the Lisbon Euronext Stock Market between 2007 and 2009. The study discovered that environmental reporting's level of disclosure has increased over time and that there is a growing number of environmental topics covered in the companies' annual reports (Carreira et al., 2014).

3.2 Social Disclosure Practices

A social score measures issues relating not only to consumers but also to how they react to products, as well as other societal concerns, including charitable giving, business ethics, and efforts made to uphold human rights (Dorfleitner et al., 2013). Considering a company's social performance can help assess its overall performance and within the ESG framework (Kocmanova et al., 2011). Through content analysis, (Charumathi & Gaddam, 2015) assessed the Maharatana Central Public Sector Companies' level of CSR disclosure during a five-year span from 2010-2011 to 2014-2015 and found that the focus of CSR by the chosen companies is more on communities, rural development, healthcare, and education. The study's (Ali et al., 2022) primary goal is to methodically evaluate and interpret the academic evidence on the drivers and motivations for CSR disclosure in developing nations. The research results demonstrated that the internal factors that influence CSR disclosure include firm characteristics like size, market, financial condition, and elements of corporate governance, including board size and independence. Regulations, political pressure, and industry-level elements, including the intensity of industry competition, consumer concerns, and multiple listing of a firm, are a few examples of the external factors that have a potential effect on CSR disclosure.

3.3 Corporate Governance Disclosure Practices

Corporate governance is mainly concerned with how managerial functions supervise and control businesses (Deakin, 2012). Therefore, it is a crucial component that helps to increase the efficacy of issues pertaining to economic development as well as the need to improve shareholder trust. Additionally, governance takes into account the relationships among board members, investors, managers, and other important stakeholders inside the organization (Kocmanova et al., 2011). The corporate governance voluntary and non-voluntary disclosure practices of the listed businesses from four rising European nations are examined in the study (Mateescu, 2015). Regarding voluntary information, managers are typically open to sharing financial data as well as specifics about their internal laws and regulations, including the resolutions from general meetings. On the other side, the management is unwilling to disclose the dividend policies of the organization and information regarding the independence of the board members. In order to determine whether industry and business group membership of enterprises has an impact on their corporate governance procedures, the aim of the research (Mohanty & Mishra, 2022) is to analyze the corporate governance practices used by the listed companies in India. The authors developed five criteria for the corporate governance indicators using main component analysis: board composition, ownership, responsible board behavior, shareholder responsibility, and fair executive compensation. Moreover, the study concluded that enterprises' corporate governance practices seem to be more equivalent between business groups than between industries.

3.4 ESG and Corporate Attributes

The cash flow element of the value of US-listed companies from five industries (oil & gas, chemical, food/beverage, pharmaceutical, and electric utilities) was significantly positively correlated with voluntary environmental disclosures (Plumlee et al., 2015). By adjusting factors like size, risk, and industry, the study (Waddock & Graves, 1997) looked at the association between corporate social performance and financial performance on assets (ROA), return on equity (ROE), and return on sales (ROS). The researchers discovered a strong correlation between CSR and financial attributes. The study (Verbeeten et al., 2016) looked at the relationship between firm value and released CSR information. The researcher used the 130 largest listed German corporations. According to the study, social disclosures and corporate worth are positively correlated. However, there is no correlation between environmental disclosures and firm value. The study (Mollah et al., 2012) identified how 19 firms listed on the Botswana stock market between 2000 and 2007 behaved in terms of performance (accounting metrics and market measures) and corporate governance (ownership structure and board characteristics). The finding suggests a strong relationship between board characteristics, ownership structure, and market-based performance indicators (log of market capitalization) but a weak relationship with accounting-based performance measures (ROA and ROE). The study (Velte, 2017) revealed that ESG positively impacts Tobin's Q and ROA. Moreover, it was also observed that governance significantly affects financial performance. According to the study, the dependent variables, ROA and free cash flow, are negatively impacted by ESG initiatives (Garcia et al., 2017), which looks into the relationship in developing nations. The association between corporate social performance (CSP) and corporate financial performance (CFP) was examined in the study (Nollet et al., 2016) using accounting and market-based performance measures. They discovered a strong negative link between one of the accounting-based measures and CSP, but they also discovered evidence that CSP effects are good over the long term and found that the crucial determinant influencing the relationship is governance. According to the study (Chelawat & Trivedi, 2016), regression analysis demonstrates that firms with strong ESG performance can enhance the performance of finance while investigating the relationship between the financial performance of Indian listed firms and their ESG performance using panel regression. The study (Cek & Eyupoglu, 2020) analyzed S&P 500 companies that made ESG disclosures between 2010 and 2015, revealing the substantial influence that ESG practices as a whole have on economic success. The influence of ESG practices has been investigated in developed and emerging market firms (Ting et al., 2019). They discovered that governance continues to be the primary sustainability indicator for firm valuation, that emerging markets have high ESG scores, and that firms involved in ESG controversies have a negative impact on market valuation. In the examination of China's listed energy companies, (Zhao et al., 2018) discovered that improved ESG performance may actually improve the companies' financial performance. The study (Bhaskaran et al., 2020) utilizes firm value (Tobin's Q) and operational performance (ROE and ROA) as the dependent variables to examine the effect of ESG on the financial performance of 4887 enterprises from 2014 to 2018. They showed that companies that perform strongly on the ESG fronts typically add more

value to the market. A significant correlation has been observed between ESG factors and financial performance (ROE and ROA) in a sample of 1038 public firms from 22 European nations between 2018 and 2019 (Lucia et al., 2020). A study was conducted on how 351 FTSE350 firms' financial performance was impacted by ESG from 2002 to 2018. The study reveals that while individual ESG performances have mixed effects, overall ESG scores have a major and beneficial effect on corporations' financial health (Ahmad et al., 2021). The result showed an adverse association between the organizations' financial performance and ESG scores when (Duque-Grisales & Aguilera-Caracuel, 2021) analyzed 104 multinational companies operating in Latin America between 2011 and 2015. A research study discovered insufficient evidence of any link between profitability and firm value while evaluating the impact of ESG scores on the cost of capital, firm value, and profitability of Malaysian listed companies (Atan et al., 2018).

4. Objectives

- To provide literature reviews on the linkage between ESG and various corporate attributes.
- To study the reporting framework in India.
- To investigate the relationship between ESG disclosure scores and selected corporate attributes of sample companies for the year 2021-22.

5. Reporting Framework in India

- In December 2009, the Ministry of Corporate Affairs (MCA) launched the Corporate Social Responsibility Voluntary Guidelines in India in an effort to direct businesses toward ethical behavior and a sustainable future.
- To inspire central public sector businesses to participate in CSR efforts, the Department of Public Enterprises created a CSR guideline in 2010. The National Voluntary Guidelines on Social, Environmental, and Economic Responsibilities of Business, 2011 (NVGs), which were later released by the Ministry of Corporate Affairs, emphasized the significance of corporate entities' environmental, social, and economic responsibilities as well as the necessity of incorporating them into corporate practices.
- The top 100 listed companies by market capitalization were required to submit Business Responsibility Reports (BRRs) from ESG perspective by SEBI in 2012. For spending on corporate social responsibility and its reporting in the annual report, a provision under the Companies Act 2013 was enacted in 2013.
- BRR was included in the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, in the year 2015.
- SEBI released a circular on February 6, 2017, recommending that the top 500 publicly traded businesses create BRRs to use integrated reporting beginning with the 2017-18 fiscal year.
- BRR became compulsory for the top 1000 listed businesses in 2019.
- The Business Responsibility and Sustainability Report (BRSR), which SEBI has launched in the year 2021, is a new format for reporting on ESG metrics and becomes mandatory for the top 1000 listed businesses from 2022-23.

6. Research Methodology

6.1 Sample Description

The sample for this study includes those companies who appeared in the NIFTY 50 Index for the fiscal year 2021-22 and publish sustainability reports in accordance with GRI principles excluding 11 financial services companies (Aggarwal, 2013).

6.2 Variables Description

Overall environmental, social, and governance disclosure scores (ESGDS), environmental disclosure scores (EDS), social disclosure scores (SDS), and governance disclosure scores (GDS) are taken as dependent variables, and these scores have been obtained from CRISIL (Credit Rating Information Services of India Limited) database. CRISIL's ESG scores are formulated to assist corporations and financial institutions to measure and track the fundamental ESG risks associated with their loan and equity exposures. These scores include three pillars of sustainability. The environment (E) pillar comprises components for 'GHG emissions,' 'energy use,' 'waste management,' 'water management', and 'resource use green products and biodiversity.' The social (S) pillar has components for 'employee and worker management,' 'stakeholder

management and product quality', and 'communities.' The governance (G) pillar includes components for 'board composition, independence, and functioning,' 'management track record,' 'shareholder relations', and 'disclosure practices.' Relevant weights have been assigned to the E (35%), S (25%), and G (40%) attributes to indicate the relative importance of aspects in order to arrive at the company's overall ESG score. Corporations are ranked from 0 to 100, with 100 representing the highest score. The publicly available data made available by the corporations through their official websites, exchange filings, annual reports, sustainability reports, and other channels provides the basis for evaluating ESG scores. Both quantitative and qualitative disclosures form the basis of the analysis. The financial data has been obtained from the companies' annual reports and screener.in. The financial attributes, return on capital employed (ROCE), foreign institutional investors' stake (FII), and growth in total assets (GTA) are taken as independent variables for this study.

ROCE: This accounting ratio gauges a company's profitability and how well its capital is being employed. It is calculated by dividing a company's earnings before interest and tax by the capital employed.

FII: The benchmark for FIIs' stake is the proportion of foreign institutional investors that own a company. Corporations that own a larger share of FIIs are more accountable for disclosing important information.

GTA: The asset growth rate reveals how quickly a firm has been increasing its assets. It is determined by taking the percentage change in assets over the specified time period.

Natural log of total sales (LTS) and natural log of total assets (LTA) are taken as control variables for this study (Sharma *et al.*, 2020). Total sales monitor the overall revenue from sales during a particular time period. Total assets are the assets that the entity owns and has an economic worth from which benefits can be obtained in the future.

7. Data Analysis and Results

7.1. Descriptive Statistics

This section represents the descriptive analysis of all the selected variables for the period 2021-22. It is done in order to summarize the main features of dataset.

Mean, minimum value, maximum value, and standard deviation were used to descriptively analyze the variables. From Table 1, the maximum disclosure score is observed on the governance factor of ESG with a mean value of 69.973, maximum value of 82, minimum value of 50, and a standard deviation of 7.665. Next is the social disclosure score with a mean value of 58.595, a maximum value of 70, a minimum value of 47, a standard deviation of 4.850, and the least mean value of 55.297 is observed for the environmental factor with a maximum value of 81 and minimum value 33 and standard deviation 11.508. This demonstrates the need for Indian companies to take significant steps toward sustainability in order to raise their sustainability performance ratings.

7.2 Correlation Matrix

This section represents a statistical technique, correlation matrix for all the selected independent variables (ROCE, FII, and GTA), dependent variables (ESGDS, EDS, SDS, and GDS), and the control variables (LTS and LTA) in order to evaluate the relationship between variables.

Table 1. Descriptive statistics of independent, dependent, and control variables

Variables	Mean	Minimum value	Maximum value	Standard deviation
ESGDS	61.973	44	76	6.906
EDS	55.297	33	81	11.508
SDS	58.595	47	70	4.850
GDS	69.973	50	82	7.665
ROCE	20.205	1.5	61.3	12.427
FII	20.091	8.12	37.3	7.997
GTA	10.621	-6.79	66.65	13.556
LTS	10.654	8.34	13.30	1.130
LTA	11.019	8.85	13.69	1.109

Table 2. Correlation matrix of independent, dependent, and control variables

	ESGDS	EDS	SDS	GDS	ROCE	FII	GTA	LTS	LTA
ESGDS	1	0.909**	0.351*	0.882**	0.398*	0.196	-0.476**	0.189	0.035
EDS	0.909**	1	0.123	0.665**	0.387*	0.241	-0.443**	0.046	-0.075
SDS	0.351*	0.123	1	0.237	0.154	0.009	-0.093	0.408	0.368*
GDS	0.882**	0.665**	0.237	1	0.320*	0.151	-0.413*	0.183	0.011
ROCE	0.398*	0.387*	0.154	0.320*	1	-0.070	0.085	0.066	-0.242
FII	0.196	0.241	0.009	0.151	-0.070	1	-0.072	-0.157	-0.162
GTA	-0.476**	-0.443**	-0.093	-0.413*	0.085	-0.072	1	-0.152	-0.179
LTS	0.189	0.046	0.408*	0.183	0.066	-0.157	-0.152	1	0.806**
LTA	0.035	-0.075	0.368*	0.011	-0.242	-0.162	-0.179	0.806**	1

***Significant at the 0.01 level (2-tailed), *Significant at the 0.05 level (2-tailed)*

In Table 2, the correlation matrix depicts a positive correlation among all the dependent variables. The result reveals a significant positive correlation of ROCE with ESGDS, EDS, and GDS but an insignificant correlation with SDS (Bhayani & Ajmera, 2023). There is a positive and insignificant correlation of FII with all the dependent variables. Moreover, ESGDS, EDS, SDS, and GDS have a negative correlation with GTA. Moreover, there is a positive and insignificant correlation of LTS with all the dependent variables. LTS has a positive and insignificant relation with ESGDS, SDS, and GDS. However, there is an insignificant negative relationship between EDS and LTS. Furthermore, the result demonstrates a positive relation of ROCE with GTA and LTS and a negative relation with FII and LTA insignificantly. There exists a negative and insignificant correlation between FII and GTA, LTS, and LTA. GTA has an insignificant negative relation with LTS and LTA. A positive and significant correlation was observed between control variables, LTS and LTA.

7.3 Multiple Regression Analysis

This section represents multiple regression analysis in order to comprehend the relationship between the independent variables and the dependent variables. Using this technique enables a more complex examination of the relationship between variables by taking into account numerous independent variables.

Table 3. Multiple regression analysis for ESGDS and financial attributes of companies

Equation		Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. error			Tolerance	VIF
(1)	(Constant)	48.543	10.972	4.424	0.000	-	-
	ROCE	0.244	0.085	2.882	0.007	0.738	1.356
	FII	0.181	0.116	1.567	0.127	0.951	1.051
	GTA	-0.245	0.068	-3.597	0.001	0.955	1.047
	LTS	0.851	1.518	0.561	0.579	0.277	3.607
	LTA	-0.146	1.601	-0.091	0.928	0.258	3.869
	R= 0.686	R^2=0.470		Adjusted R^2=0.385			

Note: Dependent Variable: ESGDS (Overall environmental, social, and governance disclosure scores)

7.3.1 ESGDS and attributes of companies for 2021-22:

Hypothesis 1:

H_{01}: *There is no significant relationship between the ESGDS and selected attributes (ROCE, FII, GTA) of companies for the period 2021-22.*

Following regression equation (1) is formulated to analyze the above hypothesis:

$$ESGDS = \alpha + \beta 1\ ROCE + \beta 2 FII + \beta 3\ GTA + \beta 4\ LTS + \beta 5\ LTA \ldots (1)$$

Multiple regression analysis has been performed in Table 3. ROCE has a positive and significant impact on ESGDS. Similar results have been reported in past studies (Eccles et al., 2014). FII has a positive and insignificant influence on ESGDS, whereas GTA has a negative and significant impact on ESGDS. The control variables, LTS and LTA, affect ESGDS insignificantly with positive and negative impacts, respectively. The value of R=0.686 and the value of R^2 is 0.470, which means that the variation in independent variables together accounts for 47% of the variation in the overall ESG disclosure score of organizations. Here, the variance inflation factor (VIF)< 10, so there is no multicollinearity. If VIF is above 10, then there is a problem of multicollinearity, and it can be assumed that regression coefficients are poorly estimated (Akinwande et al., 2015).

7.3.2 EDS and attributes of companies for 2021-22:

Hypothesis 2:

H_{02}: *There is no significant relationship between the EDS and selected attributes (ROCE, FII, GTA) of companies for the period 2021-22.*

Following regression equation (2) is formulated to analyze the above hypothesis:

$$EDS = \alpha + \beta 1\ ROCE + \beta 2 FII + \beta 3\ GTA + \beta 4\ LTS + \beta 5\ LTA \ldots (2)$$

Table 4. Results of Hypothesis H_{01}

Null Hypothesis	Result of equation (1)
There is no significant relationship between ESGDS and ROCE.	Rejected
There is no significant relationship between ESGDS and FII.	Accepted
There is no significant relationship between ESGDS and GTA	Rejected

Table 5. Multiple regression analysis for EDS and financial attributes of companies

Equation		Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. error			Tolerance	VIF
(2)	(Constant)	46.012	18.892	2.436	0.021	-	-
	ROCE	0.413	0.146	2.836	0.008	0.738	1.356
	FII	0.340	0.199	1.704	0.098	0.951	1.051
	GTA	-0.395	0.117	-3.371	0.002	0.955	1.047
	LTS	-0.215	2.613	-0.082	0.935	0.277	3.607
	LTA	0.056	2.757	0.020	0.984	0.258	3.869
	R=0.659	R^2=0.434		Adjusted R^2=.0.343			

Note: Dependent Variable: EDS (Environmental disclosure scores)

To comprehend the relationship between the independent variables and the dependent variable EDS, multiple regression analysis has been performed in Table 5. Here, profitability measured by ROCE is found to be the most important determinant influencing EDS. ROCE has a positive and significant impact on EDS. A similar result has been found in the study (Chen et al., 2016). FII has a positive and insignificant influence on EDS. GTA has a negative and significant impact on EDS, supported by a previous study (Brammer & Pavelin, 2006). The control variables, LTS and LTA, affect EDS insignificantly with negative and positive impacts, respectively. The value of R=0.659 and the value of R^2 is 0.434, which means that the variation in independent variables together accounts for 43.4% of the variation in the environmental disclosure score of organizations. Here, the variance inflation factor (VIF)< 10, so there is no multicollinearity.

7.3.3 SDS and attributes of companies for 2021-22:

Hypothesis 3:

H_{03}: There is no significant relationship between the SDS and selected attributes (ROCE, FII, GTA) of companies for the period 2021-22.

Following regression equation (3) is formulated to analyze the above hypothesis:

$$SDS = \alpha + \beta 1\ ROCE + \beta 2 FII + \beta 3\ GTA + \beta 4\ LTS + \beta 5\ LTA \ldots (3)$$

Table 6. Results of Hypothesis H_{02}

Null Hypothesis	Result of equation (2)
There is no significant relationship between EDS and ROCE.	Rejected
There is no significant relationship between EDS and FII.	Accepted
There is no significant relationship between EDS and GTA.	Rejected

Table 7. Multiple regression analysis for SDS and financial attributes of companies

Equation		Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. error			Tolerance	VIF
(3)	(Constant)	33.717	9.378	3.595	0.001	-	-
	ROCE	0.089	0.072	1.230	0.228	0.738	1.356
	FII	0.059	0.099	0.597	0.555	0.951	1.051
	GTA	-0.009	0.058	-0.163	0.872	0.955	1.047
	LTS	0.660	1.297	0.509	0.614	0.277	3.607
	LTA	1.358	1.369	0.992	0.329	0.258	3.869
	R=0.464	R^2=0.215		Adjusted R^2=0.089			

Note: Dependent Variable: SDS (Social disclosure scores)

To comprehend the relationship between the independent variables and the dependent variable SDS, multiple regression analysis has been performed in Table 7. Here, ROCE has a positive and insignificant influence on SDS. Similar results have been found in the study (Cheng et al., 2014). FII affects SDS positively and insignificantly, supported by previous studies (McWilliams & Siegel, 2001), whereas GTA has a negative and insignificant impact on SDS. The control variables, LTS and LTA, affect SDS positively and insignificantly. The value of R=0.464 and the value of R^2 is 0.215, which means that the variation in independent variables together accounts for 21.5% of the variation in the social disclosure score of organizations. Here, the variance inflation factor (VIF)< 10, so there is no multicollinearity.

7.3.4 GDS and attributes of companies for 2021-22:

Hypothesis 4:

H_{04}: *There is no significant relationship between the GDS and selected attributes (ROCE, FII, GTA) of companies for the period 2021-22.*

Following regression equation (4) is formulated to analyze the above hypothesis:

$$GDS = \alpha + \beta 1\,ROCE + \beta 2 FII + \beta 3\,GTA + \beta 4\,LTS + \beta 5\,LTA \ldots (4)$$

To comprehend the relationship between the independent variables and the dependent variable GDS, multiple regression analysis has been performed in Table 9. Here, ROCE has a positive and insignificant influence on GDS, supported by a previous study (Bebchuk et al., 2015). FII affects SDS positively and insignificantly. GTA has a negative and insignificant impact on GDS, supported by a previous study (Jensen, 1993). The control variables, LTS and LTA, affect GDS insignificantly with positive and negative impacts, respectively. The value of R=0.585 and the value of R^2 is 0.342, which means that the variation in independent variables together accounts for 34.2% of the variation in the governance disclosure score of organizations. Here, the variance inflation factor (VIF)< 10, so there is no multicollinearity.

Table 8. Results of Hypothesis H_{03}

Null Hypothesis	Result of equation (3)
There is no significant relationship between SDS and ROCE .	Accepted
There is no significant relationship between SDS and FII .	Accepted
There is no significant relationship between SDS and GTA .	Accepted

Table 9. Multiple regression analysis for GDS and financial attributes of companies

Equation		Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. error			Tolerance	VIF
(4)	(Constant)	60.106	13.571	4.429	0.000		
	ROCE	0.187	0.105	1.789	0.083	0.738	1.356
	FII	0.149	0.143	1.038	0.307	0.951	1.051
	GTA	-0.237	0.084	-2.813	0.008	0.955	1.047
	LTS	1.863	1.877	0.992	0.329	0.277	3.607
	LTA	-1.291	1.980	-0.652	0.519	0.258	3.869
	R=0.585	R^2=0.342		Adjusted R^2=0.236			

Note: Dependent Variable: GDS (Governance disclosure scores)

Table 10. Results of Hypothesis H_{04}

Null Hypothesis	Result of equation (4)
There is no significant relationship between GDS and ROCE.	Accepted
There is no significant relationship between GDS and FII.	Accepted
There is no significant relationship between GDS and GTA.	Rejected

7.4 Cluster Analysis

This section shows non-hierarchical cluster analysis (k-means cluster analysis), a procedure that aims to cluster the dataset into distinct groups by using specific criteria. For this study, the sample comprises selected companies listed on the NSE NIFTY 50 index, with sustainability scores EDS, SDS, GDS, and ESGDS have been used for k-means cluster analysis. The required number of clusters to be formed is four, which is determined from hierarchical clustering.

7.4.1 Initial cluster centers

In this part, the initial cluster centers are given four clusters with their values based on four variables (ESGDS, EDS, SDS, and GDS).

In Table 11, it is seen that ESGDS, EDS, SDS, and GDS have the least distance with respect to cluster 2.

7.4.2 Final cluster centers

In this part of the analysis, after the iteration is over, the final cluster centers are shown in Table 12.

Table 11. Table showing initial cluster centers

	Initial Cluster Centers			
	Cluster			
	1	2	3	4
ESGDS	63	46	61	76
EDS	66	31	44	81
SDS	50	42	67	62
GDS	67	60	73	80

Table 12. Table showing final cluster centers

	Final Cluster Centers			
	Cluster			
	1	2	3	4
ESGDS	66	50	59	73
EDS	62	35	50	74
SDS	57	52	59	63
GDS	74	61	67	79

Table 12 reports the centroid of each cluster of companies and reveals that ESGDS, EDS, SDS and GDS are having the least distance with respect to cluster 2. In other words, companies in the first cluster (k=1) had an average ESGDS of 66, EDS of 62, SDS of 57 and GDS of 74. The following clusters are similarly assessed.

7.4.3 Listing of companies in clusters and their labeling

This section illustrates the companies along with the labels that have been assigned to them in order to investigate the clusters further and discover a number of findings in Table 13. Here, 'k' means cluster number, and 'n' means the number of companies in the 'k' cluster.

Firstly, although the twelve companies in cluster 1 have moderately high sustainability performance scores for EDS, GDS, and ESGDS, they have moderately low sustainability performance scores for SDS. Moreover, four companies belong to the FMCG (fast-moving consumer goods) sector, then a total of six companies, i.e., two companies from each of the healthcare, automobile, and auto components sectors and miscellaneous. The remaining two companies are from the consumer durables and construction materials sectors. There are five companies in cluster 2 that have the lowest scores in all aspects of sustainability scores (ESGDS, EDS, SDS, and GDS). In this cluster, two companies are from the oil gas and consumable fuels sector, two companies are from miscellaneous, and one company belongs to the automobile

Table 13. List of companies in each cluster and labeling of clusters

k	n	Company name	Cluster labels
1	12	Asian Paints Limited, Bharti Airtel Limited, Britannia Industries Limited, Cipla Limited, Dr. Reddy's Laboratories Limited, Grasim Industries Limited, Hero MotoCorp Limited, Hindustan Unilever Limited, ITC Limited, Larsen & Toubro Limited, Mahindra & Mahin dra Limited, Tata Consumer Products Limited	Companies with moderately high sustainability disclosure scores for EDS, GDS, and ESGDS and moderately low for SDS.
2	5	Adani Ports and Special Economic Zone Limited, Bajaj Auto Limited, Coal India Limited, Oil & Natural Gas Corporation Limited, UPL Limited	Companies with the lowest sustainability disclosure scores for EDS, SDS, GDS, and ESGDS.
3	17	Apollo Hospitals Enterprise Limited, Bharat Petroleum Corporation Limited, Divi's Laboratories Limited, Eicher Motors Limited, Hindalco Industries Limited, JSW Steel Limited, Maruti Suzuki India Limited, Nestle India Limited, NTPC Limited, Power Grid Corpo ration of India Limited, Reliance Industries Limited, Shree Cement Limited, Sun Pharmaceutical Industries Limited, Tata Motors Limited, Tata Steel Limited, Titan Company Limited, UltraTech Cement Limited	Companies with moderately low sustainability disclosure scores for EDS, GDS, and ESGDS and moderately high for SDS.
4	5	HCL Technologies Limited, Infosys Limited, Tata Consultancy Services Limited, Tech Mahindra Limited, Wipro Limited	Companies with the highest sustainability disclosure scores for EDS, SDS, GDS, and ESGDS.

and auto components sector. In cluster 3, there are seventeen companies with moderately low sustainability performance scores for EDS, GDS, and ESGDS but moderately high sustainability performance scores for SDS. Moreover, a total of nine companies, i.e., three companies from each of the healthcare, automobile, and auto components and metals and mining sectors, then a total of six companies, i.e., two companies from each of the oil, gas, and consumable fuels, power and construction materials sectors and the remaining two companies, each company from FMCG sector and miscellaneous. The fourth cluster comprises five companies, having the highest scores for all four aspects (ESGDS, EDS, SDS, and GDS), and all these companies belong to the information technology (IT) sector.

7.5 Sector-wise share disclosure scores for 2021-22:

This section represents the sector-wise share of disclosure scores separately (ESGDS, EDS, SDS, and GDS) for the year 2021-22 in order to enhance more clarity on sustainability performance scores for each of the sectors.

7.5.1 Sector-wise share of environmental disclosure score (EDS) for 2021-22

In this part of the analysis, the sector-wise share of EDS for the year 2021-22 is shown in Table 14.

In Table 14, the maximum companies in the automobile and auto components sector, construction materials sector, and healthcare sector scored between 51-60. Most of the companies in the FMCG sector scored between 61-70. Maximum companies in the metal and mining sector scored between 41-50. In the case of the consumer durables sector, 50% of companies scored between 41-50, and the rest 50% of companies scored between 61-70. In a similar way, in the power sector, 50% of companies scored between 41-50, and the rest, 50% of companies scored between 51-60. 50% of companies in the oil, gas, and consumable fuels sector, and the miscellaneous group scored between 31-40. The only sector that scored more than 80 with respect to EDS is the IT sector.

7.5.2 Sector-wise share of social disclosure score (SDS) for 2021-22

In this part of the analysis, the sector-wise share of SDS for the year 2021-22 is shown in Table 15.

Table 14. Sector-wise share of EDS for 2021-22

	≤ 30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Automobile and auto components	0	16.667	0	50	33.333	0	0	0
Construction materials	0	0	25	75	0	0	0	0
Consumer durables	0	0	50	0	50	0	0	0
FMCG	0	0	20	20	60	0	0	0
Healthcare	0	0	20	60	20	0	0	0
IT	0	0	0	0	40	40	20	0
Metals and mining	0	0	66.667	33.333	0	0	0	0
Miscellaneous	0	50	0	50	0	0	0	0
Oil, gas, and consumable fuels	0	50	50	0	0	0	0	0
Power	0	0	50	50	0	0	0	0

Table 15. Sector-wise share of SDS for 2021-22

	≤ 30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Automobile and auto components	0	0	16.667	83.333	0	0	0	0
Construction materials	0	0	0	75	25	0	0	0
Consumer durables	0	0	0	100	0	0	0	0
FMCG	0	0	20	80	0	0	0	0
Healthcare	0	0	0	60	40	0	0	0
IT	0	0	0	20	80	0	0	0
Metals and mining	0	0	0	66.667	33.333	0	0	0
Miscellaneous	0	0	0	100	0	0	0	0
Oil, gas, and consumable fuels	0	0	25	50	25	0	0	0
Power	0	0	0	50	50	0	0	0

Table 16. Sector-wise share of GDS for 2021-22

	≤ 30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Automobile and auto components	0	0	0	0	50	50	0	0
Construction materials	0	0	0	0	75	25	0	0
Consumer durables	0	0	0	0	50	50	0	0
FMCG	0	0	0	0	20	60	20	0
Healthcare	0	0	20	0	40	40	0	0
IT	0	0	0	0	0	100	0	0
Metals and mining	0	0	0	0	33.333	66.667	0	0
Miscellaneous	0	0	0	25	25	50	0	0
Oil, gas, and consumable fuels	0	0	0	50	25	25	0	0
Power	0	0	0	0	100	0	0	0

In Table 15, the maximum number of companies in the automobile and auto components sector, construction materials sector, FMCG sector, healthcare sector, metal and mining sector, and oil, gas, and consumable fuels sector is between 51-60. Most of the companies in the IT sector scored between 61-70. In the power sector, 50% of companies scored between 51-60, and the rest, 50% of companies scored between 61-70. 100% of companies in the consumer durables sector and companies in the miscellaneous group scored between 51-60. No company in any of the above sectors scored more than 70 with respect to SDS.

7.5.3 Sector-wise share of governance disclosure score (GDS) for 2021-22

In this part of the analysis, the sector-wise share of GDS for the year 2021-22 is shown in Table 16.

In Table 16, 50% of companies in the automobile and auto components sector and consumer durables sector scored between 61-70, and the rest, 50% of companies scored between 71-80. Most of the companies in the construction materials sector scored between 61-70. 50% of companies in the oil, gas, and consumable fuels sectors scored between 51-60. All the selected companies in the IT sector and power sector scored between 71-80 and 61-70, respectively. Most of the companies in the healthcare sector scored between 61-70 and 71-80. The maximum number of companies in the FMCG sector, metal and mining sector, and companies in the miscellaneous group scored between 71-80. The only sector that scored more than 80 with respect to GDS is the FMCG sector.

7.5.4 Sector-wise share of overall environmental, social, and governance disclosure score (ESGDS) for 2021-22

In this part of analysis, the sector-wise share of ESGDS for the year 2021-22 is shown in Table 17.

In Table 17, all the selected companies in the construction materials sector and power sector scored between 61-70 and 51-60, respectively. Most of the companies in the FMCG sector, healthcare sector, and companies in the miscellaneous group scored between 61-70. 50% of companies in the automobile and auto components sector and consumer durables sector scored between 51-60, and the rest, 50% of companies, scored between 61-70. Maximum companies in the metal and mining sector and the oil, gas, and consumable fuels sector scored between 51-60 and 41-50, respectively. 100% of companies in the IT sector scored between 71-80. The IT sector is the only sector that scored more than 70 with respect to ESGDS disclosure.

8. Discussion and Conclusion

This is a comprehensive study that primarily deals with the exploration of the sustainability performance of firms utilizing their ESG scores and their relationship with corporate financial attributes, particularly in the context of a developing country, India. The previous research on this subject has predominantly focused on advanced nations such as the United States, Europe, and a few emerging markets. Therefore, this study addresses a gap by examining the Indian corporate landscape, where sustainability reporting is an emerging issue and continues to evolve. The empirical results from the correlation matrix and multiple regression analysis demonstrate a positive relationship between profitability and ROCE with ESGDS and EDS, followed by GDS and SDS of the companies. The beneficial correlation between ESG scores and profitability supports stakeholder theory, which emphasizes that the interests of stakeholders need to be considered while achieving enhanced financial outcomes through the integration of sustainable business practices into fundamental financial strategy. Robust ESG

Table 17. Sector-wise share of ESGDS for 2021-22

	≤ 30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Automobile and auto components	0	0	0	50	50	0	0	0
Construction materials	0	0	0	0	100	0	0	0
Consumer durables	0	0	0	50	50	0	0	0
FMCG	0	0	0	20	80	0	0	0
Healthcare	0	0	0	40	60	0	0	0
IT	0	0	0	0	0	100	0	0
Metals and mining	0	0	0	66.667	33.333	0	0	0
Miscellaneous	0	0	25	25	50	0	0	0
Oil, gas, and consumable fuels	0	0	50	25	25	0	0	0
Power	0	0	0	100	0	0	0	0

practices assist in the mitigation of risks associated with social and environmental factors. This, in turn, helps to strengthen financial stability, underscoring the importance of stakeholder theory in today's business environment. The positive association of ESG scores with profitability also validates the idea of agency cost theory linking managerial motivations with long-term sustainability and shareholder concerns that can decrease agency costs and improve financial results, thus highlighting the significance of ESG in addressing agency conflicts. Moreover, the favourable link of ROCE with all ESG dimensions highlights the fact that the firms create distinct qualities that are challenging for rivals to match by incorporating ESG practices into their business framework that can improve a company's financial performance because these practices are valuable and challenging to replicate thus recognizing the relevance of RBV theory. The findings in this study also suggest that ROCE has a significant impact on ESGDS, EDS, and GDS but not on SDS. This adds nuance to the theory by implying how various ESG elements may influence financial performances differently. However, this might suggest that firms lack the capacity to develop social activities to gain financial advantages or that investors value environmental and governance issues over social sustainability. Policymakers and corporations may need to focus more heavily on enhancing the efficiency of social initiatives to achieve long-term benefits. In addition, the difference in R-squared values between ESG components and varied financial attributes increases the complexity by demonstrating that in certain circumstances, governance and environmental factors may have stronger financial links than social aspects. Moreover, the findings that FII had no significant influence on all ESG aspects and the adverse effect of GTA on ESG scores provide a theoretical understanding of how growth in companies and foreign ownership may not always coincide with greater sustainability practices. Fast growth may sometimes result in environmental and social compromises, harming a company's reputation and undermining its sustainability objectives. Thus, the results imply that companies must strike a balance between expansion and ethical ESG policies to prevent negative consequences.

Existing research has not deeply explored sector-specific variations in ESG performance in Indian firms. In the study, cluster analysis classifies corporations into distinct sustainability performance groups and provides sectoral ideas by implying that industry-specific elements drive ESG disclosure practices. Cluster analysis further reveals that the majority of the companies have moderately low sustainability disclosure scores for EDS, GDS, and ESGDS and moderately high sustainability disclosure scores for SDS. Companies in the IT sector have the highest sustainability disclosure scores for all aspects of ESG. The strong ESG scores in the IT industry, for example, could reflect ideas that knowledge-based, innovation-driven tech companies are more likely to adopt sustainable practices, whereas oil, gas, and consumable fuels sectors lag behind. Technology companies frequently demonstrate efforts to promote sustainability, incorporating energy-efficient infrastructure and ethical data management into their ESG plans. They serve as models for effectively incorporating ESG principles into their operations (Bhujle & Dey, 2023). The results from the sector-wise share of disclosure scores depict that the IT sector and FMCG sector disclose more information on the ESG aspects. By clustering the companies and evaluating sector-wise scores, the study provides a comprehensive understanding of how sectors such as IT, FMCG, healthcare, and others respond to initiatives that promote sustainability and highlights those sectors that are doing efficiently in ESG aspects. It indicates that sector-specific regulations may be more helpful in enhancing ESG performance and emphasizes the importance of developing customized sustainability strategies that address industry-specific boundaries. The present research has the ability to provide valuable information on varying ESG performances in different sectors, providing in-depth perception for the investors in finding sectors that are inconsistent with their investment goals, as well as encouraging companies to acknowledge and take action on their ESG performance gaps. As ESG practices become more important in investor decision-making, Indian enterprises and authorities must guarantee that ESG disclosures are consistent with global norms to compete for both domestic and foreign investments. As ESG becomes a driver of business value and investor trust, companies with low ESG scores may face higher capital costs, weak market performance, or fewer funding options. Investors could use ESG scores as a means of managing financial risks while simultaneously recognizing companies that have greater potential for long-term resilience and sustainability.

It is crucial to understand how the three factors - environment, social responsibility, and corporate governance interact with one another, as well as how each of them has an impact on a company's sustainability and the environment in which it operates if ESG regulations are to add value to businesses and investments. The demand for adequate tools for ESG assessment and reporting has arisen

as firms' and enterprises' ESG parameters have come under more scrutiny. BRSR is a comprehensive framework developed by SEBI to improve corporate sustainability and responsible reporting. It is a big step toward responsible business practices in India. It not only assures compliance with shifting legislation, but it also provides multiple benefits in terms of stakeholder confidence, risk management, operational efficiency, and long-term value generation. Companies that handle non-financial risks such as climate change, social issues, and governance challenges are better positioned to identify and mitigate risks that could harm long-term corporate viability. The extensive reporting requirements push organizations to implement robust governance structures and processes, resulting in better management of ESG risks and opportunities. Accountability, transparency, and corporate responsibility are the main areas of attention for managers with a governance-focused approach to business. However, an organization's top leadership is ultimately responsible for creating corporate policy in this respect and directing an organization within the framework of a corporate governance system. Moreover, robust ESG reporting by Indian enterprises will be a significant tool in routing a rising amount of capital towards sustainable aims by rewarding corporations that discharge their ESG responsibilities effectively. Thus, the study underscores the need for a recalibrated approach that will promote sustainability in Indian firms.

9. Limitation of the Study

The current research study has certain limitations. First of all, the sample size is limited. Secondly, the research was conducted for one year only. Finally, the study excludes certain control variables that may have a substantial impact on this association, such as the age of the firm, industry type, etc. Given these constraints, the study's findings should be understood, and future researchers should work to address them as they conduct additional research in this field.

10. Future Scope of the Study

Future research can expand the scope of the study by incorporating more financial attributes in order to form a detailed understanding of the association between ESG and financial performance. Future studies may use longitudinal data from a few years to conduct a time series analysis on ESG disclosure scores and financial attributes over an extended period of time to enable better decision-making related to the sustainable development of the organizations.

References

Aggarwal, P. (2013). Impact of sustainability performance of company on its financial performance: A study of listed Indian companies. *Global Journal of Management and Business Research Finance, 13*(11). https://ssrn.com/abstract=3131923

Ahmad, N., Mobarek, A., Roni, N. N., & Tan, A. W. (2021). Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis. *Cogent Business & Management, 8*(1), 1900500. https://doi.org/10.1080/23311975.2021.1900500

Akinwande, O., Dikko, G. H., & Agboola, S. (2015). Variance inflation factor: As a condition for the inclusion of suppressor variable(s) in regression analysis. *Open Journal of Statistics, 5*(7), 754-767. https://doi.org/10.4236/ojs.2015.57075

Ali, W., Wilson, J., & Husnain, M. (2022). Determinants/motivations of corporate social responsibility disclosure in developing economies: A survey of the extant literature. *Sustainability, 14*(6). https://doi.org/10.3390/su14063474

Almeyda, R., & Darmansyah, A. (2019). The influence of environmental, social, and governance (ESG) disclosure on firm financial performance. *IPTEK Journal of Proceedings Series*. http://dx.doi.org/10.12962/j23546026.y2019i5.6340

Atan, R., Alam,, M., Said, J., & Zamri, M. (2018). The impacts of environmental, social and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality, 29*(2), 182-194. https://doi.org/10.1108/MEQ-03-2017-0033

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120. https://doi.org./10.1177/014920639101700108

Bebchuk, L. A., Cohen, A., & Ferrell, A. (2015). What matters in corporate governance? *Review of Financial Studies, 22*(2), 783-827. https://doi.org/10.2139/ssrn.593423

Bhaskaran, R. K., Ting, I. W., Sukumaran, S. K., & Sumod, S. D. (2020). Environmental, social and governance initiatives and wealth creation for firms: An empirical examination. *Managerial and Decision Economics, 41*(5), 710-729. https://doi.org/10.1002/mde.3131

Bhayani, S. J., & Ajmera, B. (2023). A study on effect of environment, social and governance score on financial performance of BSE-30 companies in India. *Business Studies, 44*(1), 13-23. https://www.caluniv.ac.in/dj/BS-Journal/V-44-I/SJB-BA.pdf

Bhujle, K., & Dey, T. (2023). *How tech companies are leading ESG innovations*. Columbia SPS. https://sps.columbia.edu/news/how-tech-companies-are-leading-esg-innovations

Bianchi, R. J., Drew, M. E., & Walk, A. (2010). On the responsible investment disclosure practices of the world's largest pension funds. *Accounting Research Journal, 23*(3), 302-318. https://doi.org/10.1108/10309611011092619

Buniamin, S., & Ahmad, N. N. (2015). An integrative perspective of environmental, social and governance (ESG) reporting: A conceptual paper. *International Conference on Accounting Studies.* https://repo.uum.edu.my/id/eprint/17547

Brammer, S., & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance & Accounting, 33*(7-8), 1168-1187. https://doi.org/10.1111/j.1468-5957.2006.00598.x

Carreira, F., Damiao, A., Abreu, R., & David, F. (2014). Environmental disclosure - From the accounting to the report perspective. *16th International Conference on Enterprise Information Systems*. https://doi.org/10.5220/0004973604960501

Cek, K., & Eyupoglu, S. Z. (2020). Does environmental, social and governance performance influence economic performance? *Journal of Business Economics and Management, 21*(4), 1165-1184. https://doi.org/10.3846/jbem.2020.12725

Charumathi, B., & Gaddam, P. (2015). Corporate social responsibility initiatives and disclosure by Indian central public sector enterprises - Evidence from Navratna companies. *Journal of Accounting and Finance, 31*, 19-33. http://www.sbe.iub.edu.bd/wp-content/uploads/2016/11/A2.pdf

Chelawat, H., & Trivedi, I. V. (2016). The business value of ESG performance: The Indian context. *Asian Journal of Business Ethics, 5*, 195-210. https://doi.org/10.1007/s13520-016-0064-4

Chen, S., Dong, X., & Zhang, T. (2016). Financial performance and environmental responsibility: A review and analysis. *Journal of Cleaner Production*, *112*, 2472-2484. https://doi.org/10. 1080/23322039.2022.2087286

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, *35*(1), 1-23. https://doi.org/10.1002/smj.2131

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations & Society, 33*(4-5), 303-327. https://doi.org/10.1016/j.aos.2007.05.003

Dangwal, R., & Sharma, P. (2014). Environmental disclosure practices of selected Indian pharmaceutical companies. *Journal of Accounting and Finance, 28*(2), 30-43. https://doi.org/10.13140/RG.2.2.23145.31845

Deakin, S. (2012). The corporation as commons: Rethinking property rights, governance and sustainability in the business enterprise. *Queen's Law Journal, 37*(2), 339-381. https://search.informit.org/ doi/abs/10.3316/agispt.20211230059124

Dorfleitner, G., Utz, S., & Wimmer, M. (2013). Where and when does it pay to be good? A global long-term analysis of ESG investing. *26th Australasian Finance and Banking Conference 2013*. http://dx.doi.org/10.2139/ssrn.2311281

Duque-Grisales, E., & Aguilera-Caracuel , J. (2021). Environmental, social and governance (ESG) scores and financial performance of multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics, 168*, 315-334. https://doi.org/10.1007/s10551-019-04177-w

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of a corporate sustainability on organizational processes and behavior. *Management Science*, *60*(11), 2835-2857. https://doi.org/10.2139/ssrn.1964011

Fung, B. (2014). The demand and need for transparency and disclosure in corporate governance. *Universal Journal of Management, 2*(2), 72-80. https://doi.org/10.13189/ujm.2014.020203

Garcia, A. S., Wesley , M.-D.-S., & Orsato, R. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production, 150*, 135-147. https://doi.org/10.1016/j.jclepro.2017.02.180

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economics Review, 76*(2), 323-329. https://www.jstor.org/stable/1818789

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *Journal of Finance*, *48*(3), 831-880. https://doi.org/10.1111/j.1540-6261.1993.tb04022.x

Kocmanova, A., Docekalova, M., Nemecek, P., & Simberova, I. (2011). Sustainability: Environmental, social and corporate governance. *The 15th World Multi-Conference on Systemics, Cybernetics and Informatics*, 94-99. http://www.iiis.org/CDs2011/ CD2011SCI/SCI_2011/PapersPdf/SA561PD.pdf

Lucia, C. D., Pazienza, P., & Bartlett, M. (2020). Does good ESG lead to better financial performances by firms? Machine learning and logistic regression models of public enterprises in Europe. *12*(13), 5317. https://doi.org/10.3390/su12135317

Marrewijk, M. v. (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics, 44*(2), 95-105. https://doi.org/10.1023/A:1023331212247

Mateescu, R.-A. (2015). Corporate governance disclosure practices and their determinant factors in European emerging countries. *Accounting and Management Information Systems, 14*(1), 170-192. https://ideas.repec.org/a/ami/journl/v14y2015i1p170-192.html

McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review*, *26*(1), 117-127. https://doi.org/10.5465/amr.2001.4011987

Mohanty, P., & Mishra, S. (2022). A comparative study of corporate governance practices of Indian firms affiliated to business groups and industries. *Corporate Governance, 22*(2), 278-301. https://doi.org/10.1108/CG-03-2021-0095

Mollah, S., Farooque, O. A., & Karim, W. (2012). Ownership structure, corporate governance and firm performance: Evidence from an African emerging market. *Studies in Economics and Finance, 29*(4), 301-319. https://doi.org/10.1108/10867371211266937

Nollet, J., Filis, G., & Mitrokostas, E. (2016). Corporate social responsibility and financial performance: A non-linear and disaggregated approach. *Economic Modelling, 52*, 400-407. https://doi.org/10.1016/j.econmod.2015.09.019

Plumlee, M., Brown, D., Hayes, R. M.,& Marshall, R. S. (2015). Voluntary environmental disclosure quality and firm value: Further evidence. *Journal of Accounting & Public Policy, 34*, 336-361. https://doi.org/10.1016/j.jaccpubpol. 2015.04.004

Sexena A. N., Dube I., & Mishra C. S. (2017). Corporate risk disclosure: A review. In *US-China Law Review, 14*(9). https://doi.org/10.17265/1548-6605/2017.09.004

Sharma, P., Pandey, P.,& Dangwal, R. (2020). Determinants of environmental, social and corporate governance (ESG) disclosure: A study of Indian companies. *International Journal of Disclosure and Governance, 17*(4). https://doi.org/10.1057/s41310-020-00085-y

Ting, I. W., Azizan, N. A., Kumar, R., & Ks, S. (2019). Corporate social performance and firm performance: Comparative study among developed and emerging market firms. *Sustainability, 12*(26), 1-21. https://doi.org/10.3390/su12010026

Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility, 8*, 169-178. https://doi.org.10.1108/JGR-11-2016-0029

Verbeeten, F. H., Gamerschlag, R., & Möller, K. (2016). Are CSR disclosures relevant for investors? Empirical evidence from Germany. *Management Decision, 54*(6), 1359-1382. https://doi.org/10.1108/MD-08-2015-0345

Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-financial performance link. *Strategic Management Journal, 18*(4), 303-319. https://doi.org/10.1002/(SICI)1097-0266(199704)

Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability, 10*(8), 2607. https://doi.org/10.3390/su10082607

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ISSN-0973-3167

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